

MARKET HEADLINE

Prices plunge on ample supplies	1
NYK to develop ammonia-ready LNG-fuelled ships	4
Mitsubishi, Shell to produce hydrogen in Canada	4
Japan to extend Covid-19 measures	4
Adnoc exports blue ammonia to Japan	5
Jogmec fails to post August spot LNG prices	5
Chofu biomass power plant plans 2025 start-up	5
Mitsubishi to supply solar power to Amazon	5
Japan to lower thermal power capacity this week	6
Japan's Suga to resign as prime minister	6

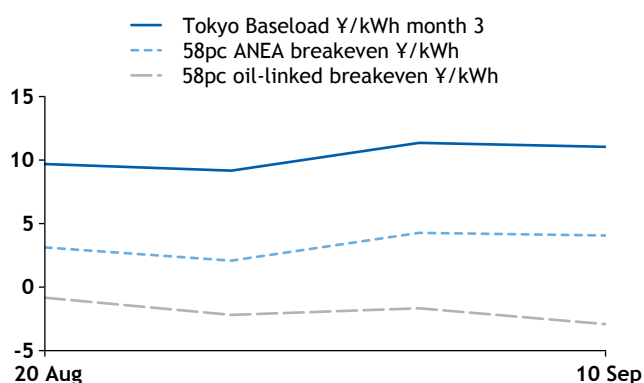
POWER MARKET COMMENTARY

Prices plunge on ample supplies

Japanese wholesale electricity prices fell sharply over the past week, as supplies outstripped demand. The fall in prompt physical prices weighed on momentum in the country's power futures market, although the forward curve maintained its contango toward January next year.

The Japan Electric Power Exchange's (Jepx) system-wide, day-ahead prices fell by 10.9pc from a week earlier to an average of ¥7.69/kWh (\$72.78/MWh) over 4-10 September. Prices in the east Tokyo area fell by 13.4pc to ¥7.57/kWh, while west Japan's Kansai region saw a 11.2pc drop to ¥7.99/kWh. The east-west spread widened its discount to ¥0.41/kWh from the previous week's ¥0.25/kWh.

Japan spark spreads and power prices



POWER

Japan power assessments, 10 Sep				¥/kWh
	Base load	±	Peak load	±
Tokyo				
Sep 21	7.97	-1.04	9.79	-1.15
Oct 21	8.09	-1.00	9.85	-0.36
Nov 21	11.00	-0.40	12.29	-0.22
Dec 21	13.95	-0.05	16.43	+0.15
Jan 22	16.67	+0.58	19.30	+1.07
Feb 22	16.45	+0.44	19.52	+0.63
4Q 21	11.01	-0.48	12.86	-0.14
1Q 22	15.30	+0.27	17.88	+0.08
2Q 22	9.63	+0.07	12.05	-0.70
Kansai				
Sep 21	8.64	-0.39	9.98	-1.00
Oct 21	8.59	-0.81	9.65	-0.80
Nov 21	10.33	-0.11	11.53	-0.58
Dec 21	13.45	+0.09	15.10	-0.14
Jan 22	15.07	+0.51	16.71	+0.98
Feb 22	15.03	+0.77	16.67	+1.17
4Q 21	10.79	-0.28	12.09	-0.51
1Q 22	13.54	+0.23	15.40	+0.79
2Q 22	8.36	+0.25	10.25	-0.04

Japan spark and dark spreads, 10 Sep							¥/kWh
	Tokyo			Kansai			
	58% ANEA	58% oil linked	40% dark	58% ANEA	58% oil linked	40% dark	
Oct 21	-5.24	-	-	-4.74	-	-	
Nov 21	-2.93	4.05	4.71	-3.60	3.38	4.04	
Dec 21	-0.43	7.12	7.66	-0.93	6.62	7.16	

