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# Argus Air Daily

Environmental commodity markets coverage

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## MARKETS AND NEWS

- California Carbon Allowances (CCAs) drifted lower on Tuesday in an up-and-down session.
- Regional Greenhouse Gas Initiative (RGGI) CO<sub>2</sub> allowances rose for the sixth time in seven sessions, sending the market to new record highs.
- California Low Carbon Fuel Standard (LCFS) credits sagged without trading under a new record build of credits available for future compliance.
- PJM Class I renewable energy certificates (RECs) finished higher across the curve on Tuesday.
- Cross-State Air Pollution Rule (CSAPR) allowances held firm as the threat of a nationwide stay from the US Supreme Court continues to affect the market's liquidity.
- Continued growth in renewable diesel and biogas supplied to California in the fourth quarter of 2023 lifted LCFS credits available for future compliance by a record 2.9mn metric tonnes.

### Global emissions pricing

	Price	±
Global compliance carbon index \$/t	59.52	+2.17
Global green power index \$/MWh	3.47	-0.03

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## KEY MARKET PRICES

Carbon					\$/t
	Vintage	Delivery	MTD	Price	±
CCA	2024	Dec 24		38.98	-0.15
CCA VWA	2024	Dec 24	39.67		
RGGI CO <sub>2</sub> allowances	2024	Dec 24		21.75	+0.27
RGGI CO <sub>2</sub> VWA	2024	Dec 24	20.21		
CCA/CCO 3				24.13	-0.15
CCA/CCO 8				24.31	-0.15
CCA/CCOG				23.87	-0.15

Renewable fuels					¢/RIN
	Vintage	Delivery	Price	±	±2023
LCFS California \$/t		spot	57.00	-2.00	
LCFS Oregon \$/t		spot	70.00	0.00	
Renewable fuel (ethanol D6)	2024		42.50	-1.75	+1.00
Biomass-based diesel (D4)	2024		42.75	-1.75	+0.75
Cellulosic biofuel (D3)	2024		323.00	0.50	+2.75
Advanced biofuel (D5)	2024		42.25	-1.75	+1.25

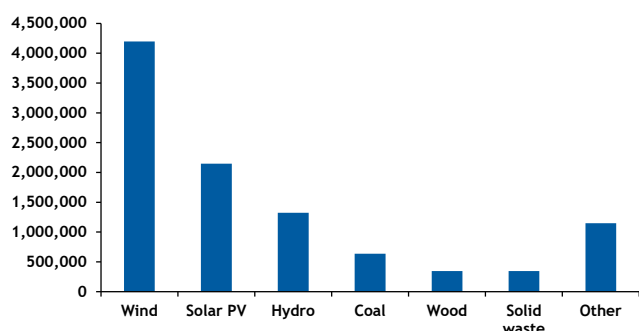
RECs					\$/MWh
	Vintage	Bid	Ask	Price	±
RECs					
Massachusetts Class I	2023	39.35	39.85	39.60	nc
Connecticut Class I	2023	39.35	39.85	39.60	nc
New Jersey Class I	2024	35.50	36.00	35.75	+0.30
Pennsylvania Tier I	2024	34.25	34.75	34.50	nc
Maryland Tier I	2024	30.50	31.00	30.75	nc
PJM tri-qualified Class I	2024	35.50	36.00	35.75	+0.30
SRECs					
New Jersey	2024	205.00	209.00	207.00	-1.50
Maryland	2024	58.75	59.75	59.25	nc
Washington DC	2024	444.00	452.00	448.00	nc
Green-e eligible RECs, 26 Apr					
National any	2024	2.50	2.60	2.55	nc
Texas wind	2024	2.60	2.70	2.65	-0.10

SO <sub>2</sub> and NO <sub>x</sub> allowances					\$/st
Vintage	Vintage	Bid	Ask	Price	±
SO <sub>2</sub> Cross-State Group 1	2023	2.00	4.00	3.00	nc
SO <sub>2</sub> Cross-State Group 2	2023	1.00	3.00	2.00	nc
NO <sub>x</sub> Cross-State annual	2023	2.00	4.00	3.00	nc
NO <sub>x</sub> Cross-State Group 2 seasonal	2023	700.00	850.00	775.00	nc
NO <sub>x</sub> Cross-State Group 3 seasonal	2023	1,000.00	1,500.00	1,250.00	nc

\*Tables include hyperlinks to those values maintained in the Argus database.

