Outlook for Electricity Supply–Demand and Cross-regional Interconnection Lines:

Actual Data for Fiscal Year 2020

October 2021

OCCTO
電力広域的運営推進機関
Organization for Cross-regional Coordination of Transmission Operators,JAPAN

FOREWORD

The Organization for Cross-regional Coordination of Transmission Operators, Japan (hereinafter, the Organization), prepares and publishes its Annual Report according to the provisions of Article 181 of the Operational Rules regarding the matters specified below.

i. Actual electric supply and demand (including evaluation and analysis of quality of electricity in light of frequency, voltage, and blackouts of each regional service area)
ii. State of electric network
iii. Actual Network Access Business until the previous year.
iv. Forecast on electric demand and electric network (including forecast of improvement of restriction on network interconnection of generation facilities) for the next fiscal year and a mid- and long-term period based on a result of compiling of electricity supply plans and their issues.
v. Evaluation and verification of proper standards of reserve margin and balancing capacities of each regional service area based on the next article, as well as contents of review as needed

The Organization published the actual data for electricity supply–demand and network system utilization ahead of the Annual Report because of the completion of actual data collection up to fiscal year 2020 (FY 2020).

SUMMARY

This report is presented to review the outlook for electricity supply–demand and cross-regional interconnection lines in FY 2020, based on the provisions of Article 181 of the Operational Rules of the Organization.

The report comprises two parts: the electricity supply and demand situation, and the interconnection line situation.

Regarding supply and demand, the peak demand nationwide (16,465 x10^4 kW), was recorded in Augustust, and the monthly peak electric energy requirement nationwide, (86,470 GWh) was recorded in January.

The reserve margin against summer and winter peak demands was 11.8% and 9.0%, respectively.

Power exchange instructions were issued by the Organization 226 times, with 218 of them being dispatched for improvements in supply-demand tightness caused by the prolonged cold weather in winter 2020/2021.
In addition, long-cycle frequency control was implemented 58 times during the year.

There were 77 days for which instructions to shed power generation of renewables were issued during FY 2020, which occurred on isolated islands in addition to the Kyushu mainland.

The total volume of utilization of the interconnection lines was 100,007 GWh, which was a significant increase from the 87,471 GWh in FY 2019.

There were 385 interconnection line maintenance events, requiring 534 days-worth of work in FY 2020.

We hope that the information of this report proves useful.

CONTENTS

Note:
Data for Chapter I include figures at the sending end, i.e., the electricity supplied to the public network system from power plants with energy deducted for station services.

Errata

20220831	P6 Table 1-4 Actual Annual Peak Demand	FY 2019/ 16.416→16,461

CHAPTER I: ACTUAL ELECTRICITY SUPPLY AND DEMAND

1. Regional Service Areas for 10 General Transmission and Distribution Companies, and the Definition of a Season

(1) Regional Service Areas for 10 General Transmission and Distribution Companies

A regional service area describes the specific area to which a general transmission and distribution (GT&D) company supplies electricity through cross-regional interconnection lines. Japan is divided into 10 regional service areas as shown in Figure 1-1. Regional service areas served by GT&D companies other than the Okinawa Electric Power Company (EPCO), are connected by cross-regional interconnection lines.

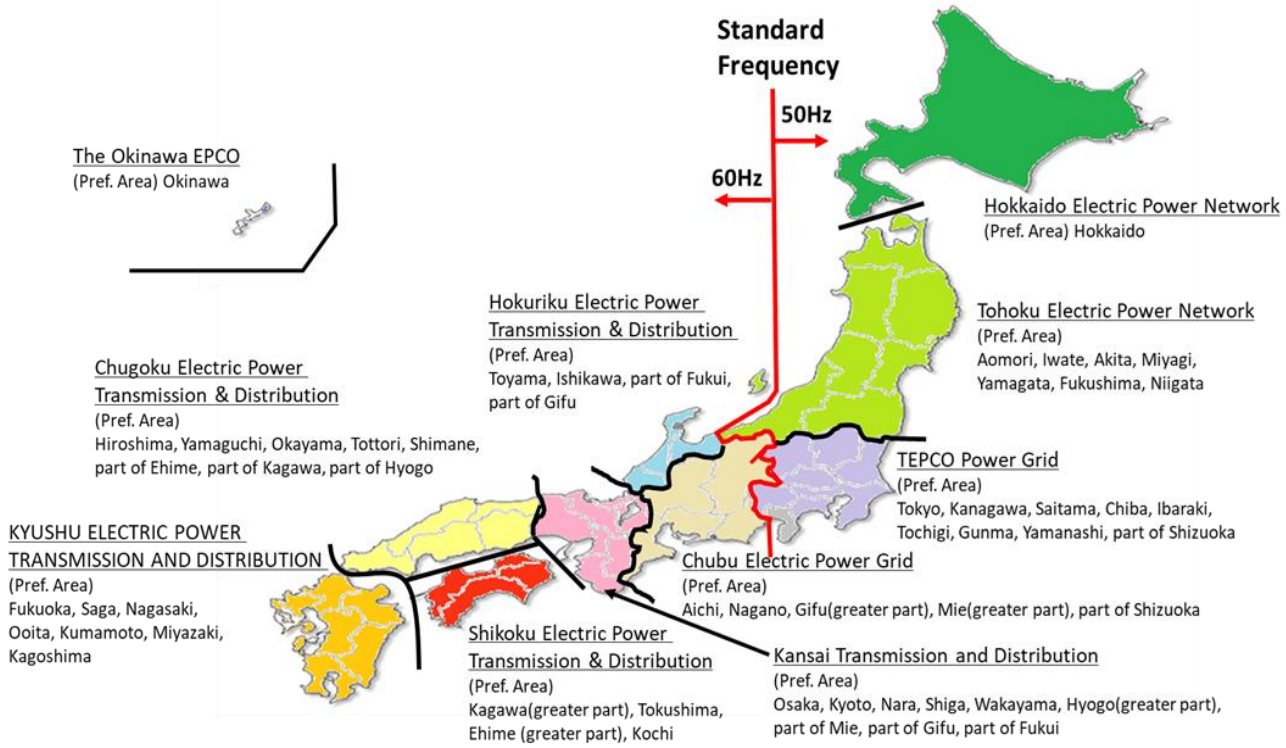

Figure 1-1: The 10 Regional Service Areas in Japan and their Prefectural Distribution

(2) Definition of Seasons

This report identifies two seasonal periods, namely the summer period (July–September) and the winter period (December–February).

This report also refers to the actual weather outlook for the previous year from the Seasonal Climate Report over Japan prepared by the Japan Meteorological Agency (JMA). The JMA defines the summer and winter periods as June– August and December–February, respectively.

Note that this definition of the summer period differs slightly from the one used in this report.

2. Outlook for Actual Weather Nationwide

(1) Weather During the Summer Period (June to August 2020)

Table 1-1 shows anomalies in the temperature and precipitation ratios from June to August in FY 2020.

(a) Heavy rainfall, which was later named the "Heavy Rain Event of July 2020," brought significant precipitation, mainly to the eastern and western regions caused by a prolonged and active Baiu front in July. The Okinawa/Amami region also had significant rainfall, caused by a stagnant Baiu front and a moist southerly air inflow.

(b) The mean temperature during the summer period was high nationwide, with warm air covering much of Japan. In particullar, the eastern and Okinawa/Amami regions were significantly affected. The eastern region experienced a severe heatwave caused by a covering of warm air from the Pacific high-pressure system in Augustust, while the Okinawa/Amami region was covered by warm air during the whole period.

(c) There were relatively few hours of sunshine during the summer period in the Okinawa/Amami region because of the wet air blowing in from the Baiu front and from typhoons.

Table 1-1: Anomalies in Temperature, Precipitation, and Sunshine Duration by Weather Region from June to August 2020

Weather Region	Mean Temperature Anomaly[°C]	Precipitation Ratio[%]	Sunshine Duration Ratio[%]
Northern	+1.2	110	99
Eastern	+1.1	137	98
Western	+0.6	146	98
Okinawa/Amami	+0.8	162	97

Source: Japan Meteorological Agency (JMA), Tokyo Climate Center.
Seasonal Climate Report over Japan for Summer (FY 2020).
http://ds.data.jma.go.jp/tcc/tcc/products/japan/climate/index.php?kikan=3mon&month=8&year=2020
http://www.data.jma.go.jp/gmd/cpd/cgi-bin/view/kikohyo/en.php?kikan=3mon&month=8&year=2020

(2) Weather During the Winter Period (December 2020 to February 2021)

Table 1-2 shows the anomalies in temperature and the ratios of rainfall and snowfall from December to February in FY 2020.

(a) Seasonal mean temperatures were very high in the eastern region, and rather high in the western and Okinawa/Amami regions. There were several days with wintry air in the first half of the period, and then some warm days caused by warm air flowing toward a low-pressure system moving through the northern region. The variation between the temperature in the first period and those in later period was large.

(b) Snowfall during the witner period was heavy because of the significantly cold air early on. In particular, the snowfall on the Japan Sea coast in the western region was significantly heavy. Later on, the precipitation on the Japan Sea coast in the eastern region was very high and that of the Japan Sea coast in the northern region was high because of the frequent occurrence of low-pressure systems around the northern part of Japan.

(c) There were significantly many hours of sunshine on the Pacific Sea and Japan Sea coasts in the western region caused by the weaker southward movement of cold air in a shorter winter pressre pattern during the latter half of the period. Sunshine duration ratio for the western region were at a record high for the Japan Sea and Pacific Sea coasts, (126% and 118%, respectively). They were the highest recorded since statistics started to be collected.

Table 1-2: Anomalies in Temperature, Precipitation, Sunshine Duration and Snowfall by Weather Region from December 2020 to February 2021

Weather Region	Mean Temperature Anomaly[°C]	Precipitation Ratio[%]	Sunshine Duration Ratio[%]	Snowfall Ratio[%]
Northern	-0.1	102	96	82
Eastern	+1.0	87	108	42
Western	+0.8	88	121	107
Okinawa/Amami	+0.4	133	106	-

Source：Japan Meteorological Agency, Tokyo Climate Center.
Seasonal Climate Report over Japan for Winter (FY 2020).
http://ds.data.jma.go.jp/tcc/tcc/products/japan/climate/index.php?kikan=3mon&month=2&year=2021
http://www.data.jma.go.jp/gmd/cpd/cgi-bin/view/kikohyo/en.php?kikan=3mon&month=2&year=2021

3. Actual Nationwide Peak Demand

Peak demand referes to the highest consumption of electricity during a given period, such as day, month, or year. Table 1-3 shows the monthly peak demand for regional service areas in FY 2020. Figures 1-2 and 1-3 show the nationwide monthly and annual peak demand by regional service areas, respectively. In this report, "peak demand" refers to the maximum hourly value of the electric energy requirement.

The values in red are the maximum monthly peak demand (i.e., the annual peak demand) and the values in blue are the minimum monthly peak demand for each regional service area.[1] The names of the regional service areas are indicated in the names of the GT&D companies.

The maximum monthly peak demand nationwide for FY 2020 was registered as 16,645 x10^4 kW in August, which was the highest for five years (Table 1-4 gives the sending-end data since FY 2016).

Table 1-3: Monthly Peak Demand for Regional Service Areas[2]

[10^4kW]

	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
Hokkaido	404	356	362	390	431	420	384	445	490	541	510	504
Tohoku	1,054	944	1,104	1,089	1,412	1,384	988	1,115	1,409	1,480	1,430	1,198
Tokyo	4,055	3,335	4,345	4,497	5,604	5,570	3,661	3,943	4,722	5,094	4,862	4,337
Chubu	1,775	1,666	1,958	2,272	2,624	2,439	1,821	1,831	2,330	2,409	2,349	2,054
Hokuriku	397	338	401	442	513	513	350	394	499	534	523	426
Kansai	1,899	1,731	2,238	2,553	2,910	2,771	1,837	1,886	2,353	2,595	2,399	2,103
Chugoku	842	691	815	965	1,102	1,094	734	814	996	1,124	1,041	851
Shikoku	383	327	402	488	533	524	341	363	452	507	473	384
Kyushu	1,098	1,002	1,283	1,498	1,637	1,534	1,078	1,204	1,443	1,606	1,526	1,143
Okinawa	90	117	151	156	158	151	131	125	97	119	103	98
Nationwide	11,833	10,281	12,431	14,009	16,645	15,141	11,075	11,953	14,489	15,607	14,605	12,626

[1] A maximum and minimum value may appear to be the same, which is caused by rounding at the first decimal place. This applies throughout.

[2] "Nationwide peak demand" means the maximum of the aggregated demand in a given period for regional service areas of the 10 GT&D companies, not the addition of each regional peak demand.

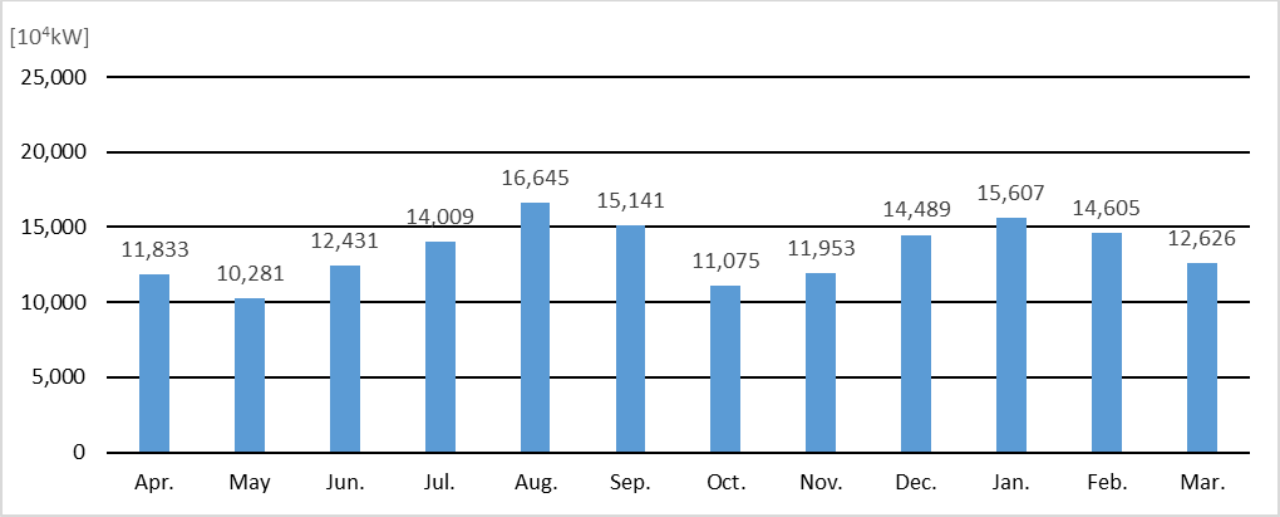

Figure 1-2: Nationwide Monthly Peak Demand

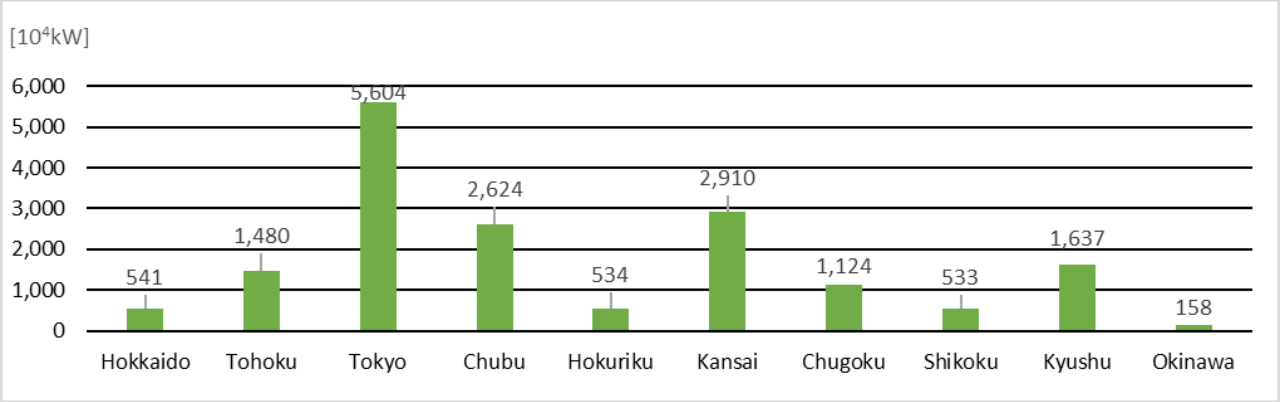

Figure 1-3: Annual Peak Demand for Regional Service Areas

Table 1-4: Actual Annual Peak Demand (from FY 2016 to FY 2020)

[10^4 kW]

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Nationwide	15,589	15,577	16,482	16,461	16,645

4. Actual Nationwide Electric Energy Requirements

Table 1-5 shows the monthly electric energy requirements for regional service areas in FY 2020. Figures 1-4 and 1-5 show the nationwide monthly and annual electric energy requirements for regional service areas, respectively.

The values in red are the maximum monthly energy requirement and the values in blue are the minimum monthly energy requirement for each regional service area.

Actual annual nationwide electric energy requirements for FY 2020 was 867,842 GWh, which was the lowest for five years (Table 1-6 gives the sending-end data since FY 2016).

Table 1-5: Monthly and Annual Electric Energy Requirements for Regional Service Areas[3]

[GWh]

	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Annual
Hokkaido	2,338	2,116	2,096	2,250	2,338	2,203	2,303	2,548	3,122	3,353	2,894	2,819	30,380
Tohoku	6,307	5,631	5,797	6,146	6,926	6,248	6,121	6,459	8,047	8,695	7,542	7,210	81,129
Tokyo	20,539	18,997	21,406	23,370	28,253	23,655	21,223	21,334	26,268	27,772	23,511	23,153	279,481
Chubu	9,729	8,677	9,874	11,011	12,460	11,166	10,244	10,215	11,970	12,606	11,179	11,172	130,303
Hokuriku	2,263	1,919	2,079	2,245	2,526	2,276	2,156	2,255	2,758	3,002	2,597	2,531	28,606
Kansai	10,432	9,622	10,932	12,092	14,350	11,847	10,611	10,637	12,821	13,590	11,651	11,702	140,287
Chugoku	4,475	4,010	4,455	4,908	5,542	4,918	4,497	4,626	5,647	5,969	5,020	5,029	59,096
Shikoku	2,030	1,903	2,104	2,311	2,697	2,173	2,002	2,024	2,476	2,650	2,234	2,226	26,828
Kyushu	6,192	5,879	6,692	7,328	8,554	6,764	6,296	6,343	7,921	8,231	6,786	6,727	83,714
Okinawa	524	624	787	885	883	764	683	604	597	601	501	565	8,020
Nationwide	64,827	59,379	66,223	72,545	84,529	72,013	66,137	67,045	81,627	86,470	73,915	73,134	867,842

[3] Here and elsewhere, the annual total may not equal the sum of 12 months due to independent rounding.

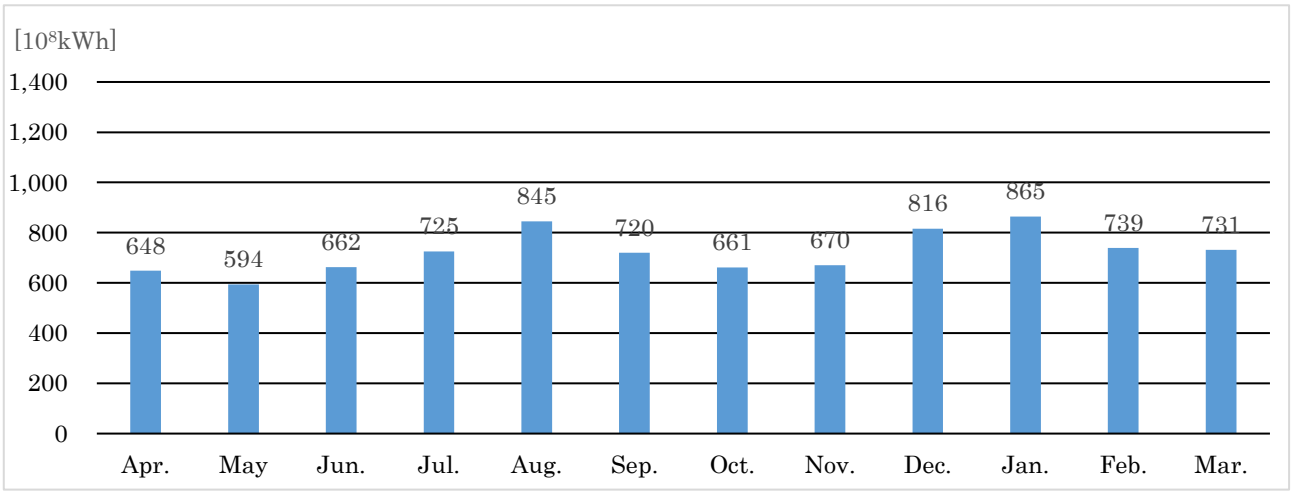

Figure 1-4: Nationwide Monthly Electric Energy Requirements

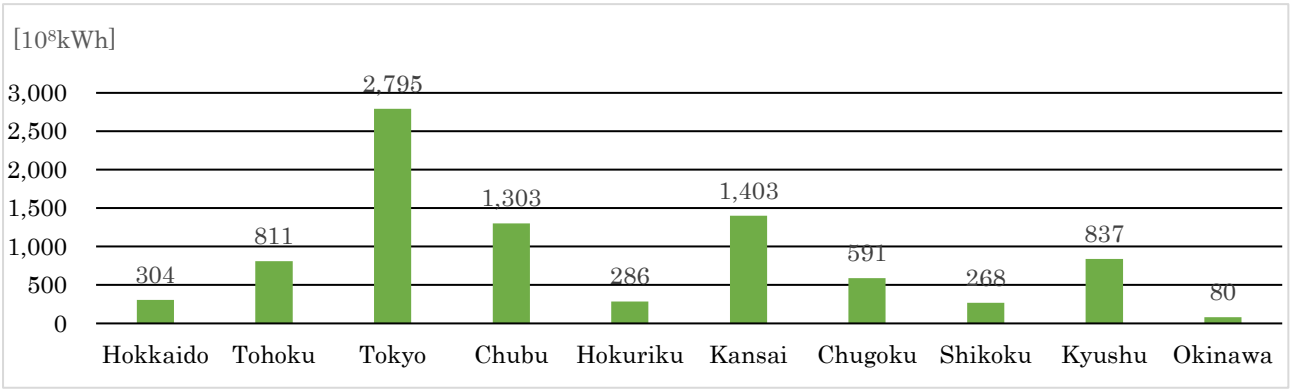

Figure 1-5: Annual Electric Energy Requirements for Regional Service Areas

Table 1-6: Actual Annual Electric Energy Requirement (from FY 2016 to FY 2020)

[GWh]

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Nationwide	890,451	900,902	896,473	878,383	867,842

5. Nationwide Load Factor

The load factor describes the ratio of average demand to peak demand within a given period. Table 1-7 shows the monthly load factor for regional service areas in FY 2020, with Figures 1-6 and 1-7 showing the nationwide monthly and annual load factors for regional service areas, respectively. The values in red and blue are the highest and the the lowest load factors, respectively, for each regional service area.

The nationwide annual load factor for FY 2020 was 59.5%, which was the minimum figure for five years (Table 1-8 gives the sending-end data since FY 2016).

Table 1-7: Monthly and Annual Load Factors for Regional Service Areas[4]

[%]

	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Annual
Hokkaido	80.4	79.8	80.5	77.6	72.9	72.9	80.6	79.5	85.6	83.3	84.5	75.2	64.1
Tohoku	83.1	80.2	72.9	75.8	65.9	62.7	83.3	80.5	76.8	79.0	78.5	80.9	62.6
Tokyo	70.3	76.6	68.4	69.9	67.8	59.0	77.9	75.1	74.8	73.3	72.0	71.8	56.9
Chubu	76.1	70.0	70.1	65.1	63.8	63.6	75.6	77.5	69.0	70.3	70.8	73.1	56.7
Hokuriku	79.2	76.3	72.0	68.2	66.2	61.7	82.8	79.5	74.3	75.6	73.9	79.9	61.2
Kansai	76.3	74.7	67.9	63.7	66.3	59.4	77.7	78.3	73.2	70.4	72.3	74.8	55.0
Chugoku	73.8	78.0	75.9	68.3	67.6	62.5	82.4	78.9	76.2	71.4	71.8	79.5	60.0
Shikoku	73.5	78.3	72.8	63.7	68.1	57.6	78.9	77.3	73.6	70.3	70.2	78.0	57.5
Kyushu	78.3	78.9	72.5	65.8	70.2	61.3	78.5	73.2	73.8	68.9	66.2	79.1	58.4
Okinawa	80.6	71.4	72.3	76.0	75.1	70.3	70.0	67.1	82.5	68.0	72.8	77.4	58.0
Nationwide	76.1	77.6	74.0	69.6	68.3	66.1	80.3	77.9	75.7	74.5	75.3	77.9	59.5

[4] "Nationwide load factor" refers to the load factor calculated for all of Japan. It is not simply the average of each regional load factor.

$$\text{Monthly Load Factor (\%)} = \frac{\text{Monthly Energy Requirement}}{\text{Monthly Peak Demand} \cdot \text{Calendar Hours (24H} \cdot \text{Monthly Days)}}$$

$$\text{Annual Load Factor (\%)} = \frac{\text{Annual Energy Requirement}}{\text{Annual Peak Demand} \cdot \text{Calendar Hours (24H} \cdot \text{Annual Days)}}$$

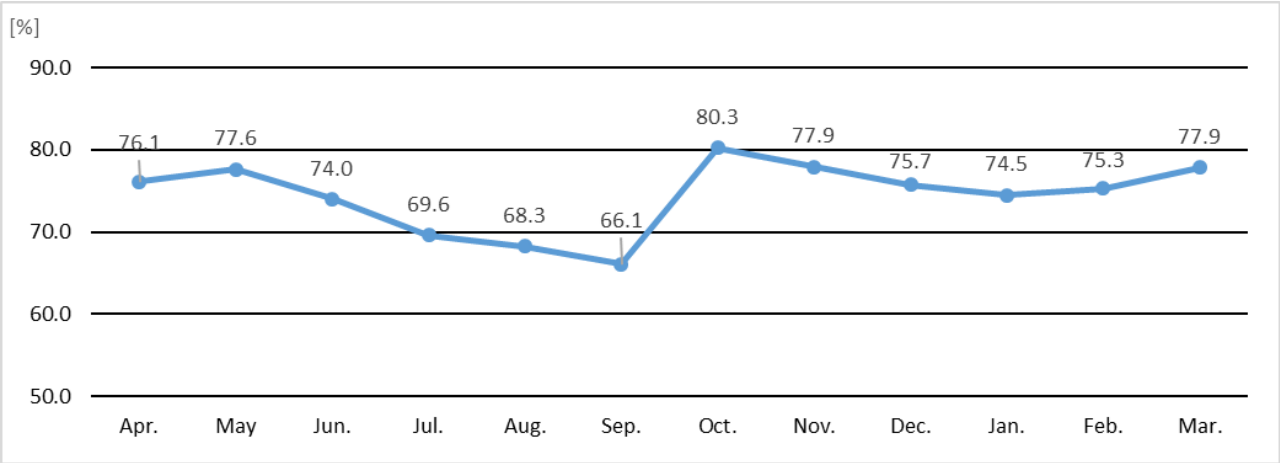

Figure 1-6: Nationwide Monthly Load Factor

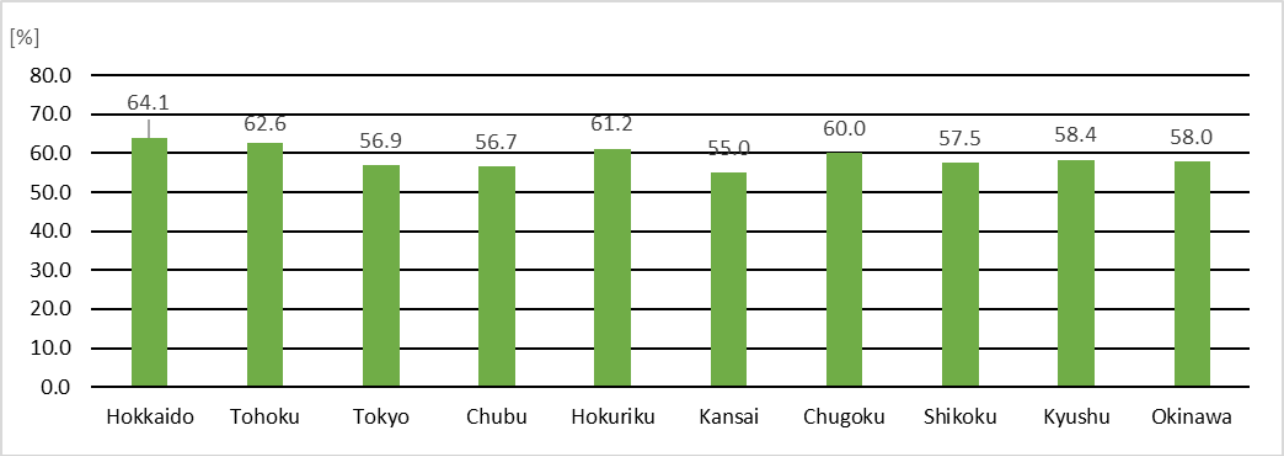

Figure 1-7: Annual Load Factor for Regional Service Areas

Table 1-8: Actual Annual Load Factor (from FY 2016 to FY 2020)

[%]

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Nationwide	65.8	66.0	62.1	60.7	59.5

6. Nationwide Supply–Demand Status During Peak Demand

(1) Nationwide Supply–Demand Status During the Summer Peak Demand Period (July to September)

Table 1-9 shows the supply–demand status during the summer peak demand period for regional service areas in FY 2020.