JEPX day-ahead base-load prices								¥/kWh
	Sat	Sun	Mon	Tue	Wed	Thu	Fri	
	4 Sep	5 Sep	6 Sep	7 Sep	8 Sep	9 Sep	10 Sep	
Tokyo	7.35	7.25	7.78	7.62	6.99	7.96	7.62	
Kansai	7.90	7.65	8.08	8.31	7.83	8.19	7.85	
Hokkaido	7.35	7.22	7.77	7.62	7.57	8.59	7.57	
Tohoku	7.35	7.25	7.78	7.43	6.99	7.96	7.57	
Chubu	7.83	7.63	8.08	8.30	7.83	8.20	7.85	
Hokuriku	7.83	7.63	8.08	8.30	7.83	8.20	7.85	
Chugoku	7.90	7.65	8.08	8.31	7.83	8.13	7.85	
Shikoku	7.90	7.65	8.08	8.31	7.83	8.13	7.85	
Kyushu	7.71	7.65	7.95	8.04	7.61	6.46	7.50	
System price	7.64	7.39	7.90	7.76	7.44	7.94	7.62	

– JEPX prices represent delivery date

JAPAN POWER MARKET COMMENTARY

Electricity supplies for day-ahead contracts on Jepx rose by 0.4pc from the previous week to 8,792GWh across 4-10 September. Supplies well exceeded 8,008GWh of bidding volumes, which were lower by 8.1pc. Deals totalled 6,892GWh, down by 4.4pc during the period.

Surplus supplies reflected sharp falls in electricity demand for air-conditioning with unusually cool weather, especially in east Japan. Temperatures in central Tokyo averaged 20.34°C over 3-9 September, down by 6°C from a week earlier, according to the Japan Meteorological Agency. This compared with an average 23.79°C for the country's 10 major cities, including Tokyo, also down by 3.5°C during the period.

Power demand in Japan fell by 15pc from a week earlier to an average of 95GW on 3-9 September, according to power agency the Organisation for Cross-Regional Co-ordination of Transmission Operators. The Tokyo area, the country's biggest electricity consuming region, saw the biggest demand falls of 22pc to 29GW during the period.

Ample rainfall, hydropower output and increased thermal power generation also may have created extra supplies, although solar power output fell with shorter than normal sunlight hours over 4-9 September across the country.

Japan's thermal power capacity was planned to **fall by 2,416MW** over 6-12 September, as the autumn maintenance season kicked off. But some power firms are likely to hold high inventories of thermal fuels, such as LNG, and are urged to use more fuels at their available power units to reduce stocks, according to market participants.

Japanese utilities had accelerated adding to their LNG stocks since the end of May, in preparation for an expected rise in electricity use for cooling and gains in gas-fired power use. But **unusually cooler weather** weighed on power demand and slowed the inventory draw last month. The utilities held just over **2.2mn t of LNG stocks** as of 15 August, slightly down from 2.26mn t at the end of July, according to the latest survey by the trade and industry ministry.

The falls in wholesale power prices will prompt power producers to secure electricity from the market instead of burning expensive spot LNG. But high inventories may erode such power buying interest, a utility said.

Almost all coal-fired and gas-fired plants remained unprofitable in base-load hours under current market conditions, with only 44pc-efficient coal-fired and 58pc-efficient oil-linked LNG-fired units in positive territory over the past week. The dark spread averaged ¥540/MWh during 3-9 September based on *Argus'* spot coal and freight assessments, while the spark spread averaged ¥705/MWh using the ANEA, the *Argus* assessment for spot LNG deliveries to northeast Asia.

Prompt *Argus* fob Newcastle 6,000 kcal/kg coal prices rose by 1.1pc from a week earlier to \$172.15/t on 9 September, supported by the prospect that supplies could be curtailed further if more Indian buyers return to the market to stock up on seaborne material to counter a domestic supply crunch.

The ANEA for the prompt half-month increased by 4pc on the previous week to \$19.78/mn Btu on 9 September, as short-covering demand because of production issues at the 30mn t/yr Bintulu LNG complex in Malaysia lent support. A few Japanese firms and a state-controlled Chinese firm are enquiring for November cargoes on the back of a possible delay to their November-January term deliveries from Bintulu.

The plunge in Jepx's day-ahead prices weighed on prices for power futures contracts for September-November, with base-load prices for the Tokyo and Kansai areas remaining in contango. Hedging demand for Tokyo base-load November contracts remained firm, partly because of possible rises in physical electricity demand from power utilities that opt for reduced consumption of expensive thermal fuels.

The Germany-based European Energy Exchange (EEX) traded 55,068MWh from 3-9 September, of which Tokyo base-load November accounted for 46pc at 25,200MWh. EEX cleared the November deals at ¥10.90-11.15/kWh.

