

☆RIM POWER INTELLIGENCE DAILY

★No.1836 Feb 25 2021

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--TOKYO, 16:00 JST Feb 25 2021<Assessment Closing Time>

## ◎Notice

### ○Report on adherence to PRA principles

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<Reports>

Bunker Oil, Crude/Condensate, Asia Products (Products), LPG, Lorry Rack, Japan Products, Petrochemicals, LNG, Power

<https://www.rim-intelligence.co.jp/contents/info/pramenuEng4/>

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<https://www.rim-intelligence.co.jp/rtb/oil/index.html>

## ◎RECX-22 index

RECX-22 index for Thursday was 101.62, up 0.70 points from the previous day.

### -----Introduction of Rim reports-----

Please access the URL below for a lineup of Rim reports. You can view sample reports as well as detailed explanations on the contents:

<https://eng.rim-intelligence.co.jp/report/>

Lineup:

Bunker Oil	Crude/Condensate	Products	
LPG	Petrochemicals	Polyolefins	
LNG	Power	Daily Data	Rim Data File

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**○ Rim Index Day-Ahead Prices**

Feb 26 2021	East Japan			DOD	West Japan			DOD
24 Hours	9.54	-	10.54	+1.10	7.56	-	8.56	+1.37
Day Time	10.81	-	11.81	+2.45	9.08	-	10.08	+2.96
Peak Time	9.15	-	10.15	+2.45	9.65	-	10.65	+4.46
Night Time	7.76	-	8.76	-0.80	5.42	-	6.42	-0.86
Yen/kWh								

\*Day Time 08:00-22:00, Peak Time 13:00-16:00, Night Time 0:00-08:00 & 22:00-24:00

**○ Rim Index Forward Prices**

Month	24 hours	DOD	Month	24 hours	DOD
Apr-21	6.97	+0.01	Dec-21	9.13	+0.09
May-21	7.21	+0.03	Jan-22	9.07	+0.09
Jun-21	7.57	+0.03	Feb-22	9.02	+0.09
Jul-21	8.89	+0.04	Mar-22	7.94	+0.08
Aug-21	8.97	+0.05	Apr-22	7.90	+0.08
Sep-21	8.59	+0.08	May-22	7.83	+0.08
Oct-21	8.18	+0.08	Jun-22	7.82	+0.07
Nov-21	8.18	+0.09			

Yen/kWh

\*Nationwide prices based on power generation costs reflecting Rim's estimated spot prices of fuel including Coal, LNG, Crude Oil and C-Fuel and JCC. Marginal costs (fuel costs) are calculated by multiplying the ratio of each fuel used at thermal units of nine leading power utilities by the above power generation costs. Marginal costs are adjusted by the alpha factor calculated based on the historical patterns of marginal costs and spot prices.

**○ Rim Index Forward Prices 24 hours Tokyo area and Kansai area**

Month	Tokyo area	DOD	Kansai area	DOD	Month	Tokyo area	DOD	Kansai area	DOD
Apr-21	7.13	-0.01	6.55	+0.01	Dec-21	9.81	+0.08	8.72	+0.09
May-21	7.36	0.00	6.77	+0.03	Jan-22	9.75	+0.08	8.65	+0.09
Jun-21	8.03	0.00	7.18	+0.03	Feb-22	9.68	+0.08	8.59	+0.09
Jul-21	9.36	+0.02	8.55	+0.04	Mar-22	8.60	+0.07	7.52	+0.08
Aug-21	9.64	+0.05	8.75	+0.07	Apr-22	8.42	+0.07	7.41	+0.08
Sep-21	9.44	+0.07	8.40	+0.09	May-22	8.26	+0.07	7.30	+0.07
Oct-21	9.40	+0.09	8.24	+0.10	Jun-22	8.44	+0.06	7.32	+0.06
Nov-21	8.96	+0.09	7.87	+0.09					

Yen/kWh

\*Tokyo area and Kansai area prices based on power generation costs reflecting Rim's estimated spot prices of fuel including Coal, LNG, Crude Oil and C-Fuel and JCC. Marginal costs (fuel costs) are calculated by multiplying the ratio of each fuel used at thermal units of nine leading power utilities by the above power generation costs. Marginal costs are adjusted by the alpha factor calculated based on the historical patterns of marginal costs and spot prices.

**○ JEPX System Prices**

Day	Feb-26-2021		DOD	WOW
24 hours Average	Yen/kWh	9.17	+1.09	+0.81
Day Time Average	Yen/kWh	10.38	+2.36	+2.59
Peak Time Average	Yen/kWh	9.48	+2.70	+3.95
Total Traded Volumes	kWh	991,098,150	-18,903,100	-49,441,900

\*Data are obtained from the JEPX website. Prices are for reference only and not Rim's assessments.

Day Time= 8:00-22:00, Peak Time=13:00-16:00, Average=Simple Average

○ Estimated Monthly Prices-24 hours Average (Nationwide)										Unit: Yen/kWh
	Apr-21	DOD	May-21	DOD	Jun-21	DOD	Jul-21	DOD	Aug-21	DOD
A	6.98	0.00	7.11	0.00	7.56	-0.01	8.81	0.00	8.85	+0.01
C	5.50	+0.01	7.08	+0.01	7.66	+0.01	8.78	+0.02	9.81	+0.01
D	6.15	0.00	6.00	0.00	7.11	0.00	8.31	0.00	8.49	0.00
E	6.51	0.00	6.75	0.00	7.23	0.00	7.31	0.00	7.41	0.00
F	6.75	0.00	6.45	0.00	7.11	0.00	8.01	0.00	8.21	0.00
Ave.	6.47	0.00	6.76	0.00	7.30	0.00	8.37	+0.01	8.52	+0.01
	Sep-21	DOD	Oct-21	DOD	Nov-21	DOD	Dec-21	DOD	Jan-22	DOD
A	8.55	+0.03	8.05	+0.04	8.09	+0.04	9.08	+0.01	8.98	-0.02
C	7.18	+0.01	7.71	+0.01	7.63	+0.01	8.94	+0.01	12.16	+0.01
D	7.05	0.00	7.01	0.00	7.08	0.00	7.99	0.00	8.55	0.00
E	7.74	0.00	7.69	0.00	7.80	0.00	7.95	0.00	8.11	0.00
F	7.43	0.00	6.81	0.00	6.77	0.00	7.31	0.00	7.81	0.00
Ave.	7.45	0.00	7.47	0.00	7.50	0.00	8.29	0.00	8.55	0.00
	Feb-22	DOD	Mar-22	DOD	Apr-22	DOD	May-22	DOD	Jun-22	DOD
A	8.99	-0.03	7.87	-0.02	7.82	-0.01	7.74	+0.01	7.80	+0.05
C	5.80	0.00	8.68	+0.02	5.59	+0.02	7.14	+0.02	7.49	+0.02
D	8.61	0.00	7.01	0.00	6.75	0.00	6.61	0.00	7.28	0.00
E	7.96	0.00	7.66	0.00	7.32	0.00	7.17	0.00	7.34	0.00
F	7.69	0.00	6.80	0.00	6.69	0.00	6.46	0.00	7.28	0.00
Ave.	8.09	0.00	7.51	-0.01	6.92	0.00	6.97	0.00	7.37	+0.01

\*Prices are estimated by five retail electricity suppliers shown as A, C, D, E and F. Prices are not Rim's assessments. Ave. is the average excluding the highest and lowest prices.

○ Estimated Monthly Prices-Day Time Average (Nationwide)										Unit: Yen/kWh
	Apr-21	DOD	May-21	DOD	Jun-21	DOD	Jul-21	DOD	Aug-21	DOD
A	7.20	0.00	7.97	0.00	8.60	-0.01	11.47	0.00	12.66	+0.01
C	5.95	+0.01	7.74	+0.01	8.70	+0.02	10.77	+0.01	12.33	+0.01
D	6.55	0.00	6.45	0.00	7.91	0.00	9.50	0.00	9.63	0.00
E	6.70	0.00	7.07	0.00	8.10	0.00	8.53	0.00	9.02	0.00
F	7.24	0.00	7.10	0.00	7.99	0.00	9.88	0.00	10.04	0.00
Ave.	6.82	0.00	7.30	0.00	8.23	0.00	10.05	0.00	10.67	+0.01
	Sep-21	DOD	Oct-21	DOD	Nov-21	DOD	Dec-21	DOD	Jan-22	DOD
A	11.12	+0.03	9.16	+0.06	8.99	+0.04	10.02	+0.01	9.98	-0.02
C	8.79	+0.01	8.65	+0.01	8.34	+0.01	9.87	+0.01	13.64	+0.02
D	8.04	0.00	7.65	0.00	7.72	0.00	8.84	0.00	9.52	0.00
E	8.98	0.00	8.38	0.00	8.27	0.00	8.48	0.00	8.64	0.00
F	8.43	0.00	7.38	0.00	7.53	0.00	8.06	0.00	8.95	0.00
Ave.	8.73	0.00	8.23	+0.01	8.11	0.00	9.06	0.00	9.48	-0.01
	Feb-22	DOD	Mar-22	DOD	Apr-22	DOD	May-22	DOD	Jun-22	DOD
A	10.17	0.00	8.07	-0.02	8.09	-0.01	8.69	+0.01	8.90	+0.06
C	6.47	0.00	9.17	+0.02	6.04	+0.02	7.80	+0.02	8.52	+0.02
D	9.66	0.00	7.51	0.00	7.25	0.00	7.12	0.00	8.08	0.00
E	8.41	0.00	7.88	0.00	7.50	0.00	7.51	0.00	8.15	0.00
F	8.78	0.00	7.44	0.00	7.08	0.00	7.17	0.00	8.09	0.00
Ave.	8.95	0.00	7.82	-0.01	7.28	0.00	7.49	0.00	8.25	0.00

\*Average prices during 8:00-20:00 hours on weekdays. Prices are estimated by five retail electricity suppliers shown as A, C, D, E and F. Prices are not Rim's assessments. Ave. is the average excluding the highest and lowest prices.