The actual nationwide summer peak demand for FY 2020 was 16, 645 x10^4 kW, which was registered at 15:00 on August 20, with a reserve margin at the time of 11.8%. This was the highest figure for the past five years, (Table 1-10 gives the sending-end data since FY 2016).

Table 1-9: Supply–Demand Status during the Summer Peak Demand Period for Nationwide and Regional Service Areas[5]

Area	Peak Demand [10^4kW]	Occurrence Date & Time			Daily Maximum Temperature [℃]	Supply Capacity [10^4kW]	Reserve Capacity [10^4kW]	Reserve Margin [%]	Daily Energy Supply [10^4kWh]	Daily Load Facter [%]
Hokkaido	431	8/28	Fr	16:00～17:00	33.1	477	46	10.7	8,543	82.6
Tohoku	1,412	8/28	Fr	14:00～15:00	33.8	1,527	115	8.2	26,660	78.7
Tokyo	5,604	8/21	Fr	14:00～15:00	36.0	6,198	594	10.6	103,413	76.9
Chubu	2,624	8/20	Thur.	14:00～15:00	37.6	2,845	220	8.4	48,099	76.4
Hokuriku	513	8/20	Thur.	13:00～14:00	36.8	549	36	7.1	9,550	77.6
Kansai	2,910	8/21	Fr	14:00～15:00	38.6	3,104	193	6.6	53,236	76.2
Chugoku	1,102	8/21	Fr	14:00～15:00	37.1	1,215	114	10.3	20,409	77.2
Shikoku	533	8/20	Thur.	14:00～15:00	35.8	613	80	15.0	9,832	76.9
Kyushu	1,637	8/21	Fr	13:00～14:00	34.3	1,855	218	13.3	30,670	78.0
Okinawa	158	8/18	Tue.	14:00～15:00	33.9	202	44	27.9	3,106	82.0
Nationwide	16,645	8/20	Thur.	14:00～15:00	-	18,608	1,964	11.8	310,303	77.7

Table 1-10: Actual Supply–Demand Status for Summer Peak Demand (from FY 2016 to FY 2020)

FY	Peak Demand [10^4kW]	Occurrence Date & Time			Daily Maximum Temperature [℃]	Supply Capacity [10^4kW]	Reserve Capacity [10^4kW]	Reserve Margin [%]	Daily Energy Supply [10^4kWh]	Daily Load Facter [%]
2016	15,589	8/9	Tue.	14:00～15:00	-	17,764	2,176	14.0	297,969	79.6
2017	15,550	8/24	Thur.	14:00～15:00	-	17,716	2,165	13.9	300,493	80.5
2018	16,482	8/3	Fri.	14:00～15:00	-	18,749	2,267	13.8	315,434	79.7
2019	16,461	8/2	Fri.	14:00～15:00	-	18,584	2,122	12.9	314,988	79.7
2020	16,645	8/20	Thur.	14:00～15:00	-	18,608	1,964	11.8	310,303	77.7

[5] The daily maximum temperatures are provided by the JMA based on the data for the cities where the headquarters of the GT&D companies (except for the Okinawa EPCO) are located. (For the regional service area of the Okinawa EPCO, the data from Naha, the prefectural capital of Okinawa, were used instead).

$$\text{Daily Load Factor (\%)} = \frac{\text{Daily Energy Requirement}}{\text{Daily Peak Demand} \times 24\text{H}}$$

"Supply capacity" in the table above refers to the maximum power that can be generated during peak demand. This capacity is the addition of installed generating capacity including the deducted portion, such as generator suspension for maintenance work, derating with a decrease in river flow, and unplanned generator outages.

(2) Nationwide Supply–Demand Status During the Winter Peak Demand Period (December to February)

Table 1-11 shows the supply–demand status during the winter peak demand period for regional service areas in FY 2020.

The actual nationwide winter peak demand for FY 2020 was 15, 607 x10^4 kW, which occurred at 10:00 on January 8, with a reserve margin at the time of 9.0%. This was the highest figure for the past five years, (Table 1-12 gives the sending-end data since FY 2016).

The reserve margin in five areas was below 3%, (the minimum acceptable margin criteria. The margins were 2.2% (at 11:00 on January 8) for Hokuriku, 1.5% (at 11:00 on January 12) for Kansai, 1.3% (at 10;00 on January 8) for Chugoku, 2.3% (at 19:00 on January 8), and 2.4% (at 19:00 on January 7).

Table 1-11: Supply–Demand Status During the Winter Peak Demand Period for Regional Service Areas[5]

Area	Peak Demand [10^4kW]	Occurrence Date & Time			Daily Mean Temperature [℃]	Supply Capacity [10^4kW]	Reserve Capacity [10^4kW]	Reserve Margin [%]	Daily Energy Supply [10^4kWh]	Daily Load Facter [%]
Hokkaido	541	1/19	Tue.	11:00～12:00	-7.2	615	74	13.6	11,865	91.3
Tohoku	1,480	1/8	Fri.	09:00～10:00	-2.8	1,534	54	3.7	32,248	90.8
Tokyo	5,094	1/12	Tue.	16:00～17:00	3.4	5,405	311	6.1	103,519	84.7
Chubu	2,409	1/8	Fri.	09:00～10:00	0.0	2,558	148	6.2	49,287	85.2
Hokuriku	534	1/8	Fri.	10:00～11:00	-1.5	546	12	2.2	11,604	90.6
Kansai	2,595	1/12	Tue.	10:00～11:00	3.2	2,635	40	1.5	51,234	82.3
Chugoku	1,124	1/8	Fri.	09:00～10:00	-1.6	1,138	14	1.3	23,932	88.7
Shikoku	507	1/8	Fri.	18:00～19:00	-0.5	519	12	2.3	10,717	88.1
Kyushu	1,606	1/7	Thur.	18:00～19:00	1.3	1,645	39	2.4	32,493	84.3
Okinawa	119	1/9	Sat.	18:00～19:00	11.6	156	37	31.3	2,394	83.9
Nationwide	15,607	1/8	Fri.	09:00～10:00	-	17,012	1,406	9.0	329,833	88.1

Table 1-12: Actual Supply–Demand Status for Winter Peak Demand (from FY 2016 to FY 2020)

FY	Peak Demand [10^4kW]	Occurrence Date & Time			Daily Mean Temperature [℃]	Supply Capacity [10^4kW]	Reserve Capacity [10^4kW]	Reserve Margin [%]	Daily Energy Supply [10^4kWh]	Daily Load Facter [%]
2016	14,914	1/24	Tue.	18:00～19:00	-	16,354	1,440	9.7	314,968	88.0
2017	15,577	1/25	Thur.	18:00～19:00	-	16,915	1,339	8.6	330,605	88.4
2018	14,603	1/10	Thur.	09:00～10:00	-	16,104	1,501	10.3	308,436	88.0
2019	14,619	2/7	Fri.	09:00～10:00	-	16,808	2,189	15.0	303,347	86.5
2020	15,607	1/8	Fri.	09:00～10:00	-	17,012	1,406	9.0	329,833	88.1

7. Nationwide Lowest Demand Period

Table 1-13 shows the status of the lowest demand period for nationwide and regional service areas (FY 2020).

Table 1-13: Lowest Demand Period for Nationwide and Regional Service Areas[6]

	Bottom Demand [10^4kW]	Occurrence Date & Time			Daily Mean Temperature [℃]	Daily Energy Supply [10^4kWh]
Hokkaido	227	8/31	Mon.	01:00～02:00	17.4	6,992
Tohoku	596	5/5	Tue.	00:00～01:00	17.6	15,925
Tokyo	1,877	5/3	Sun.	06:00～07:00	20.7	52,843
Chubu	826	5/6	Wed.	06:00～07:00	17.8	22,762
Hokuriku	182	5/4	Mon.	07:00～08:00	22.1	4,841
Kansai	941	5/3	Sun.	06:00～07:00	19.5	26,114
Chugoku	408	5/4	Mon.	00:00～01:00	20.2	10,819
Shikoku	191	9/28	Mon.	01:00～02:00	21.7	6,445
Kyushu	623	5/4	Mon.	00:00～01:00	20.3	16,898
Okinawa	56	4/26	Sun.	06:00～07:00	18.3	1,611
Nationwide	6,065	5/3	Sun.	06:00～07:00	-	162,845

[6] The daily mean temperatures are provided by the JMA based on the data for the cities where the headquarters of the GT&D companies (except for the Okinawa EPCO) are located. (For the regional service area of the Okinawa EPCO, the data for Naha, the prefectural capital of Okinawa, were used instead).

8. Nationwide Peak Daily Energy Supply

Tables 1-14 and 1-15 show the summer (July to September 2020) and winter (December 2020 to February 2021) peak daily energy supply for nationwide and regional service areas in FY 2020, respectively.[7]

Table 1-14: Summer Peak Daily Energy Supply for Nationwide and Regional Service Areas

Area	Peak Daily Energy Supply [10^4kWh]	Occurrence Date		Daily Mean Temperature [˚C]
Hokkaido	8,543	8/28	Fri.	27.3
Tohoku	26,660	8/28	Fri.	29.1
Tokyo	103,413	8/21	Fri.	30.1
Chubu	48,099	8/20	Thur.	31.5
Hokuriku	9,650	9/3	Thur.	31.9
Kansai	53,236	8/21	Fri.	31.8
Chugoku	20,546	8/20	Thur.	31.0
Shikoku	9,832	8/20	Thur.	30.7
Kyushu	30,936	8/20	Thur.	30.6
Okinawa	3,132	7/14	Tue.	29.8
Nationwide	310,303	8/20	Thur.	-

Table 1-15: Winter Peak Daily Energy Supply for Nationwide and Regional Service Areas

Area	Peak Daily Energy Supply [10^4kWh]	Occurrence Date		Daily Mean Temperature [˚C]
Hokkaido	11,865	1/19	Tue.	-7.2
Tohoku	32,248	1/8	Fri.	-2.8
Tokyo	103,519	1/12	Tue.	3.4
Chubu	49,287	1/8	Fri.	0.0
Hokuriku	11,604	1/8	Fri.	-1.5
Kansai	53,602	1/8	Fri.	0.2
Chugoku	23,932	1/8	Fri.	-1.6
Shikoku	10,717	1/8	Fri.	-0.5
Kyushu	34,099	1/8	Fri.	-0.5
Okinawa	2,394	1/9	Sat.	11.6
Nationwide	329,833	1/8	Fri.	-

[7] See footnote 6.

9. Instructions, Requests Issued and Controls Implemented by the Organization

Instructions and Requests

According to the provisions of paragraph 1 of Article 28-44 of the Electricity Business Act (hereafter, the Act), the Organization may, when it finds it necessary to improve the electricity supply–demand status, require members such as EPCOs to undertake certain necessary actions, if the status of the electricity supply–demand from an electricity business conducted by a member has worsened or is likely to worsen.

During FY 2020, the Organization issued instructions to GT&D companies on 226 occasions for them to exchange power according to the provisions of items 1 to 3, paragraph 1 of Article 111 of the Operational Rules (See Table 1-16). The instructions included measures for the improvement of supply–demand status during the winter of 2020/21. The number of issuances by the Organization was more than in any year since 2015. Further, the Organization issued instructions and requests on three occasions to retail companies and electric power suppliers for them to procure additional supply capacity according to the provisions of paragraphs 1 and 2 of the Article. This followed the output curtailment of thermal power generation triggered by a shortage of generation fuels during the winter of 2020/21. For the details of the instructions and requests, please see <Reference> Detailes of Actual Power Exchange Instructions, and Instructions and Requests to Generation Companies and Retail Companies Issued by the Organization.[8] The specific instructions are stated below.

(1) Instructions for the improvement of supply–demand status (from April to November 2020, and February 2021)

The Organization has issued instructions to the GT&D companies that supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity in the corresponding area, following the unexpected demand growth caused by higher temperatures, decreasing solar power output, and the shutdown of generators triggered by earthquakes.

- Tohoku EPCO Network
  August 28: 400 MW at most following unexpected demand growth caused by higher temperatures, (one instruction)
- Kyushu EPCO Transmission & Distribution
  September 24：1600 MW at most, following unexpected decrease in solar power output, (three intructions)
- Shikoku EPCO Transmission & Distribution
  November 25： 400 MW at most, following unexpected decrease in solar power output, (one instruction)
- Tohoku EPCO Network
  February 14： 3440 MW, following supply capacity shortage caused by the shutdown of several

[8] http://www.occto.or.jp/oshirase/shiji/index.html (in Japanese only)

generators triggered by an earthquake, (three instructions)

(2) Instructions and Requests for improvement of supply–demand status during winter of 2020/21 (from December 2020 to January 2021)

Following prolonged cold weather, the electricity demand during the winter of 2020/21 was higher than for a normal year. To meet the demand, fossil-fueled thermal generators, mainly liquified natural gas (LNG)-fired, were operated more extensively than in a normal year. Consequently, the risk of a deficiency in LNG fuel has emerged. Output curtailment of thermal generation led to a supply capacity deficiency nationwide. Further, the demand increase caused by the cold weather led to deficiencies in the balancing capacity of GT&D companies in several regional service areas that deals with energy imbalances. As a result, it was necessity to exchange power through cross-regional interconnection lines. More specifically, the Organization issued instructions to the GT&D companies involved in power exchange for them to improve supply-demand status, and the instructions to generation companies and retail companies for them to procure additional supply capacity.

a. Instructions to GT&D companies.

The Organization issued the instructions on 218 occasions in total during the winter of 2020/21(from December 15, 2020 to January 16, 2021) as indicated in Table 1-17. The issuance of the instructions to exchange power was carefully implemented. The considerations included 1) that there were several areas of deficient supply capacity, 2) a period of deficient supply capacity could extend for many hours, and 3) other areas that were regarded as areas having reserve capacity might not have sufficient capacity. In this way, the instructions could be issued to both sending and receiving companies within a short period.

b. Instructions to generation companies and retail companies, and requests to electric power suppliers.

Output curtailment of thermal generation led to a supply capacity deficiency nationwide. The Organization issued instructions to generation companies and retail companies who owned nonbalancing capacity generators for them to increase their generation according to the provisions of item v, paragraph 1 of Article 28-44 of the Act, and item v, paragraph 1 of Article 111 of the Operational Ruls. In addition, the Organization requested electric power suppliers to increase their generation according to the provisions of paragraph 2 of Article 111 of the Operational Rules.

- The period of instruction and request issuance was from January 6 (ASAP) to 24:00 on January 26
  (issued on three occasions for the above period, including two repeat calls)
- Instructions were issued to 85 members on one occasion, 101 members on two occasions, and 103 members on three occasions.
- Requests were issued to 6 companies on one occasion, 69 companies on two occasions, and 71 companies on three occasions.

Table 1-16: Actual Instructions to GT&D Companies Issued by the Organization (FY 2016 to FY 2020)

[occasions]

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Nationwide	2	10	25	6	226

Table 1-17: Actual Instructions to GT&D Companies Issued by the Organization
(from December 12 to January 16 by regional service area)

[occasions]

Tohoku	Tokyo	Chubu	Hokuriku	Kansai	Chugoku	Shikoku	Kyushu	Nationwide
1	9	1	22	94	42	25	24	218

Controls

The Organization implemented long-cycle cross-regional frequency control[9] to send surplus electric energy generated from renewable energy-generating facilities in the Kyushu EPCO area to the Chugoku and Shikoku EPCO areas through cross-regional interconnection lines by utilizing their available transfer capability (ATC) according to the provisions of Article 132 of the Operational Rules. The Organization received the request for control by the Kyushu EPCO for measures against the shortage of ability to reduce power supply.[10] Such controls were implemented on 56 occasions during FY 2020.

[9] This refers to frequency control by utilizing the balancing capacity of members that are GT&D companies of other regional service areas through interconnection lines. This is used when the balancing capacity for redundancy becomes or might become insufficient in a regional service area.

[10] This refers to ability to decrease the power supply from generators such as thermal power generators. The output of renewable energy can fluctuate over a short period. It is then essential to control the output of thermal power generators according to such fluctuations. Among such output controls, the capacity to vary the output of generators is generally called the “balancing capacity for redundancy”.

10. Output Shedding of Renewable energy-generating Facilities Operated by EPCOs other than GT&D Companies

GT&D companies may order renewable energy-generating facilities from other EPCOs to shed their output in cases of expected oversupply of demand for its regional service areas after shedding the output of generators other than the renewable-energy-generating facilities of the GT&D company, according to the provisions of the Ministerial Ordinance of Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electric Utilities.

Tables 1-18 and 1-19 show the actual output shedding of renewable-energy-generating facilities in FY 2020 for the Kyushu mainland and isolated islands, respectively.[11] "Shedding Instructed" in Table 1-18 indicates the total effect of the instructions issued on both the day ahead which is shed by offline control, and on the current day, which is shed by online control. The actual shed capacity is expressed in parentheses for that day. A bar in parentheses indicates that there was no output shedding for that day. Necessary output shedding for the isolated island is indicated in Table 1-19. It is calculated by deducting the demand from the supply capacity, and procured by offline control.

Output shedding of renewable-energy-generating facilities was implemented in cases the balancing capacity for redundancy might become insufficient. The shedding period was from 09:00 to 16:00 in each implementation for the isolated islands, and from 8:00 to 16:00 on the Kyushu mainland, except for a few cases.

Instructions for output shedding were only issued for the regional service area of Kyushu GT&D. In FY 2020, instructions were issued on 77 days, which was a decrease on the previous year's 93 days, in the midst of the increasing capacity of variable renewable energy such as solar power and wind power. On 17 days, there was no actual shedding.

The Organization confirms and verifies whether the output shedding of renewable-energy-generating facilities that Kyushu EPCO implemented to facilities of EPCOs according to the provisions of Article 180 of the Operational Rules. The result of the confirmation and verification was that it was appropriate.

[11] http://www.occto.or.jp/oshirase/shutsuryokuyokusei/index.html (in Japanese only).

Table 1-18: Instructed and Actual Output Shedding of Renewable-energy-generating Facilities for FY 2020 (Kyushu Mainland, 10^4 kW)[12]

Date	Shedding Instructed (Actually shed)	Date	Shedding Instructed (Actually shed)
2020/4/2(Thur.)	133.7(92.0)	2020/6/7(Sun.)	26.1(42.2)
2020/4/3(Fri.)	126.0(38.0)	2020/6/20(Sat.)	41.5(-)
2020/4/4(Sat.)	192.7(196.7)	2020/6/22(Mon.)	28.9(41.4)
2020/4/5(Sun.)	185.8(186.5)	2020/7/19(Sun.)	62.4(-)
2020/4/6(Mon.)	129.2(104.7)	2020/9/27(Sun.)	110.9(23.4)
2020/4/7(Tue.)	138.3(97.9)	2020/10/18(Sun.)	58.3(-)
2020/4/8(Wed.)	119.2(96.5)	2020/10/24(Sat.)	68.2(-)
2020/4/9(Thur.)	96.0(56.2)	2020/10/25(Sun.)	85.7(35.4)
2020/4/10(Fri.)	151.0(54.1)	2020/10/31(Sat.)	55.0(-)
2020/4/11(Sat.)	100.5(106.1)	2021/1/3(Sun.)	36.8(9.5)
2020/4/14(Tue.)	154.6(142.9)	2021/1/31(Sun.)	24.1(-)
2020/4/15(Wed.)	35.9(45.8)	2021/2/7(Sun.)	151.4(88.8)
2020/4/16(Thur.)	195.9(144.7)	2021/2/10(Wed.)	53.6(-)
2020/4/18(Sat.)	227.9(186.8)	2021/2/16(Tue.)	65.2(-)
2020/4/20(Mon.)	148.7(55.9)	2021/2/20(Sat.)	122.0(76.2)
2020/4/22(Wed.)	190.3(186.4)	2021/2/21(Sun.)	195.2(192.7)
2020/4/24(Fri.)	80.3(111.3)	2021/2/23(Tue.)	126.4(88.9)
2020/4/25(Sat.)	245.2(230.1)	2021/2/24(Wed.)	100.8(75.0)
2020/4/26(Sun.)	56.6(-)	2021/3/3(Wed.)	94.3(-)
2020/4/27(Mon.)	152.5(109.9)	2021/3/10(Wed.)	85.5(50.8)
2020/4/28(Tue.)	140.3(93.5)	2021/3/11(Thur.)	25.3(-)
2020/4/29(Wed.)	209.3(179.2)	2021/3/13(Sat.)	97.7(-)
2020/4/30(Thur.)	135.7(137.4)	2021/3/14(Sun.)	189.0(75.2)
2020/5/1(Fri.)	84.2(78.7)	2021/3/15(Mon.)	57.5(21.6)
2020/5/2(Sat.)	156.3(87.5)	2021/3/17(Wed.)	54.4(51.1)
2020/5/4(Mon.)	236.2(65.5)	2021/3/18(Thur.)	120.5(-)
2020/5/5(Tue.)	252.2(148.7)	2021/3/22(Mon.)	166.4(24.5)
2020/5/6(Wed.)	258.1(140.5)	2021/3/23(Tue.)	167.1(197.8)
2020/5/7(Thur.)	170.5(171.1)	2021/3/24(Wed.)	140.1(74.9)
2020/5/8(Fri.)	189.0(136.7)	2021/3/25(Thur.)	216.3(214.6)
2020/5/10(Sun.)	138.7(-)	2021/3/26(Fri.)	272.3(266.0)
2020/5/11(Mon.)	151.7(175.3)	2021/3/27(Sat.)	385.7(297.5)
2020/5/12(Tue.)	213.8(18.3)	2021/3/28(Sun.)	187.9(-)
2020/5/13(Wed.)	183.3(163.1)	2021/3/29(Mon.)	227.4(193.7)
2020/5/14(Thur.)	164.8(116.6)	2021/3/31(Wed.)	212.9(200.1)
2020/5/17(Sun.)	243.1(193.1)		
2020/5/19(Tue.)	184.8(139.5)		
2020/5/20(Wed.)	109.0(67.0)		
2020/5/21(Thur.)	172.0(70.2)		
2020/5/22(Fri.)	123.3(-)		
2020/5/23(Sat.)	111.5(-)		
2020/5/24(Mon.)	203.5(125.3)		

[12] The instructions were issued for the hours between 08:00 and 16:00, other than the 11:00–15:00 period on April 11 and the 12:00–14:30 period on April 15. Date expressed in blue refer to days with no actural shedding.