## MARKET MOVES

PJM RECs by source, Mar 24



Market movers		
	Price	%±
Largest gains		
RGGI US allowance year, 2024, 2024, \$/st	21.75	+1.26%
RGGI US allowance year, 2025, 2025, \$/st	23.01	+1.23%
RGGI allowance spot, 2024, May 24, \$/st	21.04	+1.20%
Largest losses		
RIN renewable fuel (Ethanol D6), 2023, €/RIN	41.50	-5.14%
RIN advanced biofuel (D5), 2023, €/RIN	41.00	-4.65%
RIN biomass-based diesel (D4), 2023, €/RIN	42.00	-4.55%

## REGULATORY AND MARKET EVENTS CALENDAR

Date	Market	Event	More info
30 Apr	LCFS	California LCFS 4Q 2023 data release	<a href="https://ww3.arb.ca.gov/fuels/lcfs/lrtqsummaries.htm">https://ww3.arb.ca.gov/fuels/lcfs/lrtqsummaries.htm</a>
30 Apr	REC	PJM issues March 2024 RECs	<a href="https://www.pjm-eis.com/getting-started/about-GATS">https://www.pjm-eis.com/getting-started/about-GATS</a>
8 May	CCO	California Carbon Offsets issued	<a href="https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program">https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program</a>
15 May	CCA	Western Climate Initiative quarterly allowance auction	<a href="https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/auction-information">https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/auction-information</a>
22 May	CCO	California Carbon Offsets issued	<a href="https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program">https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program</a>
22 May	CCA	Western Climate Initiative quarterly allowance auction results	<a href="https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/auction-information">https://ww2.arb.ca.gov/our-work/programs/cap-and-trade-program/auction-information</a>
31 May	REC	PJM issues April 2024 RECs	<a href="https://www.pjm-eis.com/getting-started/about-GATS">https://www.pjm-eis.com/getting-started/about-GATS</a>
3 Jun	REC	Maryland standard offer service auction	<a href="https://firstenergycorp.com/upp/md/power_procurements/mdsosrfp.html">https://firstenergycorp.com/upp/md/power_procurements/mdsosrfp.html</a>
12 Jun	CCO	California Carbon Offsets issued	<a href="https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program">https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program</a>
26 Jun	CCO	California Carbon Offsets issued	<a href="https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program">https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program</a>
28 Jun	REC	PJM issues May 2024 RECs	<a href="https://www.pjm-eis.com/getting-started/about-GATS">https://www.pjm-eis.com/getting-started/about-GATS</a>
1 Jul	LCFS	California LCFS 1Q 2024 reporting deadline	<a href="https://ww3.arb.ca.gov/fuels/lcfs/lrtqsummaries.htm">https://ww3.arb.ca.gov/fuels/lcfs/lrtqsummaries.htm</a>
10 Jul	CCO	California Carbon Offsets issued	<a href="https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program">https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program</a>
15 Jul	REC	NEPOOL issues Q1 2024 RECs	<a href="https://nepoolgis.com/">https://nepoolgis.com/</a>
24 Jul	CCO	California Carbon Offsets issued	<a href="https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program">https://ww2.arb.ca.gov/our-work/programs/compliance-offset-program</a>
31 Jul	LCFS	California LCFS 1Q 2024 data release	<a href="https://ww3.arb.ca.gov/fuels/lcfs/lrtqsummaries.htm">https://ww3.arb.ca.gov/fuels/lcfs/lrtqsummaries.htm</a>
31 Jul	REC	PJM issues June 2024 RECs	<a href="https://www.pjm-eis.com/getting-started/about-GATS">https://www.pjm-eis.com/getting-started/about-GATS</a>

## CARBON MARKETS

## CANADA

Quebec carbon price for gasoline, diesel			C¢/l
Fuel	Price	±	
Gasoline	11.61	+0.04	
Diesel	14.44	+0.04	

Represents the per-gallon cost of compliance for distributors

Alberta CO <sub>2</sub> offsets, 26 Apr					C\$/t
	Vintage	Bid	Ask	Price	±
Renewable energy	2024	53.00	55.00	54.00	nc

## WASHINGTON

Washington carbon allowances (WCA)						\$/t
Vintage	Delivery	Bid	Ask	Price	±	
2024	May 24	36.05	36.65	36.35	+0.09	
	Dec 24	37.45	38.05	37.75	nc	

WCA price for gasoline, diesel					¢/USG
Fuel	Price	±	Price	±	
Gasoline	Summer		Winter		
	Regular	29.81	+0.07	29.11	+0.07
Midgrade	29.85	+0.07	29.28	+0.08	
Premium	29.89	+0.07	29.44	+0.07	
Distillate	ULSD No. 2				
Ultra-low sulfur diesel			37.21	+0.09	

Represents the per-gallon cost of compliance for distributors

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## COMMENTARY

## CCAs

California Carbon Allowances (CCAs) drifted lower on Tuesday in an up-and-down session.

December 2024 CCAs fell by 15¢ to \$38.98/metric tonne after trading 227 times for more than 1.9mn t combined.

Prompt-month CCAs moved down by 13¢ to \$37.65/t after trading four times for 109,000t.