OTOCOM Power Futures East Japan Base Load Power Day Time (8:45~15:15)							Unit: Yen/kWh	
Month	Pv Close	Open	High	Low	Settle	DOD	Volume	Close
Feb-2021	8.22	-	-	-	-	+0.04	-	8.26
Mar-2021	7.55	-	-	-	-	+0.02	-	7.57
Apr-2021	7.27	-	-	-	-	+0.05	-	7.32
May-2021	7.52	-	-	-	-	+0.07	-	7.59
Jun-2021	8.16	-	-	-	-	+0.10	-	8.26
Jul-2021	9.30	-	-	-	-	+0.10	-	9.40
Aug-2021	9.80	-	-	-	-	+0.13	-	9.93
Sep-2021	8.35	-	-	-	-	+0.13	-	8.48
Oct-2021	8.13	-	-	-	-	+0.13	-	8.26
Nov-2021	8.37	-	-	-	-	+0.13	-	8.50
Dec-2021	8.79	-	-	-	-	+0.12	-	8.91
Jan-2022	9.79	-	-	-	-	+0.12	-	9.91
Feb-2022	8.82	-	-	-	-	+0.12	-	8.94
Mar-2022	8.65	-	-	-	-	+0.11	-	8.76
Apr-2022	8.09	-	-	-	-	+0.11	-	8.20
Total							-	

OTOCOM Power Futures West Japan Base Load Power Day Time (8:45~15:15)							Unit: Yen/kWh	
Month	Pv Close	Open	High	Low	Settle	DOD	Volume	Close
Feb-2021	7.11	-	-	-	-	-0.05	-	7.06
Mar-2021	6.87	-	-	-	-	+0.02	-	6.89
Apr-2021	6.30	-	-	-	-	+0.05	-	6.35
May-2021	6.19	-	-	-	-	+0.07	-	6.26
Jun-2021	7.06	-	-	-	-	+0.09	-	7.15
Jul-2021	8.24	-	-	-	-	+0.09	-	8.33
Aug-2021	8.08	-	-	-	-	+0.12	-	8.20
Sep-2021	7.52	-	-	-	-	+0.12	-	7.64
Oct-2021	6.97	-	-	-	-	+0.11	-	7.08
Nov-2021	7.28	-	-	-	-	+0.12	-	7.40
Dec-2021	8.38	-	-	-	-	+0.11	-	8.49
Jan-2022	9.14	-	-	-	-	+0.11	-	9.25
Feb-2022	8.43	-	-	-	-	+0.12	-	8.55
Mar-2022	7.41	-	-	-	-	+0.11	-	7.52
Apr-2022	6.68	-	-	-	-	+0.10	-	6.78
Total							-	

OTOCOM Power Futures East Japan DT Load Power Day Time (8:45~15:15)								Unit: Yen/kWh
Month	Pv Close	Open	High	Low	Settle	DOD	Volume	Close
Feb-2021	9.56	-	-	-	-	+0.08	-	9.64
Mar-2021	7.87	-	-	-	-	+0.02	-	7.89
Apr-2021	7.79	-	-	-	-	+0.05	-	7.84
May-2021	8.56	-	-	-	-	+0.07	-	8.63
Jun-2021	9.48	-	-	-	-	+0.09	-	9.57
Jul-2021	11.77	-	-	-	-	+0.09	-	11.86
Aug-2021	13.06	-	-	-	-	+0.14	-	13.20
Sep-2021	10.16	-	-	-	-	+0.13	-	10.29
Oct-2021	9.08	-	-	-	-	+0.13	-	9.21
Nov-2021	9.25	-	-	-	-	+0.13	-	9.38
Dec-2021	9.77	-	-	-	-	+0.12	-	9.89
Jan-2022	11.22	-	-	-	-	+0.11	-	11.33
Feb-2022	9.75	-	-	-	-	+0.11	-	9.86
Mar-2022	9.22	-	-	-	-	+0.11	-	9.33
Apr-2022	8.69	-	-	-	-	+0.10	-	8.79
Total							-	

OTOCOM Power Futures West Japan DT Load Power Day Time (8:45~15:15)								Unit: Yen/kWh
Month	Pv Close	Open	High	Low	Settle	DOD	Volume	Close
Feb-2021	8.00	-	-	-	-	-0.05	-	7.95
Mar-2021	7.35	-	-	-	-	+0.02	-	7.37
Apr-2021	6.58	-	-	-	-	+0.05	-	6.63
May-2021	7.43	-	-	-	-	+0.06	-	7.49
Jun-2021	8.45	-	-	-	-	+0.08	-	8.53
Jul-2021	10.79	-	-	-	-	+0.09	-	10.88
Aug-2021	10.32	-	-	-	-	+0.12	-	10.44
Sep-2021	9.39	-	-	-	-	+0.12	-	9.51
Oct-2021	7.93	-	-	-	-	+0.11	-	8.04
Nov-2021	8.26	-	-	-	-	+0.11	-	8.37
Dec-2021	9.22	-	-	-	-	+0.11	-	9.33
Jan-2022	10.47	-	-	-	-	+0.10	-	10.57
Feb-2022	9.22	-	-	-	-	+0.11	-	9.33
Mar-2022	7.94	-	-	-	-	+0.11	-	8.05
Apr-2022	7.20	-	-	-	-	+0.10	-	7.30
Total							-	

**©Market Summary**
**○Summary**
**<Day-ahead delivery Feb 25>**
**Prices rally as tight solar supply bolsters day time**

Rim Index for Day-ahead delivery extended rises in both East Japan and West Japan. For Feb 26 delivery, the 24-hour average rallied by Yen 1.10 from Feb 25 to Yen 10.04 in East Japan and by Yen 1.37 to Yen 8.06 in West Japan. The East-West spread was at Yen 1.98 in favor of the East, narrowing by Yen 0.27 from Yen 2.25 for Feb 25 delivery.

For Feb 26 delivery, spot prices in both East Japan and West Japan were bolstered by tighter supply-demand fundamentals during day time including peak time. The weather on Feb 26 was forecast to go downhill in a wide range of areas. A possible tightness in solar power supply trimmed volumes of offers and accelerated the price rally. In West Japan, most areas were expected to have rainfalls amid thicker clouds. The peak time average strengthened by Yen 2.45 from Feb 25 in East Japan and West Japan posted an even larger gain of Yen 4.46.

The strength in day time prices also found support from temperature trends. Especially in West Japan, the highest temperature on Feb 26 was forecast to be at 8 degrees in Osaka, down 5 degrees from Feb 25, and 11 degrees in Fukuoka, down 6 degrees. Heating demand was likely to recover to some extent during day time. On the contrary, night time prices weakened in both East Japan and West Japan. The lowest temperature on Feb 26 was forecast to rise from Feb 25 across Japan, a factor that would curb heating demand during night time with colder temperatures in the day.

Spot prices for Feb 26 delivery generally reflected temperature trends and weather conditions, but some irregular price patterns were also detected. A source at a power producer and supplier paid a close watch on the intraday high for Feb 26 delivery in six areas in West Japan. Normally, spot prices tended to mark the intraday high in morning or

evening hours. But for Feb 26 delivery, the day's high of Yen 15.10 in West Japan materialized during 11:30-12:00 hours. The overall price levels were calm, but buyers would often fail to cover their requirements fully in case any higher-than-average prices occurred in unexpected time zones. The source warned operating hours of thermal units with a higher load followability under changing weather conditions could give a strong impact on spot prices.

According to the weather forecast released by the Japan Meteorological Agency at 11:00 hours on Feb 25, the highest temperature in major cities in East Japan on Feb 26 would be at 11 degrees in Tokyo, 1 degree lower than Feb 25, 8 degrees in Sendai, up 2 degrees, and minus 1 degree in Sapporo, up 1 degree. In West Japan, the day's high was forecast to be at 8 degrees in Osaka, down 5 degrees, 11 degrees in Nagoya, down 1 degree, and 11 degrees in Fukuoka, down 6 degrees. The lowest temperature on Feb 26 was forecast to be at 4 degrees in Tokyo, 3 degrees higher than Feb 25, minus 1 degree in Sendai, up 2 degrees, minus 6 degrees in Sapporo, up 1 degree, 5 degrees in Osaka, up 3 degrees, 5 degrees in Nagoya, up 5 degrees, and 8 degrees in Fukuoka, up 1 degree. Meanwhile, the weather in major cities on Feb 26 was forecast to be cloudy in Tokyo, partly cloudy with sunny intervals in Sendai, cloudy with some snow in Sapporo, cloudy with some rain in Osaka and Nagoya, and rainy in Fukuoka. According to the one-month forecast for Feb 27-Mar 26 by the Japan Meteorological Agency, the temperatures would be far higher than normal across Japan in the first half of the period. The temperatures in East Japan and West Japan were forecast to be above the average year with a probability of 70%.

By time zone, the day time average leaped by Yen 2.45 from Feb 25 to Yen 11.31 in East Japan and by Yen 2.96 to Yen 9.58 in West Japan. The peak time



average spiked by Yen 2.45 to Yen 9.65 in East Japan and by Yen 4.46 to Yen 10.15 in West Japan. The night time average receded by Yen 0.80 to Yen 8.26 in East Japan and by Yen 0.86 to Yen 5.92 in West Japan.

Meanwhile, the 24-hour average, and the intraday high and low in prices by area for Feb 26 delivery were shown in the below table.

24 hours Average	Hokkaido	DoD	Tohoku	DoD	Tokyo	DoD
	9.41	+0.83	9.34	+0.76	10.33	+1.23
	Chubu	DoD	Hokuriku	DoD	Kansai	DoD
	8.06	+1.37	8.06	+1.37	8.06	+1.37
	Chugoku	DoD	Shikoku	DoD	Kyushu	DoD
	8.06	+1.37	8.06	+1.37	8.06	+1.37

※Unit : Yen/kWh

Area	Hokkaido	Tohoku	Tokyo	Chubu	Hokuriku
High Price	13.20	13.20	13.20	15.10	15.10
Low Price	1.00	1.00	6.90	5.07	5.07
Area	Kansai	Chugoku	Shikoku	Kyushu	
High Price	15.10	15.10	15.10	15.10	
Low Price	5.07	5.07	5.07	5.07	

※Unit : Yen/kWh

The time zones of the intraday high were during 17:00-21:00 hours in three areas in East Japan including Hokkaido, Tohoku and Tokyo, and 11:00-11:30 hours in six areas in West Japan including Chubu, Hokuriku, Kansai, Chugoku, Shikoku and Kyushu. The time zones of the intraday low were during 12:30-13:00 and 14:00-14:30 hours in Hokkaido and Tohoku, 00:30-03:00 hours in Tokyo, and 00:30-01:30 hours in six areas in West Japan.

In relation to thermal power plants, one 239.7MW unit in East Japan would be halted on Feb 26. Meanwhile, no unit restarts were scheduled on Feb 26. Elsewhere, J-POWER would conduct output

reduction at the new No1 and new No2 units with a respective capacity of 600MW at its Isogo coal-fired power station in Tokyo on Feb 26. Both units would return to normal service within the same day. On the other hand, Tohoku EPC would send back to normal runs the 418MW No5 unit at its Hachinohe LNG-fired power station on Feb 26 after output cuts since Feb 22.

For Feb 26 delivery, volumes of power offered in the JEPX auction were 1,046.06 mil kWh, down 3.8% from Feb 25. Meanwhile, volumes of power bid in the JEPX auction decreased by 1.4% to 1,173.64 mil kWh. Bids outstripped offers in all of 48 windows.

### EEX sees Kansai base traded for Apr-Jun 2021

On the OTC trading platform launched by the European Energy Exchange (EEX), a transaction was reported in Kansai on a quarterly delivery basis on Feb 24. For the second quarter (April-June) 2021, base load power changed hands in 10MW, equivalent to 21,840MWh on a quarterly delivery basis. The price was at Yen 6.00. It was the first quarterly deal in Kansai.

Meanwhile, in the trade on Feb 25, a transaction was reported on a monthly delivery basis in Tokyo as of 18:00 hours. For March 2021, base load power was traded in a combined 10MW. The volume was equivalent to 7,440MWh on a monthly delivery basis. The price was at Yen 8.20. Base load power in Tokyo for the same month previously fetched Yen 8.00 on Feb 19, and the price on Feb 25 was a shade firmer.