The Tokyo Commodity Exchange traded 3,672MWh for east Japan base-load November, including off-floor trading, across 3-9 September at ¥10.80-11.40/kWh.

Argus Global Petroleum Coke Outlook to 2026

Produced by Argus Consulting Services



Plan ahead effectively with this detailed long-term report, providing analysis and forecasts for fuel-grade and anode-grade petroleum coke markets.

Contact us today to learn more.
Email consulting@argusmedia.com

GENERATION FUELS PRICES

LNG

LNG front-month and index prices, 10 Sep				\$/mmBtu
Delivery point	Price	±	Month Index	
ANEA des	20.148	+0.288	18.115	

JCC indexes, 10 Sep				\$/bl
Delivery point	Delivery	Price	±	
Argus JCC index (fixed)	Jun 21	69.1220	3.5645	
Argus JCC index (preliminary)	Jul 21	71.7179	2.607	

LNG round voyage rates, 10 Sep				\$/day
Delivery point	Price	±	Month index	
ARV1: Australia-Northeast Asia	71,000	nc	74,438	
ARV3: USGC-Northeast Asia	75,000	nc	77,938	
LNG freight day rate TFDE - east of Suez	62,000	nc	65,125	

COAL

Coal assessments, 10 Sep						\$/t
Energy	Basis	Timing	Port	Price	±	
6,000 kcal	NAR	2 mths	fob Newcastle	174.460	+2.310	
5,500 kcal	NAR	2 mths	fob Newcastle	108.670	+4.680	
6,500 kcal	GAR	2 mths	fob Indonesia	140.830	+4.180	
5,800 kcal	GAR	2 mths	fob Indonesia	126.710	+0.800	
6,000 kcal	NAR	2 mths	fob Vostochny	159.380	+1.960	
5,500 kcal	NAR	2 mths	fob Vostochny	135.250	+19.830	

Asia-Pacific freight assessments, 10 Sep						
	Energy Basis	Size kcal/kg	Freight '000t	Coal \$/t landed	±	
EC Australia-Japan	NAR	6000	75	22.10	196.56	+2.31
Indonesia-Japan	GAR	6500	75	16.65	157.48	+4.18
Indonesia-Japan	GAR	5800	75	16.65	143.36	+0.80

CRUDE

Crude oil forward prices, 10 Sep												\$/bl
	Nov 21	Dec 21	Jan 22	Feb 22	Mar 22	Apr 22	May 22	Jun 22	Jul 22	Aug 22	Sep 22	Oct 22
Argu Calculated Japanese Crude Cocktail	74.30	73.01	72.33	71.84	71.43	71.06	70.71	70.37	70.05	69.73	69.42	69.12

WEATHER

Tokyo Weather - Average Temperature and Precipitation											°C	
Location	11 Sep	12 Sep	13 Sep	14 Sep	15 Sep	16 Sep	17 Sep	18 Sep	19 Sep	20 Sep	Precipitation (mm)	
	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	Avg	5-day	15-day
Tokyo	24.8	25.1	25.1	22.7	21.9	21.5	22.5	23.9	23.8	23.8	14.0	76.1

– Ensemble forecasts (12.00 GMT) provided by Speedwell Weather

MARKET NEWS

NYK to develop ammonia-ready LNG-fuelled ships

Japanese shipping firm NYK Line has started developing ammonia-ready LNG-fuelled vessels with Finnish engineering company Elomatic this month, aiming to use ammonia as a marine fuel alternative to LNG.

NYK Line and Elomatic will first study until January 2022 the development of vessels that can switch from LNG to ammonia, once ammonia is available as a shipping fuel. NYK plans to launch the ammonia-ready LNG-fuelled ships in the mid-2020s, supporting Japan's efforts to reduce shipping emissions.

NYK Line is planning to deploy zero-emission vessels that use carbon-neutral marine fuels such as ammonia and hydrogen by around 2030 to achieve its greenhouse gas (GHG)-reduction goal, following a gradual shift to LNG as it sees LNG as a "bridging marine fuel" to zero-emission fuels. The company targets to cut GHG emissions by 50pc by March 2051 compared with 2015 levels.