## CALIFORNIA

California carbon allowances (CCA)					\$/t
Vintage	Delivery	Bid	Ask	Price	±
2024	May 24	37.60	37.70	37.65	-0.13
	Dec 24	38.93	39.03	38.98	-0.15
2025	Dec 25	41.59	41.69	41.64	-0.14

CCA volume-weighted averages						\$/t
Vintage	Delivery	Low	High	VWA	MTD VWA	
2024	Dec 24	38.72	39.05	38.87	39.67	

Vintage	Delivery	Trades	MTD	Volume	MTD
2024	Dec 24	227	3,588	1,929,000	35,232,000

CCA carbon price for gasoline, diesel					¢/USG
Fuel	Price	±	Price	±	
Carbob	Summer		Winter		
	Regular	30.34	-0.10	30.26	-0.10
Midgrade	30.27	-0.10	30.26	-0.10	
Premium	30.21	-0.10	30.28	-0.11	
Distillate	ULSD No. 2				
Ultra-low sulfur diesel			38.54	-0.13	

Represents the per-gallon cost of compliance for distributors

California Carbon offsets (CCO), 26 Apr					\$/t
	Bid	Ask	Price	±	
Seller-guaranteed (CCOG)	15.06	15.16	15.11	-0.17	
3-year invalidation (CCO 3)	14.80	14.90	14.85	-0.13	
8-year invalidation (CCO 8)	14.62	14.72	14.67	+0.07	
CCO-G DEBS	35.59	35.69	35.64	nc	
CCO-3 DEBS	35.33	35.43	35.38	+0.04	
CCO-8 DEBS	35.15	35.25	35.20	+0.24	

DEBS represent offsets that provide direct environmental benefits in the state

California carbon spreads			\$/t
	Price	±	
CCA/CCO 3	+24.13	-0.15	
CCA/CCO 8	+24.31	-0.15	
CCA/CCOG	+23.87	-0.15	
CCA May 24/CCA Dec 24	-1.33	+0.02	
CCA Dec 24/CCA Dec 25	-2.66	-0.01	

December 2025 CCAs declined by 14¢ to \$41.64/t and did not trade.

The California market slipped on early declines in the first half of the session, with small gains later pushing contracts back to just below where they started the day.

Volumes were thin across the session, with the bulk of

## CARBON MARKETS

transactions for prompt-month and December delivery CCAs at 25,000t or less.

It is unclear if the recent streak of declines is still connected to the bullish sentiment that followed the 23 April workshop held by the California Resources Board, which provided little new information about the trajectory of the program post-2025.

Washington Carbon Allowances (WCAs) were mixed in an active session.

December 2024 WCAs remained at \$37.75/t after trading 10 times for 137,000t.

Prompt-month WCAs rose by 9¢ to \$36.35/t after trading once for 35,000t.

Volumes and activity in the market have climbed for a second session, with December 2024 allowances exceeding 100,000t in total for the first time since 9 April. Despite the recent uptick for the market, the repeal initiative on the November ballot is expected to continue tempering prices and activity before the election.

### RGGI

Regional Greenhouse Gas Initiative (RGGI) CO<sub>2</sub> allowances rose for the sixth time in seven sessions on Tuesday, sending the market to new record highs.

December 2024 allowances moved up by 27¢ to \$21.75/short ton after trading 105 times for nearly 3.4mn st.

Prompt-month allowances rose by 25¢ to \$21.04/st and did not trade.

December 2025 allowances moved up by 28¢ to \$23.01/st after trading twice for 1.2mn st.

RGGI allowances are again at new record highs, the latest in a record run to start 2024. December 2024 allowances, up 6pc over the last week alone, are now nearly 34pc above where they started the year. They traded as high as \$21.95/st in Tuesday's session.

The rising market came after the first auction of the year sold all allowances on offer at a record-high settlement price and triggered the sale of all 8.4mn allowances in the RGGI program's cost-containment reserve for 2024. The exhaustion of the reserve means there is no longer any mechanism to

### RGGI

RGGI CO <sub>2</sub> allowances					\$/st
Vintage	Delivery	Bid	Ask	Price	±
2024	May 24	20.99	21.09	21.04	+0.25
	Dec 24	21.70	21.80	21.75	+0.27
	Dec 25	22.96	23.06	23.01	+0.28

RGGI CO <sub>2</sub> volume-weighted averages					\$/st
Vintage	Delivery	Low	High	Daily	MTD
2024	Dec 24	21.26	21.95	21.63	20.21
	Apr 24	na	na	21.04	19.07

Weekly index, 26 Apr				\$/st
	Delivery	Vintage	Index	±
RGGI CO <sub>2</sub> allowances	Dec 24	2024	20.83	+0.87

RGGI CO <sub>2</sub> spreads		\$/t
	Price	±
May 24/Dec 24	-0.71	-0.02
Dec 24/Dec 25	-1.26	-0.01

temper price increases at the three remaining auctions this year, which has had the effect of raising the prices that market participants are willing to pay for allowances.