## OThermal Power Plant Situation

### More units to enter regular maintenance Feb 27

An increasing number of thermal units were scheduled to enter regular maintenance for a certain period of time starting Feb 27. Hokkaido EPC was slated to suspend the 569.4MW No1 unit at its Ishikariwan Shinko LNG-fired power station between Feb 27 and Jun 26. Shikoku EPC was poised to idle the 350MW No2 unit at its Sakaide LNG-fired power station for a planned inspection on Feb 27, together with Kyushu EPC's 700MW No2

unit at its Reihoku coal-fired power station. The Reihoku No2 unit was scheduled to resume operation on Jun 30, followed by a planned restart of the Sakaide No2 unit on Jul 5. More units would be out of service for a certain period of time, leaving less spare generation capacity. There would be a higher risk of price hikes in case of unplanned unit troubles.

On Feb 26, Tokyo Gas Yokosuka Power alone was poised to shut down its 239.7MW LNG-fired Yokosuka power station as mentioned in Market Commentary. But the restarting point of the unit remained opaque. Meanwhile, no unit restarts were scheduled on Feb 26.

station in Tokyo on Feb 26. Both units would go back to normal runs within the same day. Meanwhile, Tohoku EPC would resume normal operation at the 418MW No5 unit at its Hachinohe LNG-fired power station on Feb 26 after output controls since Feb 22.

Elsewhere, J-POWER was slated to lower output at the new No1 and new No2 units with a respective capacity of 600MW at its Isogo coal-fired power

Shutdown and restart plans on Feb 27 and Feb 28 were shown in the below table.

**Thermal Power Plants:Operation forecast Feb 26**

Company	Plant	Area	Fuel	Unit	Output(kW)	Outage	Period	Restart	Update	Remarks
<b>Shutdown</b>										
J-POWER	Isogo	Tokyo	Coal	No.1	600,000	Output reduction	26-Feb-21 0:00	26-Feb-21	19-Feb-21 11:58	Output reduction amount: Max 390,000kW, Min 100,000kW
				No.2	600,000	Output reduction	26-Feb-21 0:00	26-Feb-21	19-Feb-21 11:57	Output reduction amount: Max 390,000kW, Min 270,000kW
Tokyo Gas Yokosuka Power	Yokosuka	Tokyo	Gas	-	239,700	Planned	26-Feb-21 22:30		23-Dec-20 17:55	
<b>Restart</b>										
Tohoku Electric Power Company	Hachinohe	Tohoku	Gas	No.5 GTB	276,100	Output reduction	22-Feb-21 0:00	26-Feb-21	18-Feb-21 16:20	Output reduction amount: Max 276,100kW, Min 0kW
				No.5 ST	141,900	Output reduction	22-Feb-21 0:00	26-Feb-21	18-Feb-21 16:19	Output reduction amount: Max 141,900kW, Min 0kW
J-POWER	Isogo	Tokyo	Coal	No.1	600,000	Output reduction	26-Feb-21 0:00	26-Feb-21	19-Feb-21 11:58	Output reduction amount: Max 390,000kW, Min 100,000kW
				No.2	600,000	Output reduction	26-Feb-21 0:00	26-Feb-21	19-Feb-21 11:57	Output reduction amount: Max 390,000kW, Min 270,000kW

**Thermal Power Plants:Operation forecast Feb 27**

Company	Plant	Area	Fuel	Unit	Output(kW)	Outage	Period	Restart	Update	Remarks
<b>Shutdown</b>										
Hokkaido Electric Power Company	Ishikariwan	Hokkaido	Gas	No.1	569,400	Planned	27-Feb-21 0:00	26-Jun-21	20-Jan-21 11:26	
Tohoku Electric Power Company	Shin-Sendai	Tohoku	Gas	No.3-2	523,000	Planned	27-Feb-21 0:00	24-Mar-21	19-Feb-21 9:37	Regural maintenance
	Higashi-Niigata	Tohoku	Gas	No.3-4 GTB	137,000	Planned	27-Feb-21 0:00	28-Mar-21	31-Jul-20 16:42	Repair work
JERA Company	Kashima	Tokyo	Gas	No.7-2	420,000	Planned	27-Feb-21 0:00	28-Feb-21	22-Feb-21 10:57	
	Kawagoe	Chubu	Gas	No.4-1	243,000	Planned	27-Feb-21 0:00	08-Mar-21	25-Feb-21 14:34	
				No.4-6	243,000	Planned	27-Feb-21 22:00	28-Feb-21	25-Feb-21 14:39	
	Yokkaichi	Chubu	Gas	No.4-1	117,000	Planned	19-Mar-21 20:40	22-Mar-21	25-Feb-21 14:46	
				No.4-3	117,000	Planned	27-Feb-21 0:00	28-Feb-21	25-Feb-21 15:07	
Kansai Electric Power Company	Sakaiko	Kansai	Gas	No.2	400,000	Planned	27-Feb-21 0:00	25-Mar-21	09-Mar-20 10:02	
Shikoku Electric Power Company	Sakaide	Shikoku	Gas	No.4	350,000	Planned	27-Feb-21 0:00	05-Jul-21	23-Mar-20 9:46	Regural maintenance
Kyusyu Electric Power Company	Reihoku	Kyusyu	Coal	No.2	700,000	Planned	27-Feb-21 0:00	30-Jun-21	14-Jan-21 20:15	Regural maintenance
Oita Joint Power Company	Oita	Kyusyu	Gas	No.3	147,000	Planned	27-Feb-21 0:00	11-Mar-21	10-Feb-21 12:01	Interim maintenance
Kobelco Power Kobe	Kobe	Kansai	Coal	No.2	700,000	Planned	27-Feb-21 22:00	01-Mar-21	15-Jan-21 13:10	Commissioning
<b>Restart</b>										
None										



**Thermal Power Plants:Operation forecast Feb 28**

Company	Plant	Area	Fuel	Unit	Output(kW)	Outage	Period	Restart	Update	Remarks
<b>Shutdown</b>										
Kawasaki Natural Gas Power Company	Kawasaki	Tokyo	Gas	No.1	413,000	Planned	28-Feb-21 7:00	01-Mar-21	26-Jan-21 11:47	
<b>Restart</b>										
JERA Company	Kashima	Tokyo	Gas	No.7-2	420,000	Planned	27-Feb-21 0:00	28-Feb-21	22-Feb-21 10:57	
	Kawagoe	Tokyo	Gas	No.4-6	243,000	Planned	27-Feb-21 22:00	28-Feb-21	25-Feb-21 14:39	
	Yokkaichi	Chubu	Gas	No.4-1	117,000	Planned	27-Feb-21 0:00	28-Feb-21	25-Feb-21 15:06	
				No.4-3	117,000	Planned	27-Feb-21 0:00	28-Feb-21	25-Feb-21 15:07	

**Forward Prices (Fuel Price Trends)**
**Forward prices advance on stronger fuel prices**

Rim Index for forward prices gained ground on Feb 25. The upturn came in line with a firmness in Rim's JCC (Japan Crude Cocktail) forecast combined with C-Fuel prices in Asia and FOB Newcastle Australia coal prices.

On Feb 24, Dubai paper swaps, a criterion used to forecast the JCC, advanced by \$0.68-1.55 from Feb 22. Dubai paper swaps stood in the low \$62 level for April 2021, the high \$61 level for May 2021 and the mid \$54 level for June 2022. In the international crude oil market as of 17:00 hours Tokyo time on Feb 25, the NYMEX WTI contract for April 2021 traded at \$63.69 while the ICE Brent contract for April 2021 hovered at \$67.62. The DES Northeast Asia LNG market softened for prompt April 2021 arrival on Feb 24. The weakness came as some sellers with uncommitted cargoes revised down offers in a bid to stimulate demand. As days went into the non-peak demand season, ample spot availability in the Pacific region was expected to put a lid on the LNG market. In the coal market on Feb 24, FOB Newcastle prices on the ICE futures were stronger. The April 2021 contract ended at \$78.60,

up \$2.10 from Feb 22. The May 2021 contract settled up \$2.40 at \$78.55 while the June 2022 contract was \$1.40 higher at \$80.15.

Crude prices (JCC + petroleum and coal tax) strengthened to Yen 45,840 for the front month of April 2021, up Yen 390 from Feb 22. Compared to the front month, prices for June 2021 were Yen 40 higher, but prices for June 2022 were Yen 4,460 lower. For C-Fuel (import price + import tax + petroleum and coal tax), prices for April 2021 were Yen 1,100 higher at Yen 56,520. Compared to the front month, prices for June 2021 were Yen 900 lower and prices for June 2022 were Yen 3,290 lower. For LNG (mixture of JCC and DES Northeast Asia spot price + petroleum and coal tax), prices for April 2021 were Yen 120 lower at Yen 38,350. Compared to the front month, prices for June 2021 were Yen 6,050 higher and prices for June 2022 were Yen 9,040 higher. For coal (FOB Newcastle price + freight cost + petroleum and coal tax), prices for April 2021 were Yen 130 higher at Yen 10,800. Compared to the front month, prices for June 2021 were Yen 20 lower, but prices for June 2022 were Yen 170 higher.

**OTOCOM Power Futures Summary**
**TOCOM sees no deals as bid-offer gap widens**

On the Tokyo Commodity Exchange (TOCOM) on Feb 25, no deals were reported in day time (8:45-15:15 hours) and off-floor block trading. The absence of deals came for seven straight business days. In day time trading (08:45-15:15 hours) as of 15:00 hours on Feb 25, bids and offers were shown in the below table. Both bids and offers increased

slightly volume-wise, but the bid-offer gap widened from the previous day.