Table 1-19: Output Shedding Needed for FY 2020 (Isolated islands of Kyushu, kW)

Date	Tanegashima	Iki	Tokunoshima	Tsushima	Date	Tanegashima	Iki	Tokunoshima	Tsushima
2020/4/4(Sat.)	590	1,420			2020/10/1(Thur.)	1,100			
2020/4/5(Sun.)	4,450	730			2020/10/4(Sun.)	500			
2020/4/6(Mon.)		130			2020/10/6(Tue.)	1,340			
2020/4/7(Tue.)		700			2020/10/10(Sat.)	500			
2020/4/8(Wed.)		510	510		2020/10/13(Tue.)		810		
2020/4/9(Thur.)		700			2020/10/14(Wed.)		1,450		
2020/4/10(Fri.)			380		2020/10/15(Thur.)		310		
2020/4/13(Mon.)	4,990				2020/10/20(Tue.)		1,060		
2020/4/14(Tue.)	4,870	1,320			2020/10/23(Fri.)	300	1,460		
2020/4/16(Thur.)	4,560	950	300		2020/10/24(Sat.)		1,470		
2020/4/17(Fri.)			450		2020/10/25(Sun.)	1,520	400		
2020/4/18(Sat.)	3,640	2,810		890	2020/10/26(Mon.)	1,070			
2020/4/20(Mon.)	3,470	1,350			2020/10/27(Tue.)	510			
2020/4/21(Tue.)		2,350			2020/10/31(Sat.)	380	720		
2020/4/22(Wed.)	1,100	2,280			2020/11/3(Tue.)	1,370	370		
2020/4/23(Thur.)	1,550				2020/11/4(Wed.)	580			
2020/4/24(Fri.)	4,550	2,060			2020/11/8(Sun.)		630		
2020/4/25(Sat.)	3,300	2,950	210		2020/11/9(Mon.)	710	450		
2020/4/26(Sun.)	1,160	2,270			2020/11/13(Fri.)		300		
2020/4/27(Mon.)	2,150	820			2020/11/14(Sat.)		1,430		
2020/4/28(Tue.)	4,120	1,320			2020/11/21(Sat.)		360		
2020/4/29(Wed.)	4,980	2,810	1,680		2020/12/23(Wed.)	660			
2020/4/30(Thur.)	3,760	1,270	110		2021/1/3(Sun.)	570			
2020/5/1(Fri.)	1,700	290			2021/1/30(Sat.)	160			
2020/5/2(Sat.)	170				2021/1/31(Sun.)	1,680			
2020/5/4(Mon.)	2,280	130			2021/2/5(Fri.)	340			
2020/5/5(Tue.)	3,520				2021/2/7(Sun.)	2,860	630		
2020/5/6(Wed.)	1,040	2,240			2021/2/8(Mon.)	1,520			
2020/5/7(Thur.)	4,080	2,220			2021/2/9(Tue.)	1,370			
2020/5/8(Fri.)	1,530	540			2021/2/15(Mon.)	1,030			
2020/5/11(Mon.)	2,330	1,710			2021/2/20(Sat.)	3,530	1,730	190	
2020/5/12(Tue.)	520	1,550			2021/2/21(Sun.)	3,320	1,550	560	
2020/5/13(Wed.)	3,900	1,790			2021/2/22(Mon.)	1,020	140		
2020/5/14(Thur.)	3,370				2021/2/23(Tue.)	3,320			
2020/5/19(Tue.)	2,610	2,680			2021/2/24(Wed.)	2,680			
2020/5/20(Wed.)	2,710	1,570			2021/2/28(Sun.)		270		
2020/5/21(Thur.)		1,490			2021/3/5(Fri.)	1,710			
2020/5/22(Fri.)		1,360			2021/3/8(Mon.)		300		
2020/5/23(Sat.)		1,100			2021/3/10(Wed.)	1,730	840		
2020/5/24(Sun.)	1,040	470			2021/3/11(Thur.)	710			
2020/5/25(Mon.)	1,460				2021/3/13(Sat.)	3,800			
2020/5/27(Wed.)		870			2021/3/14(Sun.)	4,240	830		
2020/5/28(Thur.)	3,970	1,740			2021/3/15(Mon.)	3,470		150	
2020/5/29(Fri.)	2,550				2021/3/16(Tue.)	1,640			
2020/6/2(Tue.)	1,180	1,240			2021/3/17(Wed.)		840		
2020/6/7(Sun.)		1,400			2021/3/18(Thur.)		1,660		
2020/6/21(Sun.)		910			2021/3/22(Mon.)	970	210		
2020/6/22(Mon.)		260			2021/3/23(Tue.)	4,140	850		
2020/6/23(Tue.)	200				2021/3/25(Thur.)		850		
2020/9/20(Sun.)		1,100			2021/3/26(Fri.)	4,260	1,000	780	
2020/9/21(Mon.)	1,550	650			2021/3/27(Sat.)	3,220			
2020/9/22(Tue.)		1,210			2021/3/28(Sun.)		1,180		
2020/9/27(Sun.)	990	660			2021/3/29(Mon.)	4,700	1,480		
					2021/3/31(Wed.)		2,370		
Period of Instruction	09:00-16:00				Period of Instruction	09:00-16:00			

CHAPTER II: ACTUAL UTILIZATION OF CROSS-REGIONAL INTERCONNECTION LINES

1. Cross-regional Interconnection Lines and their Management

(1) Cross-regional Interconnection Lines

Cross-regional interconnection lines comprise transmission lines at 250 kV or more and AC/DC convertors that regularly connect the regional service areas of members that are GT&D companies. Electric power supplies outside each service area are made available through the interconnection lines. The Organization directs members to supply electricity through the cross-regional interconnection lines and secure the supply–demand balance in cases of insufficient supply capacity in each regional service area. Figure 2-1 and Table 2-1 show the cross-regional interconnection lines in Japan.

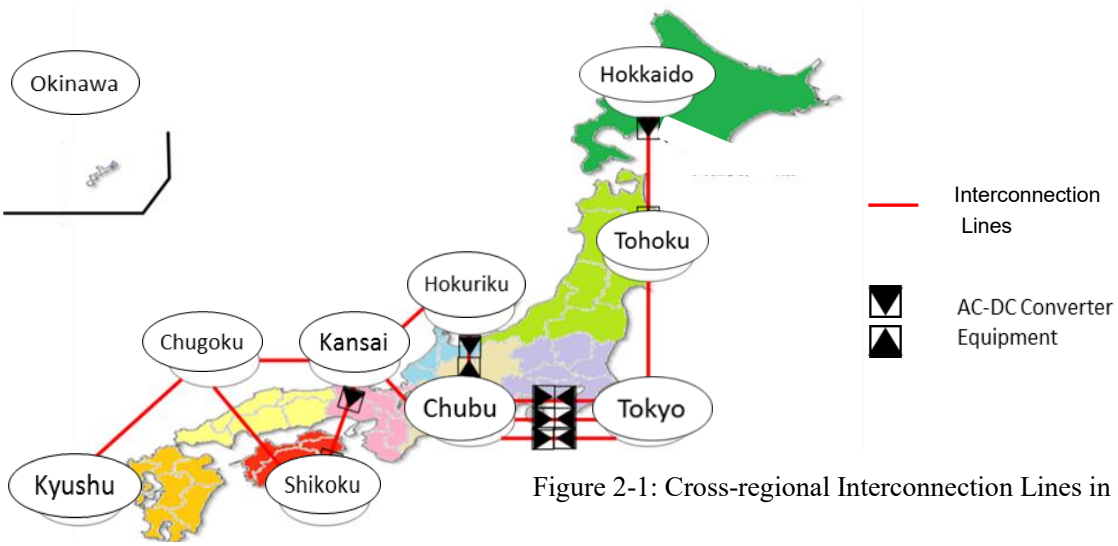

Figure 2-1: Cross-regional Interconnection Lines in Japan

Table 2-1: Summary of Cross-regional Interconnection Lines (at the end of FY 2020)

Interconnection Lines	Areas･Directions				Corresponding Facilities	AC/DC
Interconnection facilities between Hokkaido and Honshu	Forward	Hokkaido	→	Tohoku	Hokkaido-Honshu HVDC Link, New Hokkaido-Honshu HVDC Link	DC
	Counter	Tohoku	→	Hokkaido		
Interconnection line between Tohoku and Tokyo	Forward	Tohoku	→	Tokyo	Soma–Futaba bulk line, Iwaki bulk line	AC
	Counter	Tokyo	→	Tohoku		
Interconnection facilities between Tokyo and Chubu	Forward	Tokyo	→	Chubu	Sakuma FC Shin Shinano FC Higashi Shimizu FC Hida–Shinano FC	DC
	Counter	Chubu	→	Tokyo		
Interconnection line between Chubu and Kansai	Forward	Chubu	→	Kansai	Mie–Higashi Omi line	AC
	Counter	Kansai	→	Chubu		
Interconnection facilities between Chubu and Hokuriku	Forward	Chubu	→	Hokuriku	Interconnection facilities of Minami Fukumitsu HVDC BTB Converter Station and Minami Fukumitsu Substation	DC
	Counter	Hokuriku	→	Chubu		
Interconnection line between Hokuriku and Kansai	Forward	Hokuriku	→	Kansai	Echizen–Reinan line	AC
	Counter	Kansai	→	Hokuriku		
Interconnection lines between Kansai and Chugoku	Forward	Kansai	→	Chugoku	Seiban–Higashi Okayama line, Yamazaki–Chizu line	AC
	Counter	Chugoku	→	Kansai		
Interconnection facilities between Kansai and Shikoku	Forward	Kansai	→	Shikoku	Interconnection facilities between Kihoku and Anan AC/DC Converter Station	DC
	Counter	Shikoku	→	Kansai		
Interconnection line between Chugoku and Shikoku	Forward	Chugoku	→	Shikoku	Honshi interconnection line	AC
	Counter	Shikoku	→	Chugoku		
Interconnection line between Chugoku and Kyushu	Forward	Chugoku	→	Kyushu	Kanmon interconnection line	AC
	Counter	Kyushu	→	Chugoku		

(2) Management of Cross-regional Interconnection Lines

The Organization manages the interconnection lines according to its Operational Rules. The Organization has currently revised cross-regional interconnection utilization rules from those based on a first-come, first-served principle to being based on an "implicit auction scheme"[13] with respect to the effective utilization of interconnection lines, security of fairness and transparency among interconnection line users, and environmental development of the energy trading market. An implicit auction scheme allocates all capabilities of the interconnection lines through the energy trading market, rather than directly allocate the position or right of utilization through auctions. The rule revision is described in Figure 2-2.

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Termination of capability allocation plans and changes of timing at capability registration

Figure 2-2 describes the before-and-after introduction of the implicit auction scheme. Before introduction, the capability allocation was implemented on an accumulated first-come, first-served basis, and the resulting ATC at 10:00 on the day before was used for day-ahead spot trading in the energy market. After the introduction, virtually all the ATC was traded in the day-ahead spot market. With this arrangement, there are no capability allocation plans, with the capability being registered after the day-ahead spot market, according to the revision of cross-regional interconnection lines from a first-come, first-served basis to the implicit auction scheme.

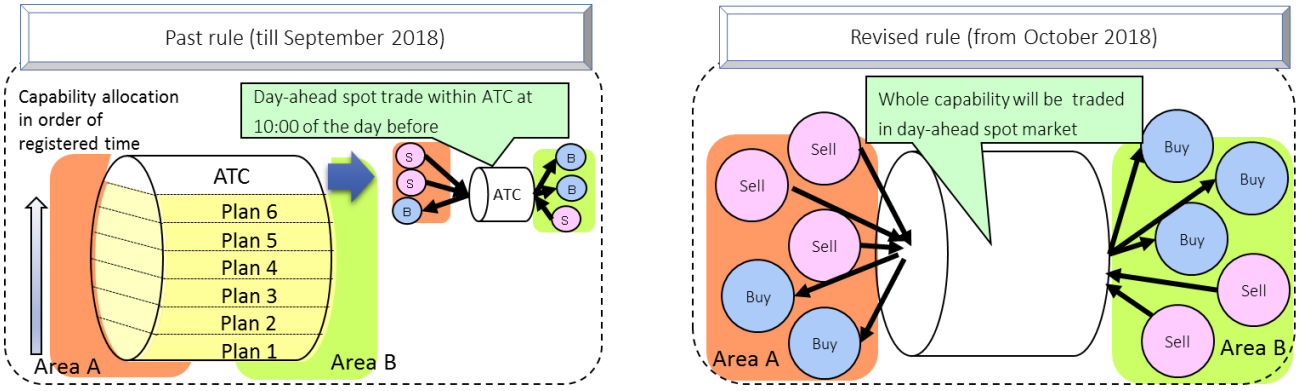

Figure 2-2: Management of Interconnection Lines

[13] http://www.occto.or.jp/occtosystem/kansetsu_auction/kansetsu_auction_gaiyou.html (in Japanese only).

2. Actual Utilization of Cross-regional Interconnection Lines

The following section records the actual utilization of cross-regional interconnection lines that were managed according to the provisions of Article 124 of the Operational Rules.

(1) Actual Utilization of Cross-regional Interconnection Lines in FY 2020

Table 2-2 and Figure 2-3 show the monthly and annual utilization of cross-regional interconnection lines for regional service areas in FY 2020.

Table 2-2: Monthly and Annual Utilization of Cross-regional Interconnection Lines for Regional Service Areas

[GWh]

		Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Annual
Hokkaido - Honshu	→Tohoku (Forward)	121	207	136	65	39	28	32	48	71	157	27	18	947
	→Hokkaido (Counter)	28	7	7	111	96	74	124	143	144	61	142	217	1,154
Tohoku-Tokyo	→Tokyo (Forward)	2,580	2,761	2,992	3,357	3,881	2,473	2,525	2,202	2,395	3,217	1,653	1,361	31,396
	→Tohoku (Counter)	20	14	30	32	34	48	25	34	76	45	106	77	541
Tokyo-Chubu	→Chubu (Forward)	5	14	60	78	129	272	203	164	225	237	64	47	1,497
	→Tokyo (Counter)	334	398	305	423	336	148	87	62	97	271	240	314	3,016
Chubu-Kansai	→Kansai (Forward)	55	72	293	135	414	238	362	373	993	949	354	176	4,413
	→Chubu (Counter)	796	1,972	1,197	2,273	1,359	1,688	1,202	586	246	432	641	892	13,285
Chubu-Hokuriku	→Hokuriku (Forward)	4	1	13	0	5	9	11	0	18	24	1	4	91
	→Chubu (Counter)	1	17	228	27	11	70	43	5	0	3	0	54	458
Hokuriku - Kanasai	→Kansai (Forward)	338	330	80	490	549	206	67	55	85	263	217	543	3,223
	→Hokuriku (Counter)	8	11	18	27	14	29	61	131	234	31	50	6	620
Kansai-Chugoku	→Chugoku (Forward)	55	38	38	62	38	24	26	22	50	161	37	32	584
	→Kansai (Counter)	826	943	861	980	1,174	1,566	971	1,118	1,102	767	978	1,131	12,416
Kansai-Shikoku	→Shikoku (Forward)	8	1	1	0	0	0	0	1	0	0	0	0	10
	→Kansai (Counter)	761	589	801	904	886	983	947	945	654	283	377	494	8,623
Chugoku - Shikoku	→Shikoku (Forward)	13	18	29	29	15	9	15	14	29	58	7	8	245
	→Chugoku (Counter)	108	52	100	126	117	349	273	202	31	25	42	19	1,445
Chugoku - Kyushu	→Kyushu (Forward)	5	4	7	17	19	18	5	8	12	50	11	20	177
	→Chugoku (Counter)	1,091	1,217	1,098	1,123	1,520	1,464	1,260	1,264	1,532	1,288	1,403	1,604	15,864

* Based on the scheduled power flows of cross-regional interconnection lines. The values are shown before offsetting is performed.
* The values in red and blue represent the annual maximum and minimum capabilities for each line and direction, respectively.

Figure 2-3: Monthly Utilization of Cross-regional Interconnection Lines for Regional Service Areas

(2) Actual Utilization of Cross-regional Interconnection Lines from FY 2011 to FY 2020

Table 2-3 and Figure 2-4 show the annual utilization of cross-regional interconnection lines for regional service areas from FY 2011 to FY 2020.

Table 2-3 Annual Utilization of Cross-regional Interconnection Lines for Regional Service Areas(FY 2011 to FY 2020)

[GWh]

		FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Hokkaido-Honshu	→Tohoku (Forward)	3,925	214	182	143	146	237	340	130	279	947
	→Hokkaido (Counter)	7	673	505	617	804	1,033	1,270	1,005	2,117	1,154
Tohoku-Tokyo	→Tokyo (Forward)	9,454	16,084	22,450	21,273	22,587	23,097	28,238	27,298	27,575	31,396
	→Tohoku (Counter)	5,674	4,520	3,891	4,029	3,714	4,660	7,071	3,139	252	541
Tokyo-Chubu	→Chubu (Forward)	1,151	1,579	2,829	2,702	693	2,729	3,954	1,711	354	1,497
	→Tokyo (Counter)	2,426	1,288	536	2,755	4,513	5,144	5,328	5,116	4,147	3,016
Chubu-Kansai	→Kansai (Forward)	3,734	7,487	7,049	7,131	3,412	5,538	8,106	3,675	980	4,413
	→Chubu (Counter)	8,403	5,726	4,928	6,342	7,577	6,544	9,889	9,980	7,175	13,285
Chubu-Hokuriku	→Hokuriku (Forward)	169	452	170	231	108	241	353	134	7	91
	→Chubu (Counter)	130	183	310	296	172	59	108	76	40	458
Hokuriku-Kanasai	→Kansai (Forward)	1,127	1,590	1,406	2,265	2,047	2,033	2,949	2,033	2,918	3,223
	→Hokuriku (Counter)	730	464	587	491	502	640	1,260	2,540	547	620
Kansai-Chugoku	→Chugoku (Forward)	1,483	2,836	2,326	2,252	948	716	4,493	4,734	578	584
	→Kansai (Counter)	10,520	6,788	5,468	5,994	9,138	13,179	16,727	13,388	9,793	12,416
Kansai-Shikoku	→Shikoku (Forward)	0	208	0	1	2	2	1	82	31	10
	→Kansai (Counter)	9,810	8,938	9,073	9,362	9,611	8,856	9,510	8,840	9,956	8,623
Chugoku-Shikoku	→Shikoku (Forward)	3,475	3,575	3,583	2,677	3,423	3,294	4,061	2,579	131	245
	→Chugoku (Counter)	6,727	3,564	3,694	3,912	4,631	7,638	7,540	4,023	4,143	1,445
Chugoku-Kyushu	→Kyushu (Forward)	2,582	4,210	3,838	3,596	2,174	1,935	3,014	1,998	138	177
	→Chugoku (Counter)	13,905	13,596	13,847	11,218	14,947	15,476	18,183	18,280	16,311	15,864

* Based on the scheduled power flows of cross-regional interconnection lines

* The values in red and blue represent the annual maximum and the minimum capabilities in each line and direction between FY 2011 and FY 2020, respectively.

Figure 2-4: Annual Utilization of Cross-regional Interconnection Lines for Regional Service Areas (FY 2011 to FY 2020)

(3) Monthly Utilization of Cross-regional Interconnection Lines by Transaction in FY 2020

Table 2-4 shows the monthly and annual utilization of cross-regional interconnection lines by transaction in FY 2020.

Table 2-4: Monthly and Annual Utilization of Cross-regional Interconnection Lines by Transaction

[GWh]

	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Annual
Bilateral	40	79	18	19	7	20	11	2	112	757	27	9	1,103
Day-ahead	6,798	8,017	7,301	9,389	9,921	8,695	7,812	6,977	7,116	6,820	5,858	6,525	91,229
1 Hour-ahead	318	571	975	850	707	982	416	397	767	744	464	483	7,675

* The values in red and blue represent the annual maximum and minimum capability, respectively.
* The implicit auction scheme was introduced in October 2018.

(4) Annual Utilization of Cross-regional Interconnection Lines by Transaction from FY 2011 to FY 2020

Table 2-5 and Figures 2-5, 2-6, and 2-7 show the annual utilization of cross-regional interconnection lines by transaction for FY 2011 to FY 2020.

Table 2-5: Annual Utilization of Cross-regional Interconnection Lines by Transaction (FY 2011 to FY 2020)

[GWh]

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Bilateral	79,693	76,328	73,289	71,558	75,947	84,843	109,842	56,710	255	1,103
Day-ahead	5,718	7,155	11,632	14,174	13,152	14,817	18,350	51,120	83,216	91,229
1 Hour-ahead	22	493	1,750	1,554	2,050	3,392	4,203	2,932	4,000	7,675

* "Hour-ahead" refers to a transaction that is four hours ahead of the gate closure in FY 2015. From FY 2016, it refers to a transaction that is one hour ahead of the gate closure.

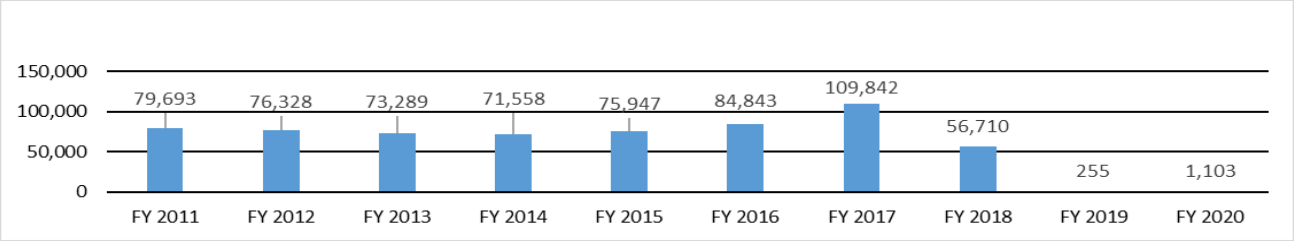

Figure 2-5: Annual Utilization of Cross-regional Interconnection Lines by Bilateral Transaction (FY 2011 to FY 2020)

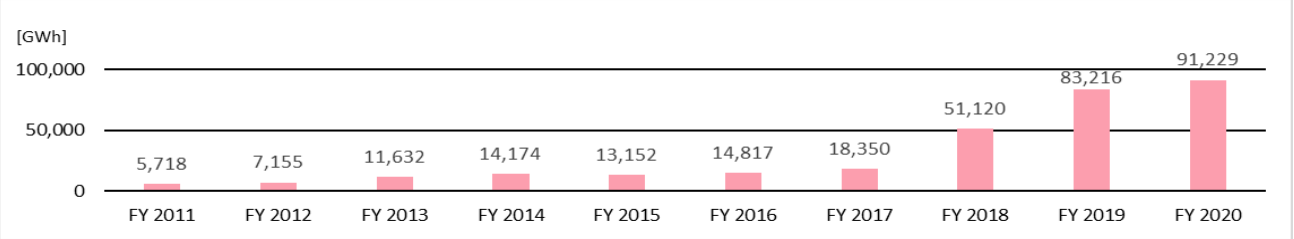

Figure 2-6: Annual Utilization of Cross-regional Interconnection Lines by Day-ahead Transaction (FY 2011 to FY 2020)

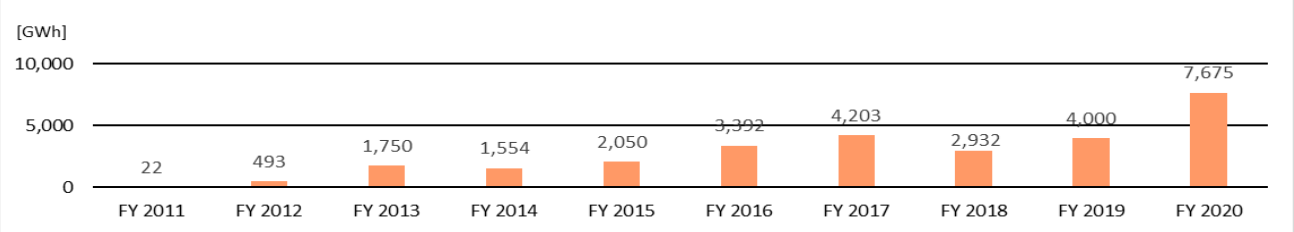

Figure 2-7: Annual Utilization of Cross-regional Interconnection Lines by Hour-ahead Transaction (FY 2011 to FY 2020)

3. Status of Maintenance Work on Cross-regional Interconnection Lines

The following describes details of the actual maintenance work on cross-regional interconnection lines, as reported by the GT&D companies in accordance with the provisions of Article 167 of the Operational Rules.

(1) Actual Monthly Maintenance Work on Cross-regional Interconnection Lines in FY 2020

Table 2-6 shows the monthly and annual maintenance works on cross-regional interconnection lines in FY 2020, and Figure 2-8 shows the nationwide monthly planned outage rate for FY 2020.

Table 2-6: Monthly and Annual Maintenance Works on Cross-regional Interconnection Lines

Interconnection	Corresponding Facilities	Apr.		May		Jun.		Jul.		Aug.		Sep.		Oct.		Nov.		Dec.		Jan.		Feb.		Mar.		Annual	
		Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	Nos.	Days	**Nos.**	**Days**
Hokkaido-Honshu	Hokkaido and Honshu HVDC Link, New Hokkaido and Honshu HVDC Link	12	30	7	31	32	30	0	0	14	18	12	11	3	1	0	0	0	0	0	0	0	0	0	0	80	121
Tohoku-Tokyo	Soma-Futaba bulk line, Iwaki bulk line	0	0	0	0	0	0	0	0	0	0	0	0	7	4	0	0	0	0	0	0	0	0	0	0	7	4
Tokyo-Chubu	Sakuma FC C.S.	5	2	0	0	0	0	0	0	0	0	1	7	0	0	0	0	1	1	0	0	1	1	0	0	8	11
	Shin Shinano FC C.S.	0	0	8	4	11	15	0	0	0	0	4	4	11	9	22	21	13	12	8	8	13	10	9	6	99	89
	Higashi Shimizu FC C.S.	1	1	0	0	0	0	2	2	0	0	2	5	4	8	0	0	0	0	0	0	0	0	1	1	10	17
Chubu-Kansai	Mie-Higashi Omi line	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2	8	3
Chubu-Hokuriku	Minami Fukumitsu HVDC BTB C.S., Minami Fukumitsu Substation	0	0	0	0	2	23	0	0	0	0	9	14	15	28	14	14	12	12	0	0	10	9	6	4	68	104
Hokuriku-Kansai	Echizen-Reinan line	0	0	0	0	4	22	0	0	0	0	5	8	6	9	2	1	0	0	0	0	0	0	2	2	19	42
Kansai-Chugoku	Seiban-Higashi Okayama line, Yamazaki-Chizu line	14	7	5	7	1	1	0	0	0	0	5	8	0	0	0	0	0	0	0	0	0	0	1	31	26	54
Kansai-Shikoku	Kihoku and Anan AC/DC C.S.	2	7	5	4	8	5	0	0	0	0	0	0	2	2	0	0	0	0	0	0	7	10	0	0	24	28
Chugoku-Shikoku	Honshi interconnection line	2	1	12	26	2	6	0	0	0	0	0	0	1	1	0	0	0	0	1	2	0	0	0	0	18	36
Chugoku-Kyushu	Kanmon interconnection line	8	12	9	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	18	25
Nationwide (Cumulative works for the same facilities deducted)		44	60	46	84	64	103	2	2	14	18	38	57	49	62	38	36	26	25	9	10	32	31	23	46	385	534

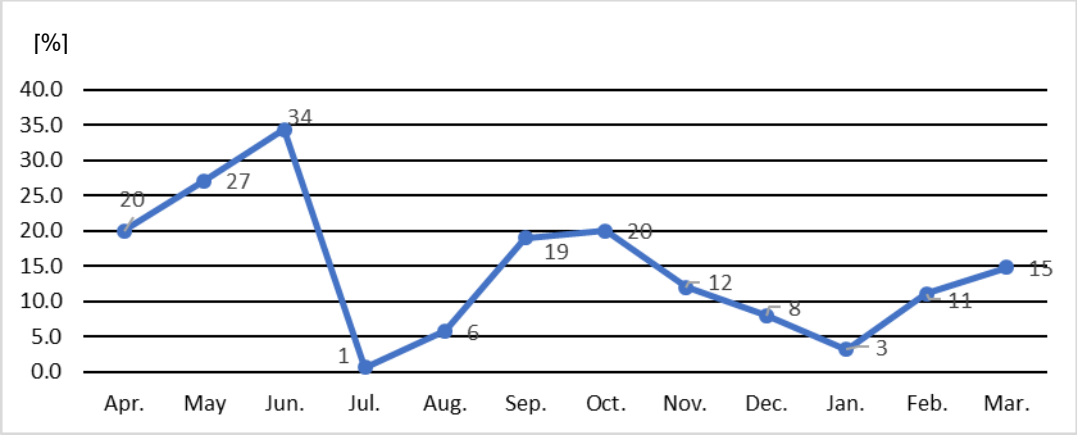

Figure 2-8: Nationwide Monthly Planned Outage Rate

$$\text{* Monthly Planned Outage Rate (\%)} = \frac{\text{Total days of planned outage in the month}}{\text{10 interconnection lines} \times \text{calendar days}}$$

(2) Annual Maintenance Works on Cross-regional Interconnection Lines from FY 2011 to FY 2020

Table 2-7 shows the annual maintenance works on cross-regional interconnection lines for FY 2011 to FY 2020.