Uncertainty about future obligations – with the participation of Pennsylvania and Virginia tied up in court fights, the program review delayed, and New York still determining how its carbon market will impact RGGI – could also be encouraging allowance buying given the general expectation that program rules will become more stringent.

Compliance entities left the week ended 23 April with their smallest net short position in vintage 2024 RGGI futures of the year, after increasing their long positions by nearly 6pc and leaving their short positions mostly unchanged, according to US Commodity Futures Trading Commission data. Persistent demand for allowances among compliance entities even with prices as high as they are could be supporting further increases.

## RENEWABLE FUEL MARKETS

## NEWS INSIDE

California LCFS adds to record credit pile

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## COMMENTARY

## LCFS

California Low Carbon Fuel Standard (LCFS) credits sagged without trading under a new record build of credits available for future compliance.

Spot credits sank by \$2 to \$57/metric tonne. Discussion across all physical low-carbon credit markets held quiet until the publication of [fourth quarter 2023 California data](#) in the second half of the session. Bids immediately sank to \$50/t, according to participants, but offers did not quickly follow. The discussed range narrowed without trading over the remainder of the session.

The 2.9mn t increase in credits available for future compliance was a record quarterly increase. Total credits available

US LCFS cost for gasoline, diesel			¢/USG
Fuel	Vintage	Price	±
<b>California</b>			
Carbob (No CI ethanol)	2024	8.47	-0.30
	2025	9.23	-0.32
	2026	9.99	-0.36
Carbob (79.9 CI ethanol)	2024	8.14	-0.28
	2025	8.96	-0.31
	2026	9.78	-0.34
Ultra-low sulphur diesel	2024	9.63	-0.33
	2025	10.59	-0.37
	2026	11.55	-0.41
Crude CI deficit Carbob	2024	0.80	-0.03
Crude CI deficit diesel	2024	0.90	-0.04
<b>Oregon</b>			
E10 gasoline	2024	6.50	nc
B5 diesel	2024	7.41	nc
<b>Washington</b>			
E10 gasoline	2024	0.52	nc
Gasoline	2024	1.40	nc
B2.5 diesel	2024	0.62	nc
Diesel	2024	1.28	nc

Represents per-gallon cost of compliance.

Low-carbon fuel standard (LCFS) credits					\$/t
	Delivery	Bid	Ask	Price	±
California	spot	56.00	58.00	57.00	-2.00
	2Q24	56.00	58.00	57.00	-2.00
	3Q24	57.00	59.00	58.00	-2.00
	4Q24	58.00	60.00	59.00	-2.00
	1Q25	59.00	61.00	60.00	-2.00
Oregon	spot	69.00	71.00	70.00	nc
	2Q24	65.00	68.00	66.50	nc
	3Q24	65.00	68.00	66.50	nc
	4Q24	65.00	68.00	66.50	nc
	1Q25	65.00	68.00	66.50	nc
Washington	spot	44.00	48.00	46.00	nc
Canada C\$/t	spot	200.00	230.00	215.00	nc

LCFS volume-weighted averages					\$/t
	Delivery	Trades	Volume	MTD VWA	
California	Spot	2	24,500	65.27	
	4Q24	4	35,000	61.50	

LCFS premium per carbon intensity point			¢/USG
	Price		±
<b>California</b>			
Ethanol	0.46		-0.02
Biodiesel	0.72		-0.02
Alternative jet	0.72		-0.03
Renewable diesel	0.74		-0.02
<b>Oregon</b>			
Ethanol	0.57		nc
Biodiesel	0.88		nc
Alternative jet	0.88		nc
Renewable diesel	0.91		nc

Represents cost savings of using ethanol, biodiesel or alternative jet fuel.

California LCFS market biogas value				\$/mmBtu
	Natural gas	Landfill Biogas	Dairy Biogas	
SoCal Citygates	1.51	39.85	51.10	
PG&E Citygates	2.24	40.58	51.83	

Oregon LCFS market biogas value				\$/mmBtu
	Natural gas	Landfill Biogas	Dairy Biogas	
PG&E Malin	1.51	39.96	53.79	

Canada CFR cost			C¢/l
Fuel	Price		±
<b>Canada</b>			
Gasoline	3.73		nc
Diesel	4.15		nc
Marine gasoil \$/t	35.77		-0.23
<b>Atlantic Canada*</b>			
Gasoline	2.99		-0.10
Diesel	3.34		-0.10

\*Modelled series representing cost of compliance.

## RENEWABLE FUEL MARKETS

for future compliance increased by more than half in 2023, to 23.6mn t.

Oregon, Washington and Canada LCFS markets were all quiet as the largest market reported the new data.

Renewable diesel remained the largest source of new California credits, at 40pc of the total generated during the quarter. Production capacity of the fuel continues to come online. Marathon Petroleum today said that its 48,000 b/d Martinez, California plant would operate at 50pc capacity in the second quarter and reach 75pc capacity in the third quarter before reaching full output by the end of 2024.