For March 2021, the new front month starting Mar 1, the limit of day-to-day fluctuations in the settlement prices would be expanded to 20% as previous measures taken for January and February

2021. The settlement prices for other months would be conventionally fixed within a 10% band.

Month	Base East				Base West				DT East				DT West			
	Offer	lot	Bid	lot	Offer	lot	Bid	lot	Offer	lot	Bid	lot	Offer	lot	Bid	lot
Feb-21	9.32	11	7.24	11	8.10	11	6.14	11	10.50	1	9.54	1	8.90	1	7.04	1
Mar-21	8.30	2	7.60	5	8.00	5	6.20	3	8.60	11	7.85	3	8.40	10	6.50	2
Apr-21	-	-	-	-	7.50	10	-	-	-	-	-	-	-	-	-	-
May-21	-	-	-	-	7.50	10	-	-	-	-	-	-	-	-	-	-
Jun-21	-	-	-	-	7.61	10	-	-	-	-	-	-	-	-	-	-
Jul-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aug-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sep-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oct-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nov-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dec-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jan-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Feb-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mar-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Apr-22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Unit:Yen/kWh, lot:100kWh

### ◎JEPX Day-Ahead Spot Data

#### ○Sell/Buy

Feb 26 delivery	24 hours	DoD	Day Time	DoD	Peak Time	DoD	Night Time	DoD
Sell	1,046,056,900	-3.8%	639,980,200	-6.6%	137,391,650	-10.8%	406,076,700	1.0%
Buy	1,173,639,550	-1.4%	731,474,000	-1.5%	156,211,350	-2.1%	442,165,550	-1.3%

※Unit : kWh

### ○Trade Volumes

Feb 26 delivery	24 hours	Day Time	Peak Time	Night time
Trade volumes	991,098,150	611,913,000	131,997,650	379,185,150
DoD	-1.9%	-2.7%	-4.7%	-0.5%

※Unit : kWh

### ○East Japan Average Prices(50Hz) and West Japan Average Prices(60Hz)

Feb 26 delivery	High	DoD	Low	DoD	Day Time	DoD	Peak Time	DoD	Night Time	DoD	0:00-8:00	DoD	22:00-24:00	DoD
East Japan	13.20	4.9%	1.00	9900.0%	11.31	27.7%	9.65	34.0%	8.26	-8.8%	7.89	-13.5%	9.76	10.4%
West Japan	15.10	44.1%	5.07	19.3%	9.58	44.7%	10.15	78.4%	5.92	-12.7%	5.77	-15.0%	6.49	-3.3%
Price spread (East-West)	-1.90		-4.07		1.73		-0.50		2.34		2.12		3.27	

※Unit : Yen/kWh

### ○Price Divergence by Region

For Feb 26 delivery, price divergence occurred in three regions shown as below:

Tokyo-Chubu (Frequency Converter)

Hokkaido-Tohoku (Kitahon Interconnection Line)

Tohoku-Tokyo (Soma-Futaba Interconnection Line)

**Feb 26 Delivery(Kitahon Interconnection Line:Hokkaido-Tohoku)**

※yen/kWh

Time	System Prices	Hokkaido	Tohoku	Price spread (Hokkaido-Tohoku)	Price spread with System	
					(Hokkaido-S)	(Tohoku-S)
0:30~1:00	6.38	7.09	6.90	0.19	0.71	0.52
1:00~1:30	6.46	7.20	6.90	0.30	0.74	0.44
1:30~2:00	6.50	7.09	6.90	0.19	0.59	0.40
2:00~2:30	6.50	7.42	6.90	0.52	0.92	0.40
2:30~3:00	6.50	7.46	6.90	0.56	0.96	0.40
3:00~3:30	6.50	7.61	7.14	0.47	1.11	0.64
3:30~4:30	6.50	7.66	7.14	0.52	1.16	0.64
8:00~8:30	9.12	8.62	9.34	-0.72	-0.50	0.22
12:00~12:30	8.99	5.83	4.65	1.18	-3.16	-4.34

**Feb 26 Delivery(Soma Futaba Interconnection Line:Tohoku-Tokyo)**

※yen/kWh

Time	System Prices	Tohoku	Tokyo	Price spread (Tohoku-Tokyo)	Price spread with System	
					(Tohoku-S)	(Tokyo-S)
9:30~10:00	10.21	9.95	12.27	-2.32	-0.26	2.06
10:00~10:30	10.02	8.65	12.57	-3.92	-1.37	2.55
12:00~12:30	8.99	4.65	9.40	-4.75	-4.34	0.41
12:30~13:00	8.98	1.00	9.21	-8.21	-7.98	0.23
13:00~13:30	9.59	7.09	12.27	-5.18	-2.50	2.68
13:30~14:00	9.59	5.57	12.27	-6.70	-4.02	2.68
14:00~14:30	9.36	1.00	12.27	-11.27	-8.36	2.91
14:30~15:00	9.03	7.09	10.02	-2.93	-1.94	0.99
15:00~15:30	9.03	7.09	9.43	-2.34	-1.94	0.40

Feb 26 Delivery(Frequency Converter:Tokyo(50Hz)-Chubu(60Hz)) ※yen/kWh

Time	System Prices	Tokyo	Chubu	Price spread (Tokyo-Chubu)	Price spread with System (Tokyo-S) (Chubu-S)	
0:00~0:30	6.63	7.14	5.53	1.61	0.51	-1.10
0:30~1:00	6.38	6.90	5.07	1.83	0.52	-1.31
1:00~1:30	6.46	6.90	5.07	1.83	0.44	-1.39
1:30~2:00	6.50	6.90	5.34	1.56	0.40	-1.16
2:00~2:30	6.50	6.90	5.53	1.37	0.40	-0.97
2:30~3:00	6.50	6.90	5.53	1.37	0.40	-0.97
3:00~3:30	6.50	7.14	5.53	1.61	0.64	-0.97
3:30~4:30	6.50	7.14	5.11	2.03	0.64	-1.39
4:00~4:30	6.50	7.65	5.10	2.55	1.15	-1.40
4:30~5:00	6.64	8.53	5.10	3.43	1.89	-1.54
5:00~5:30	6.89	8.69	5.53	3.16	1.80	-1.36
5:30~6:00	7.24	8.70	5.79	2.91	1.46	-1.45
6:00~6:30	8.69	8.99	6.15	2.84	0.30	-2.54
6:30~7:00	8.92	9.05	7.43	1.62	0.13	-1.49
7:00~7:30	8.75	9.21	6.67	2.54	0.46	-2.08
7:30~8:00	8.99	9.21	7.89	1.32	0.22	-1.10
8:00~8:30	9.12	9.34	8.57	0.77	0.22	-0.55
8:30~9:00	10.37	12.57	11.04	1.53	2.20	0.67
11:00~11:30	12.27	12.27	15.10	-2.83	0.00	2.83
11:30~12:00	10.36	12.27	10.59	1.68	1.91	0.23
12:00~12:30	8.99	9.40	9.13	0.27	0.41	0.14
12:30~13:00	8.98	9.21	8.99	0.22	0.23	0.01
13:00~13:30	9.59	12.27	9.98	2.29	2.68	0.39
13:30~14:00	9.59	12.27	11.54	0.73	2.68	1.95
14:00~14:30	9.36	12.27	10.02	2.25	2.91	0.66
14:30~15:00	9.03	10.02	9.81	0.21	0.99	0.78
15:00~15:30	9.03	9.43	8.99	0.44	0.40	-0.04
15:30~16:00	10.25	10.25	10.53	-0.28	0.00	0.28
16:00~16:30	10.35	12.27	8.35	3.92	1.92	-2.00
16:30~17:00	12.19	12.57	8.57	4.00	0.38	-3.62
17:00~17:30	12.13	13.20	8.35	4.85	1.07	-3.78
17:30~18:00	12.27	13.20	8.57	4.63	0.93	-3.70
18:00~18:30	12.27	13.20	8.57	4.63	0.93	-3.70
18:30~19:00	12.27	13.20	8.57	4.63	0.93	-3.70
19:00~19:30	12.05	13.20	8.57	4.63	1.15	-3.48
19:30~20:00	11.01	13.20	8.57	4.63	2.19	-2.44
20:00~20:30	9.40	13.20	8.03	5.17	3.80	-1.37
20:30~21:00	9.04	13.20	6.15	7.05	4.16	-2.89
21:00~21:30	8.94	10.24	6.15	4.09	1.30	-2.79
21:30~22:00	8.94	9.34	6.15	3.19	0.40	-2.79
22:00~22:30	8.98	12.00	7.69	4.31	3.02	-1.29
22:30~23:00	8.85	9.21	6.80	2.41	0.36	-2.05
23:00~23:30	8.72	9.05	5.79	3.26	0.33	-2.93
23:30~24:00	8.49	8.77	5.69	3.08	0.28	-2.80

## ©JEPX Day-Ahead Spot Price Charts

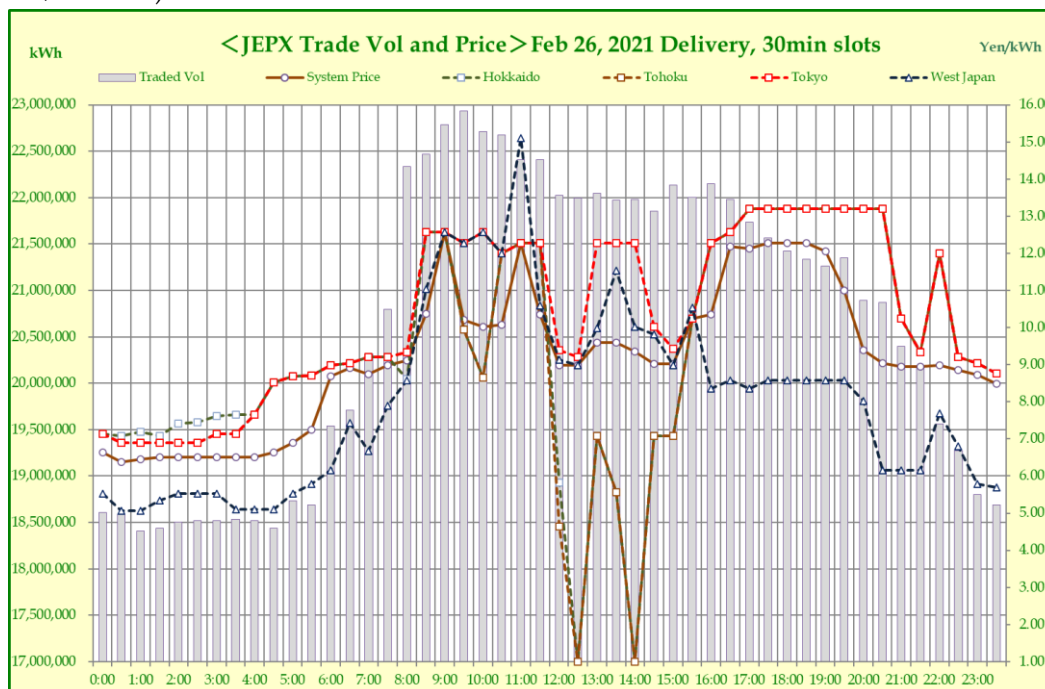
### ○Traded Volumes and Prices (Feb 26 delivery)

Price divergence for 4.5 hours (9 windows) between Hokkaido and Tohoku (Kitahon Interconnection Line)

Price divergence for 4.5 hours (9 windows) between Tohoku and Tokyo (Soma-Futaba Interconnection Line)

Price divergence for 22 hours (44 windows) between Tokyo and Chubu (Frequency Converter)