The annual maintenance work on cross-regional interconnection lines for FY 2020 occurred on 385 occasions, the highest annual total for the past ten years. This significant increase was attributable to increases at the facilities of Shin Shinano FC, Minami Fukumitsu BTB Converter Station, and Minami Fukumitsu Substation.

Table 2-7: Annual Maintenance Work on Cross-regional Interconnection Lines (FY 2011 to FY 2020)

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total	10-years Average
Number	56	58	38	63	91	218	267	205	353	385	1,734	173

* The significant increase from FY 2015 to FY 2016 is attributable to the introduction of the Cross-regional Operation System, which made detailed data management available.

4. Forced Outage of Cross-regional Interconnection Lines

(1) Forced Outage of Cross-regional Interconnection Lines in FY 2020

Table 2-8 shows the forced outage of cross-regional interconnection lines in FY 2020.

Table 2-8: Forced Outage of Cross-regional Interconnection Lines

Date	Facility	Background
April 7	Kihoku and Anan AC/DC C.S.	Trip by Water leakage of cooling system for Group 1 valves at Anan Converter Station
July 26	Higashi Shimizu FC	Secondary accident of network
July 28	Shin Shinano FC units No.1 & No.2	Secondary accident of network
August 22	Shin Shinano FC unit No.2	Secondary accident of network
September 3	Sakuma FC	Secondary accident of network
September 3	Higashi Shimizu FC	Secondary accident of network
September 19	Shin Shinano FC unit No.2	Secondary accident of network
March 2	Shin Shinano FC unit No.1	Unknown

* The forced outage affecting the TTC is described.

Two additional accidents which affected the transfer capability also occurred.[14]

(2) Annual Forced Outage of Cross-regional Interconnection Lines for FY 2011 to FY 2020

Table 2-9 shows the annual forced outage of cross-regional interconnection lines for FY 2011 to FY 2020.

Table 2-9: Annual Forced Outage of Cross-regional Interconnection Lines (FY 2011 to FY 2020)

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total	10-years Average
Number	5	6	9	1	3	3	3	6	9	8	53	5

[14] They were both generator shutdowns at the Soma–Futaba trunk line attributable to an earthquake on February 13, and another on March 20.

5. Actual Employment of the Transmission Margin

"Employment of the transmission margin" refers to the supply of electricity by GT&D companies utilizing their transmission margin to interconnection lines where the supply–demand balance is restricted or insufficient to reduce power supply, among other such possibilities. Table 2-10 shows the actual employment of the transmission margin for FY 2020 according to the provisions of Article 152 of the Operational Rules.

Actual employment of the transmission margin for FY 2020 was 16 days, and was the highest since the Organization was established in FY 2015, which is attributable to measures taken for the supply–demand tightness during the winter of 2020/2021.

Table 2-10: Actual Employment of the Transmission Margin

Date	Facility	Background
December 15 & 16, 2020	Interconnection facilities between Tokyo and Chubu (Flow from Tokyo to Chubu)	〔Countermeasures to tight supply-demand during the winter 2020/21〕 Insufficient ATC of the corresponding facilities which is necessary for the instruction of power exchanges because of continuous shortage of supply capacity nationwide due to extremely cold weather.
January 3, 4, 6 & 7, 2021	Interconnection facilities between Tokyo and Chubu (Flow from Chubu to Tokyo)	〔Countermeasures to tight supply-demand during the winter 2020/21〕 Insufficient ATC of the corresponding facilities which is necessary for the instruction of power exchanges because of continuous shortage of supply capacity nationwide due to extremely cold weather.
January 8, 9, 10, 11, 12, 13, 15 & 16, 2021	Interconnection facilities between Tokyo and Chubu (Flow from Tokyo to Chubu)	〔Countermeasures to tight supply-demand during the winter 2020/21〕 Insufficient ATC of the corresponding facilities which is necessary for the instruction of power exchanges because of continuous shortage of supply capacity nationwide due to extremely cold weather.
January 13, 2021	Interconnection facilities between Chugoku and Shikoku (Flow from Chugoku to Shikoku)	〔Countermeasures to tight supply-demand during the winter 2020/21〕 Insufficient ATC of the corresponding facilities which is necessary for the instruction of power exchanges because of continuous shortage of supply capacity nationwide due to extremely cold weather.
February 14, 2021	Interconnection facilities between Tokyo and Chubu (Flow from Chubu to Tokyo)	Insufficient ATC of the corresponding facilities in the regional service area of Tohoku NW which is subject to the instruction of power exchanges because of decreased supply capacity due to earthquake of maximum seismic intensity of 6 occurred in Fukushima offshore.

Table 2-11: Actual Employment of Transmission Margin (FY 2016 to FY 2020)

[days]

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Nationwide	0	3	15	1	16

6. Actual Available Transfer Capabilities of Each Cross-regional Interconnection Line

The actual ATC values calculated and published are shown in Figures 2-10 to 2-19. (Figures 2-9 and Table 2-12 explain how to interpret the ATC graphs.)

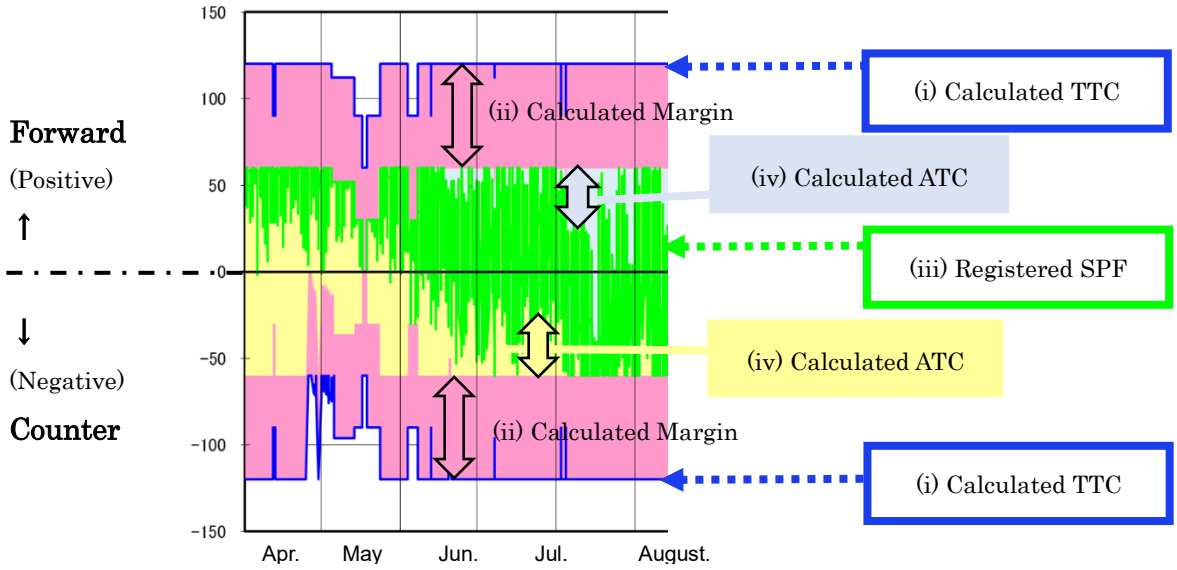

Figure 2-9: How to Interpret an ATC graph

Table 2-12: Explanation of ATC graph components

	By the end of September, 2018	After October, 2018 (introduction of implicit auction scheme)
(i) Calculated TTC	The maximum electricity that can be sent to the distribution facilities while securing supply reliability without damaging the transmission and distribution facilities	The same as the left
(ii) Calculated Transmission Margin	The amount of electricity managed by the Organization as a part of total TTC by the directions of scheduled power flows of the interconnection lines to receive electricity from other regional service areas through interconnection lines under abnormal situations of electric network, supply shortage or other emergent situations, to keep stabilizing the electric network, or to develop an environment of market trading of electricity, or to procure balancing capacity from other regional service areas. Power flows of allocation plans utilizing transmission margin and those employing transmission margin shall be deducted.	The amount of electricity managed by the Organization as a part of total transfer capability of the interconnection lines to receive electricity from other regional service areas through interconnection lines under abnormal situations of electric network, supply shortage or other emergent situations, to keep stabilizing the electric network, or to procure balancing capacity from other regional service areas. Scheduled power flows employing transmission margin shall be deducted.
(iii) Registered SPF	Sum of the registered power flows stated below: 1) allocation plans in "first come, first seerved" principle 2) trade in day-ahead spot market 3) trade in 1 hour-ahead market	Sum of the registered power flows stated below: 1) trade in day-ahead spot market 2) trade in 1 hour-ahead market
(iv) Calculated ATC	(iv) = (i) - (ii) - (iii) The necessary capability for long-cycle cross-regional frequency control shall be immediately deducted from ATC at the decision of its implementation.	The same as the left

The actual flows on the transmission lines are offset in each direction. Therefore, the scheduled power flow is the offset value between the forward and counter flows, not the simple sum of both directions. In addition, offset values on the graphs are observed as SPF, rather than observing the capacity of each forward flow and counter flow.

(Reference) Publishing actual ATC
Detailed network system information including actual ATC is available at the URL below.
URL http://occtonet.occto.or.jp/public/dfw/RP11/OCCTO/SD/LOGIN_login#

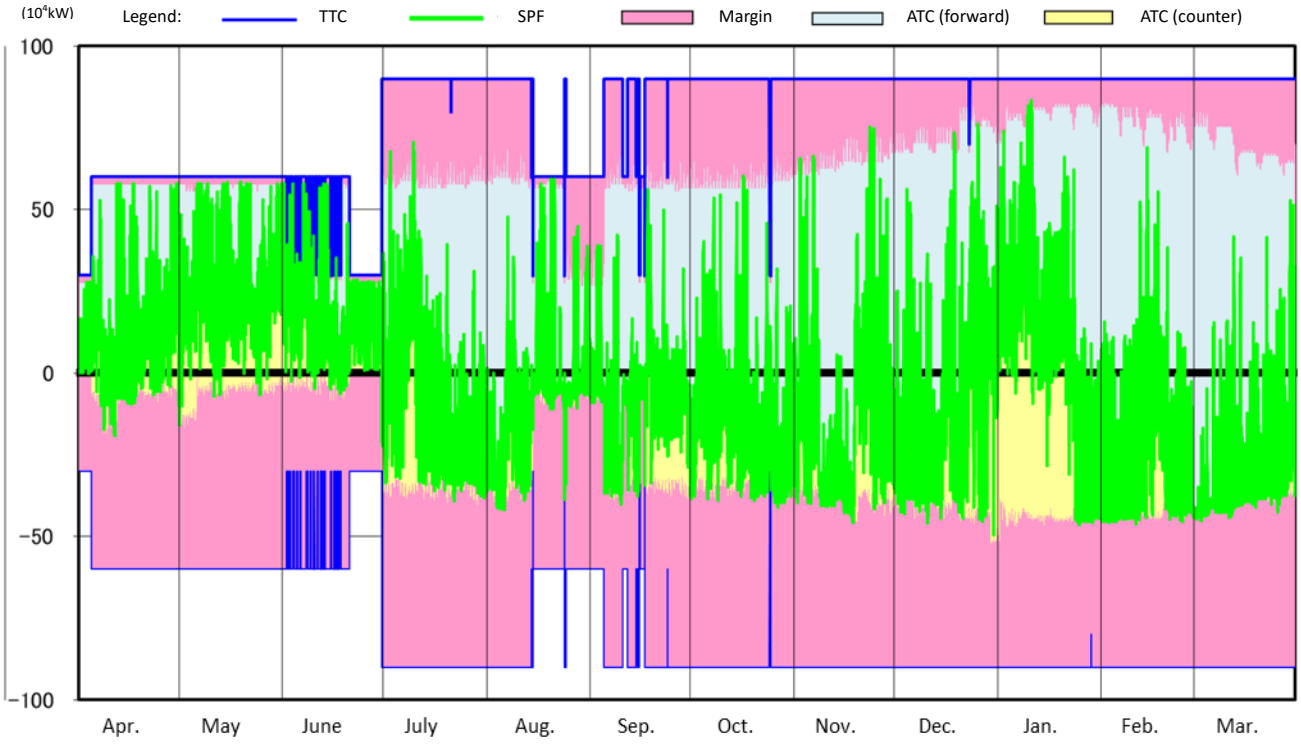

Figure 2-10: Actual ATC for Interconnection Facilities between Hokkaido and Honshu
(Hokkaido–Honshu HVDC Link, and New Hokkaido–Honshu HVDC Link)

Note: Hokkaido to Tohoku is considered a forward (positive) flow, with Tohoku to Hokkaido being a counter (negative) flow.

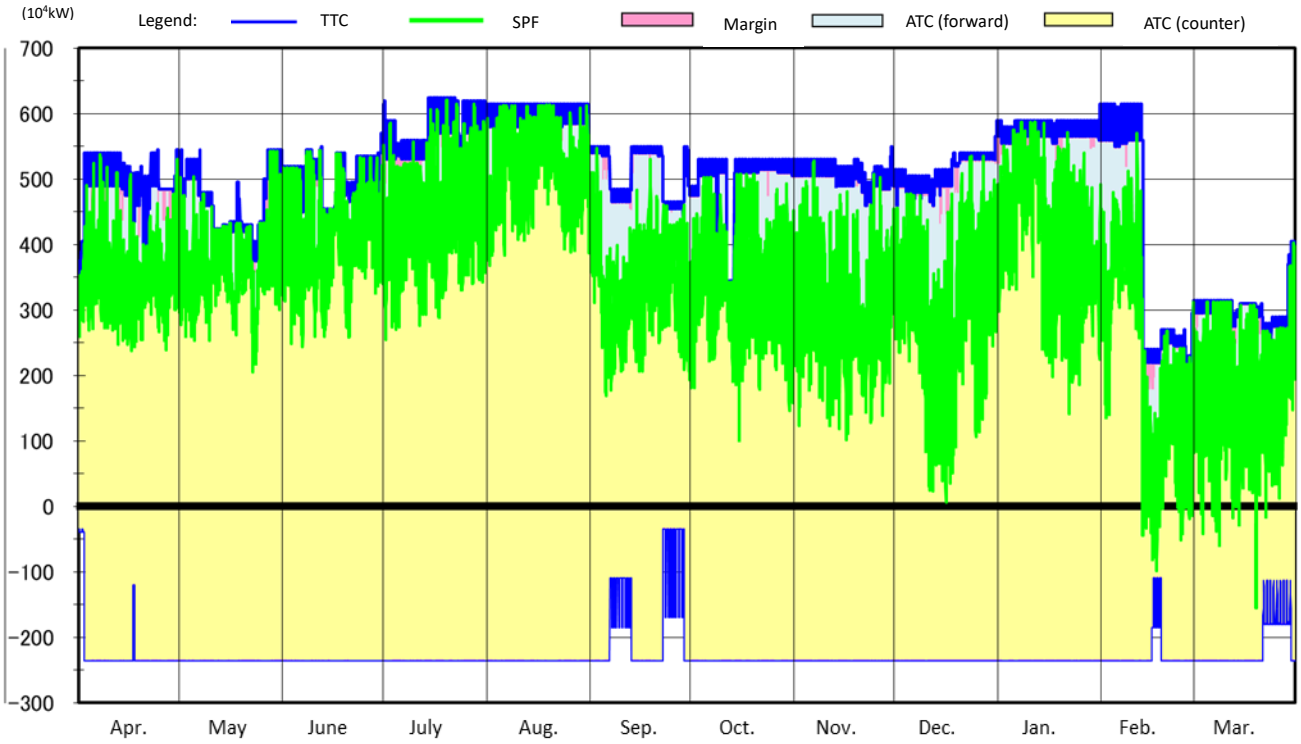

Figure 2-11: Actual ATC for Interconnection Lines between Tohoku and Tokyo
(Soma–Futaba Bulk Line and Iwaki Bulk Line)

Note: Tohoku to Tokyo is considered a forward (positive) flow, with Tokyo to Tohoku being a counter (negative) flow.

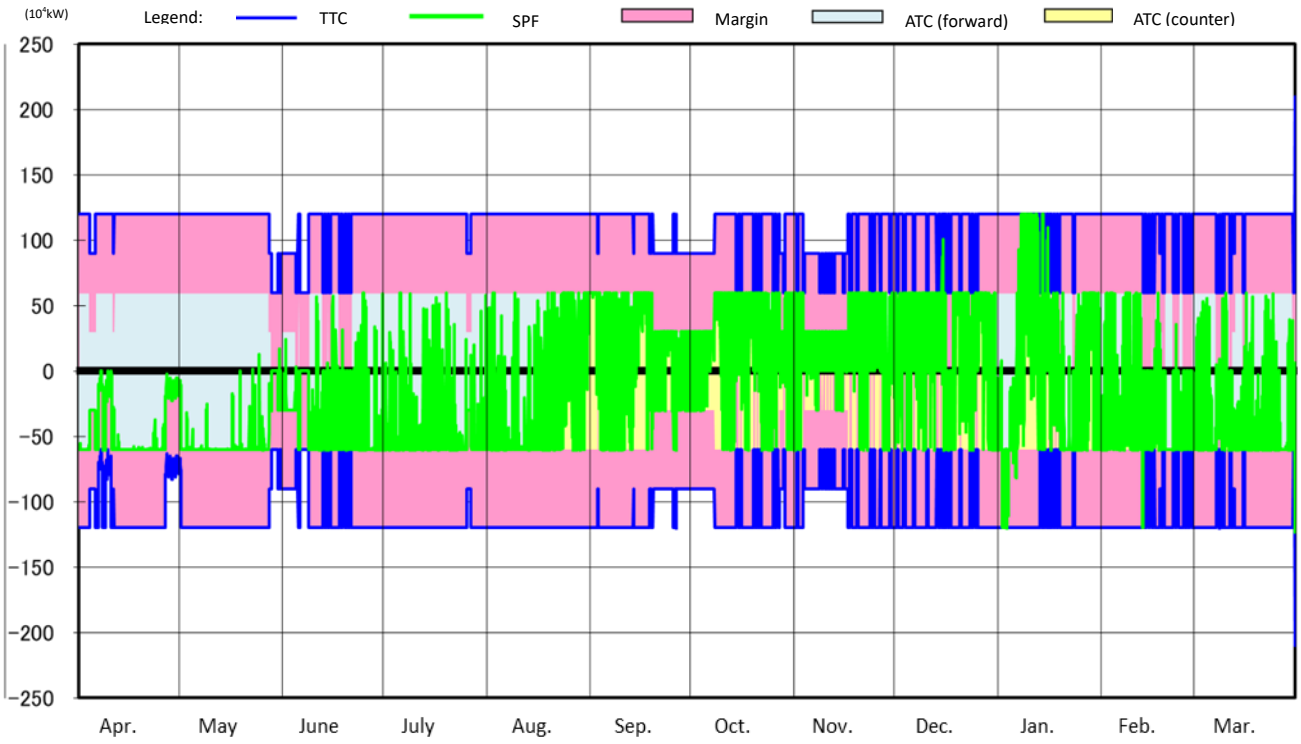

Figure 2-12: Actual ATC for Interconnection Facilities between Tokyo and Chubu
(Sakuma, Shin Shinano and Higashi Shimizu and Hida–Shinano F.C.)

Note: Tokyo to Chubu is considered a forward (positive) flow, with Chubu to Tokyo being a counter (negative) flow.

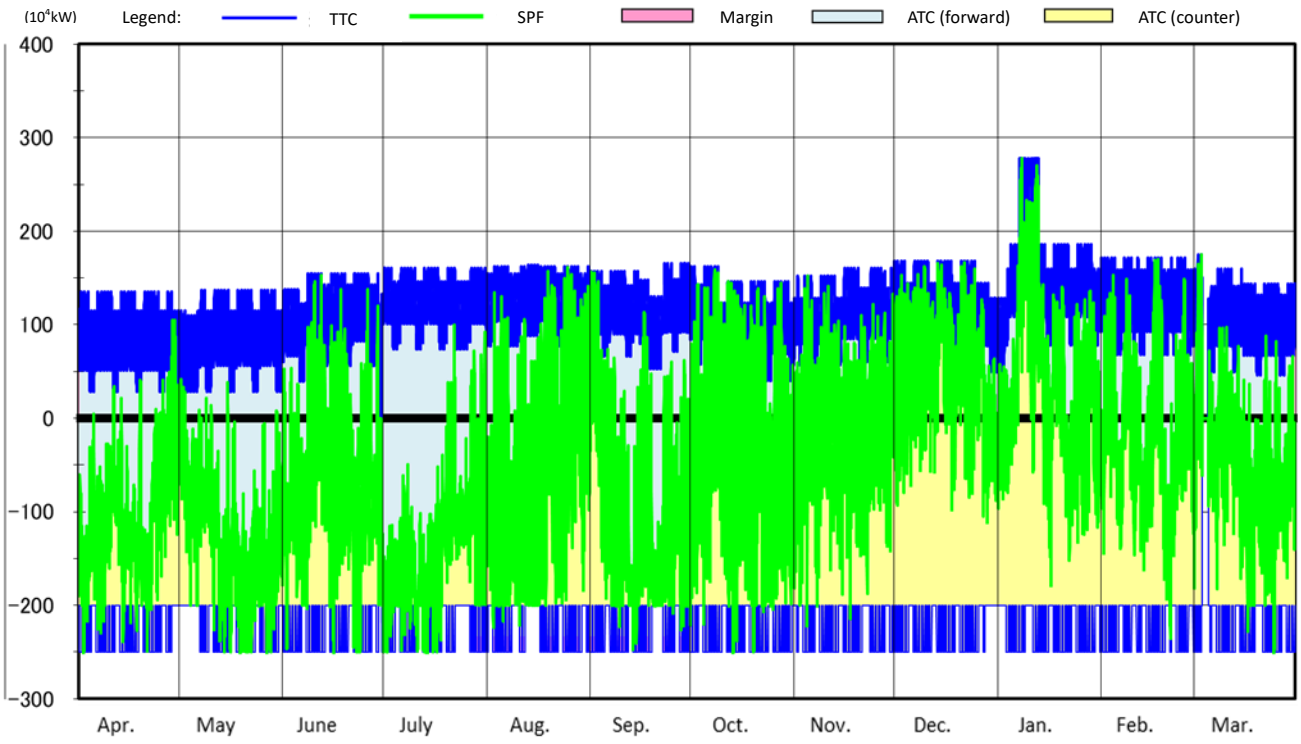

Figure 2-13: Actual ATC for the Interconnection Line between Chubu and Kansai (Mie–Higashi Omi Line)

Note: Chubu to Kansai is considered a forward (positive) flow, with Kansai to Chubu being a counter (negative) flow.

The Organization has enlarged the TTC of interconnection line between Chubu and Kansai (Mie–Higashi Omi Line) as an emergency transaction according to the provisions of Article 153 of the Operational Rules. During the supply–demand tightness nationwide in the winter of 2020/2021, the ATC of the corresponding line was insufficient to issue instructions of power exchange to GT&D companies, and the electricity supply–demand would have degraded without a power exchange. The Organization has considered the possible risk of blackout caused by accidents to transmission lines on rare occasions, and has enlarged the TTC of the corresponding line. The periods and average capabilities in the enlargement are as below.

Interconnection Line between Chubu and Kansai (Mie–Higashi Omi Line) [Flow to Kansai area]

1) From 4:30 to 24:00 on Januaryuary 8 (1330 MW at most)
2) From 3:00 to 24:00 on Januaryuary 9 (1070 MW on average)
3) From 0:00 to 24:00 on Januaryuary 10 (1060 MW on average)
4) From 0:00 to 24:00 on Januaryuary 11 (1060 MW on average)
5) From 0:00 to 24:00 on Januaryuary 12 (1110 MW on average)
6) From 0:00 to 24:00 on Januaryuary 13 (1150 MW on average)

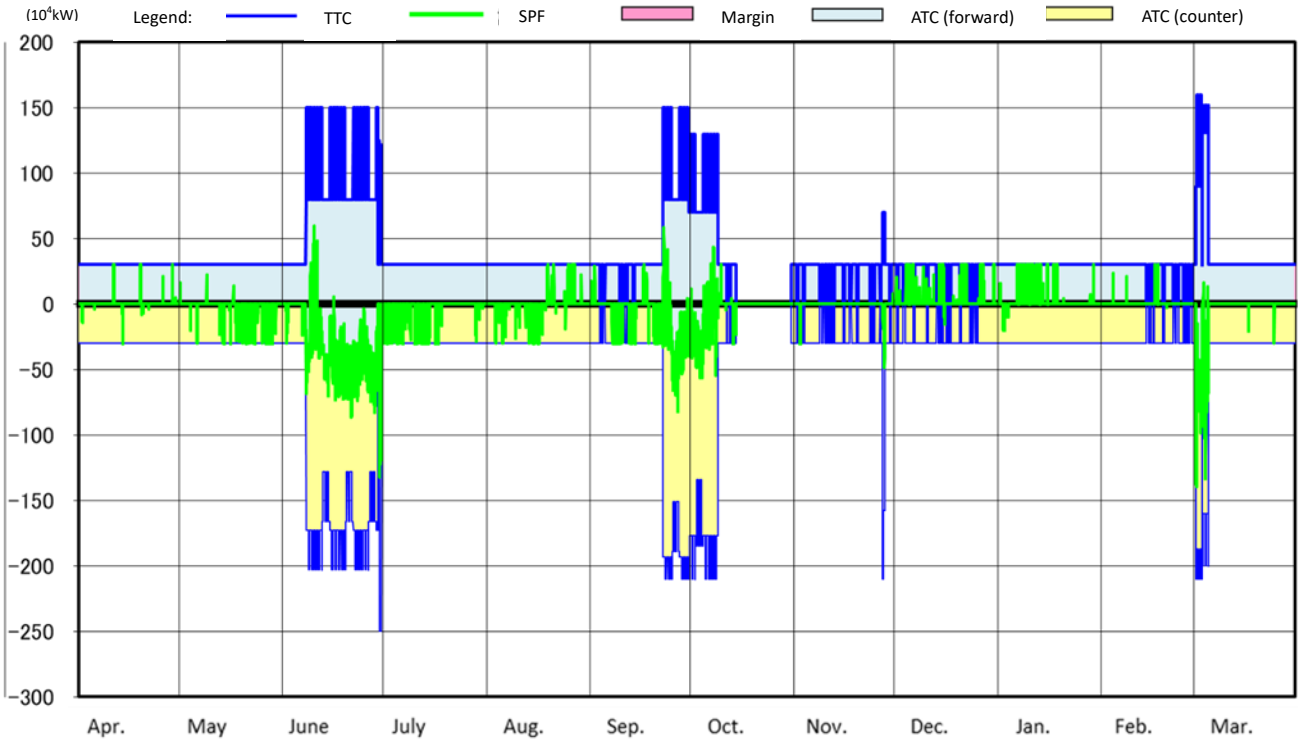

Figure 2-14: Actual ATC for Interconnection Facilities between Chubu and Hokuriku
(Minami Fukumitsu HVDC BTB Converter Station and Minami Fukumitsu Substation)

Note: Chubu to Hokuriku is considered a forward (positive) flow, with Hokuriku to Chubu being a counter (negative) flow.