The company will operate 20 LNG-fuelled car carriers by the end of the April 2028-March 2029 fiscal year. This includes its [order of 12 new LNG-fuelled car carriers](#) in June. *By Maiko Nakashima*

Mitsubishi, Shell to produce hydrogen in Canada

Japanese trading house Mitsubishi will work with Shell Canada to produce hydrogen in Edmonton, Canada. Carbon capture and storage (CCS) technology will be used to reduce CO2 emissions during the hydrogen production process.

Mitsubishi on 9 September announced that it has signed an agreement with Shell Canada, a subsidiary of Royal Dutch Shell, to produce hydrogen in Edmonton. The two companies will construct a hydrogen production facility near Shell's Scotford refinery and chemicals plant. The facility aims to produce 165,000 t/yr of hydrogen in the late 2020s, which will be converted to ammonia and delivered to Japan.

The companies plan to utilise CCS technology to reduce the CO2 produced during the process. Shell Canada recently announced its intention to build a large-scale CCS project, called Polaris CCS, which will be located at its Scotford complex. The initial phase of the Polaris CCS project will capture and store about 750,000 t/yr of CO2 from the Scotford refinery and chemicals plant. The CO2 capture and storage volume will be increased in the second phase of the project to more than 10mn t/yr of CO2. Shell plans to develop a CO2 storage hub in Alberta.

Ammonia is already widely used by the fertilizer and chemical industries. But Japanese shipping firms are facing

challenges in responding to the expectations of the growing ammonia market. Meti aims to achieve a 20pc ammonia co-firing rate at the country's coal-fired power plants by 2030, to increase clean fuel use to 3mn t/yr. Japan aims to expand ammonia fuel demand to 30mn t/yr by 2050.

Japanese shipping firm Mitsui OSK Line has [restarted its ammonia transportation business](#) and signed a charter agreement with US-based ammonia trading firm Trammo for the ammonia/LPG carrier *Green Pioneer* to supply ammonia. *By Reina Maeda*

Japan to extend Covid-19 measures

Japan is extending a state of emergency that is currently place in 19 prefectures for longer than planned as new Covid-19 infections remain high, driven by the more transmissible Delta variant, resulting in overcrowded hospitals.

A panel of experts on 9 September endorsed the government's proposal to extend an existing state of emergency in 19 prefectures covering most of the country's populated business and industrial areas, including Tokyo, Nagoya, Osaka and Fukuoka. The control measures will be extended until 30 September from the previous end date of 12 September.

The government is planning to end the stricter measures in the two other prefectures of Miyagi and Okayama, where the spread of Covid-19 has slowed, on 12 September. It will instead impose semi-emergency restrictions in the regions to continue movement curbs until the end of this month.

The government plans to lift a semi-emergency state in six of 12 prefectures on 12 September as scheduled but keep such restrictions in the remaining six areas until 30 September. This will take the number of prefectures under emergency and semi-emergency measures, including Miyagi and Okayama, to 27 out of a total of 47 prefectures.

Covid-19 infections have gradually fallen since 27 August when Tokyo [expanded and extended a state of emergency measures](<https://direct.argusmedia.com/newsandanalysis/article/2247530>). But new daily cases averaged 14,667 in the past week as of 7 September, compared with less than 10,000 before early August.

A recent resurgence of Covid-19 cases is threatening to overwhelm the country's medical system. The government is accelerating efforts to increase vaccination rates to tackle the high Covid-19 cases. Around 54pc of Japan's population has completed the first shot as of 8 September, while 42.9pc has received the second shot, government data show. Tokyo is also expanding its vaccination rollout to younger people.

By Motoko Hasegawa

Adnoc exports blue ammonia to Japan

Abu Dhabi's state-owned Adnoc has made its latest shipment of blue ammonia to Japan, chief executive Sultan al-Jaber said on 9 September, as it seeks to prove the low carbon fuel is viable in the energy transition.

Al-Jaber, who is also the UAE minister of industry and advanced technology, was speaking on 9 September at the IEA's ministerial dialogue on clean energy transitions. He did not provide further details on the shipment, but it likely to be the same one that Japanese trading firm Itochu has said [it will receive in October](#).

Itochu said it will use the cargo for domestic fertilizer production. Blue ammonia, which is produced in the same way as conventional ammonia but with its by-product CO₂ captured and stored, can also be burned in power plants or used as a transport vector for hydrogen, among many other applications.