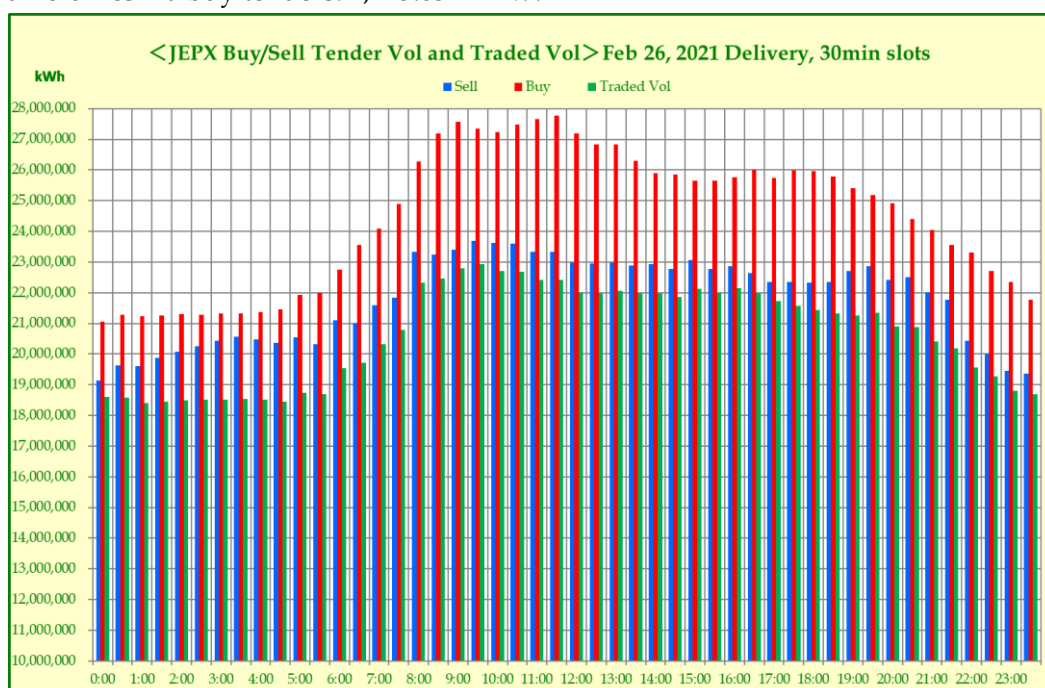
Traded volumes: 991.09 mil kWh, Actual highest price: Yen 15.10 (West Japan), Actual lowest price: Yen 1.00 (Hokkaido, Tohoku)



### ○Sell/Buy Tenders and Traded Prices (Feb 26 delivery)

Total offered volumes via sell tenders: 1,046.05 mil kWh

Total bid volumes via buy tenders: 1,173.63 mil kWh



**©JEPX [Ahead & Intra-day price average] and [Preliminary  $\alpha$  × Ahead & Intra-day price average]**  
**OFeb 20 Delivery**

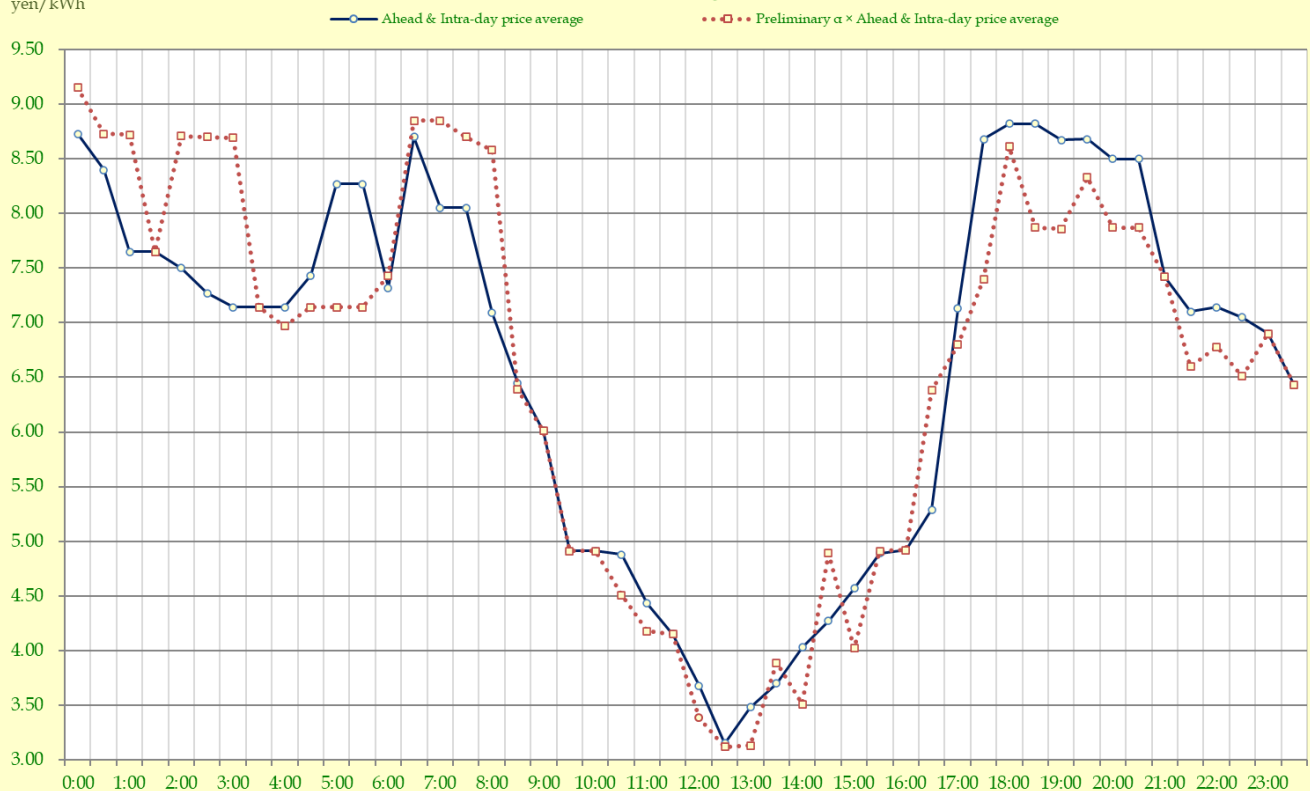
Ahead & Intra-day price average		Preliminary $\alpha$ × Ahead & Intra-day price average		Preliminary $\alpha$	
24Hours	6.65	24Hours	6.64	24Hours	1.00
Day time	5.97	Day time	5.80	Day time	0.97
Peak time	4.16	Peak time	4.06	Peak time	0.98
Night time	7.61	Night time	7.82	Night time	1.03

Yen/kW

	0:00	0:30	1:00	1:30	2:00	2:30	3:00	3:30	4:00	4:30	5:00	5:30
Ahead & Intra-day price average	8.73	8.40	7.65	7.65	7.50	7.27	7.14	7.14	7.14	7.43	8.27	8.27
Preliminary $\alpha$ × Ahead & Intra-day price average	9.15	8.73	8.72	7.65	8.71	8.70	8.69	7.14	6.97	7.14	7.14	7.14
Preliminary $\alpha$	1.05	1.04	1.14	1.00	1.16	1.20	1.22	1.00	0.98	0.96	0.86	0.86
	6:00	6:30	7:00	7:30	8:00	8:30	9:00	9:30	10:00	10:30	11:00	11:30
Ahead & Intra-day price average	7.32	8.70	8.05	8.05	7.09	6.45	6.01	4.91	4.91	4.88	4.43	4.15
Preliminary $\alpha$ × Ahead & Intra-day price average	7.43	8.85	8.85	8.70	8.58	6.39	6.01	4.91	4.91	4.51	4.18	4.15
Preliminary $\alpha$	1.02	1.02	1.10	1.08	1.21	0.99	1.00	1.00	1.00	0.92	0.94	1.00
	12:00	12:30	13:00	13:30	14:00	14:30	15:00	15:30	16:00	16:30	17:00	17:30
Ahead & Intra-day price average	3.68	3.15	3.48	3.70	4.03	4.27	4.57	4.89	4.92	5.29	7.13	8.68
Preliminary $\alpha$ × Ahead & Intra-day price average	3.38	3.12	3.13	3.89	3.51	4.89	4.02	4.91	4.92	6.38	6.80	7.40
Preliminary $\alpha$	0.92	0.99	0.90	1.05	0.87	1.15	0.88	1.00	1.00	1.21	0.95	0.85
	18:00	18:30	19:00	19:30	20:00	20:30	21:00	21:30	22:00	22:30	23:00	23:30
Ahead & Intra-day price average	8.82	8.82	8.67	8.68	8.50	8.50	7.42	7.10	7.14	7.05	6.90	6.43
Preliminary $\alpha$ × Ahead & Intra-day price average	8.61	7.87	7.86	8.33	7.87	7.87	7.42	6.60	6.78	6.51	6.90	6.43
Preliminary $\alpha$	0.98	0.89	0.91	0.96	0.93	0.93	1.00	0.93	0.95	0.92	1.00	1.00

**<JEPX> [Ahead & Intra-day price average] and [Preliminary  $\alpha$  × Ahead & Intra-day price average]**  
**Feb 20, 2021 Delivery, 30min slots**

Yen/kWh


If **Ahead & Intra-day price average** is above **Preliminary  $\alpha$  × Ahead & Intra-day price average**,  $\alpha < 1$  and supply is surplus.

If **Preliminary  $\alpha$  × Ahead & Intra-day price average** is above **Ahead & Intra-day price average**,  $\alpha > 1$  and supply is insufficient.



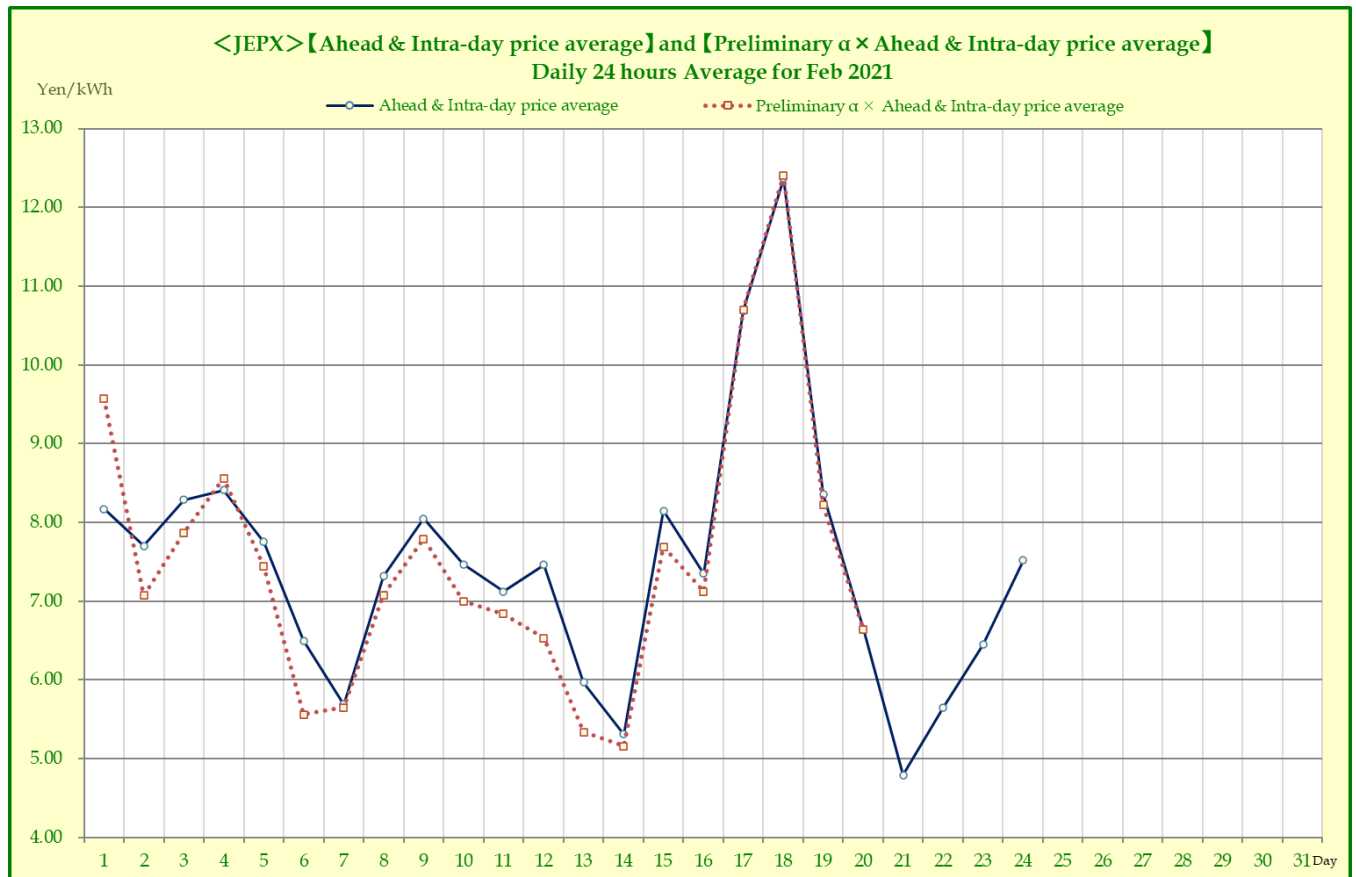
**Feb Delivery • 24 hours**

The average price and preliminary alpha factor based on the data obtained on Feb 1-20