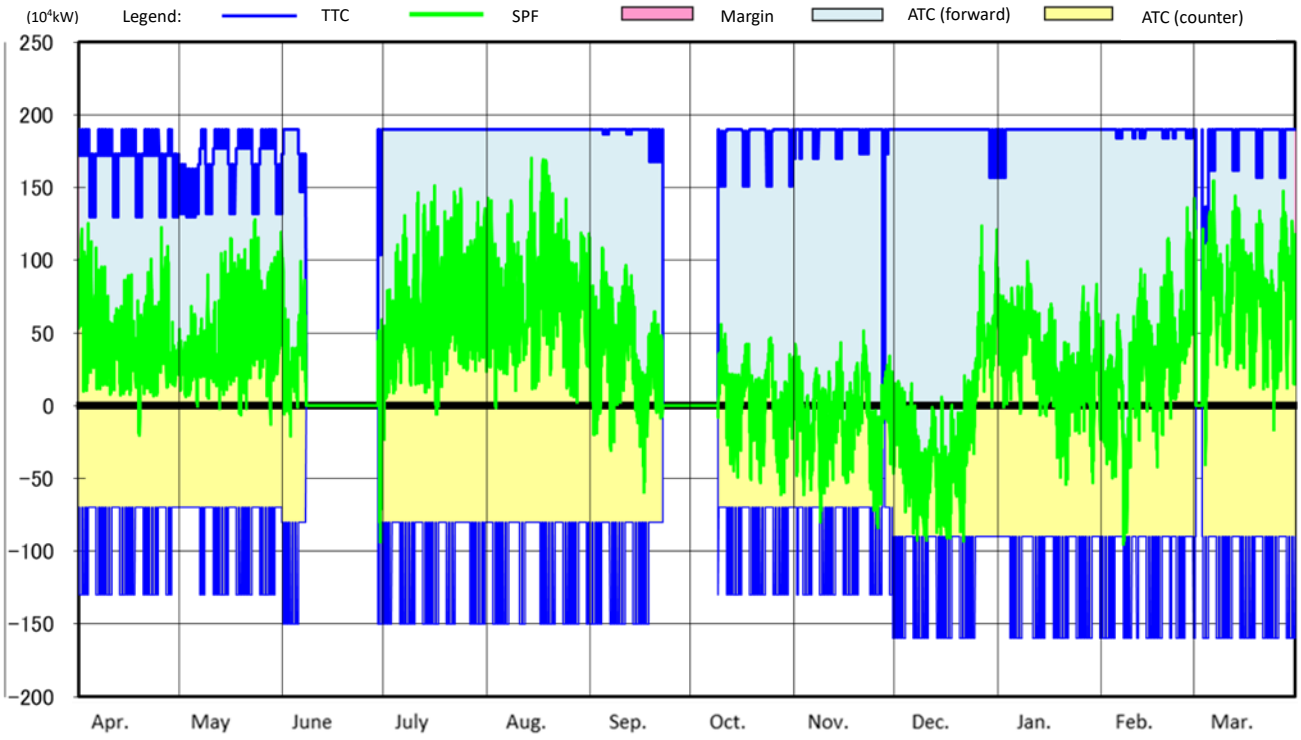

Figure 2-15: Actual ATC for the Interconnection Line between Hokuriku and Kansai (Echizen–Reinan Line)

Note: Hokuriku to Kansai is considered a forward (positive) flow, with Kansai to Hokuriku being a counter (negative) flow.

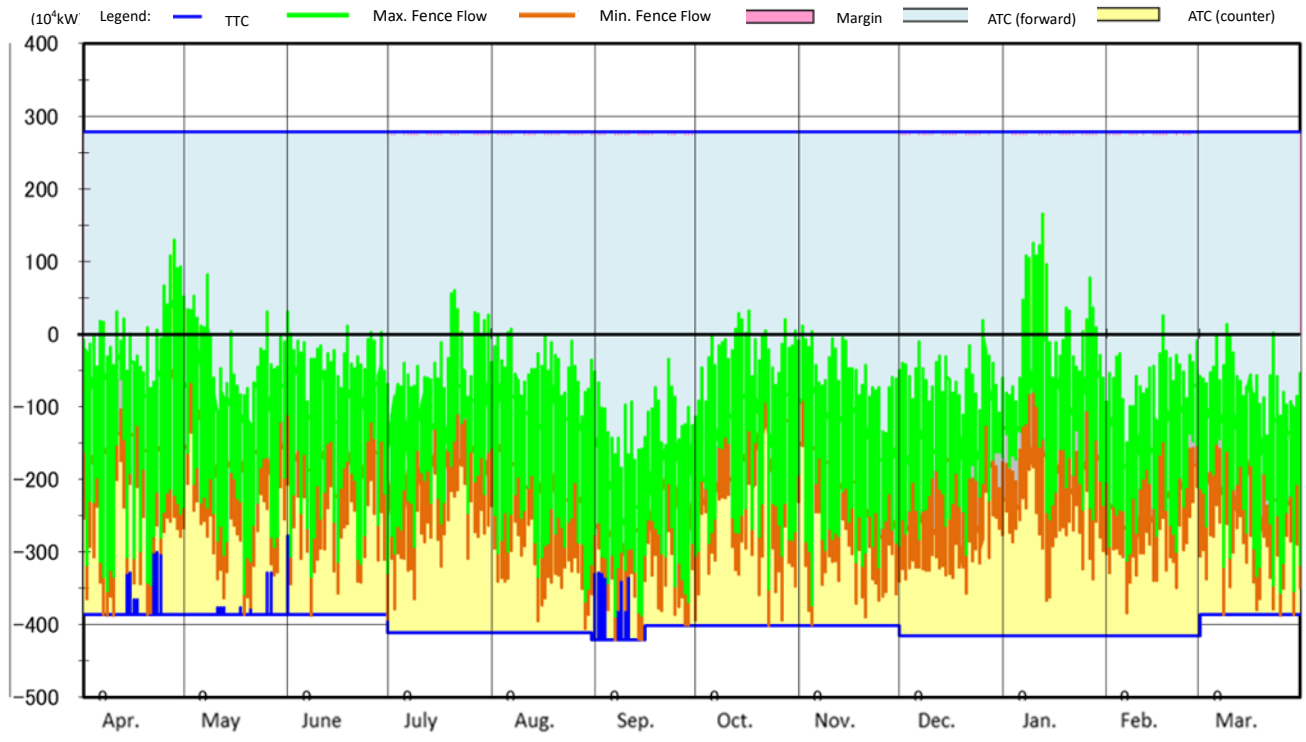

Figure 2-16: Actual ATC for Interconnection Lines between Kansai and Chugoku
(Seiban–Higashi Okayama Line and Yamazaki–Chizu Line)

Note: Kansai to Chugoku is considered a forward (positive) flow, with Chugoku to Kansai being a counter (negative) flow.

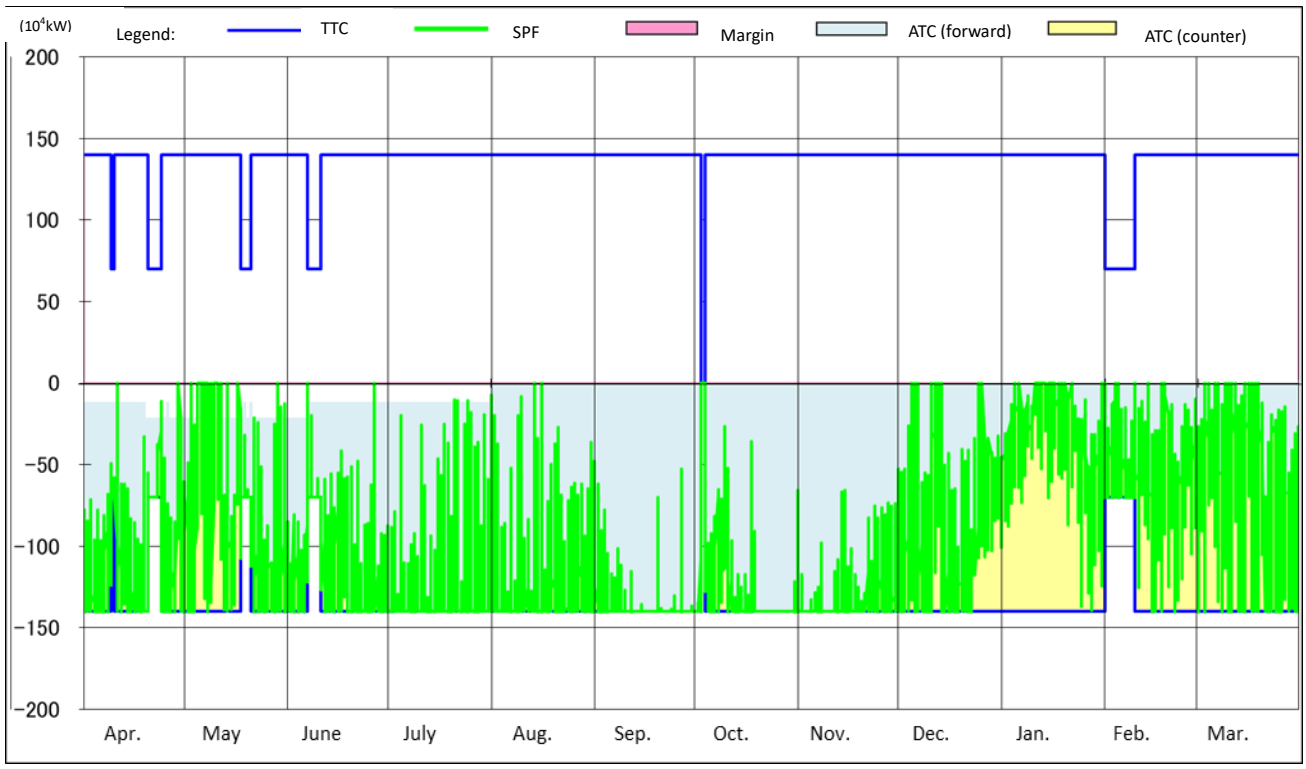

Figure 2-17: Actual ATC for Interconnection Facilities between Kansai and Shikoku
(Interconnection facilities between Kihoku and Anan AC/DC Converter Station)

Note: Kansai to Shikoku is considered a forward (positive) flow, with Shikoku to Kansai being a counter (negative) flow.
*The ATC for the forward flow is calculated and chosen as the smaller from the following.
・TTC−transfer margin−SPF.
・TTC of Minami Awa Bulk Line− (Supply Capacity of Tachibanawan Thermal Power Station−SPF of Anan−Kihoku DC Bulk Line).

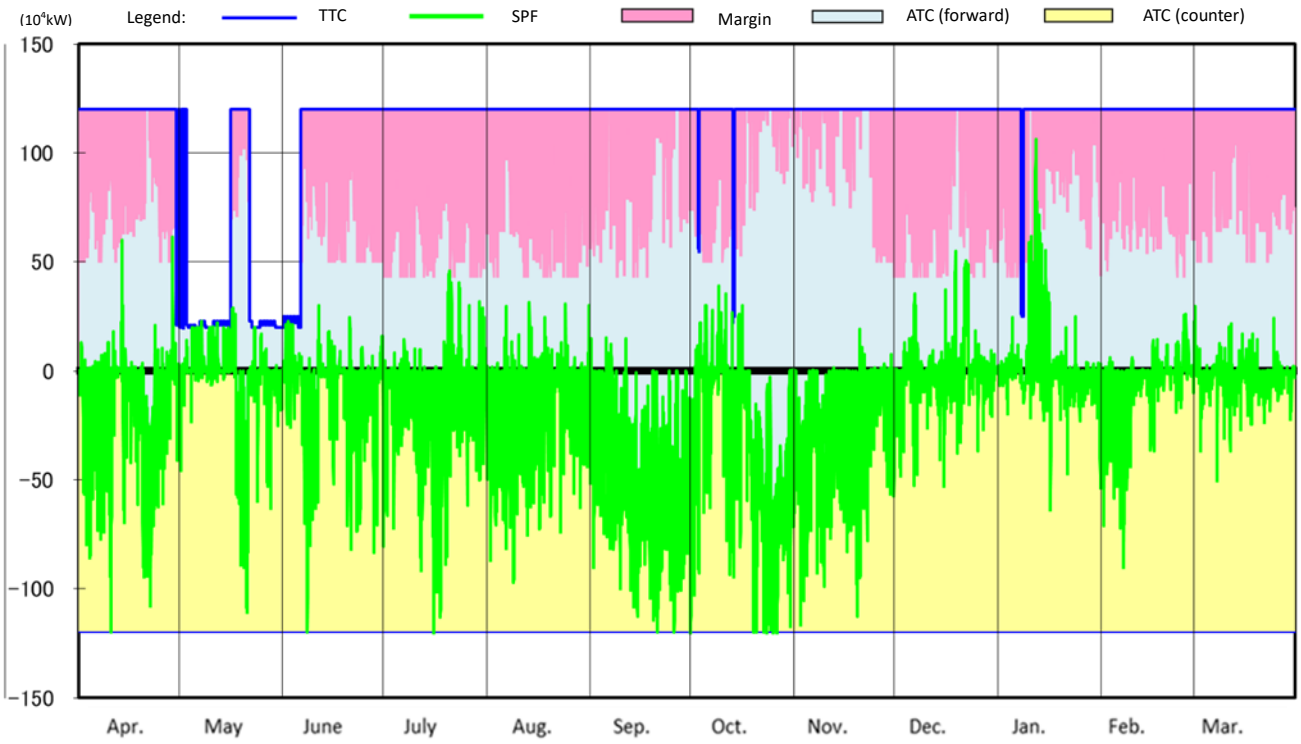

Figure 2-18: Actual ATC for the Interconnection Line between Chugoku and Shikoku (Honshi Interconnection Line)
Note: Chugoku to Shikoku is considered a forward (positive) flow, with Shikoku to Chugoku being a counter (negative) flow.

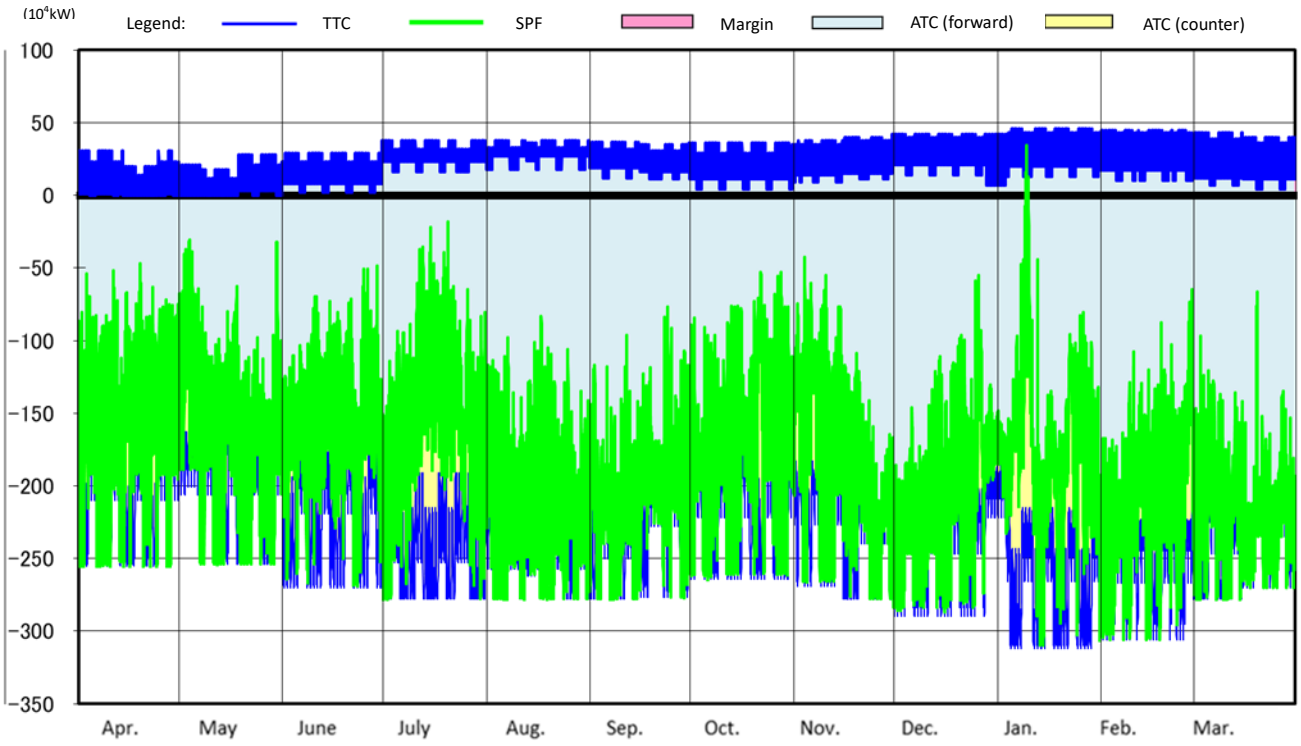

Figure 2-19: Actual ATC for the Interconnection Line between Chugoku and Kyushu
(Kanmon Interconnection Line)

Note: Chugoku to Kyushu is considered a forward (positive) flow, with Kyushu to Chugoku being a counter (negative) flow.

7. Actual Constraints on Cross-regional Interconnection Lines Nationwide

For the constraints on each regional service area of the 10 GT&Ds, please see the links below.

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* Constraints maps are published on the websites below (in Japanese only).

Hokkaido Electric Power Network, Inc.:
http://www.hepco.co.jp/network/con_service/public_document/bid_info.html
Tohoku Electric Power Network Co., Inc.:
https://nw.tohoku-epco.co.jp/consignment/system/announcement/
TEPCO Power Grid, Incorporated:
http://www.tepco.co.jp/pg/consignment/system/index-j.html
Chubu Electric Power Grid Co., Inc.:
https://powergrid.chuden.co.jp/takuso_service/hatsuden_kouri/takuso_kyokyu/rule/map/
Hokuriku Electric Power Transmission & Distribution Company:
http://www.rikuden.co.jp/nw_notification/U_154seiyaku.html#akiyouryu
Kansai Transmission and Distribution, Inc.:
https://www.kansai-td.co.jp/consignment/disclosure/distribution-equipment/index.html
Chugoku Electric Power Transmission & Distribution Company, Incorporated:
https://www.energia.co.jp/nw/service/retailer/keitou/access/
Shikoku Electric Power Transmission & Distribution Company, Incorporated:
https://www.yonden.co.jp/nw/line_access/index.html
Kyushu Electric Power Transmission & Distribution Co., Inc.:
https://www.kyuden.co.jp/td_service_wheeling_rule-document_disclosure
The Okinawa Electric Power Company Incorporated:
http://www.okiden.co.jp/business-support/service/rule/plan/index.html

CONCLUSION

Actual Electricity Supply–Demand

For the actual electricity supply–demand, data on the peak demand, the electric energy requirement, the load factor, and supply–demand status during the peak demand period and the lowest demand period, and peak daily energy supply have been collected. In addition, instructions with respect to power exchanges (according to the provisions of paragraph 1 of Article 28-44 of the Electricity Business Act,) and actual output shedding of renewable-energy-generating facilities (according to the provisions of the Ministerial Ordinance of the Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electric Utilities) have been aggregated.

Actual Utilization of Cross-regional Interconnection Lines

For the actual utilization of cross-regional interconnection lines, data on the utilization, the maintenance work, the forced outages, the employment of transmission margin, and the ATC have been collected.

<Reference> Detailes of the Actual Power Exchange Instructions, with Instructions and Requests to Generation Companies and Retail Companies Issued by the Oraganization.

Details of the actual power exchange instructions, with instructions and requests to generation companies and retail companies issued by the Organization in FY 2020 are listed below. They include measures for avoiding a repeat of the supply–demand tightness during the winter of 2020/2021.

Actual Power Exchange Instructions by the Organization

1	Issued at	15:13 on August 28, 2020
	Instruction	・Tokyo PG shall supply 400 MW of electricity at most to Tohoku NW from 16:00 to 17:30 on August 28. ・Tohoku NW shall be supplied 400 MW of electricity at most by Tokyo PG from 16:00 to 17:30 on August 28.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of unexpected demand growth caused by higher temperature.
2	Issued at	09:24 on September 24, 2020
	Instruction	・Chubu PG shall supply 300 MW of electricity to Kyushu T&D from 10:00 to 12:00. ・ChugokuNW shall ネ supply 400 MW of electricity to Kyushu T&D from 10:00 to 12:00. ・Kyushu T&D shall be supplied 700 MW of electricity by Chubu PG and Chugoku NW from 10:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of Decemberreased output of solar power and demand increase caused by change in weather.
3	Issued at	10:19 on September. 24, 2020
	Instruction	・Kansai T&D shall supply 500 MW of electricity at most to Kyushu T&D from 11:00 to 12:00. ・Kyushu T&D shall be supplied 500 MW of electricity at most by Kansai T&D from 11:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of Decemberreased output of solar power and demand increase caused by change in weather.
4	Issued at	11:19 on September 24, 2020
	Instruction	・Chubu PG shall supply 800 MW of electricity at most to Kyushu T&D from 12:00 to 17:00 on September 24. ・Kansai T&D shall supply 500 MW of electricity at most to Kyushu T&D from 12:00 to 17:00 on September 24. ・Chugoku NW shall supply 700 MW of electricity at most to Kyushu T&D from 12:00 to 17:00 on September 24. ・Kyushu T&D shall be supplied 1600 MW of electricity at most by Chubu PG, Kansai T&D, and Chugoku NW from 12:00 to 17:00 on September 24.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of Decemberreased output of solar power and demand increase caused by change in weather.
5	Issued at	09:22 on November 25, 2020
	Instruction	・Chugoku NW shall supply 400 MW of electricity at most to Shikoku T&D from 10:00 to 11:30. ・Shikoku T&D Chugoku NW shall be supplied 400 MW of electricity at most by Chugoku NW from 10:00 to 11:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of Decemberreased output of solar power and demand increase caused by change in weather.
6	Issued at	09:05 on December 15, 2020
	Instruction	・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 09:30 to 12:00. ・Chugoku NW shall supply 500 MW of electricity to Kansai T&D from 09:30 to 12:00. ・Shikoku T&D shall supply 400 MW of electricity to Kansai T&D from 09:30 to 12:00. ・Kyushu T&D shall supply 50 MW of electricity to Kansai T&D from 09:30 to 12:00. ・Kansai T&D shall supply 1000 MW of electricity by Hokuriku T&D, Chugoku NW, Shikoku T&D, and Kyushu T&D from 09:30 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of unexpected demand growth and expected Decemberrease of supply capacity in some generation plants caused by lower temperature.

7	Issued at	11:41 on December 15, 2020
	Instruction	・Tokyo PG shall supply 350 MW of electricity at most to Kansai T&D from 15:00 to 16:00. ・Chubu PG shall supply 9 MW of electricity to Kansai T&D from 13:30 to 14:00. ・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 12:00 to 16:00. ・Chugoku NW shall supply 30 MW of electricity to Kansai T&D from 12:00 to 16:00. ・Shikoku T&D shall supply 30 MW of electricity at most to Kansai T&D from 12:00 to 15:30. ・Kyushu T&D shall supply 80 MW of electricity at most to Kansai T&D from 12:00 to 16:00. ・Kansai T&D shall supply 1300 MW of electricity at most by Tokyo PG, Chubu PG, Hokuriku T&D, Chugoku NW, Shikoku T&D and Kyushu T&D from 12:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of unexpected demand growth and expected Decemberrease of supply capacity in some generation plants caused by lower temperature.
8	Issued at	15:40 on December 15, 2020
	Instruction	・Tokyo PG shall supply 500 MW of electricity at most to Kansai T&D from 16:00 to 19:30. ・Chubu PG shall supply 2 MW of electricity to Kansai T&D from 19:30 to 20:00. ・Hokuriku T&D shall supply 20 MW of electricity at most to Kansai T&D from 16:00 to 20:30. ・Chugoku NW shall supply 30 MW of electricity to Kansai T&D from 16:00 to 20:30. ・Shikoku T&D shall supply 190 MW of electricity at most to Kansai T&D from 16:00 to 20:30. ・Kyushu T&D shall supply 600 MW of electricity at most to Kansai T&D from 16:00 to 20:30. ・Kansai T&D shall be supplied 1000 MW of electricity at most by Tokyo PG, Chubu PG, Hokuriku T&D, Chugoku NW, Shikoku T&D and Kyushu T&D from 16:00 to 20:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of unexpected demand growth and expected Decemberrease of supply capacity in some generation plants caused by lower temperature.
9	Issued at	19:37 on December 15, 2020
	Instruction	・Hokuriku T&D shall supply 20 MW of electricity at most to Kansai T&D from 20:30 to 24:00. ・Chugoku NW shall supply 10 MW of electricity to Kansai T&D from 20:30 to 21:30. ・Shikoku T&D shall supply 400 MW of electricity at most to Kansai T&D from 20:30 to 24:00. ・Kyushu T&D shall supply 500 MW of electricity at most to Kansai T&D from 20:30 to 23:00. ・Kansai T&D shall be supplied 900 MW of electricity at most by Tokyo PG, Chubu PG, Hokuriku T&D, Chugoku NW, Shikoku T&D and Kyushu T&D from 20:30 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of unexpected demand growth and expected Decemberrease of supply capacity in some generation plants caused by lower temperature.
10	Issued at	22:23 on December 15, 2020
	Instruction	・Tokyo PG shall supply 1490 MW of electricity at most to Kansai T&D from 00:00 to 08:30 on December 16. ・Hokuriku T&D shall supply 100 MW of electricity at most to Kansai T&D from 00:00 to 03:00 on December 16. ・Shikoku T&D shall supply 40 MW of electricity at most to Kansai T&D from 00:00 to 00:30 on December 16. ・Kyushu T&D shall supply 200 MW of electricity at most to Kansai T&D from 03:00 to 08:00 on December 16. ・Kansai T&D shall be supplied 1500 MW of electricity at most by Tokyo PG, Chubu PG, Hokuriku T&D, Chugoku NW, Shikoku T&D and Kyushu T&D from 00:00 to 08:00 on December 16.
	Background	Securng supply capacity for the day is necessary by the power exchange through cross-regional interconnection lines due to Decemberreaseof supply capacity in some generation plants.
11	Issued at	07:00 on December 16, 2020
	Instruction	・Tokyo PG shall supply 600 MW of electricity at most to Kansai T&D from 08:00 to 11:00. ・Hokuriku T&D shall supply 100 MW of electricity to Kansai T&D from 08:00 to 12:00. ・Chugoku NW shall supply 100 MW of electricity to Kansai T&D from 11:00 to 12:00. ・Shikoku T&D shall supply 150 MW of electricity at most to Kansai T&D from 10:00 to 12:00. ・Kyushu T&D shall supply 300 MW of electricity at most to Kansai T&D from 08:00 to 11:00. ・Kansai T&D shall be supplied 870 MW of electricity at most by Tokyo PG, Hokuriku T&D, Chugoku NW, Shikoku T&D and Kyushu T&D from 08:00 to 12:00.
	Background	Securng supply capacity for the day is necessary by the power exchange through cross-regional interconnection lines due to Decemberreaseof supply capacity in some generation plants.