This is Abu Dhabi's third sale of blue ammonia. Japanese refiner Idemitsu has [bought two cargos from Adnoc](#), in partnership with fertilizer producer Fertiglobe, for use in its refining and petrochemical operations. Fertiglobe, a partnership between OCI and Adnoc, will produce blue ammonia at its Fertil plant in the Ruwais Industrial Complex. The partners plan to build a new 1mn t/yr blue ammonia project at Ruwais.

Itochu is considering buying another cargo this year, and then purchasing on a quarterly basis.

As it scales up production, Abu Dhabi sees Japan as a key potential destination. Japan is targeting hydrogen and its carrier fuels, such as blue and green ammonia, as it advances industrial decarbonisation efforts. Adnoc has signed an agreement with Japanese upstream firm Inpex and utility Jera to jointly study the commercial potential of blue ammonia production in the UAE.

By Adal Mirza

Jogmec fails to post August spot LNG prices

Japan's state-controlled energy agency Jogmec has failed to post prices for spot LNG contracts agreed during August as the survey did not meet its methodology that requires at least two deals to be done by two companies each month for it to post a price.

Jogmec also did not post a price for LNG spot cargoes that arrived in August. This was the first time Jogmec had failed to post both prices since the agency started publishing Japanese spot LNG prices in April after the country's trade and industry ministry (Meti) stopped disclosing the data. Meti had failed to post both prices once in May 2015.

Meti discontinued the survey because the LNG market is on the right track, it said. But there were many requests for

the prices to be released so Jogmec took it on. Jogmec does not require companies to submit their prices to Jogmec, unlike with Meti.

Jogmec's survey asks Japanese LNG importers to submit details of their spot deals, such as average prices for the planned delivery month and the month of transaction. The average prices are published with a one-month lag. Spot sellers, including Japanese trading firms, are excluded from the survey to avoid counting a single deal multiple times.

The ANEA price, the *Argus* assessment for northeast Asia des cargoes, averaged \$16.70/mn Btu in August, compared with \$3.64/mn Btu a year earlier. The July price also rose by 18.5pc from \$14.09/mn Btu a month earlier.

Preliminary data on Japan's LNG import costs in August including term supplies, are scheduled to be released by the finance ministry on 16 September. Averaged import costs for July were \$9.66/mn Btu. Most term supply contracts to Japan are linked to the Japan Crude Cocktail (JCC), a monthly average of costs for crude delivered to the country that tracks spot crude prices with a lag of a few months. The JCC for July was \$71.72/bl.

By Reina Maeda

Chofu biomass power plant plans 2025 start-up

Japanese joint venture Chofu Bio-Power is planning to start operations at its new 75MW biomass power plant in west Japan's Yamaguchi prefecture by January 2025, taking advantage of the country's feed-in-tariff scheme.

The five partners have made a final investment decision to start construction from June next year. The project is 39.9pc owned by Japanese upstream firm Japex, 20pc by engineering firm Tokyo Energy & Systems, 15.1pc by consulting firm MOT Research Institute, 15pc by electronics firm Chofu Seisakusho and 10pc by shipping firm Kawasaki Kinkai Kisen.

The power plant is designed to burn unspecified volumes of wood pellets. Electricity produced at the site will be sold to regional utility Chugoku Electric Power at a fixed price of ¥21/kWh (\$190.56/MWh) for 20 years after commissioning.

By Motoko Hasegawa

Mitsubishi to supply solar power to Amazon

Japanese trading house Mitsubishi will supply solar power to US conglomerate Amazon in Japan as a part of its efforts to achieve net-zero emissions by 2050.

Mitsubishi on 8 September announced that it signed a term contract to supply solar power to Amazon for an undisclosed period. The project consists of more than 450 solar power locations currently under construction in the Tokyo metropolitan area and the Tohoku region, with maximum capacity totalling 22MW. The solar power stations will start

commercial operation in 2022-23, Amazon said. It is Japan's largest solar power generation project utilising corporate power purchase agreements, it added.

Mitsubishi will have to buy electricity through the Japan Electric Power Exchange when the amount of solar power generated is not enough to meet that contracted to supply Amazon. Mitsubishi subsidiary ElectroRoute will hedge against price risks by using the electricity futures market and [non-fossil energy certificates](#) to avoid any volatility in wholesale prices.