### RINs

Early session tightening of the BOHO spread applied downward pressure on D4 and D6 renewable identification number (RIN) credit markets.

The Argus Renewable Volume Obligation (RVO) fell by 0.20¢/USG to 7.09¢/USG in Tuesday's session.

Current year ethanol D6 RINs lost 1.75¢/RIN as deals were struck between 42¢-43¢/RIN. Transactions at 41¢/RIN were reported before the session began.

Vintage 2024 biomass-based diesel D4 RINs were valued at as much as a 0.5¢/RIN premium to D6 counterparts throughout the day, matching their 1.75¢/RIN losses. Trades occurred between 42¢-43¢/RIN as well. Vintage 2025 D4 credits were

Renewable identification numbers (RINs)			¢/RIN
	Low	High	±
<b>Renewable fuel (ethanol D6)</b>			
Weighted average, 2024		42.39	
2023	41.00	42.00	-2.25
2024	42.00	43.00	-1.75
<b>Biomass-based diesel (D4)</b>			
2023	41.50	42.50	-2.00
2024	42.00	43.50	-1.75
<b>Cellulosic biofuel (D3)</b>			
2023	320.00	320.50	+0.25
2024	322.75	323.25	+0.50
<b>Advanced biofuel (D5)</b>			
2023	40.50	41.50	-2.00
2024	41.50	43.00	-1.75

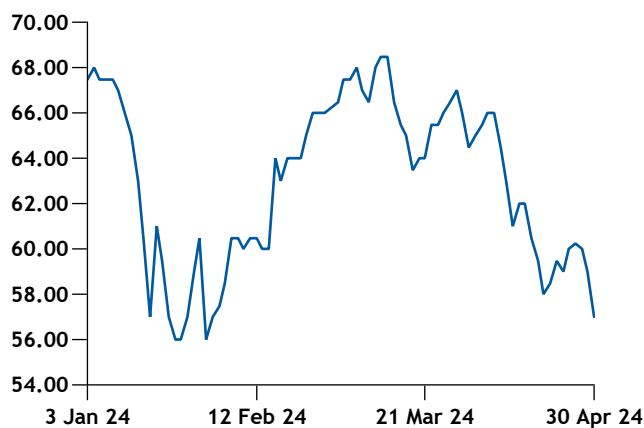
Renewable fuel spreads		
	Price	±
LCFS California spot/LCFS California 4Q24, \$/t	-2.00	nc
LCFS California spot/LCFS Oregon spot, \$/t	-13.00	-2.00
Advanced biofuel (D5) RIN 2023/2024 ¢/RIN	-1.25	-0.25

offered at a 5¢/RIN premium to current year credits.

Vintage 2024 cellulosic biofuel D3 RINs exchanged hands at 323¢/RIN multiple times throughout the day, boosting their value by 0.5¢/RIN. Vintage 2025 D3 RINs traded at 273¢/RIN.

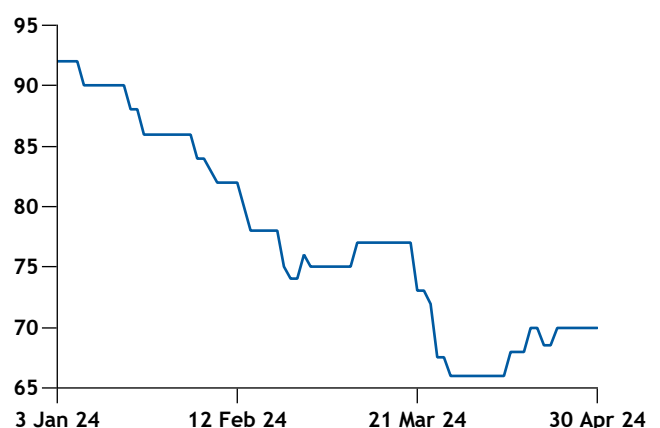
California LCFS spot

\$/t



Oregon LCFS spot

\$/t



## RENEWABLE ENERGY CERTIFICATE (REC) MARKETS

Weekly REC market prices, 26 Apr					\$/MWh
	Vintage	Bid	Ask	Price	±
<b>Connecticut</b>					
Class III	2023	26.50	28.50	27.50	nc
	2024	27.65	29.25	28.45	nc
<b>New Hampshire</b>					
Class I	2023	39.35	39.85	39.60	+0.10
	2024	39.40	39.90	39.65	nc
<b>Rhode Island</b>					
New	2023	39.35	39.85	39.60	+0.10
	2024	39.40	39.90	39.65	nc
<b>New Jersey</b>					
Class II	2024	35.50	36.50	36.00	nc
	2025	37.50	38.50	38.00	nc
<b>Pennsylvania</b>					
Tier 2	2024	35.40	36.00	35.70	-0.20
<b>Virginia</b>					
Compliance	2023	33.50	34.50	34.00	+0.50
<b>New York</b>					
Tier 1	2023	33.00	35.00	34.00	nc
<b>California</b>					
Category 3	2024	5.60	6.50	6.05	+0.67
<b>Texas</b>					
Solar	2024	2.65	2.75	2.70	-0.05
	2025	3.30	3.40	3.35	nc

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- [New Jersey calls for more wind, solar](#) 14
- [US plans offshore wind sales on two coasts](#) 14

## COMMENTARY

### RECs

PJM Class I renewable energy certificates (RECs) finished higher across the curve on Tuesday.