\*Ahead & Intra-day price average shown for Feb 1-24

Ahead & Intra-day price average (Feb 1-20)		Preliminary $\alpha \times$ Ahead & Intra-day price average (Feb 1-20)		Preliminary $\alpha$ (Feb 1-20)		※Ahead & Intra-day price average (Feb 1-24)	
24Hours	7.74	24Hours	7.51	24Hours	0.97	24Hours	7.47
Day time	7.86	Day time	7.48	Day time	0.95	Day time	7.51
Peak time	6.06	Peak time	5.22	Peak time	0.86	Peak time	5.69
Night time	7.57	Night time	7.56	Night time	1.00	Night time	7.40

yen/kWh


**Tentative Monthly Imbalance Rates by 9 Regions (Feb)**
**Tentative Monthly Imbalance Rates as of Feb 1-20**

Unit : yen/kWh

	Hokkaido	Tohoku	Tokyo	Chubu	Hokuriku	Kansai	Chugoku	Shikoku	Kyusyu
X (Preliminary $\alpha \times$ the weighted average of Day-ahead and Intra-day prices)	7.51								
$\beta$ (Median of difference of area price and system price in each month)	0.16	0.03	0.03	-0.05	-0.05	-0.05	-0.05	-0.05	-0.20
K (Incentive index for shortage)	2.98	1.46	1.46	0.49	0.48	0.48	0.48	0.49	0.54
Imbalance fees for shortage (X+ $\beta$ +K)	10.65	9.00	9.00	7.95	7.94	7.94	7.94	7.95	7.85
L (Incentive index for surplus)	-1.18	-0.43	-0.43	-0.74	-0.71	-0.71	-0.71	-0.72	-0.70
Imbalance compensation for surplus (X+ $\beta$ +L)	6.49	7.11	7.11	6.72	6.75	6.75	6.75	6.74	6.61

$\alpha$ : Adjustment corresponding to power supply/demand situation for the whole system (exception range=3% of upper and lower limit of bids)

$\beta$ : Adjustment reflecting the differences in market prices by region

K and L: Incentive index by region (value determined periodically by the Minister of Economy, Trade and Industry)

**◎9 Area Power Data and Chart**
**○9 Area Peak Capacity and Rim 24 hours Average Prices**
**26-Feb, 2021 Supply and Demand forecast**

Area	Supply Capacity	Peak demand	Reserve rate	Usage	Peak demand time	Temperature forecast(Low/High)
Hokkaido	546	478	14.2%	87.5%	09~10:00	-6.0 / -1.0
Tohoku	1,480	1,260	17.5%	85.1%	09~10:00	1.0 / 8.0
Tokyo	5,196	4,406	17.9%	84.8%	09~10:00	4.0 / 11.0
East Japan total	7,222	6,144	17.5%	85.1%	-	-0.3 / 6.0
Chubu	2,312	2,058	12.3%	89.0%	09~10:00	5.0 / 11.0
Hokuriku	492	435	13.1%	88.4%	09~10:00	0.0 / 7.0
Kansai	2,494	2,220	12.3%	89.0%	09~10:00	5.0 / 8.0
Chugoku	998	916	9.0%	91.8%	09~10:00	4.0 / 9.0
Shikoku	465	409	13.7%	88.0%	08~09:00	5.0 / 8.0
Kyushu	1,256	1,170	7.4%	93.2%	09~10:00	8.0 / 11.0
West Japan total	8,017	7,208	11.2%	89.9%	-	4.5 / 9.0
9 Area total	15,239	13,352	14.1%	87.6%	-	2.9 / 8.0

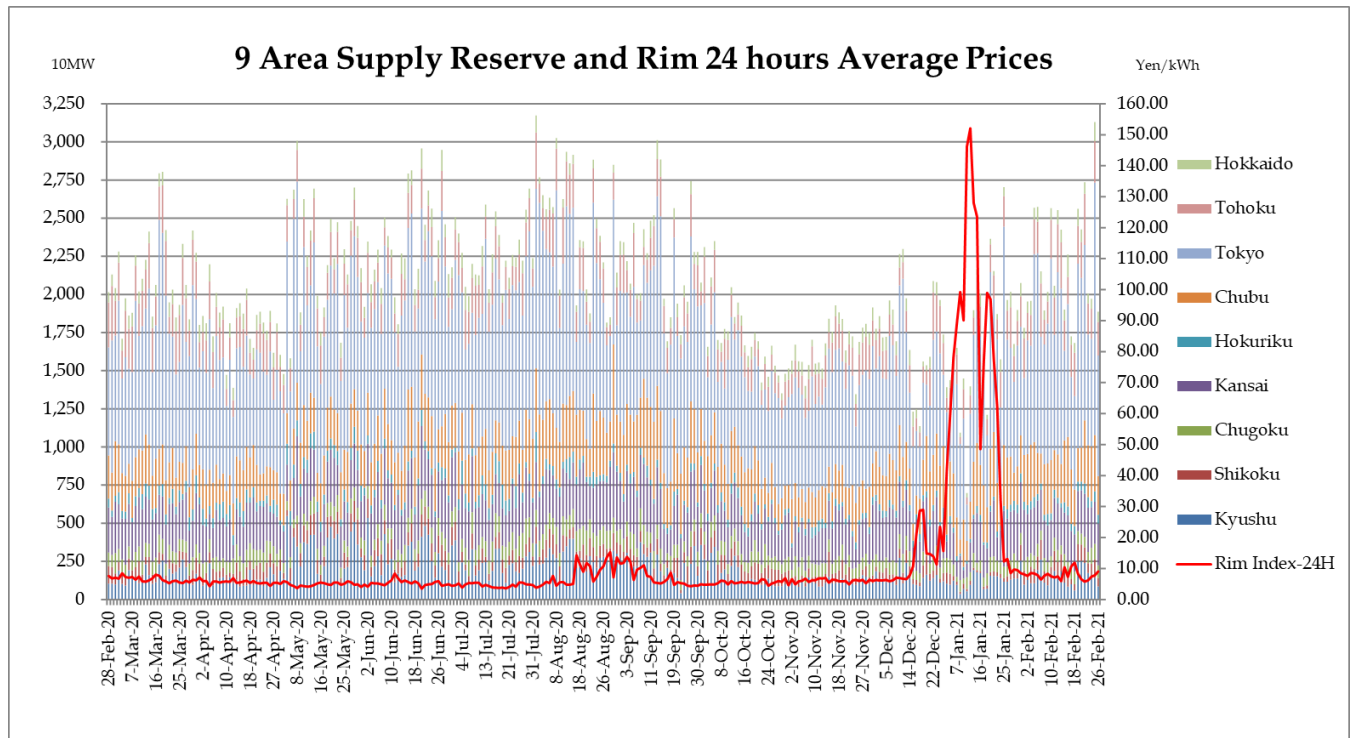
Unit:10MW、Temperature ℃

Temperature Area(Sapporo,Sendai,Tokyo,Nagoya,Toyama,Osaka,Hroshima,Takamatsu,Fukuoka)

**26-Feb-21, Supply Reserve Forecast**

※Unit : 10MW,DoD

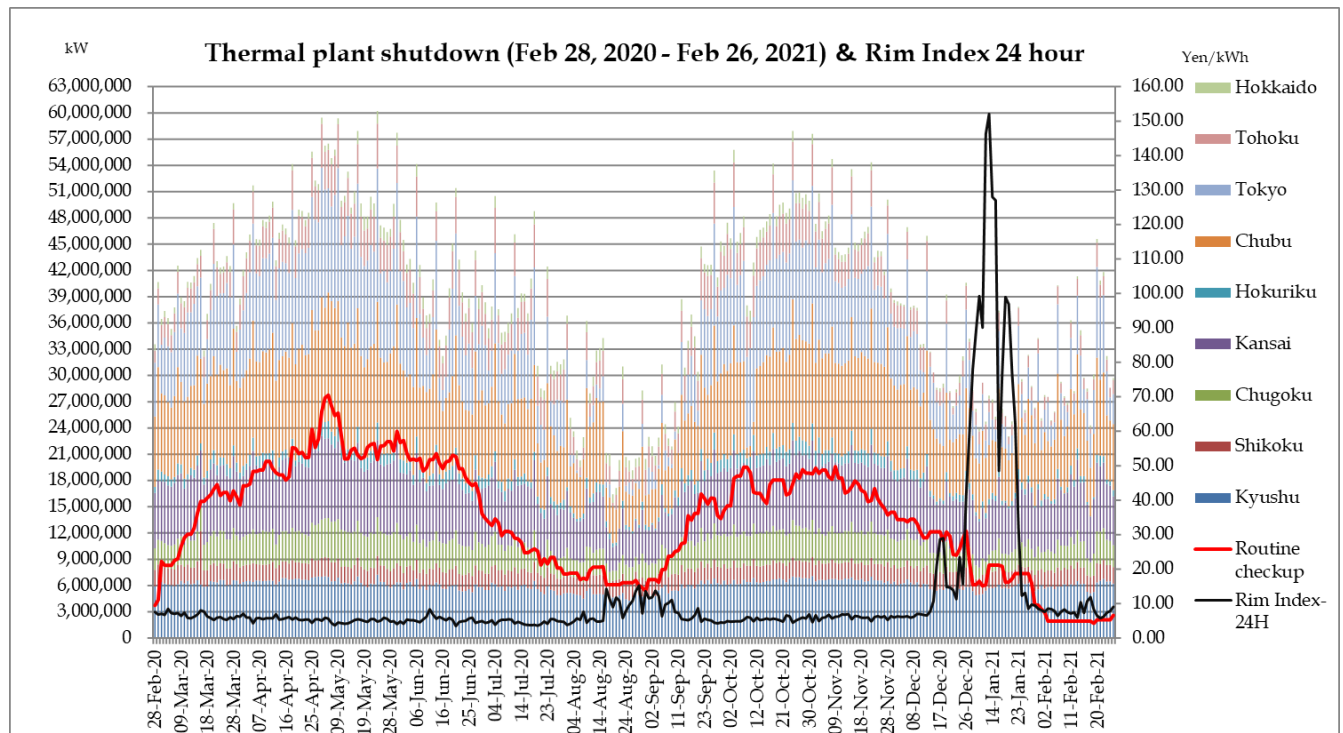
	Total	Hokkaido	Tohoku	Tokyo	Chubu	Hokuriku	Kansai	Chugoku	Shikoku	Kyushu
Supply Reserve	1,887(-1,243)	68(-58)	220(-51)	790(-865)	254(-115)	57(-11)	274(-3)	82(-18)	56(-68)	86(-54)