Mitsubishi has set a goal of doubling its renewable energy output by 2030 compared with 2019, while aiming to achieve net-zero carbon emissions by 2050. Amazon has also [set a goal](#) of using all of its power consumption as renewable energy by 2030 and aims to achieve net-zero carbon emissions by 2040.

By *Reina Maeda*

Japan to lower thermal power capacity this week

Japan's thermal power generation capacity is expected to decline by 2,416MW over 6-12 September.

The country's power output has been declining for three consecutive weeks. Lower temperatures across the country have capped power demand and allowed utilities to start plant maintenances.

Japan plans to shut 3,963MW of power capacity, outstripping a return of 1,547MW this week, according to a power plant operational status notice by the Japan electric power exchange. Nine gas-fired power units are scheduled to close this week, totalling 2,438MW. This outstripped a gain of 916MW. Two coal-fired power plants are planned to shut with combined capacity of 1,525MW, with only 156MW of addition this week. The cut in gas- and coal-fired power capacities outstripped a gain of oil-fired power capacity. Oil-fired power capacity is planned to increase 475MW without any returns.

Kyushu Electric Power is scheduled to shut the 1GW No.2 coal-fired unit at its [troubled Matsuura power complex](#) on 12 September for a three-month regular maintenance.

Japan has experienced cooler weather since late August. Temperature across the country averaged 25.2°C during 30 August-5 September, which was lower by 2.9°C from the previous week, according to Japan meteorological agency. Average temperatures in Tokyo metropolitan area dropped by 6.4°C from a week ago to 22.5°C. The drop eased the country's electricity requirements, with Japan's total power demand during the week averaging 102.4GW, down by 10.2pc from a week earlier, data from the organization for cross-regional co-ordination of transmission operators shows.

By *Reina Maeda*

Japan's Suga to resign as prime minister

Japanese prime minister Yoshihide Suga is set to resign later this month, amid policy reforms to achieve the country's stricter greenhouse gas (GHG) emissions target goal by 2030 and realise a decarbonisation target by 2050.

Suga decided on 3 September not to seek re-election as the president of the ruling Liberal Democratic Party (LDP). He will step down from the party leadership and the role of prime minister. The LDP plans to start its presidential campaign on 17 September and vote on 29 September.

"I want to focus on tackling Covid-19 issues, as it is impossible to manage both Covid measures and the election campaign, which would need an enormous energy," Suga said.

The decision came one year after Suga [took over](#) previous LDP leader and prime minister Shinzo Abe in September last year, after Abe resigned because of health problems. During the shorter-than-expected period, Suga in October last year promised to realise a [carbon neutral society](#) by 2050, and in April revised the country's [2030 GHG emission reduction target](#) to 46pc from 26pc, against 2013 levels.

Japan's trade and industry (Meti) minister Hiroshi Kajiyama said on 3 September, in response to Suga's announcement, that the ministry will continue making efforts to push forward with the energy transition policies as a national pledge, despite the change of government.

Meti is in the final phase of reviewing the country's basic energy policy toward 2030, to align with the stricter GHG reduction goal. The ministry on 3 September began its public hearings against its [draft energy policy](#) unveiled in July, which aims to derive 59pc of electricity from non-fossil energy and 41pc from thermal generations by 2030. The survey will continue until 4 October, which suggests the new policy would be finalised after new cabinet is unveiled.

The Suga cabinet has faced challenges to fight against the rising number of Covid-19 cases, driven by the more transmissible Delta variant. The government has extended and expanded the [state of emergency measures](#), with 21 prefectures now under control, that will last until 12 September. The measures have reduced infections, although an average of new daily cases during the week to 4 September remained above 17,000, the government data showed.

By *Motoko Hasegawa*

Markets are not static. And your information service shouldn't be either.

Argus Direct is the dynamic web platform associated with your subscription.

It is mobile-friendly - bookmark it to browser on any phone or tablet.