PJM credits for 2024 rose by 30¢ to \$35.75/MWh. Their 2025 counterparts moved up by 40¢ to \$38/MWh, matching their highest price in April, and the 2026 credits closed at \$40/MWh with a 20¢ gain.

While PJM vintages 2024-27 compiled almost 300,000MWh in traded volume altogether, many deals were for small lots. The 2025 and 2026 RECs each averaged under 3,500MWh per trade.

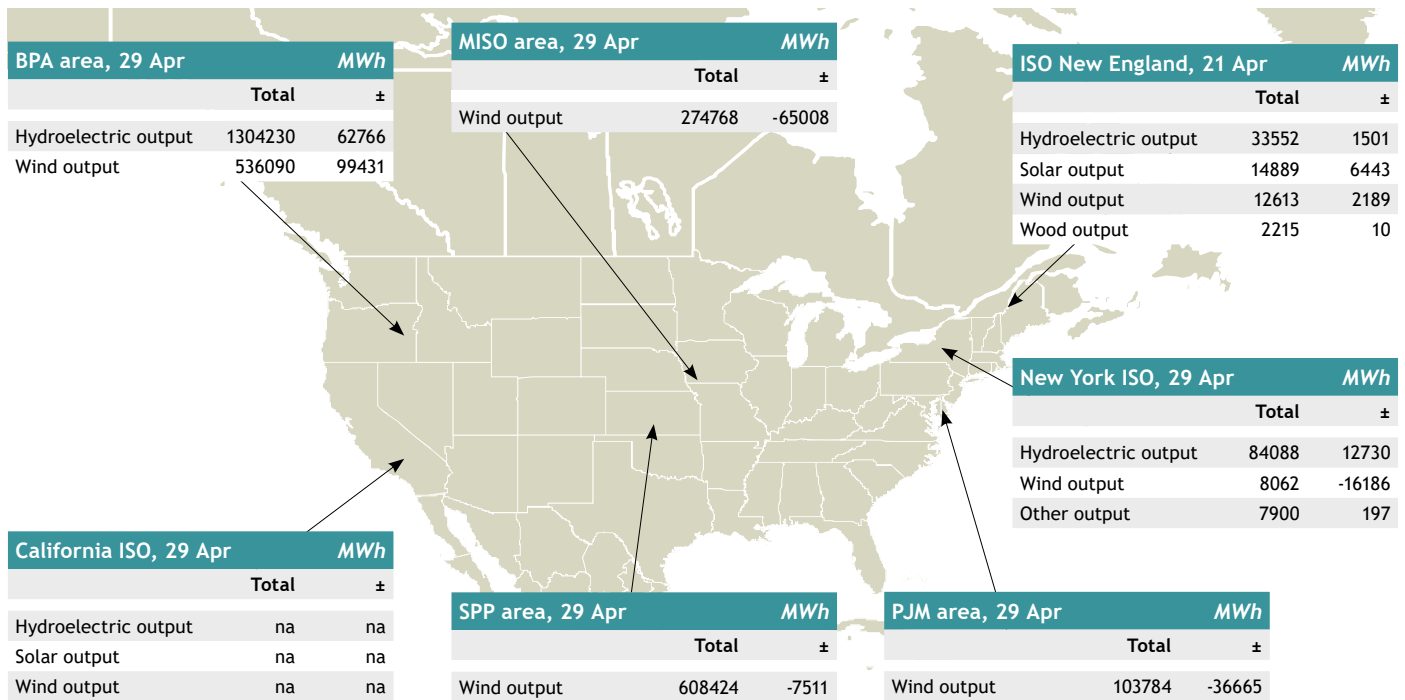
REC market prices					\$/MWh
	Vintage	Bid	Ask	Price	±
<b>Massachusetts</b>					
Class I	2023	39.35	39.85	39.60	nc
	2024	39.40	39.90	39.65	nc
SREC I	2023	318.00	323.50	320.75	nc
SREC II	2023	247.50	252.50	250.00	nc
<b>Connecticut</b>					
Class I	2023	39.35	39.85	39.60	nc
	2024	39.40	39.90	39.65	nc
<b>Nepool dual class</b>					
Class I	2023	39.50	39.90	39.70	nc
	2024	39.40	39.90	39.65	nc
<b>New Jersey</b>					
Class I	2024	35.50	36.00	35.75	+0.30
	2025	37.75	38.25	38.00	+0.40
SREC	2024	205.00	209.00	207.00	-1.50
	2025	200.00	203.00	201.50	nc
<b>Pennsylvania</b>					
Tier I	2024	34.25	34.75	34.50	nc
SREC	2024	35.00	36.00	35.50	nc
<b>Maryland</b>					
SREC	2024	58.75	59.75	59.25	nc
Tier I	2024	30.50	31.00	30.75	nc
<b>PJM tri-qualified</b>					
Class I	2024	35.50	36.00	35.75	+0.30
	2025	37.75	38.25	38.00	+0.40
	2026	39.75	40.25	40.00	+0.20
<b>District of Columbia</b>					
SREC	2024	444.00	452.00	448.00	nc