**©Latest Status of Thermal Power Stations**
**OOOperation Updates as of Feb 25**

Company	Plant	Area	Fuel	Unit	Na	Outage	Period	Restart	Update	Remarks
JERA Company	Kawagoe	Chubu	Gas	No.1	700,000	Planned	20-Mar-21 7:00	22-Mar-21	25-Feb-21 15:04	
				No.4-1	243,000	Planned	27-Feb-21 0:00	08-Mar-21	25-Feb-21 14:34	
				No.4-6	243,000	Planned	27-Feb-21 22:00	28-Feb-21	25-Feb-21 14:39	
	Joetsu	Chubu	Gas	No.2-2	595,000	Planned	01-Mar-21 0:00	07-Apr-21	25-Feb-21 14:41	Regural maintenance
	Yokkaichi	Chubu	Gas	No.4-1	117,000	Planned	27-Feb-21 0:00	28-Feb-21	25-Feb-21 15:06	
							19-Mar-21 20:40	22-Mar-21	25-Feb-21 14:46	
				No.4-2	117,000	Planned	19-Mar-21 20:50	22-Mar-21	25-Feb-21 14:48	
				No.4-3	117,000	Planned	27-Feb-21 0:00	28-Feb-21	25-Feb-21 15:07	
							19-Mar-21 20:30	22-Mar-21	25-Feb-21 14:50	
				No.4-4	117,000	Planned	20-Mar-21 0:00	22-Mar-21	25-Feb-21 14:52	
			No.4-5	117,000	Planned	19-Mar-21 21:00	22-Mar-21	25-Feb-21 14:53		
Kansai Electric Power Company	Nanko	Kansai	Gas	No.3	600,000	Planned	02-Mar-21 8:00	09-Mar-21	25-Feb-21 13:07	
							02-Mar-21 0:00	05-Mar-21	25-Feb-21 11:56	
Facilities of independent power companies										
East Japan Railway	Kawasaki	Tokyo	Gas	No.3	198,400	Planned	15-Mar-21 23:00	16-Mar-21	25-Feb-21 14:52	
							14-Mar-21 23:00	15-Mar-21	25-Feb-21 14:52	

Nine power utilities in Japan are expected to suspend thermal units with a combined capacity of 29.71 mil kW as of Feb 26 Friday. Nearly 2.60 mil kW will be off line for planned maintenance while unplanned shutdowns account for a loss of the remaining 27.11 mil kW. In the corresponding point a year before, a combined 33.55 mil kW was idled as of Feb 28 2020, Friday, including nearly 3.72 mil kW for planned maintenance and nearly 29.83 mil kW for unplanned suspensions.



**©Spark/Dark Spreads and Fuel Cost Netback**
**○Spark/Dark Spreads**

Rim Index (yen/kWh Feb 26)								
24h	DT	Peak	Night					
9.05	10.45	9.90	7.09					
Fuel	thermal efficiency(%)	Fuel Price yen / ton · kl	After tax yen/ton · kl	Generation cost yen/kWh	Spread (yen/kWh)			
					24 hr	DT	Peak	Night
LNG	<b>44.10</b>	34,726	36,586	5.47	+3.58	+4.98	+4.43	+1.62
	50.00			4.82	+4.23	+5.62	+5.08	+2.27
	59.00			4.09	+4.96	+6.36	+5.81	+3.00
Coal	<b>40.50</b>	10,162	11,532	3.99	+5.06	+6.46	+5.91	+3.10
	45.00			3.59	+5.46	+6.86	+6.31	+3.50
Imported CFO	38.40	55,339	55,339	12.59	-3.54	-2.15	-2.69	-5.50
Domestic CFO								
0.3% sulfur	<b>38.40</b>	46,000	46,000	10.47	-1.42	-0.02	-0.57	-3.38
3.0% sulfur	38.40	41,000	41,000	9.33	-0.28	+1.12	+0.57	-2.24
Crude	<b>38.40</b>	36,550	39,350	9.36	-0.31	+1.08	+0.54	-2.27

\*1 Rim Index is the average of East Japan prices and West Japan prices.

\*2 Thermal efficiency shown in BOLD is the average thermal efficiency for general electric utilities in the fiscal year 2013.

\*3 In the section of Fuel Price, LNG is a yen-based conversion from DES North East prices for first-half April delivery published in Rim LNG Report. Coal is a yen-based conversion from a sum of FOB Newcastle prices for February loading and freight rates. Imported CFO is a yen-based conversion from CFR Japan FO 0.3%S prices published in Rim Products Report. Domestic CFO is the average of East Japan prices and West Japan prices for February delivery published in Rim Japan Products Report. Crude Oil is a yen-based conversion from the CIF import price for February delivery estimated by Rim. The exchange rate applied for the yen-based conversion is the TTS (Telegraphic Transfer Selling) Rate published by the MUFJ Bank.

\*4 Generation Cost is calculated based on power calorie, fuel calorie, thermal efficiency and fuel prices, and it is so-called marginal cost excluding facility utilization rates.

\*5 Spread is calculated by deducting Generation Cost from Rim Index.

\*6 The latest Petroleum and Coal Tax (Global Warming Tax) is applied. From Apr 1, 2016, the tax was increased by Yen 760/kl to Yen 2,800/kl for Crude/Refined Products. The tax for Gaseous Hydrocarbon was revised upward by Yen 780/ton to Yen 1,860/ton, while the tax for Coal was up Yen 670/ton at Yen 1,370/ton.

**OFuel Cost Netback**

Rim Index (Yen/kWh)※1	Delivery	24h	Day time	Peak time	Night time	Yen/\$ (Feb 24)※
	Feb-26	9.05	10.45	9.90	7.09	106.41

	RIM Index (Yen/kWh)		Thermal Efficiency※3	Fuel Cost Netback (DES, CIF)				Fuel Prices※4		Margin
				\$/mt	\$/mmBtu	\$/bbl	Yen/kl	Feb-24	Unit	
LNG	24h	9.05	<b>44.10%</b>	551.37	10.66			6.30	\$/mmBtu	4.36
			50.00%	627.47	12.13				\$/mmBtu	5.83
			59.00%	743.56	14.38				\$/mmBtu	8.08
	Day time	10.45	<b>44.10%</b>	639.05	12.36				\$/mmBtu	6.06
			50.00%	726.89	14.06				\$/mmBtu	7.76
			59.00%	860.87	16.65				\$/mmBtu	10.35
	Peak time	9.90	<b>44.10%</b>	604.79	11.70				\$/mmBtu	5.40
			50.00%	688.05	13.31				\$/mmBtu	7.01
			59.00%	815.04	15.76				\$/mmBtu	9.46
	Night time	7.09	<b>44.10%</b>	428.17	8.28				\$/mmBtu	1.98
			50.00%	487.79	9.43				\$/mmBtu	3.13
			59.00%	578.74	11.19				\$/mmBtu	4.89
Coal	24h	9.05	<b>40.50%</b>	233.02	9.57			95.50	\$/mt	137.52
			45.00%	260.34	10.70				\$/mt	164.84
			<b>40.50%</b>	270.92	11.13				\$/mt	175.42
	Day time	10.45	45.00%	302.46	12.43				\$/mt	206.96
			<b>40.50%</b>	256.12	10.52				\$/mt	160.62
			45.00%	286.00	11.75				\$/mt	190.50
	Peak time	9.90	<b>40.50%</b>	179.77	7.39				\$/mt	84.27
			45.00%	201.17	8.27				\$/mt	105.67
Imported CFO	24h	9.05	<b>38.40%</b>	355.78	8.85			498.00	\$/mt	-142.22
	Day time	10.45	<b>38.40%</b>	415.17	10.32				\$/mt	-82.83
	Peak time	9.90	<b>38.40%</b>	391.97	9.75				\$/mt	-106.03
	Night time	7.09	<b>38.40%</b>	272.33	6.77				\$/mt	-225.67
Crude	24h	9.05	<b>38.40%</b>	341.36	8.87	52.65		56.46	\$/bbl	-3.81
	Day time	10.45	<b>38.40%</b>	398.16	10.35	61.41			\$/bbl	4.95
	Peak time	9.90	<b>38.40%</b>	375.97	9.77	57.99			\$/bbl	1.53
	Night time	7.09	<b>38.40%</b>	261.55	6.80	40.34			\$/bbl	-16.12
Domestic CFO 0.3% sulfur	24h	9.05	<b>38.40%</b>				39,772	46,000	Yen/kl	-6,228
	Day time	10.45	<b>38.40%</b>				45,902		Yen/kl	-98
	Peak time	9.90	<b>38.40%</b>				43,507		Yen/kl	-2,493
	Night time	7.09	<b>38.40%</b>				31,158		Yen/kl	-14,842
Domestic CFO 3.0% sulfur	24h	9.05	<b>38.40%</b>				39,772	41,000	Yen/kl	-1,228
	Day time	10.45	<b>38.40%</b>				45,902		Yen/kl	4,902
	Peak time	9.90	<b>38.40%</b>				43,507		Yen/kl	2,507
	Night time	7.09	<b>38.40%</b>				31,158		Yen/kl	-9,842

\*1 Rim Index is the average of East Japan prices and West Japan prices.

\*2 The exchange rate applied for the yen-based conversion is the TTS (Telegraphic Transfer Selling) Rate published by the MUFJ Bank.

\*3 Thermal efficiency shown in BOLD is the average thermal efficiency for general electric utilities in the fiscal year 2013.

\*4 In the section of Actual Fuel Cost, LNG is a yen-based conversion from DES North East prices for first-half April delivery published in Rim LNG Report. Coal is a yen-based conversion from a sum of FOB Newcastle prices for February loading and freight rates. Imported CFO is a yen-based conversion from CFR Japan FO 0.3%S prices published in Rim Products Report. Crude Oil is a yen-based conversion from the CIF import price for February delivery estimated by Rim. Domestic CFO is the average of East Japan prices and West Japan prices for February delivery published in Rim Japan Products Report.