12	Issued at	16:02 on December 16, 2020
	Instruction	・Tokyo PG shall supply 430 MW of electricity at most to Chubu PG from 16:30 to 18:00. ・Hokuriku T&D shall supply 150 MW of electricity at most to Chubu PG from16:30 to 18:30. ・Chugoku NW shall supply 60 MW of electricity at most to Chubu PG from17:00 to 18:30. ・Chubu PG shall be supplied 600 MW of electricity at most by Tokyo PG, Hokuriku T&D and Chugoku NW from16:30 to 18:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of generator shutdown due to transmission line outage in the regional service area.
13	Issued at	11:41 on December 27, 2020
	Instruction	・Hokkaido NW shall supply 30 MW of electricity at most to Kansai T&D from 16:30 to 17:30. ・Chubu PG shall supply 150 MW of electricity at most to Kansai T&D from 12:00 to 24:00. ・Hokuriku T&D shall supply 500 MW of electricity at most to Kansai T&D from 12:00 to 24:00. ・Chugoku NW shall supply 50 MW of electricity to Kansai T&D from 12:00 to 24:00. ・Kyushu T&D shall supply 100 MW of electricity at most to Kansai T&D from 12:00 to 23:00. ・Kansai T&D shall be supplied 2000 MW of electricity at most by Hokkaido NW, Chubu PG, Chugoku NW, and Kyushu T&D from 12:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators in the regional service area of Kansai T&D which is necessary for supply-demand balance due to prolonged cold weather. Further, the Organization shall implement additional instructions to supply capacity of balancing generators is continuously saved.
14	Issued at	20:11 on December 27, 2020
	Instruction	・Hokkaido NW shall supply 300 MW of electricity at most to Kansai T&D from 08:00 to 12:00 on December 28. ・Chubu PG shall supply 1750 MW of electricity at most to Kansai T&D from 00:00 to 14:00 on December 28. ・Hokuriku T&D shall supply 250 MW of electricity to Kansai T&D from 00:00 to 14:00 on December 28. ・Chugoku NW shall supply 50 MW of electricity to Kansai T&D from 10:00 to 14:00 on December 28. ・Shikoku T&D shall supply 100 MW of electricity at most to Kansai T&D from 12:00 to 14:00 on December 28. ・Kyushu T&D shall supply 200 MW of electricity at most to Kansai T&D from 00:30 to 11:30 on December 28. ・Kansai T&D shall be supplied 2000 MW of electricity at most by Hokkaido NW, Chubu PG, Hokuriku T&D, Chugoku NW, Shikoku T&D, and Kyushu T&D from 00:00 to 14:00 on December 28.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
15	Issued at	01:36 on January 3, 2021
	Instruction	・Chubu PG shall supply 600 MW of electricity at most to Tokyo PG from 02:00 to 08:00. ・Hokuriku T&D shall supply 200 MW of electricity to Tokyo PG from 07:30 to 10:00. ・Chugoku NW shall supply 30 MW of electricity to Tokyo PG from 09:00 to 10:00. ・Kyushu T&D shall supply 300 MW of electricity at most to Tokyo PG from 07:30 to 09:30. ・Tokyo PG shall be supplied 600 MW of electricity at most by Chubu PG, Hokuriku T&D, Chugoku NW, and Kyushu T&D from 02:00 to 10:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.
16	Issued at	11:05 on January 3, 2021
	Instruction	・Hokkaido NW shall supply 100 MW of electricity to Tokyo PG from 11:30 to 22:00. ・Tohoku NW shall supply 200 MW of electricity to Tokyo PG from 11:30 to 16:30. ・Chubu PG shall supply 600 MW of electricity at most to Tokyo PG from 11:30 to 22:00. ・Hokuriku T&D shall supply 200 MW of electricity to Tokyo PG from 11:30 to 21:30. ・Chugoku NW shall supply 50 MW of electricity to Tokyo PG from 11:30 to 12:30. ・Shikoku T&D shall supply 50 MW of electricity to Tokyo PG from 11:30 to 12:30. ・Kyushu T&D shall supply 100 MW of electricity to Tokyo PG from 16:30 to 21:00. ・Tokyo PG shall be supplied 900 MW of electricity at most by Hokkaido NW, Tohoku NW, Chubu PG, Hokuriku T&D, Chugoku NW, Shikoku T&D, and Kyushu T&D from 11:30 to 22:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.

17	Issued at	21:08 on January 3, 2021
	Instruction	・Hokkaido NW shall supply 100 MW of electricity to Tokyo PG from 00:00 to 14:00 on January 4. ・Tohoku NW shall supply 300 MW of electricity at most to Tokyo PG from 0:00 to 01:30 on January 4. ・Chubu PG shall supply 900 MW of electricity at most to Tokyo PG from 00:00 to 14:00 on January 4. ・Hokuriku T&D shall supply 100 MW of electricity at most to Tokyo PG from 07:00 to 10:00 on January 4. ・Tokyo PG shall be supplied 1000 MW of electricity at most by Hokkaido NW, Tohoku NW, Chubu PG, and Hokuriku T&D from 00:00 to 14:00 on January 4.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.
18	Issued at	13:18 on January 4, 2021
	Instruction	・Hokkaido NW shall supply 100 MW of electricity to Tokyo PG from 18:00 to 24:00. ・Tohoku NW shall supply 600 MW of electricity at most to Tokyo PG from 14:00 to 24:00. ・Chubu PG shall supply 500 MW of electricity at most to Tokyo PG from 21:30 to 24:00. ・Hokuriku T&D shall supply 100 MW of electricity to Tokyo PG from 14:30 to 24:00. ・Shikoku T&D shall supply 100 MW of electricity to Tokyo PG from 15:30 to 16:00. ・Kyushu T&D shall supply 250 MW of electricity at most to Tokyo PG from 15:30 to 21:30. ・Tokyo PG shall be supplied 600 MW of electricity at most by Hokkaido NW, Tohoku NW, Chubu PG, Hokurku T&D, Shikoku T&D, and Kyushu T&D from 14:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.
19	Issued at	20:39 on January 5, 2021
	Instruction	・Hokkaido NW shall supply 100 MW of electricity to Kansai T&D from 22:00 to 23:00. ・Tohoku NW shall supply 150 MW of electricity at most to Kansai T&D from 22:30 to 24:00. ・Hokuriku T&D shall supply 200 MW of electricity to Kansai T&D from 21:30 to 24:00. ・Kansai T&D shall be supplied 350 MW of electricity at most by Hokkaido NW, Tohoku NW, and Hokuriku T&D from 21:30 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
20	Issued at	23:13 on January 5, 2021
	Instruction	・Tohoku NW shall supply 350 MW of electricity at most to Kansai T&D from 03:00 to 05:30 on January 6. ・Hokuriku T&D shall supply 200 MW of electricity to Kansai T&D from 00:00 to 06:00 on January 6. ・Shikoku T&D shall supply 140 MW of electricity to Kansai T&D from 00:00 to 04:30 on January 6. ・Kyushu T&D shall supply 100 MW of electricity to Kansai T&D from 00:00 to 02:30 on January 6. ・Kansai T&D shall be supplied 690 MW of electricity at most by Tohoku NW, Hokuriku T&D, Shikoku T&D, and Kyushu T&D from 00:00 to 06:00 on January 6.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
21	Issued at	04:17 on January 6, 2021
	Instruction	・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 06:00 to 08:00. ・Kansai T&D shall be supplied 50 MW of electricity at most by Hokuriku T&D from 06:00 to 08:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
22	Issued at	07:12 on January 6, 2021
	Instruction	・Kyushu T&D shall supply 100 MW of electricity to Tohoku NW from 08:00 to 09:00. ・Tohoku NW shall be supplied 100 MW of electricity by Kyushu T&D from 08:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of increasing demand by cold temperature in the regional service area of Tohoku NW.

23	Issued at	10:21 on January 6, 2021
	Instruction	・Chugoku NW shall supply 30 MW of electricity to kansai T&D from 11:00 to 16:00. ・Kyushu T&D shall supply 100 MW of electricity to kansai T&D from 11:00 to 13:00. ・Kansai T&D shall be supplied 130 MW of electricity by Chugoku NW and Kyushu T&D from 11:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
24	Issued at	15:43 on January 6, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity at most to Kansai T&D from 16:30 to 20:00. ・Shikoku T&D shall supply 110 MW of electricity to Kansai T&D from 17:00 to 20:00. ・Kyushu T&D shall supply 100 MW of electricity at most to Kansai T&D from 16:00 to 20:00. ・Kansai T&D shall be supplied 310 MW of electricity at most by Hokkaido NW, Shikoku T&D, and Kyushu T&D from 16:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
25	Issued at	18:50 on January 6, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity at most to Kansai T&D from 20:00 to 22:00. ・Kansai T&D shall be supplied 140 MW of electricity at most by Hokkaido NW from 20:00 to 22:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
26	Issued at	22:29 on January 6, 2021
	Instruction	・Tohoku NW shall supply 100 MW of electricity to Tokyo PG from 03:00 to 04:00 on January 7. ・Chubu PG shall supply 210 MW of electricity to Tokyo PG from 00:00 to 06:00 on January 7. ・Tokyo PG shall be supplied 310 MW of electricity at most by Tohoku NW, and Chubu PG from 00:00 to 06:00 on January 7.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.
27	Issued at	04:38 on January 7, 2021
	Instruction	・Chubu PG shall supply 100 MW of electricity at most to Tokyo PG from 06:00 to 11:00. ・Tokyo PG shall be supplied 100 MW of electricity at most by Chubu PG from 06:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.
28	Issued at	10:18 on January 7, 2021
	Instruction	・Chubu PG shall supply 180 MW of electricity at most to Kansai T&D from 11:00 to 14:00. ・Kansai T&D shall be supplied 180 MW of electricity at most by Chubu PG from 11:00 to 14:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
29	Issued at	11:22 on January 7, 2021
	Instruction	・Kyushu T&D shall supply 100 MW of electricity to Kansai T&D from 12:00 to 13:00. ・Kansai T&D shall be supplied 100 MW of electricity by Kyushu T&D from 12:00 to 13:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
30	Issued at	11:58 on January 7, 2021
	Instruction	・Kyushu T&D shall supply 100 MW of electricity at most to Kansai T&D from 13:00 to 14:30. ・Kansai T&D shall be supplied 100 MW of electricity at most by Kyushu T&D from 13:00 to 14:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

31	Issued at	13:46 on January 7, 2021
	Instruction	・Chubu PG shall supply 180 MW of electricity to Hokuriku T&D from 14:00 to 15:00. ・Hokuriku T&D shall be supplied 180 MW of electricity by Chubu PG from 14:00 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
32	Issued at	14:28 on January 7, 2021
	Instruction	・Chubu PG shall supply 210 MW of electricity to Hokuriku T&D from 15:00 to 16:00. ・Hokuriku T&D shall be supplied 210 MW of electricity by Chubu PG from 15:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
33	Issued at	15:37 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 50 MW of electricity to Hokuriku T&D from 16:00 to 17:00. ・Chubu PG shall supply 250 MW of electricity to Hokuriku T&D from 16:00 to 17:00. ・Hokuriku T&D shall be supplied 300 MW of electricity by Hokkaido NW and Chubu PG from 16:00 to 17:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
34	Issued at	16:26 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 190 MW of electricity to Chugoku NW from 17:00 to 18:00. ・Chugoku NW shall be supplied 190 MW of electricity by Hokkaido NW from 17:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
35	Issued at	16:35 on January 7, 2021
	Instruction	・Kansai T&D shall supply 350 MW of electricity to Hokuriku T&D from 17:00 to 18:00. ・Hokuriku T&D shall be supplied 300 MW of electricity by Kansai T&D from 17:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
36	Issued at	16:39 on January 7, 2021
	Instruction	・Kansai T&D shall supply 50 MW of electricity to Shikoku T&D from 17:00 to 18:00. ・Shikoku T&D shall be supplied 50 MW of electricity by Kansai T&D from 17:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
37	Issued at	17:39 on January 7, 2021
	Instruction	・Chubu PG shall supply 250 MW of electricity to Hokuriku T&D from 18:00 to 19:00. ・Hokuriku T&D shall be supplied 250 MW of electricity by Chubu PG from 18:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
38	Issued at	17:39 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 190 MW of electricity to Chugoku NW from 18:00 to 19:00. ・Tokyo PG shall supply 400 MW of electricity to Chugoku NW from 18:00 to 19:00. ・Chugoku NW shall be supplied 590 MW of electricity by Hokkaido NW and Tokyo PG from 18:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
39	Issued at	17:39 on January 7, 2021
	Instruction	・Chubu PG shall supply 100 MW of electricity to Shikoku T&D from 18:00 to 19:00. ・Shikoku T&D shall be supplied 100 MW of electricity by Chubu PG from 18:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.

40	Issued at	18:38 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 190 MW of electricity at most to Hokuriku T&D from 19:00 to 20:00. ・Hokuriku T&D shall be supplied 190 MW of electricity at most by Hokkaido NW from 19:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
41	Issued at	18:38 on January 7, 2021
	Instruction	・Tokyo PG shall supply 600 MW of electricity to Chugoku NW from 19:00 to 20:00. ・Chubu PG shall supply 700 MW of electricity to Chugoku NW from 19:00 to 20:00. ・Chugoku NW shall be supplied 1300 MW of electricity by Tokyo PG and Chubu PG from 19:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
42	Issued at	19:41 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 50 MW of electricity to Hokuriku T&D from 20:00 to 21:00. ・Hokuriku T&D shall be supplied 50 MW of electricity by Hokkaido NW from 20:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
43	Issued at	19:41 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity at most to Chugoku NW from 20:00 to 21:00. ・Chubu PG shall supply 700 MW of electricity to Chugoku NW from 20:00 to 21:00. ・Chugoku NW shall be supplied 840 MW of electricity at most by Hokkaido NW and Chubu PG from 20:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
44	Issued at	20:32 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 190 MW of electricity at most to Chugoku NW from 21:00 to 24:00. ・Chubu PG shall supply 1000 MW of electricity to Chugoku NW from from 21:00 to 24:00. ・Chugoku NW shall be supplied 1190 MW of electricity at most by Hokkaido NW and Chubu PG from21:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
45	Issued at	22:25 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity to Chugoku NW from 23:00 to 24:00. ・Chugoku NW shall be supplied 140 MW of electricity by Hokkaido NW from 23:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
46	Issued at	23:35 on January 7, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity at most to Chugoku NW from 00:00 to 04:00 on January 8. ・Tohoku NW shall supply 250 MW of electricity at most to Chugoku NW from 03:00 to 04:00 on January 8. ・Chubu PG shall supply 200 MW of electricity to Chugoku NW from 00:00 to 04:00 on January 8. ・Hokuriku T&D shall supply 30 MW of electricity to Chugoku NW from 00:00 to 04:00 on January 8. ・Chugoku NW shall be supplied 550 MW of electricity at most by Hokkaido NW, Tohoku NW, Chubu PG, and Hokuriku T&D from 00:00 to 04:00 on January 8.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
47	Issued at	00:36 on January 8, 2021
	Instruction	・Tohoku NW shall supply 680 MW of electricity at most to Tokyo PG from 01:00 to 02:00. ・Tokyo PG shall be supplied 680 MW of electricity at most by Tohoku NW from 01:00 to 02:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.

48	Issued at	01:15 on January 8, 2021
	Instruction	・Tohoku NW shall supply 1260 MW of electricity at most to Tokyo PG from 02:00 to 04:00. ・Tokyo PG shall be supplied 1260 MW of electricity at most by Tohoku NW from 02:00 to 04:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.
49	Issued at	03:16 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity to Chugoku NW from 04:00 to 05:30. ・Chubu PG shall supply 400 MW of electricity to Chugoku NW from 04:00 to 05:30. ・Chugoku NW shall be supplied 540 MW of electricity by Hokkaido NW, and Chubu PG from 04:00 to 05:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
50	Issued at	03:25 on January 8, 2021
	Instruction	・Tohoku NW shall supply 1570 MW of electricity at most to Tokyo PG from 04:00 to 05:30. ・Tokyo PG shall be supplied 1570 MW of electricity at most by Tohoku NW from 04:00 to 05:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Tokyo PG due to prolonged cold weather.
51	Issued at	04:34 on January 8, 2021
	Instruction	・Chubu PG shall supply 500 MW of electricity to Chugoku NW from 05:00 to 06:30. ・Chugoku NW shall be supplied 500 MW of electricity by Chubu PG from 05:00 to 06:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
52	Issued at	05:04 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity to Chugoku NW from 05:30 to 08:00. ・Tohoku NW shall supply 590 MW of electricity at most to Chugoku NW from 05:30 to 08:00. ・Chugoku NW shall be supplied 730 MW of electricity at most by Hokkaido NW and Tohoku NW from 05:30 to 08:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
53	Issued at	06:40 on January 8, 2021
	Instruction	・Chubu PG shall supply 1200 MW of electricity to Kansai T&D from 8:00 to 10:00. ・Kansai T&D shall be supplied 1200 MW of electricity by Chubu PG from 8:00 to 10:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
54	Issued at	08:17 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity at most to Chugoku NW from 09:00 to 11:00. ・Chugoku NW shall be supplied 140 MW of electricity at most by Hokkaido NW from 09:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
55	Issued at	09:39 on January. 8, 2021
	Instruction	・Chubu PG shall supply 700 MW of electricity to Kansai T&D from 10:00 to 11:00. ・Kansai T&D shall be supplied 700 MW of electricity by Chubu PG from 10:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
56	Issued at	09:39 on January 8, 2021
	Instruction	・Chubu PG shall supply 1000 MW of electricity to Chugoku NW from 10:00 to 11:00. ・Chugoku NW shall be supplied 1000 MW of electricity by Chubu PG from 10:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.

57	Issued at	09:44 on January 8, 2021
	Instruction	・Shikoku T&D shall supply 50 MW of electricity to Chugoku NW from 10:00 to 11:00. ・Chugoku NW shall be supplied 50 MW of electricity by Chubu PG from 10:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
58	Issued at	10:40 on January 8, 2021
	Instruction	・Chubu PG shall supply 150 MW of electricity to Hokuriku T&D from 11:00 to 12:00. ・Hokuriku T&D shall be supplied 50 MW of electricity by Chubu PG from 11:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
59	Issued at	10:40 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 50 MW of electricity to Kansai T&D from 11:00 to 12:00. ・Chubu PG shall supply 50 MW of electricity to Kansai T&D from 11:00 to 12:00. ・Kansai T&D shall be supplied 100 MW of electricity by Hokkaido NW and Chubu PG from 11:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
60	Issued at	10:40 on January 8, 2021
	Instruction	・Chubu PG shall supply 1700 MW of electricity to Chugoku NW from 11:00 to 12:00. ・Shikoku T&D shall supply 50 MW of electricity to Chugoku NW from 11:00 to 12:00. ・Chugoku NW shall be supplied 1750 MW of electricity by Chubu PG and Shikoku T&D from 11:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
61	Issued at	11:43 on January 8, 2021
	Instruction	・Chubu PG shall supply 150 MW of electricity to Hokuriku T&D from 12:00 to 13:00. ・Hokuriku T&D shall be supplied 150 MW of electricity by Chubu PG from 12:00 to 13:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
62	Issued at	11:43 on January 8, 2021
	Instruction	・Chubu PG shall supply 100 MW of electricity to Kansai T&D from 12:00 to 13:00. ・Kansai T&D shall be supplied 100 MW of electricity by Chubu PG from 12:00 to 13:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
63	Issued at	11:43 on January 8, 2021
	Instruction	・Chubu PG shall supply 1650 MW of electricity at most to Chugoku NW from 12:00 to 13:00. ・Shikoku T&D shall supply 50 MW of electricity to Chugoku NW from 12:00 to 13:00. ・Chugoku NW shall be supplied 1700 MW of electricity at most by Chubu PG and Shikoku T&D from 12:00 to 13:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
64	Issued at	12:32 on January 8, 2021
	Instruction	・Chubu PG shall supply 150 MW of electricity to Hokuriku T&D from 13:00 to 14:00. ・Hokuriku T&D shall be supplied 150 MW of electricity by Chubu PG from 13:00 to 14:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
65	Issued at	12:32 on January 8, 2021
	Instruction	・Chubu PG shall supply 200 MW of electricity to Hokuriku T&D from 13:00 to 14:00. ・Kansai T&D shall be supplied 200 MW of electricity by Chubu PG from 13:00 to 14:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

66	Issued at	12:32 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 50 MW of electricity to Chugoku NW from 13:00 to 14:00. ・Chubu PG shall supply 1350 MW of electricity to Chugoku NW from 13:00 to 14:00. ・Shikoku T&D shall supply 50 MW of electricity to Chugoku NW from 13:00 to 14:00. ・Chugoku NW shall be supplied 1450 MW of electricity Hokkaido NW, Chubu PG, and Shikoku T&D from 13:00 to 14:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
67	Issued at	13:37 on January 8, 2021
	Instruction	・Chubu PG shall supply 250 MW of electricity to Hokuriku T&D from 14:00 to 15:00. ・Hokuriku T&D shall be supplied 250 MW of electricity by Chubu PG from 14:00 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
68	Issued at	13:37 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 50 MW of electricity to Kansai T&D from 14:00 to 15:00. ・Chubu PG shall supply 250 MW of electricity to Kansai T&D from 14:00 to 15:00. ・Kansai T&D shall be supplied 300 MW of electricity by Hokkaido NW and Chubu PG from 14:00 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
69	Issued at	13:37 on January 8, 2021
	Instruction	・Chubu PG shall supply 500 MW of electricity to Chugoku NW from 14:00 to 15:00. ・Shikoku T&D shall supply 50 MW of electricity to Chugoku NW from 14:00 to 15:00. ・Chugoku NW shall be supplied 550 MW of electricity by Chubu PG, and Shikoku T&D from 14:00 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
70	Issued at	14:02 on January 8, 2021
	Instruction	・Tokyo PG shall supply 700 MW of electricity to Kansai T&D from 14:30 to 15:00. ・Kansai T&D shall be supplied 700 MW of electricity by Chubu PG from 14:30 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
71	Issued at	14:41 on January 8, 2021
	Instruction	・Tokyo PG shall supply 100 MW of electricity to Hokuriku T&D from 15:00 to 16:00. ・Chubu PG shall supply 200 MW of electricity to Hokuriku T&D from 15:00 to 16:00. ・Kansai T&D shall be supplied 300 MW of electricity by Tokyo PG and Chubu PG from 15:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
72	Issued at	14:41 on January 8, 2021
	Instruction	・Chubu PG shall supply 150 MW of electricity to Hokuriku T&D from 15:00 to 16:00. ・Kansai T&D shall be supplied 150 MW of electricity by Chubu PG from 15:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
73	Issued at	14:41 on January 8, 2021
	Instruction	・Tokyo PG shall supply 560 MW of electricity at most to Chugoku NW from 15:00 to 16:00. ・Shikoku T&D shall supply 50 MW of electricity to Chugoku NW from 15:00 to 16:00. ・Chugoku NW shall be supplied 610 MW of electricity at most by Tokyo PG and Shikoku T&D from 15:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.

74	Issued at	14:41 on January 8, 2021
	Instruction	・Tokyo PG shall supply 200 MW of electricity to Kyushu T&D from 15:30 to 16:00. ・Kyushu T&D shall be supplied 200 MW of electricity by Tokyo PG from 15:30 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
75	Issued at	15:36 on January 8, 2021
	Instruction	・Chubu PG shall supply 250 MW of electricity to Hokuriku T&D from 16:00 to 17:00. ・Hokuriku T&D shall be supplied 250 MW of electricity by Chubu PG from 16:00 to 17:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
76	Issued at	15:36 on January 8, 2021
	Instruction	・Tokyo PG shall supply 150 MW of electricity at most to Kansai T&D from 16:00 to 17:00. ・Chubu PG shall supply 450 MW of electricity at most to Kansai T&D from 16:00 to 17:00. ・Kansai T&D shall be supplied 600 MW of electricity at most by Tokyo PG and Chubu PG from 16:00 to 17:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
77	Issued at	15:36 on January 8, 2021
	Instruction	・Chubu PG shall supply 300 MW of electricity at most to Chugoku NW from 16:00 to 17:00. ・Chugoku NW shall be supplied 300 MW of electricity at most by Chubu PG from 16:00 to 17:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
78	Issued at	15:36 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 50 MW of electricity to Kyushu T&D from 16:00 to 17:00. ・Tokyo PG shall supply 450 MW of electricity at most to Kyushu T&D from 16:00 to 17:00. ・Kyushu T&D shall be supplied 500 MW of electricity at most by Hokkaido NW and Tokyo PG from 16:00 to 17:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
79	Issued at	16:39 on January 8, 2021
	Instruction	・Chubu PG shall supply 100 MW of electricity to Hokuriku T&D from 17:00 to 18:00. ・Hokuriku T&D shall be supplied 100 MW of electricity by Chubu PG from 17:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
80	Issued at	16:39 on January 8, 2021
	Instruction	・Tokyo PG shall supply 450 MW of electricity at most to Kansai T&D from 17:00 to 18:00. ・Chubu PG shall supply 300 MW of electricity at most to Kansai T&D from 17:00 to 18:00. ・Kansai T&D shall be supplied 500 MW of electricity by Tokyo PG and Chubu PG from 17:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
81	Issued at	16:39 on January 8, 2021
	Instruction	・Tokyo PG shall supply 400 MW of electricity to Chugoku NW from 17:00 to 18:00. ・Chugoku NW shall be supplied 400 MW of electricity by Tokyo PG from 17:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.