REC spreads			\$/MWh
	Price		±
PJM tri-qualified Class I 2024/2025	-2.25		-0.10
Massachusetts Class I 2023/2024	-0.05		nc
Connecticut Class I 2023/2024	-0.05		nc
New Jersey Class I 2024/2025	-2.25		-0.10
New Jersey SREC 2024/2025	+5.50		-1.50

Weekly Green-e eligible REC market prices, 26 Apr					\$/MWh
	Vintage	Bid	Ask	Price	±
National any	2024	2.50	2.60	2.55	nc
	2025	3.00	3.20	3.10	nc
Texas wind	2024	2.60	2.70	2.65	-0.10
	2025	3.20	3.30	3.25	-0.10
	2H23	2.20	2.30	2.25	-0.12
	1H24	2.50	2.60	2.55	nc
	2H24	2.70	2.80	2.75	-0.20
	1H25	3.00	3.20	3.10	nc
	2H25	3.35	3.45	3.40	-0.20
	1H26	3.60	3.70	3.65	-0.25



## RENEWABLE ENERGY CERTIFICATE (REC) MARKETS



Still, the activity was enough to push the 2024 RECs to the upper reaches of the \$35.40-\$35.75/MWh band in which they have spent the entirety of April, as well as put the 2025 credits at their highest price since 1 April, when they were also at \$38/MWh.

The 2026 credits remain roughly in the middle of their range since April began.

PJM today issued a bit less than 10.2mn RECs for March, the first time the region has surpassed the 10mn mark for a month. While the largest three contributors remained wind, solar and hydropower, RECs from coal mine methane totaled a bit over 419,000. The coal methane projects count for Tier I in Pennsylvania and have produced about 2.36mn RECs to date during the 2024 compliance period, which spans June 2023-May 2024, according to PJM data. For context, coal mine methane generated less than 560,000 RECs for the entirety of the 2023 reporting year.

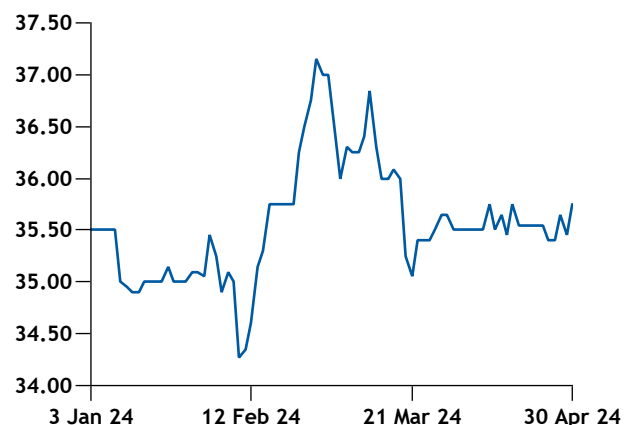
In three of the previous five calendar years, March has produced the most RECs of any month, with the period typically marked by stronger-than-average wind output in conjunction

with rising solar generation as winter tapers off.

New Jersey Class II credits for 2025 traded at \$38/MWh, the same level at which Argus assessed them on 26 April and 15¢ higher than the vintage went yesterday.

PJM Class I current year

\$/MWh





## FEDERAL MARKETS

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US power sector rules may hinge on permitting 15

### COMMENTARY

#### NO<sub>x</sub> and SO<sub>2</sub>

Cross-State Air Pollution Rule (CSAPR) allowances held firm on Tuesday as the threat of a nationwide stay from the US Supreme Court continues to affect the market's liquidity.

Group 3 seasonal NO<sub>x</sub> allowances were flat at \$1,250/short ton, while Group 2 seasonal NO<sub>x</sub> allowances held at \$775/st. Argus has assessed each at those prices for more than three months, with Group 3 NO<sub>x</sub> holding at a record low.

Annual NO<sub>x</sub> allowances were steady at \$3/st.

Group 1 SO<sub>2</sub> allowances held firm at \$3/st, while Group 2 SO<sub>2</sub> allowances remained at \$2/st.