- View news as it publishes
- Watch your customized charts update in real-time
- Download prices and trade data

For help with customizing your Argus Direct needs, contact fertilizer@argusmedia.com



Market Reporting
Consulting
Events

www.argusmedia.com/fertilizers

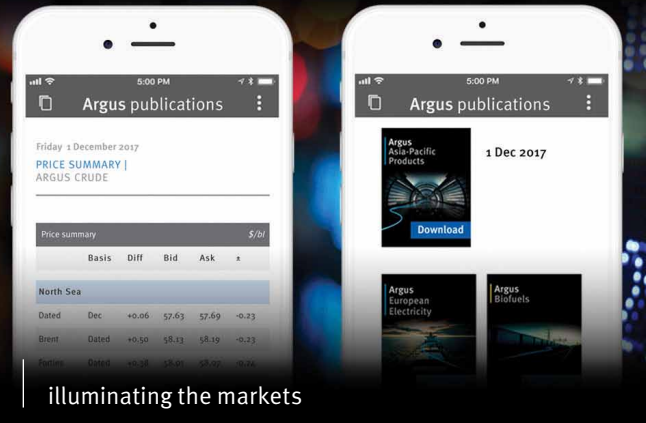
Access on-the-go: Argus Publications app.

Closer to our clients. Closer to the market.

A new option is now available for you to access Argus publications, no matter where your work takes you.

- Optimized for reading on Android or iPhone
- Charts and tables optimized for mobile access
- Jump quickly to sections of interest

Download the app now



illuminating the markets



Argus Japan Utility Markets is published by Argus Media group

Registered office
Lacon House, 84 Theobald's Road, London, WC1X 8NL
Tel: +44 20 7780 4200

ISSN: 2752-6526

Copyright notice
Copyright © 2021 Argus Media group
All rights reserved

All intellectual property rights in this publication and the information published herein are the exclusive property of Argus and/or its licensors (including exchanges) and may only be used under licence from Argus. Without limiting the foregoing, by accessing this publication you agree that you will not copy or reproduce or use any part of its contents (including, but not limited to, single prices or any other individual items of data) in any form or for any purpose whatsoever except under valid licence from Argus. Further, your access to and use of data from exchanges may be subject to additional fees and/or execution of a separate agreement, whether directly with the exchanges or through Argus.

Trademark notice
ARGUS, the ARGUS logo, ARGUS MEDIA, INTEGER, ARGUS JAPAN UTILITY MARKETS, other ARGUS publication titles and ARGUS index names are trademarks of Argus Media Limited. Visit www.argusmedia.com/Ft/trademarks for more information.

Disclaimer
The data and other information published herein (the "Data") are provided on an "as is" basis. Argus and its licensors (including exchanges) make no warranties, express or implied, as to the accuracy, adequacy, timeliness, or completeness of the Data or fitness for any particular purpose. Argus and its licensors (including exchanges) shall not be liable for any loss, claims or damage arising from any party's reliance on the Data and disclaim any and all liability related to or arising out of use of the Data to the full extent permissible by law.

All personal contact information is held and used in accordance with Argus Media's Privacy Policy <https://www.argusmedia.com/en/privacy-policy>

Publisher
Adrian Binks

Chief operating officer
Matthew Burkley

Global compliance officer
Jeffrey Amos

Chief commercial officer
Jo Loudiadis

President, Expansion Sectors
Christopher Flook

Global SVP editorial
Neil Fleming

Editor in chief
Jim Washer

Editorial manager
Anu Agarwal

Editor
Motoko Hasegawa and Reina Maeda
Tel: +81 3 3561 1805
japanpower@argusmedia.com

Customer support and sales:
support@argusmedia.com
sales@argusmedia.com

London, Tel: +44 20 7780 4200
Beijing, Tel: +86 10 6598 2000
Dubai, Tel: +971 4434 5112
Hamburg, Tel: +49 (0) 48 22 378 22-0
Houston, Tel: +1 713 968 0000
Kyiv, Tel: +38 (044) 298 18 08
Moscow, Tel: +7 495 933 7571
Mumbai, Tel: +91 22 4174 9900
New York, Tel: +1 646 376 6130
Paria, Tel: +33 (0) 1 53 05 96 70
Riga, Tel: + 371 6739 2220
San Francisco, Tel: +1 415 829 4591
Sao Paulo, Tel: +55 11 3235 2700
Shanghai, Tel: +86 21 6377 0159
Singapore, Tel: +65 6496 9966
Tokyo, Tel: +81 3 3561 1805
Washington, DC, Tel: + 1 202 775 0240