82	Issued at	16:39 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity at most to Kyushu T&D from 17:00 to 18:00. ・Tokyo PG shall supply 350 MW of electricity at most to Kyushu T&D from 17:00 to 18:00. ・Kyushu T&D shall be supplied 440 MW of electricity at most by Hokkaido NW and Tokyo PG from 17:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
83	Issued at	17:41 on January 8, 2021
	Instruction	・Tokyo PG shall supply 320 MW of electricity at most to Kansai T&D from 18:00 to 19:00. ・Chubu PG shall supply 170 MW of electricity at most to Kansai T&D from 18:00 to 19:00. ・Kansai T&D shall be supplied 500 MW of electricity at most by Tokyo PG and Chubu PG from 18:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
84	Issued at	17:41 on January 8, 2021
	Instruction	・Tokyo PG shall supply 400 MW of electricity to Chugoku NW from 18:00 to 19:00. ・Chugoku NW shall be supplied 400 MW of electricity by Tokyo PG from 18:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
85	Issued at	17:41 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 170 MW of electricity at most to Kyushu T&D from 18:00 to 19:00. ・Tokyo PG shall supply 500 MW of electricity to Kyushu T&D from 18:00 to 19:00. ・Kyushu T&D shall be supplied 670 MW of electricity at most by Hokkaido NW and Tokyo PG from 18:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
86	Issued at	18:31 on January 8, 2021
	Instruction	・Chubu PG shall supply 200 MW of electricity to Kansai T&D from 19:00 to 20:00. ・Kansai T&D shall be supplied 200 MW of electricity by Chubu PG from 19:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
87	Issued at	18:31 on January 8, 2021
	Instruction	・Tokyo PG shall supply 900 MW of electricity at most to Chugoku NW from 19:00 to 20:00. ・Chubu PG shall supply 100 MW of electricity to Chugoku NW from 19:00 to 20:00. ・Chugoku NW shall be supplied 1000 MW electricity at most by Tokyo PG and Chubu PG from 19:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
88	Issued at	18:31 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 190 MW of electricity at most to Kyushu T&D from 19:00 to 20:00. ・Tohoku NW shall supply 220 MW of electricity at most to Kyushu T&D from 19:00 to 20:00. ・Tokyo PG shall supply 190 MW of electricity at most to Kyushu T&D from 19:00 to 20:00. ・Kyushu T&D shall be supplied 500 MW of electricity at most by Hokkaido NW, Tohoku NW, and Tokyo PG from 19:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
89	Issued at	19:26 on January 8, 2021
	Instruction	・Tokyo PG shall supply 500 MW of electricity to Kansai T&D from 20:00 to 21:00. ・Kansai T&D shall be supplied 500 MW of electricity by Tokyo PG from 20:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

90	Issued at	19:26 on January 8, 2021
	Instruction	・Tohoku NW shall supply 240 MW of electricity at most to Chugoku NW from 20:00 to 21:00. ・Tokyo PG shall supply 630 MW of electricity at most to Chugoku NW from 20:00 to 21:00. ・Chugoku NW shall be supplied 670 MW electricity at most by Tohoku NW and Tokyo PG from 20:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
91	Issued at	19:26 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 190 MW of electricity at most to Kyushu T&D from 20:00 to 21:00. ・Tohoku NW shall supply 2 MW of electricity to Kyushu T&D from 20:00 to 21:00. ・Kyushu T&D shall be supplied 200 MW of electricity at most by Hokkaido NW and Tohoku NW from 20:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
92	Issued at	20:39 on January 8, 2021
	Instruction	・Chubu PG shall supply 660 MW of electricity at most to Kansai T&D from 21:00 to 22:00. ・Kansai T&D shall be supplied 660 MW of electricity at most by Chubu PG from 21:00 to 22:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
93	Issued at	20:39 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 190 MW of electricity at most to Chugoku NW from 21:00 to 22:00. ・Tohoku NW shall supply 500 MW of electricity at most to Chugoku NW from 21:00 to 22:00. ・Tokyo PG shall supply 990 MW of electricity at most to Chugoku NW from 21:00 to 22:00. ・Chubu PG shall supply 360 MW of electricity at most to Chugoku NW from 21:00 to 22:00. ・Hokuriku T&D shall supply 50 MW of electricity at most to Chugoku NW from 21:00 to 22:00. ・Chugoku NW shall be supplied 1800 MW of electricity at most by Hokkaido NW, Tohoku NW, Tokyo PG, Chubu PG, and Hokuriku T&D from 21:00 to 22:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
94	Issued at	21:41 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 120 MW of electricity at most to Chugoku NW from 22:00 to 23:00. ・Chubu PG shall supply 750 MW of electricity at most to Chugoku NW from 22:00 to 23:00. ・Hokuriku T&D shall supply 50 MW of electricity to Chugoku NW from 22:00 to 23:00. ・Chugoku NW shall be supplied 920 MW of electricity at most by Chubu PG and Hokuriku T&D from 22:00 to 23:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
95	Issued at	22:22 on January 8, 2021
	Instruction	・Hokkaido NW shall supply 190 MW of electricity to Chugoku NW from 23:00 to 24:00. ・Chubu PG shall supply 200 MW of electricity to Chugoku NW from 23:00 to 24:00. ・Hokuriku T&D shall supply 100 MW of electricity to Chugoku NW from 23:00 to 24:00. ・Chugoku NW shall be supplied 500 MW of electricity by Hokkaido NW, Chubu PG and Hokuriku T&D from 23:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
96	Issued at	23:21 on January 8, 2021
	Instruction	・Hokuriku T&D shall supply 100 MW of electricity to Chugoku NW from 0:00 to 01:00 on January 9. ・Chugoku NW shall be supplied100 MW of electricity by Hokuriku T&D from 0:00 to 01:00 on January 9.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.

97	Issued at	00:29 on January 9, 2021
	Instruction	・Hokuriku T&D shall supply 150 MW of electricity to Chugoku NW from 1:00 to 01:30. ・Chugoku NW shall be supplied150 MW of electricity by Hokuriku T&D from 1:00 to 01:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
98	Issued at	00:52 on January 9, 2021
	Instruction	・Tohoku NW shall supply 500 MW of electricity at most to Chugoku NW from 01:30 to 02:30. ・Tokyo PG shall supply 1000 MW of electricity at most to Chugoku NW from 01:30 to 03:00. ・Chugoku NW shall be supplied 1000 MW of electricity at most by Tohoku NW and Tokyo PG from 01:30 to 03:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
99	Issued at	02:29 on January 9, 2021
	Instruction	・Tokyo PG shall supply 1500 MW of electricity at most to Chugoku NW from 03:00 to 04:00. ・Chugoku NW shall be supplied 1500 MW of electricity at most by Tokyo PG from 03:00 to 04:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
100	Issued at	03:31 on January 9, 2021
	Instruction	・Tokyo PG shall supply 1000 MW of electricity at most to Chugoku NW from 04:00 to 05:00. ・Chubu PG shall supply 500 MW of electricity to Chugoku NW from 04:00 to 05:00. ・Chugoku NW shall be supplied 1500 MW of electricity at most by Tokyo PG and Chubu PG from 04:00 to 05:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
101	Issued at	04:20 on January 9, 2021
	Instruction	・Tokyo PG shall supply 630 MW of electricity at most to Kansai T&D from 05:00 to 06:00. ・Kansai T&D shall be supplied 630 MW of electricity at most by Tokyo PG from 05:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
102	Issued at	04:20 on January 9, 2021
	Instruction	・Tokyo PG shall supply 500 MW of electricity to Chugoku NW from 05:00 to 06:00. ・Chugoku NW shall be supplied 500 MW of electricity by Tokyo PG from 05:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
103	Issued at	04:20 on January 9, 2021
	Instruction	・Chubu PG shall supply 500 MW of electricity to Kyushu T&D from 05:00 to 06:00. ・Kyushu T&D shall be supplied 500 MW of electricity by Chubu PG from 05:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
104	Issued at	05:08 on January 9, 2021
	Instruction	・Tohoku NW shall supply 120 MW of electricity to Kansai T&D from 10:30 to 11:00. ・Tokyo PG shall supply 660 MW of electricity at most to Kansai T&D from 06:00 to 09:00. ・Chubu PG shall supply 500 MW of electricity at most to Kansai T&D from 09:00 to 11:00. ・Kansai T&D shall be supplied 660 MW of electricity at most by Tohoku NW, Tokyo PG and Chugoku PG from 06:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

105	Issued at	05:08 on January 9, 2021
	Instruction	・Tohoku NW shall supply 320 MW of electricity at most to Chugoku NW from 9:00 to 11:00. ・Tokyo PG shall supply 450 MW of electricity at most to Chugoku NW from 6:00 to 10:00. ・Chubu PG shall supply 100 MW of electricity at most to Chugoku NW from 9:00 to 10:30. ・Chugoku NW shall be supplied 500 MW of electricity at most by Tohoku NW, Tokyo PG and Chubu PG from 06:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
106	Issued at	05:08 on January 9, 2021
	Instruction	・Tohoku NW shall supply 500 MW of electricity at most to Kyushu T&D from 6:00 to 11:00. ・Tokyo PG shall supply 370 MW of electricity at most to Kyushu T&D from 6:00 to 09:00. ・Kyushu T&D shall be supplied 610 MW of electricity by Tohoku NW and Tokyo PG from 6:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
107	Issued at	06:25 on January 9, 2021
	Instruction	・Hokuriku T&D shall supply 200 MW of electricity to Kansai T&D from 07:00 to 09:00. ・Shikoku T&D shall supply 60 MW of electricity at most to Kansai T&D from 08:00 to 09:00. ・Kansai T&D shall be supplied 260 MW of electricity at most by Hokuriku T&D and Shikoku T&D from 07:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
108	Issued at	08:13 on January 9, 2021
	Instruction	・Hokuriku T&D shall supply 100 MW of electricity to Kansai T&D from 09:00 to 10:00. ・Kansai T&D shall be supplied 100 MW of electricity by Hokuriku T&D from 09:00 to 10:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
109	Issued at	09:20 on January 9, 2021
	Instruction	・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 10:00 to 11:00. ・Kansai T&D shall be supplied 50 MW of electricity by Hokuriku T&D from 10:00 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
110	Issued at	11:05 on January 9, 2021
	Instruction	・Tohoku NW shall supply 200 MW of electricity at most to Kansai T&D from 14:00 to 15:00. ・Chubu PG shall supply 700 MW of electricity to Kansai T&D from 11:30 to 15:00. ・Kansai T&D shall be supplied 50 MW of electricity at most by Tohoku NW and Chubu PG from 11:30 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
111	Issued at	11:05 on January 9, 2021
	Instruction	・Tohoku NW shall supply 300 MW of electricity at most to Kyushu T&D from 11:30 to 15:00. ・Tokyo PG shall supply 100 MW of electricity to Kyushu T&D from 13:00 to 13:30. ・Chubu PG shall supply 100 MW of electricity at most to Kyushu T&D from 11:30 to 14:00. ・Kyushu T&D shall be supplied 380 MW of electricity at most by Tohoku NW, Tokyo PG and Chubu PG from 11:30 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
112	Issued at	11:11 on January 9, 2021
	Instruction	・Shikoku T&D shall supply 70 MW of electricity at most to Kansai T&D from 11:30 to 15:00. ・Kansai T&D shall be supplied 50 MW of electricity at most by Shikoku T&D from 11:30 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

113	Issued at	13:41 on January 9, 2021
	Instruction	・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 15:00 to 17:00. ・Kansai T&D shall be supplied 50 MW of electricity by Hokuriku T&D from 15:00 to 17:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
114	Issued at	14:19 on January 9, 2021
	Instruction	・Tokyo PG shall supply 770 MW of electricity at most to Kansai T&D from 15:00 to 17:00. ・Chubu PG shall supply 500 MW of electricity to Kansai T&D from 15:00 to 16:00. ・Kansai T&D shall be supplied 900 MW of electricity at most by Tokyo PG and Chubu PG from 15:00 to 17:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
115	Issued at	14:19 on January 9, 2021
	Instruction	・Tohoku NW shall supply 500 MW of electricity at most to Kyushu T&D from 15:00 to 17:00. ・Tokyo PG shall supply 650 MW of electricity at most to Kyushu T&D from 15:00 to 17:00. ・Kyushu T&D shall be supplied 900 MW of electricity at most by Tohoku NW and Tokyo PG from 15:00 to 17:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
116	Issued at	16:08 on January 9, 2021
	Instruction	・Tokyo PG shall supply 520 MW of electricity at most to Kansai T&D from 17:00 to 19:00. ・Kansai T&D shall be supplied 520 MW of electricity at most by Tokyo PG from 17:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
117	Issued at	16:08 on January 9, 2021
	Instruction	・Tokyo PG shall supply 570 MW of electricity at most to Kyushu T&D from 17:00 to 19:00. ・Kyushu T&D shall be supplied 570 MW of electricity at most by Tokyo PG from 17:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
118	Issued at	18:39 on January 9, 2021
	Instruction	・Tokyo PG shall supply 570 MW of electricity at most to Kansai T&D from 19:00 to 21:00. ・Kansai T&D shall be supplied 570 MW of electricity at most by Tokyo PG from 19:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
119	Issued at	18:39 on January 9, 2021
	Instruction	・Tohoku NW shall supply 330 MW of electricity at most to Kyushu T&D from 20:00 to 21:00. ・Tokyo PG shall supply 570 MW of electricity at most to Kyushu T&D from 19:00 to 21:00. ・Kyushu T&D shall be supplied 570 MW of electricity at most by Tohoku NW and Tokyo PG from 19:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
120	Issued at	20:42 on January 9, 2021
	Instruction	・Tohoku NW shall supply 450 MW of electricity at most to Kansai T&D from 21:00 to 24:00. ・Tokyo PG shall supply 350 MW of electricity at most to Kansai T&D from 21:00 to 24:00. ・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from from 21:00 to 24:00. ・Kansai T&D shall be supplied 850 MW of electricity at most by Tohoku NW, Tokyo PG and Hokuriku T&D from 21:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

121	Issued at	20:42 on January 9, 2021
	Instruction	・Tohoku NW shall supply 430 MW of electricity at most to Kyushu T&D from 21:00 to 24:00. ・Kyushu T&D shall be supplied 430 MW of electricity at most by by Tohoku NW from 21:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
122	Issued at	23:25 on January 9, 2021
	Instruction	・Tokyo PG shall supply 600 MW of electricity at most to Kansai T&D from 00:00 to 06:00 on January 10. ・Hokuriku T&D shall supply 100 MW of electricity to Kansai T&D from from 00:00 to 06:00 on January 10. ・Kansai T&D shall be supplied 700 MW of electricity at most by Tokyo PG and Hokuriku T&D from 00:00 to 06:00 on January 10.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
123	Issued at	23:25 on January 9, 2021
	Instruction	・Tokyo PG shall supply 250 MW of electricity at most to Kyushu T&D from 03:00 to 06:00. ・Kyushu T&D shall be supplied 250 MW of electricity at most by by Tokyo PG from 03:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
124	Issued at	03:15 on January 10, 2021
	Instruction	・Hokuriku T&D shall supply 100 MW of electricity to Kansai T&D from from 05:00 to 06:00. ・Kansai T&D shall be supplied 100 MW of electricity by Hokuriku T&D from 05:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
125	Issued at	05:38 on January 10, 2021
	Instruction	・Tokyo PG shall supply 410 MW of electricity at most to Kansai T&D from 06:00 to 09:00. ・Chubu PG shall supply 550 MW of electricity to Kansai T&D from 07:00 to 09:00. ・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from from 06:00 to 09:00. ・Kansai T&D shall be supplied 970 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 06:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
126	Issued at	05:38 on January 10, 2021
	Instruction	・Tokyo PG shall supply 440 MW of electricity at most to Kyushu T&D from 06:00 to 09:00. ・Kyushu T&D shall be supplied 440 MW of electricity at most by by Tokyo PG from 06:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
127	Issued at	06:23 on January 10, 2021
	Instruction	・Tokyo PG shall supply 370 MW of electricity at most to Kansai T&D from 08:00 to 09:00. ・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from from 08:00 to 09:00. ・Kansai T&D shall be supplied 420 MW of electricity at most by Tokyo PG and Hokuriku T&D 08:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
128	Issued at	06:23 on January 10, 2021
	Instruction	・Hokuriku T&D shall supply 50 MW of electricity to Kyushu T&D from from 07:00 to 08:00. ・Kyushu T&D shall be supplied 50 MW of electricity by Hokuriku T&D 07:00 to 08:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.

129	Issued at	07:43 on January 10, 2021
	Instruction	・Tokyo PG shall supply 180 MW of electricity to Kansai T&D from 09:00 to 09:30. ・Chubu PG shall supply 550 MW of electricity at most to Kansai T&D from 09:00 to 10:00. ・Hokuriku T&D shall supply 200 MW of electricity to Kansai T&D from from 09:00 to 09:30. ・Kansai T&D shall be supplied 930 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 09:00 to 10:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
130	Issued at	07:43 on January 10, 2021
	Instruction	・Tokyo PG shall supply 690 MW of electricity at most to Kyushu T&D from 09:00 to 12:00. ・Chubu PG shall supply 550 MW of electricity at most to Kyushu T&D from 09:30 to 12:00. ・Hokuriku T&D shall supply 200 MW of electricity to Kyushu T&D from from 09:30 to 12:00. ・Kyushu T&D shall be supplied 1440 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 09:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
131	Issued at	08:20 on January 10, 2021
	Instruction	・Shikoku T&D shall supply 140 MW of electricity to Kansai T&D from 09:30 to 10:00. ・Kansai T&D shall be supplied 140 MW of electricity by Shikoku T&D from 09:30 to 10:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
132	Issued at	09:02 on January 10, 2021
	Instruction	・Hokuriku T&D shall supply 100 MW of electricity to Kyushu T&D from from 11:00 to 12:00. ・Kyushu T&D shall be supplied 100 MW of electricity by Hokuriku T&D 11:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
133	Issued at	11:00 on January 10, 2021
	Instruction	・Tokyo PG shall supply 340 MW of electricity at most to Kyushu T&D from 12:00 to 15:00. ・Chubu PG shall supply 550 MW of electricity to Kyushu T&D from 12:00 to 15:00. ・Hokuriku T&D shall supply 250 MW of electricity to Kyushu T&D from from 12:00 to 15:00. ・Kyushu T&D shall be supplied 1140 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 12:00 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
134	Issued at	12:05 on January 10, 2021
	Instruction	・Shikoku T&D shall supply 140 MW of electricity at most to Kansai T&D from 14:30 to 16:00. ・Kansai T&D shall be supplied 140 MW of electricity at most by Shikoku T&D from 14:30 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
135	Issued at	14:13 on January 10, 2021
	Instruction	・Tokyo PG shall supply 670 MW of electricity at most to Kyushu T&D from 15:00 to 16:00. ・Chubu PG shall supply 550 MW of electricity to Kyushu T&D from 15:00 to 16:00. ・Hokuriku T&D shall supply 350 MW of electricity to Kyushu T&D from from 15:00 to 16:00. ・Kyushu T&D shall be supplied 1570 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 15:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.

136	Issued at	15:10 on January 10, 2021
	Instruction	・Tokyo PG shall supply 290 MW of electricity at most to Kansai T&D from 16:00 to 18:00. ・Chubu PG shall supply 550 MW of electricity to Kansai T&D from 16:00 to 18:00. ・Hokuriku T&D shall supply 350 MW of electricity at most to Kansai T&D from from 16:00 to 18:00. ・Kansai T&D shall be supplied 1000 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 16:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
137	Issued at	15:10 on January 10, 2021
	Instruction	・Tokyo PG shall supply 1090 MW of electricity at most to Kyushu T&D from 16:00 to 18:00. ・Kyushu T&D shall be supplied 1090 MW of electricity at most by by Tokyo PG from 16:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
138	Issued at	17:22 on January 10, 2021
	Instruction	・Tokyo PG shall supply 640 MW of electricity at most to Kansai T&D from 18:00 to 21:00. ・Kansai T&D shall be supplied 640 MW of electricity at most by by Tokyo PG from 18:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
139	Issued at	17:22 on January 10, 2021
	Instruction	・Tokyo PG shall supply 590 MW of electricity at most to Kyushu T&D from 18:00 to 21:00. ・Kyushu T&D shall be supplied 590 MW of electricity at most by Tokyo PG from 18:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
140	Issued at	20:38 on January 10, 2021
	Instruction	・Hokuriku T&D shall supply 50 MW of electricity to Kyushu T&D from from 22:00 to 24:00. ・Kyushu T&D shall be supplied 50 MW of electricity at most by Hokuriku T&D from 22:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
141	Issued at	22:51 on January 10, 2021
	Instruction	・Tokyo PG shall supply 600 MW of electricity to Kansai T&D from 23:30 to 24:00. ・Kansai T&D shall be supplied 600 MW of electricity by Tokyo PG from 23:30 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
142	Issued at	23:09 on January 10, 2021
	Instruction	・Tokyo PG shall supply 600 MW of electricity to Kansai T&D from 00:00 to 01:00 on January 11. ・Kansai T&D shall be supplied 600 MW of electricity by Tokyo PG from 00:00 to 01:00 on January 11.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
143	Issued at	00:08 on January 11, 2021
	Instruction	・Tohoku NW shall supply 600 MW of electricity to Kansai T&D from 01:00 to 02:00. ・Kansai T&D shall be supplied 600 MW of electricity by Tohoku NW from 01:00 to 02:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
144	Issued at	00:47 on January 11, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity at most to Kansai T&D from 02:00 to 08:00. ・Kansai T&D shall be supplied 140 MW of electricity at most by Hokkaido NW from 02:00 to 08:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

145	Issued at	00:55 on January 11, 2021
	Instruction	・Chubu PG shall supply 470 MW of electricity to Kansai T&D from 01:30 to 02:00. ・Kansai T&D shall be supplied 470 MW of electricity by Chubu PG from 01:30 to 02:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
146	Issued at	01:26 on January 11, 2021
	Instruction	・Tohoku NW shall supply 450 MW of electricity to Kansai T&D from 02:00 to 03:00. ・Chubu PG shall supply 660 MW of electricity at most to Kansai T&D from 02:00 to 03:00. ・Kansai T&D shall be supplied 1110 MW of electricity at most by Tohoku NW and Chubu PG from 02:00 to 03:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
147	Issued at	01:53 on January 11, 2021
	Instruction	・Tohoku NW shall supply 450 MW of electricity at most to Kansai T&D from 03:00 to 06:00. ・Tokyo PG shall supply 300 MW of electricity at most to Kansai T&D from 03:00 to 04:00. ・Chubu PG shall supply 790 MW of electricity at most to Kansai T&D from 03:00 to 06:00. ・Kansai T&D shall be supplied 1240 MW of electricity at most by Tohoku NW, Tokyo PG and Chubu PG from 03:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
148	Issued at	04:54 on January 11, 2021
	Instruction	・Tohoku NW shall supply 720 MW of electricity at most to Kansai T&D from 06:00 to 08:00. ・Tokyo PG shall supply 900 MW of electricity at most to Kansai T&D from 08:00 to 09:00. ・Chubu PG shall supply 1170 MW of electricity at most to Kansai T&D from 06:00 to 09:00. ・Kansai T&D shall be supplied 1670 MW of electricity at most by Tohoku NW, Tokyo PG and Chubu PG from 06:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
149	Issued at	05:00 on January 11, 2021
	Instruction	・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 05:30 to 07:00. ・Kansai T&D shall be supplied 50 MW of electricity by Hokuriku T&D from 05:30 to 07:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
150	Issued at	08:01 on January 11, 2021
	Instruction	・Tohoku NW shall supply 280 MW of electricity at most to Kansai T&D from 09:30 to 12:00. ・Tokyo PG shall supply 1190 MW of electricity at most to Kansai T&D from 09:00 to 12:00. ・Chubu PG shall supply 400 MW of electricity at most to Kansai T&D from 09:00 to 12:00. ・Kansai T&D shall be supplied 1590 MW of electricity at most by Tohoku NW, Tokyo PG and Chubu PG from 09:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
151	Issued at	11:38 on January 11, 2021
	Instruction	・Tohoku NW shall supply 950 MW of electricity at most to Kansai T&D from 12:00 to 15:00. ・Tokyo PG shall supply 790 MW of electricity at most to Kansai T&D from 12:00 to 14:00. ・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 12:00 to 15:00. ・Kansai T&D shall be supplied 1340 MW of electricity at most by Tohoku NW, Tokyo PG and Hokuriku T&D from 12:00 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

152	Issued at	12:51 on January 11, 2021
	Instruction	・Tohoku NW shall supply 250 MW of electricity at most to Kansai T&D from 13:30 to 15:00. ・Kansai T&D shall be supplied 250 MW of electricity at most by Tohoku NW from 13:30 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
153	Issued at	14:20 on January 11, 2021
	Instruction	・Tohoku NW shall supply 800 MW of electricity at most to Kansai T&D from 15:00 to 18:00. ・Chubu PG shall supply 400 MW of electricity to Kansai T&D from 15:00 to 16:00. ・Hokuriku T&D shall supply 200 MW of electricity at most to Kansai T&D from 15:00 to 17:00. ・Kansai T&D shall be supplied 1400 MW of electricity at most by Tohoku NW, Chubu PG and Hokuriku T&D from 15:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
154	Issued at	16:52 on January 11, 2021
	Instruction	・Tohoku NW shall supply 250 MW of electricity at most to Kansai T&D from 18:00 to 21:00. ・Chubu PG shall supply 550 MW of electricity to Kansai T&D from 20:00 to 21:00. ・Kansai T&D shall be supplied 750 MW of electricity at most by Tohoku NW and Chubu PG from 18:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
155	Issued at	19:47 on January 11, 2021
	Instruction	・Tohoku NW shall supply 780 MW of electricity at most to Kansai T&D from 21:00 to 24:00. ・Tokyo PG shall supply 630 MW of electricity at most to Kansai T&D from 22:00 to 23:00. ・Chubu PG shall supply 550 MW of electricity to Kansai T&D from 21:00 to 24:00. ・Kansai T&D shall be supplied 1590 MW of electricity at most by Tohoku NW, Tokyo PG and Chubu PG from 21:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
156	Issued at	23:21 on January 11, 2021
	Instruction	・Tokyo PG shall supply 1320 MW of electricity to Kansai T&D from 00:00 to 00:30 on January 12. ・Chubu PG shall supply 500 MW of electricity to Kansai T&D from 00:00 to 00:30 on January 12. ・Hokuriku T&D shall supply 70 MW of electricity to Kansai T&D from 00:00 to 00:30 on January 12. ・Kansai T&D shall be supplied 1890 MW of electricity by Tokyo PG, Chubu PG and Hokuriku T&D from 00:00 to 00:30 on January 12.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
157	Issued at	23:21 on January 11, 2021
	Instruction	・Tokyo PG shall supply 410 MW of electricity to Shikoku T&D from 00:00 to 00:30 on January 12. ・Shikoku T&D shall be supplied 410 MW of electricity by Tokyo PG from 00:00 to 00:30 on January 12.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
158	Issued at	23:54 on January 11, 2021
	Instruction	・Tokyo PG shall supply 640 MW of electricity at most to Kansai T&D from 00:30 to 03:00. ・Chubu PG shall supply 500 MW of electricity to Kansai T&D from 00:30 to 03:00. ・Hokuriku T&D shall supply 70 MW of electricity to Kansai T&D from 00:30 to 03:00. ・Kansai T&D shall be supplied 1210 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 00:30 to 03:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

159	Issued at	23:54 on January 11, 2021
	Instruction	・Tokyo PG shall supply 400 MW of electricity at most to Shikoku T&D from 00:30 to 03:00. ・Shikoku T&D shall be supplied 400 MW of electricity at most by Tokyo PG from 00:30 to 03:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
160	Issued at	00:56 on January 12, 2021
	Instruction	・Tohoku NW shall supply 130 MW of electricity at most to Shikoku T&D from 01:30 to 03:00. ・Shikoku T&D shall be supplied 130 MW of electricity at most by Chugoku NW from 01:30 to 03:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
161	Issued at	01:16 on January 12, 2021
	Instruction	・Hokuriku T&D shall supply 100 MW of electricity to Kansai T&D from 02:00 to 03:00. ・Kansai T&D shall be supplied 100 MW of electricity by Hokuriku T&D from 02:00 to 03:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
162	Issued at	02:04 on January 12, 2021
	Instruction	・Tokyo PG shall supply 830 MW of electricity at most to Kansai T&D from 03:00 to 06:00. ・Chubu PG shall supply 500 MW of electricity to Kansai T&D from 03:00 to 06:00. ・Hokuriku T&D shall supply 100 MW of electricity to Kansai T&D from 03:00 to 06:00. ・Kansai T&D shall be supplied 1430 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 03:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
163	Issued at	02:04 on January 12, 2021
	Instruction	・Tokyo PG shall supply 190 MW of electricity at most to Shikoku T&D from 03:00 to 06:00. ・Shikoku T&D shall be supplied 190 MW of electricity at most by Tokyo PG from 03:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
164	Issued at	02:04 on January 12, 2021
	Instruction	・Tokyo PG shall supply 130 MW of electricity at most to Chugoku NW from 04:30 to 06:00. ・Chugoku NW shall be supplied 130 MW of electricity at most by Tokyo PG from 04:30 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
165	Issued at	04:16 on January 12, 2021
	Instruction	・Tohoku NW shall supply 430 MW of electricity at most to Kansai T&D from 06:00 to 08:00. ・Kansai T&D shall be supplied 430 MW of electricity at most by Tohoku NW from 06:00 to 08:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
166	Issued at	04:16 on January 12, 2021
	Instruction	・Tohoku NW shall supply 540 MW of electricity at most to Shikoku T&D from 06:00 to 08:00. ・Shikoku T&D shall be supplied 540 MW of electricity at most by Tohoku NW from 06:00 to 08:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
167	Issued at	04:16 on January 12, 2021
	Instruction	・Tohoku NW shall supply 500 MW of electricity to Chugoku NW from 06:00 to 08:00. ・Chugoku NW shall be supplied 500 MW of electricity by Tohoku NW from 06:00 to 08:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.