\*5 The latest Petroleum and Coal Tax (Global Warming Tax) is applied. From Apr 1, 2016, the tax was increased by Yen 760/kl to Yen 2,800/kl for Crude/Refined Products. The tax for Gaseous Hydrocarbon was revised upward by Yen 780/ton to Yen 1,860/ton, while the tax for Coal was up Yen 670/ton at Yen 1,370/ton.

**◎Power Bid Results(Public Institutions)**
**○Results of sell and bid tenders for power**

\* Eco-friendly regulations

Area of user	* Eco	Estimated demand volumet (kwh)	Contracted power (kw)	Load factor (%)	Contract period	Average price (yen/kwh)	Lowest offer before tax (yen/kwh)
Chugoku	*	434,500	73	22.6	Apr/01/2021-Mar/31/2024	13.7	5,955,987
Chugoku	*	1,346,000	1,050	14.6	Apr/01/2021-Mar/31/2022	14.4	19,377,654
Chugoku	*	552,000	130	16.1	Apr/01/2021-Mar/31/2024	14.7	8,099,290
Tohoku		453,875	151	34.3	Apr/01/2021-Mar/31/2022	15.9	7,199,432
Kanto	*	4,811,000	1,325	41.4	Apr/01/2021-Mar/31/2022	15.8	75,775,000
Kanto	*	13,817,706	2,700	58.4	Apr/01/2021-Mar/31/2022	13.1	181,376,160
Hokkaido		3,193,600	730	49.9	Apr/01/2021-Mar/31/2022	16.7	53,225,527
Kanto	*	72,166,500	34,987	23.5	Apr/01/2021-Mar/31/2022	17.2	1,242,092,124
Chubu	*	360,000	164	25.1	Apr/01/2021-Mar/31/2022	15.0	5,390,891
Chubu	*	n.a.	n.a.	-	Apr/01/2021-Mar/31/2022	-	14,368,045
Kansai	*	5,433,900	1,084	57.2	Apr/01/2021-Mar/31/2022	10.1	54,931,350
Kansai	*	2,256,500	435	59.2	Apr/09/2021-Apr/21/2022	10.3	23,254,250



## ©Japan Power Demand by Region

○ Feb 24 2021

※Power demand graphs every Friday

### Japan power demand by region

Feb 24 2021

Area	MW	on prev day	on year	MWh	on prev day	on year
Hokkaido	4,678	4.3%	9.2%	105,787	4.0%	12.9%
Tohoku	13,104	6.1%	23.6%	288,419	13.1%	22.4%
Tokyo	42,086	14.6%	18.8%	869,407	18.6%	18.8%
Chubu	20,554	13.6%	12.5%	423,584	12.6%	12.4%
Hokuriku	4,417	11.6%	26.1%	97,751	14.1%	24.9%
Kansai	20,658	14.3%	15.9%	431,641	16.5%	12.0%
Chugoku	8,214	13.0%	4.2%	175,980	13.4%	4.7%
Shikoku	3,793	19.6%	15.3%	80,209	17.5%	10.9%
Kyushu	10,489	7.0%	1.4%	229,454	11.4%	2.2%
Total	127,992	12.4%	14.9%	2,702,233	14.9%	14.2%

Unit: Maximum power demand in MW, daily demand in MWh

### Total Japan Power Output

The totals from Feb 1 to 24 2021

Area	output	year ago	on year
Hokkaido	2,484,075	2451392	1.3%
Tohoku	6,496,343	6,119,396	6.2%
Tokyo	20,161,329	19,772,740	2.0%
Chubu	9,673,816	9,479,605	2.0%
Hokuriku	2,246,969	2,168,592	3.6%
Kansai	10,011,508	10,158,901	-1.5%
Chugoku	4,275,429	4,385,341	-2.5%
Shikoku	1,919,460	1,934,441	-0.8%
Kyushu	5,857,116	5,945,365	-1.5%
Total	63,126,045	62,415,774	1.1%

Unit: MWh

## ©Market News

### ○ Benchmark Crudes: Brent and WTI advance on strong US equity prices and weak dollar

Benchmark Brent crude futures extended gains on Thursday. The April Brent crude oil futures contract in after-hours trading at 15:30 Tokyo time was at \$67.24 per barrel (bbl), up 20cts from the closing price of the previous day. The April WTI contract in overnight NYMEX ACCESS trade was \$63.38 per bbl, up 16cts from the previous day. Meanwhile in the Dubai OTC market, the April cash Dubai was quoted at \$64.80 per bbl, up \$2.33 from the same time the previous day.

Brent and WTI crude prices rose further. In addition to a rise in US Dow Futures, the dollar fell against the euro, making dollar-based commodities like crude oil attractive, triggering buying in the crude oil market.

Meanwhile, regarding the outlook for the front-month Brent crude contract, an energy trader at a major commodity broker said that "The market trend would remain strong. Prices are likely to rise toward \$70." The trader pointed out that the market surged rapidly in the short-term period. "If prices fall temporarily amid emerging high-price concerns, buying would emerge again. Under the situations, market players hesitate to sell crude futures aggressively," he said.

### ○ Nine utilities hike final fuel cost adjustment for April 2021

Nine power utilities in Japan finalized fuel cost adjustment for April 2021. All of nine utilities raised fuel cost adjustment factors in the wake of the across-the-board gain in crude oil, LNG and coal. Especially, LNG

posted a significant strength, sharply pushing up Chubu and Tokyo with a higher dependency on LNG-fired power plants.

The three-month fuel price average over Nov 2020-Jan 2021, a criterion to determine fuel cost adjustment for nine power utilities in April 2021, soared by Yen 2,400 from Oct-Dec 2020 for Chubu, followed by a surge by Yen 2,300 for Tokyo and a jump by Yen 1,900 for Kansai. The gains for other utilities were Yen 1,700 for Tohoku, Yen 1,200 for Kyushu, Yen 1,100 for Chugoku, Yen 800 for Hokkaido and Shikoku, and Yen 600 for Hokuriku. The rise for Tohoku, Tokyo, Chubu and Kansai came for three months in a row. Chugoku and Shikoku increased for a second straight month. Hokkaido and Hokuriku gained for a first month in three.

The three-month price average for each fuel was at Yen 29,898 per kiloliter for crude oil, turning higher for a first month in three by Yen 1,029 from the previous month. LNG surged for three consecutive months by Yen 4,735 to Yen 40,066 per ton. LNG topped the Yen 40,000 mark for a first month in six. Coal was up Yen 335 to Yen 7,923 per ton, rising for two months in a row.

According to the revised preliminary trade statistics for January 2021 released by the Japan's Ministry of Finance, crude oil advanced by Yen 3,502 from the previous month to Yen 32,625 per kiloliter, marking the month-on-month increase for two straight months. Crude oil regained the Yen 30,000 level for the first time since September 2020. LNG shot up by Yen 6,742 to Yen 45,382 per ton, topping the Yen 40,000 mark for the first time since July 2020. LNG posted the month-on-month gain for four consecutive months. Coal gained for two months in a row by Yen 645 to Yen 8,400 per ton, recovering to the Yen 8,000 level for the first time since July 2020.

Among nine power utilities, TEPCO Energy Partner said its average fuel prices over Nov 2020-January 2021 was at Yen 25,600, up Yen 2,300 from Oct-Dec 2020, but down Yen 18,600 from its own base price. The unit prices of fuel cost adjustment for April 2021 were at minus Yen 4.32/kWh for low voltage power, up Yen 0.53 from the previous month, minus Yen 4.17/kWh for high voltage power, up Yen 0.51, and minus Yen 4.11 for extra high voltage power, up Yen 0.51. Fuel cost adjustment is reflected into the company's revenue, so any upward or downward cost adjustment will push up or down the revenue.

The average fuel prices are based on the three-month average of CIF import prices of crude oil, LNG and coal (thermal coal) from three to five months prior to the price adjustment month released by the Ministry of Finance in Japan. Nine power utilities calculate the average fuel prices by using own alpha factors on top of the three-month price average and determine fuel cost adjustment.

Average Fuel Prices & Fuel Cost Adjustment, Apr-21									
	Average Fuel Prices			Fuel Cost Adjustment					
	Nov 20 - Jan 21	vs Oct 20 - Dec 20	vs Base Prices	Low Voltage Power	MoM	High Voltage Power	MoM	Extra-High Voltage Power	MoM
Hokkaido	20,300	800	-16,900	-3.33	+0.16	-3.19	+0.16	-3.11	+0.15
Tohoku	20,200	1,700	-11,200	-2.48	+0.37	-2.39	+0.36	-2.31	+0.35
Tokyo	25,600	2,300	-18,600	-4.32	+0.53	-4.17	+0.51	-4.11	+0.51
Chubu	23,400	2,400	-22,500	-5.24	+0.56	-5.02	+0.53	-4.95	+0.53
Hokuriku	15,900	600	-6,000	-0.97	+0.09	-0.91	+0.09	-0.90	+0.09
Kansai	20,100	1,900	-7,000	-1.16	+0.31	-1.11	+0.30	-1.09	+0.30
Chugoku	17,600	1,100	-8,400	-2.02	+0.27	-1.97	+0.25	-1.91	+0.25
Shikoku	16,800	800	-9,200	-1.80	+0.16	-1.73	+0.15	-1.68	+0.15
Kyushu	16,100	1,200	-11,300	-1.54	+0.16	-1.47	+0.16	-1.45	+0.15

Unit : Average Fuel Prices(Yen/kl) , Fuel Adjustment Cost(Yen/kWh)

Base Prices				
	Average Fuel Prices	Fuel Cost Adjustment		
		Low Voltage Power	High Voltage Power	Extra-High Voltage Power
Hokkaido	37,200	0.197	0.189	0.184
Tohoku	31,400	0.221	0.213	0.206
Tokyo	44,200	0.232	0.224	0.221
Chubu	45,900	0.233	0.223	0.220
Hokuriku	21,900	0.161	0.152	0.150
Kansai	27,100	0.165	0.158	0.156
Chugoku	26,000	0.245	0.234	0.227
Shikoku	26,000	0.196	0.188	0.183
Kyushu	27,400	0.136	0.130	0.128

Unit : Average Fuel Prices(Yen/kl) , Fuel Adjustment Cost(Yen/kWh)

### Editorial and Subscription Inquiry:

**[Tokyo office]** Tel:(81) 3-3552-2411, Fax:(81)3-3552-2415,  
e-mail:[info@rim-intelligence.co.jp](mailto:info@rim-intelligence.co.jp)

**[Singapore office]** Tel:(65)-6345-9894, Fax (65)-6345-9894,  
e-mail:[hagimoto@rim-intelligence.co.jp](mailto:hagimoto@rim-intelligence.co.jp)

**[Beijing office]** Tel:(86)10-6498-0455, Fax:(86)10-6428-1725,  
e-mail: [ma@rim-intelligence.co.jp](mailto:ma@rim-intelligence.co.jp) , [huo@rim-intelligence.co.jp](mailto:huo@rim-intelligence.co.jp)

**[Shanghai office]** Tel:(86)-21-5111-3575,  
e-mail:[rim\\_sh@rim-intelligence.co.jp](mailto:rim_sh@rim-intelligence.co.jp)

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