168	Issued at	08:52 on January 12, 2021
	Instruction	・Chubu PG shall supply 300 MW of electricity to Kansai T&D from 09:30 to 11:00. ・Kansai T&D shall be supplied 300 MW of electricity by Chubu PG from 09:30 to 11:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
169	Issued at	09:51 on January 12, 2021
	Instruction	・Tohoku NW shall supply 130 MW of electricity at most to Shikoku T&D from 10:30 to 12:00. ・Shikoku T&D shall be supplied 130 MW of electricity at most by Tohoku NW from 10:30 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
170	Issued at	11:20 on January 12, 2021
	Instruction	・Chubu PG shall supply 150 MW of electricity to Shikoku T&D from 12:00 to 14:00. ・Kyushu T&D shall supply 300 MW of electricity to Shikoku T&D from 12:00 to 14:00. ・Shikoku T&D shall be supplied 450 MW of electricity by Chubu PG and Kyushu T&D from 12:00 to 14:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
171	Issued at	11:33 on January 12, 2021
	Instruction	・Tohoku NW shall supply 110 MW of electricity at most to Kansai T&D from 12:00 to 13:30. ・Kansai T&D shall be supplied 110 MW of electricity at most by Tohoku NW from 12:00 to 13:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
172	Issued at	13:10 on January 12, 2021
	Instruction	・Chubu PG shall supply 500 MW of electricity to Kansai T&D from 14:00 to 16:00. ・Kansai T&D shall be supplied 500 MW of electricity by Chubu PG from 14:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
173	Issued at	13:22 on January 12, 2021
	Instruction	・Tohoku NW shall supply 160 MW of electricity at most to Shikoku T&D from 14:00 to 16:00. ・Shikoku T&D shall be supplied 160 MW of electricity at most by Tohoku NW from 14:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
174	Issued at	14:05 on January 12, 2021
	Instruction	・Tohoku NW shall supply 380 MW of electricity at most to Kansai T&D from 14:30 to 16:00. ・Kansai T&D shall be supplied 380 MW of electricity at most by Tohoku NW from 14:30 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
175	Issued at	15:19 on January 12, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity at most to Kansai T&D from 16:00 to 20:00. ・Tohoku NW shall supply 400 MW of electricity to Kansai T&D from 16:00 to 16:30. ・Kansai T&D shall be supplied 450 MW of electricity at most by Hokkaido NW and Tohoku NW from 16:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
176	Issued at	15:19 on January 12, 2021
	Instruction	・Hokkaido NW shall supply 140 MW of electricity to Shigoku T&D from 20:00 to 24:00. ・Shikoku T&D shall be supplied 140 MW of electricity by Hokkaido NW from 20:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.

177	Issued at	16:16 on January 12, 2021
	Instruction	・Hokkaido NW shall supply 300 MW of electricity at most to Kansai T&D from 17:00 to 19:00. ・Tokyo PG shall supply 500 MW of electricity to Kansai T&D from 17:00 to 19:00. ・Chubu PG shall supply 300 MW of electricity to Kansai T&D from 17:00 to 19:00. ・Kansai T&D shall be supplied 830 MW of electricity at most by Hokkaido NW, Tokyo PG and Chubu PG from 17:00 to 19:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
178	Issued at	18:23 on January 12, 2021
	Instruction	・Tohoku NW shall supply 410 MW of electricity at most to Chugoku NW from 20:00 to 22:00. ・Chubu PG shall supply 300 MW of electricity at most to Chugoku NW from 19:00 to 22:00. ・Chugoku NW shall be supplied 710 MW of electricity at most by Tohoku NW and Chubu PG from 19:00 to 22:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
179	Issued at	18:23 on January 12, 2021
	Instruction	・Tohoku NW shall supply 130 MW of electricity at most to Shikoku T&D from 19:00 to 22:00. ・Chubu PG shall supply 80 MW of electricity at most to Shikoku T&D from 19:00 to 20:00. ・Shikoku T&D shall be supplied 190 MW of electricity at most by Tohoku NW and ChubuPG from 19:00 to 22:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
180	Issued at	21:19 on January 12, 2021
	Instruction	・Tohoku NW shall supply 1010 MW of electricity at most to Chugoku NW from 22:00 to 24:00. ・Tokyo PG shall supply 830 MW of electricity at most to Chugoku NW from 22:00 to 24:00. ・Chubu PG shall supply 30 MW of electricity at most to Chugoku NW from 22:00 to 24:00. ・Hokuriku T&D shall supply 110 MW of electricity to Chugoku NW from 23:00 to 24:00. ・Chugoku NW shall be supplied 1880 MW of electricity at most by Tohoku NW, Tokyo PG, Chubu PG, and Hokuriku T&D from 22:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
181	Issued at	21:19 on January 12, 2021
	Instruction	・Tohoku NW shall supply 400 MW of electricity at most to Shikoku T&D from 22:00 to 24:00. ・Shikoku T&D shall be supplied 400 MW of electricity at most by Tohoku NW from 22:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
182	Issued at	23:34 on January 12, 2021
	Instruction	・Tokyo PG shall supply 800 MW of electricity at most to Kansai T&D from 00:00 to 06:00 on January 13. ・Chubu PG shall supply 500 MW of electricity at most to Kansai T&D from 00:00 to 06:00 on January 13. ・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 00:00 to 01:30 on January 13. ・Kansai T&D shall be supplied 1350 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 00:00 to 06:00 on January 13.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
183	Issued at	23:34 on January 12, 2021
	Instruction	・Chubu PG shall supply 1000 MW of electricity at most to Chugoku NW from 00:00 to 06:00 on January 13. ・Chugoku NW shall be supplied 1000 MW of electricity at most by Chubu PG from 00:00 to 06:00 on January 13.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.

184	Issued at	23:34 on January 12, 2021
	Instruction	・Tohoku NW shall supply 700 MW of electricity at most to Shikoku T&D from 00:00 to 06:00 on January 13. ・Tokyo PG shall supply 300 MW of electricity at most to Shikoku T&D from 00:30 to 06:00 on January 13. ・Shikoku T&D shall be supplied 700 MW of electricity at most by Tohoku NW and Tokyo PG from 00:00 to 06:00 on January 13.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
185	Issued at	05:11 on January 13, 2021
	Instruction	・Chubu PG shall supply 410 MW of electricity at most to Shikoku T&D from 06:00 to 09:00. ・Kansai T&D shall be supplied 410 MW of electricity at most by Chubu PG from 06:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
186	Issued at	05:11 on January 13, 2021
	Instruction	・Tohoku NW shall supply 470 MW of electricity at most to Chugoku NW from 06:00 to 08:00. ・Tokyo PG shall supply 1240 MW of electricity at most to Chugoku NW from 06:00 to 09:00. ・Chubu PG shall supply 550 MW of electricity at most to Chugoku NW from 06:00 to 09:00. ・Chugoku NW shall be supplied 1500 MW of electricity at most by Tohoku NW, Tokyo PG, and Chubu PG from 06:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
187	Issued at	05:11 on January 13, 2021
	Instruction	・Tohoku NW shall supply 700 MW of electricity at most to Shikoku T&D from 06:00 to 08:00. ・Tokyo PG shall supply 150 MW of electricity at most to Shikoku T&D from 08:00 to 09:00. ・Shikoku T&D shall be supplied 700 MW of electricity at most by Tohoku NW and Tokyo PG from 06:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
188	Issued at	05:44 on January 13, 2021
	Instruction	・Tokyo PG shall supply 150 MW of electricity to Shikoku T&D from 08:00 to 09:00. ・Shikoku T&D shall be supplied 150 MW of electricity by Tokyo PG from 08:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
189	Issued at	08:01 on January 13, 2021
	Instruction	・Tokyo PG shall supply 810 MW of electricity at most to Kansai T&D from 10:00 to 12:00. ・Chubu PG shall supply 800 MW of electricity at most to Kansai T&D from 09:00 to 12:00. ・Kansai T&D shall be supplied 1210 MW of electricity at most by Tokyo PG and Chubu PG from 09:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
190	Issued at	08:01 on January 13, 2021
	Instruction	・Tokyo PG shall supply 1360 MW of electricity at most to Chugoku NW from 09:00 to 10:30. ・Chubu PG shall supply 200 MW of electricity at most to Chugoku NW from 09:00 to 10:00. ・Chugoku NW shall be supplied 1500 MW of electricity at most byTokyo PG, and Chubu PG from 09:00 to 10:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
191	Issued at	08:01 on January 13, 2021
	Instruction	・Tokyo PG shall supply 460 MW of electricity at most to Shikoku T&D from 09:00 to 12:00. ・Shikoku T&D shall be supplied 460 MW of electricity at most by Tokyo PG from 09:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.

192	Issued at	08:53 on January 13, 2021
	Instruction	・Tokyo PG shall supply 340 MW of electricity at most to Shikoku T&D from 10:30 to 12:00. ・Shikoku T&D shall be supplied 340 MW of electricity at most by Tokyo PG from 10:30 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
193	Issued at	10:20 on January 13, 2021
	Instruction	・Kyushu T&D shall supply 400 MW of electricity to Kansai T&D from 11:30 to 12:00. ・Kansai T&D shall be supplied 400 MW of electricity by Kyushu T&D from 11:30 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
194	Issued at	11:16 on January 13, 2021
	Instruction	・Tokyo PG shall supply 1320 MW of electricity at most to Kansai T&D from 12:00 to 15:00. ・Chubu PG shall supply 1280 MW of electricity at most to Kansai T&D from 12:00 to 14:30. ・Kyushu T&D shall supply 350 MW of electricity at most to Kansai T&D from 12:00 to 13:30. ・Kansai T&D shall be supplied 2040 MW of electricity at most by Tokyo PG, Chubu PG and Kyushu T&D from 12:00 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
195	Issued at	11:16 on January 13, 2021
	Instruction	・Tokyo PG shall supply 60 MW of electricity at most to Shikoku T&D from 14:30 to 15:00. ・Chubu PG shall supply 200 MW of electricity at most to Shikoku T&D from 12:00 to 15:00. ・Kyushu T&D shall supply 470 MW of electricity at most to Shikoku T&D from 12:00 to 14:00. ・Shikoku T&D shall be supplied 470 MW of electricity at most by Tokyo PG, Chubu PG and Kyushu T&D from 12:00 to 15:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
196	Issued at	14:10 on January 13, 2021
	Instruction	・Tokyo PG shall supply 130 MW of electricity at most to Shikoku T&D from 16:00 to 18:00. ・Chubu PG shall supply 470 MW of electricity at most to Shikoku T&D from 15:00 to 16:00. ・Shikoku T&D shall be supplied 470 MW of electricity at most by Tokyo PG and Chubu PG from 15:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
197	Issued at	14:10 on January 13, 2021
	Instruction	・Tokyo PG shall supply 1580 MW of electricity at most to Kyushu T&D from 15:00 to 18:00. ・Chubu PG shall supply 100 MW of electricity at most to Kyushu T&D from 15:00 to 16:00. ・Kyushu T&D shall be supplied 1600 MW of electricity at most by Tokyo PG and Chubu PG from 15:00 to 18:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kyushu T&D due to prolonged cold weather.
198	Issued at	19:28 on January 13, 2021
	Instruction	・Tokyo PG shall supply 400 MW of electricity at most to Chugoku NW from 21:00 to 23:00. ・Chubu PG shall supply 1000 MW of electricity at most to Chugoku NW from 21:00 to 24:00. ・Hokuriku T&D shall supply 50 MW of electricity at most to Chugoku NW from 22:00 to 23:00. ・Chugoku NW shall be supplied 1000 MW of electricity at most by Tokyo PG, Chubu PG and Hokuriku T&D from 21:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.

199	Issued at	19:28 on January 13, 2021
	Instruction	・Tokyo PG shall supply 460 MW of electricity at most to Shikoku T&D from 20:30 to 24:00. ・Shikoku T&D shall be supplied 460 MW of electricity at most by Tokyo PG from 20:30 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
200	Issued at	19:54 on January 13, 2021
	Instruction	・Tohoku NW shall supply 800 MW of electricity at most to Kansai T&D from 20:30 to 24:00. ・Tokyo PG shall supply 780 MW of electricity at most to Kansai T&D from 20:30 to 24:00. ・Kansai T&D shall be supplied 1130 MW of electricity at most by Tohoku NW and Tokyo PG from 20:30 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
201	Issued at	22:32 on January 13, 2021
	Instruction	・Chubu PG shall supply 400 MW of electricity at most to Kansai T&D from 00:00 to 08:00 on January 14. ・Hokuriku T&D shall supply 50 MW of electricity at most to Kansai T&D from 00:00 to 01:00 on January 14. ・Kansai T&D shall be supplied 450 MW of electricity at most by Chubu PG and Hokuriku T&D from 00:00 to 08:00 on January 14.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
202	Issued at	01:54 on January 14, 2021
	Instruction	・Hokuriku T&D shall supply 100 MW of electricity at most to Kansai T&D from 02:30 to 06:00. ・Kansai T&D shall be supplied 100 MW of electricity at most by Hokuriku T&D from 02:30 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
203	Issued at	08:12 on January 14, 2021
	Instruction	・Chubu PG shall supply 740 MW of electricity at most to Kansai T&D from 09:00 to 11:30. ・Kyushu T&D shall supply 1040 MW of electricity at most to Kansai T&D from 09:00 to 12:00. ・Kansai T&D shall be supplied 1680 MW of electricity at most by Chubu PG and Kyushu T&D from 09:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
204	Issued at	11:22 on January 14, 2021
	Instruction	・Chubu PG shall supply 740 MW of electricity at most to Kansai T&D from 12:00 to 16:00. ・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 12:30 to 13:30. ・Shikoku T&D shall supply 200 MW of electricity to Kansai T&D from 12:00 to 13:00. ・Kyushu T&D shall supply 810 MW of electricity at most to Kansai T&D from 12:00 to 16:00. ・Kansai T&D shall be supplied 1520 MW of electricity at most by Chubu PG, Hokuriku T&D, Shikoku T&D and Kyushu T&D from 12:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
205	Issued at	14:37 on January 14, 2021
	Instruction	・Hokuriku T&D shall supply 100 MW of electricity to Kansai T&D from 15:30 to 16:00. ・Kansai T&D shall be supplied 100 MW of electricity by Hokuriku T&D from 15:30 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
206	Issued at	15:28 on January 14, 2021
	Instruction	・Hokuriku T&D shall supply 100 MW of electricity at most to Kansai T&D from 16:00 to 21:00. ・Kyushu T&D shall supply 850 MW of electricity at most to Kansai T&D from 16:00 to 17:00. ・Kansai T&D shall be supplied 950 MW of electricity by Hokuriku T&D and Kyushu T&D from 16:00 to 21:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.

207	Issued at	19:58 on January 14, 2021
	Instruction	・Chubu PG shall supply 800 MW of electricity at most to Kansai T&D from 22:30 to 24:00. ・Hokuriku T&D shall supply 50 MW of electricity to Kansai T&D from 21:00 to 23:00. ・Kansai T&D shall be supplied 800 MW of electricity at most by Chubu PG and Hokuriku T&D from 21:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
208	Issued at	22:17 on January 14, 2021
	Instruction	・Tokyo PG shall supply 600 MW of electricity to Kansai T&D from 00:00 to 06:00 on January. 15. ・Chubu PG shall supply 400 MW of electricity at most to Kansai T&D from 00:00 to 06:00 on January. 15. ・Kansai T&D shall be supplied 1000 MW of electricity at most by Tokyo PG and Chubu PG from 00:00 to 06:00 on January. 15.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
209	Issued at	22:17 on January 14, 2021
	Instruction	・Chubu PG shall supply 300 MW of electricity at most to Chugoku NW from 03:00 to 06:00 on January. 15. ・Kyushu T&D shall supply 500 MW of electricity to Chugoku from 00:00 to 03:00 on January. 15. ・Chugoku NW shall be supplied 500 MW of electricity at most by Chubu PG and Kyushu T&D from 00:00 to 06:00 on January. 15.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Chugoku NW due to prolonged cold weather.
210	Issued at	07:34 on January 15, 2021
	Instruction	・Kyushu T&D shall supply 970 MW of electricity at most to Kansai T&D from 09:00 to 11:30. ・Kansai T&D shall be supplied 970 MW of electricity at most by Kyushu T&D from 09:00 to 11:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
211	Issued at	11:13 on January 15, 2021
	Instruction	・Tokyo PG shall supply 1000 MW of electricity to Kansai T&D from 12:00 to 13:00. ・Kyushu T&D shall supply 690 MW of electricity at most to Kansai T&D from 14:30 to 16:00. ・Kansai T&D shall be supplied 1000 MW of electricity at most by Tokyo PG and Kyushu T&D from 12:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Kansai T&D due to prolonged cold weather.
212	Issued at	20:47 on January 15, 2021
	Instruction	・Kyushu T&D shall supply 300 MW of electricity to Hokuriku T&D from 22:00 to 24:00. ・Hokuriku T&D shall be supplied 300 MW of electricity by Kyushu T&D from 22:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
213	Issued at	20:47 on January 15, 2021
	Instruction	・Kyushu T&D shall supply 200 MW of electricity to Shikoku T&D from 22:00 to 24:00. ・Shikoku T&D shall be supplied 200 MW of electricity by Kyushu T&D from 22:00 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
214	Issued at	22:29 on January 15, 2021
	Instruction	・Kyushu T&D shall supply 200 MW of electricity to Hokuriku T&D from 00:00 to 03:00 on January 16. ・Hokuriku T&D shall be supplied 200 MW of electricity by Kyushu T&D from 00:00 to 03:00 on January 16.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.

215	Issued at	22:29 on January 15, 2021
	Instruction	・Kyushu T&D shall supply 150 MW of electricity at most to Shikoku T&D from 00:00 to 03:00 on January 16. ・Shikoku T&D shall be supplied 150 MW of electricity at most by Kyushu T&D from 00:00 to 03:00 on January 16.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
216	Issued at	04:14 on January 16, 2021
	Instruction	・Kyushu T&D shall supply 200 MW of electricity to Hokuriku T&D from 08:30 to 09:00. ・Hokuriku T&D shall be supplied 200 MW of electricity by Kyushu T&D from 08:30 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
217	Issued at	06:49 on January 16, 2021
	Instruction	・Kyushu T&D shall supply 200 MW of electricity to Hokuriku T&D from 08:00 to 09:00. ・Hokuriku T&D shall be supplied 200 MW of electricity by Kyushu T&D from 08:00 to 09:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
218	Issued at	08:03 on January 16, 2021
	Instruction	・Tokyo PG shall supply 250 MW of electricity at most to Hokuriku T&D from 10:30 to 12:00. ・Kyushu T&D shall supply 300 MW of electricity at most to Hokuriku T&D from 09:00 to 10:30. ・Hokuriku T&D shall be supplied 300 MW of electricity at most by Tokyo PG and Kyushu T&D from 09:00 to 12:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
219	Issued at	11:01 on January 16, 2021
	Instruction	・Tokyo PG shall supply 400 MW of electricity at most to Hokuriku T&D from 12:00 to 16:00. ・Hokuriku T&D shall be supplied 400 MW of electricity at most by Tokyo PG from 12:00 to 16:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
220	Issued at	14:48 on January 16, 2021
	Instruction	・Tokyo PG shall supply 200 MW of electricity to Hokuriku T&D from 17:00 to 20:00. ・Hokuriku T&D shall be supplied 200 MW of electricity by Tokyo PG from 17:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
221	Issued at	14:48 on January 16, 2021
	Instruction	・Tokyo PG shall supply 300 MW of electricity to Shikoku T&D from 16:00 to 20:00. ・Shikoku T&D shall be supplied 300 MW of electricity by Tokyo PG from 16:00 to 20:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.
222	Issued at	20:17 on January 16, 2021
	Instruction	・Kyushu T&D shall supply 250 MW of electricity at most to Hokuriku T&D from 21:30 to 24:00. ・Hokuriku T&D shall be supplied 250 MW of electricity at most by Kyushu T&D from 21:30 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Hokuriku T&D due to prolonged cold weather.
223	Issued at	20:17 on January 16, 2021
	Instruction	・Kyushu T&D shall supply 100 MW of electricity to Shikoku T&D from 21:30 to 24:00. ・Shikoku T&D shall be supplied 100 MW of electricity by Kyushu T&D from 21:30 to 24:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity for balancing generators which is necessary for supply-demand balance in the regional service area of Shikoku T&D due to prolonged cold weather.

224	Issued at	01:36 on February 14, 2021
	Instruction	・Hokkaido NW shall supply 250 MW of electricity at most to Tohoku NW from 02:00 to 06:00. ・Chubu PG shall supply 1000 MW of electricity at most to Tohoku NW from 02:00 to 06:00. ・Kansai T&D shall supply 490 MW of electricity at most to Tohoku NW from 02:30 to 05:00. ・Tohoku NW shall be supplied 1440 MW of electricity at most by Hokkaido NW, Chubu PG and Kansai T&D from 02:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity in the regional service area of Tohoku NW due to earthquake.
225	Issued at	02:23 on February 14, 2021
	Instruction	・Tokyo PG shall supply 200 MW of electricity to Tohoku NW from 03:00 to 06:00. ・Tohoku NW shall be supplied 200 MW of electricity by Tokyo PG from 03:00 to 06:00.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity in the regional service area of Tohoku NW due to earthquake.
226	Issued at	04:51 on February 14, 2021
	Instruction	・Tokyo PG shall supply 175 MW of electricity at most to Tohoku NW from 06:00 to 08:30. ・Tohoku NW shall be supplied 175 MW of electricity at most by Tokyo PG from 06:00 to 08:30.
	Background	The supply–demand status may degrade without power exchanges through cross-regional interconnection lines because of shortage of supply capacity in the regional service area of Tohoku NW due to earthquake.

Actual Instructions and Requests to Generation Companies and Retail Companies by the Organization

[1]	Issued on	January 6, 2021
	Areas	・Hokkaido NW ・Tohoku NW ・Tokyo PG ・Chubu PG ・Hokuriku T&D ・Kansai T&D ・Chugoku NW ・Shikoku T&D ・Kyushu T&D
	Period	From January 6 (ASAP) to January 8 at 24:00 (in case of extending the period, it shall be informed individually)
	Companies	Generation companies and retail companies in the above stated areas (9 of 10 areas except Okinawa EPCO) (Subject companies shall be individually informed by the Organization)
	Instructions and Requests	<Subject companies in the regional areas of Tokyo PG and Kansai T&D> ・Generators shall be operated at their maximum power. ・Member companies of Japan Electric Power eXchange (JEPX) shall bring surplus power to the market which is generated by the instruction and request above. Further, generators shall be operated regardless of contract volume of the market. ・Operation of generators in actual condition shall be controlled by each transmission operating companies. <Subject companies in other areas> ・Member companies of JEPX shall bring surplus power to the market which is generated by the instruction and request above.
[2]	Issued on	January 8, 2021
	Areas	・Hokkaido NW ・Tohoku NW ・Tokyo PG ・Chubu PG ・Hokuriku T&D ・Kansai T&D ・Chugoku NW ・Shikoku T&D ・Kyushu T&D
	Period	From January 8 (ASAP) to January 15 at 24:00 (in case of extending the period, it shall be informed individually)
	Companies	Generation companies and retail companies in the above stated areas (9 of 10 areas except Okinawa EPCO) (Subject companies shall be individually informed by the Organization)
	Instructions and Requests	<Subject companies in the regional areas of Tokyo PG, Hokuriku T&D, Kansai T&D, Chugoku NW and Kyushu T&D> ・Generators shall be operated at their maximum power. ・Member companies of Japan Electric Power eXchange (JEPX) shall bring surplus power to the market which is generated by the instruction and request above. Further, generators shall be operated regardless of contract volume of the market. ・Operation of generators in actual condition shall be controlled by each transmission operating companies. <Subject companies in other areas> ・Member companies of JEPX shall bring surplus power to the market which is generated by the instruction and request above.

[3]	Issued on	January 14, 2021
	Areas	・Hokkaido NW ・Tohoku NW ・Tokyo PG ・Chubu PG ・Hokuriku T&D ・Kansai T&D ・Chugoku NW ・Shikoku T&D ・Kyushu T&D
	Period	From January 15 (ASAP) to January 31 at 24:00[15] (in case of extending the period, it shall be informed individually)
	Companies	Generation companies and retail companies in the above stated areas (9 of 10 areas except Okinawa EPCO) (Subject companies shall be individually informed by the Organization)
	Instructions and Requests	<Subject companies in the regional areas of Tokyo PG, Hokuriku T&D, Kansai T&D, Chugoku NW, Shikoku T&D and Kyushu T&D> ・Generators shall be operated at their maximum power. ・Member companies of Japan Electric Power eXchange (JEPX) shall bring surplus power to the market which is generated by the instruction and request above. Further, generators shall be operated regardless of contract volume of the market. ・Operation of generators in actual condition shall be controlled by each transmission operating companies. <Subject companies in other areas> ・Member companies of JEPX shall bring surplus power to the market which is generated by the instruction and request above.

[15] Following improvement in the supply–demand condition, the Organization has shortened and terminated the period for instructions and requests to 24:00 h on Januaryuary 26, which was originally issued for the period from Januaryuary 15 to Januaryuary 31.
https://www.occto.or.jp/oshirase/shiji/2021_0126_jukyushiji.html

Organization for Cross-regional
Coordination of Transmission
Operators, Japan
http://www.occto.or.jp/en/index.html