The US Supreme Court could soon issue a nationwide stay of the Environmental Protection Agency's "good neighbor" plan, which would force the agency to revert to earlier and generally less-stringent regulations to control cross-state ozone. EPA's plans for state NO<sub>x</sub> budgets to become significantly more stringent over the next five years and to annually remove excess unused Group 3 allowances from the market would be halted.

Declining coal-fired generation, spurred by cheaper natural gas and EPA rules to control other types of power plant emis-

#### SO<sub>2</sub> and NO<sub>x</sub> allowances

Vintage	Vintage	Bid	Ask	Price	±
SO <sub>2</sub>					
Acid Rain Program \$/allowance	2024	0.45	0.85	0.65	nc
Cross-State Group 1 \$/st	2023	2.00	4.00	3.00	nc
Cross-State Group 2 \$/st	2023	1.00	3.00	2.00	nc
Cross-State \$/st	Group avg			2.50	nc
NO <sub>x</sub> \$/st					
Cross-State annual	2023	2.00	4.00	3.00	nc
Cross-State Group 2 seasonal	2023	700.00	850.00	775.00	nc
Cross-State Group 3 seasonal	2023	1,000.00	1,500.00	1,250.00	nc

#### Weekly index, 26 Apr

		\$/allowance	
	Vintage	Index	±
SO <sub>2</sub>	2024	0.65	nc

sions like CO<sub>2</sub>, would also mean less demand at the same time as supply remains high. That could weigh further on seasonal NO<sub>x</sub> prices.

Regardless, EPA's "good neighbor" plan remains on hold in 12 states because of stay orders from regional federal circuit courts that are weighing whether the agency lawfully rejected state plans for addressing cross-state ozone. Those courts are at various stages of reviewing those challenges and have a range of potential options when making final decisions.

For instance, EPA said in a Monday court filing that even if the 4th US Circuit Court of Appeals finds EPA's rejection of West Virginia's ozone plan to be unlawful, it should allow the rejection to take effect while the agency prepares a corrected regulation with any necessary new information.

#### Texas Emissions Reduction Credit (ERC) program

Date	Seller	Buyer	Amount st	\$/st
NO <sub>x</sub> trades				
29 Aug 23	Amerex Brokers	Chevron Phillips Chemical	15.5	125,000
30 Aug 22	Element Markets Emissions	Freeport LNG	7.7	115,000
26 Aug 22	Fathom Energy	Freeport LNG	0.1	115,000
26 Aug 22	Fathom Energy	Freeport LNG	0.8	115,000
26 Aug 22	Fathom Energy	Freeport LNG	1.1	115,000
VOC trades				
28 Feb 24	Aegis Hedging Solutions	Fathom Energy	2.1	130,000
20 Feb 24	Phoenix Hydrocarbons Operating	Aegis Hedging Solutions	2.1	130,000
21 Nov 23	Shoco Production	Fathom Energy	1.3	130,000
21 Nov 23	Aegis Hedging Solutions	Targa Resources	0.9	130,000
20 Nov 23	Aegis Hedging Solutions	Targa Resources	4.5	130,000

## MONTHLY PRICE INDEXES

Carbon markets, April				Renewable fuel markets, April			
	Vintage	Index	±		Vintage	Index	±
CCA prompt \$/t	2024	38.21	-0.59	D5 RINs €/RIN	2024	48.23	-3.77
CCA Dec 24 \$/t	2024	39.76	-0.82	LCFS California \$/t		61.67	-4.68
CCA Dec 25 \$/t	2025	42.39	-0.75	LCFS California 4Q \$/t		61.67	-4.68
WCA prompt \$/t	2024	37.03	+4.16	LCFS Oregon \$/t		68.14	-6.21
WCA Dec 24 \$/t	2024	35.44	+4.22				
RGGI CO <sub>2</sub> prompt \$/st	2024	19.36	+2.13	REC markets, April			
RGGI Dec 24 \$/t	2024	20.11	+2.13		Vintage	Index	±
RGGI Dec 25 \$/t	2025	21.20	+2.31				
California regular Carbob €/USG	2024	30.79	-0.47	Massachusetts Class I	2023	39.53	+0.12
California midgrade Carbob €/USG	2024	30.72	-0.47		2024	39.65	+0.15
California premium Carbob €/USG	2024	30.66	-0.47	Massachusetts SREC I	2023	319.59	+0.01
California distillate ULSD €/USG	2024	39.11	-0.61	Massachusetts SREC II	2023	256.01	-1.99
Washington regular gasoline summer €/USG	2024	29.81	+2.42	Connecticut Class I	2023	39.53	+0.08
Washington midgrade gasoline summer €/USG	2024	29.85	+2.42		2024	39.65	+0.15
Washington premium gasoline summer €/USG	2024	29.89	+2.42	NEPOOL dual-qualified	2023	39.63	+0.01
Washington distillate ULSD €/USG	2024	37.21	+3.02		2024	39.65	+0.15
Quebec gasoline CA€/l	2024	11.72	-0.06	New Jersey Class I	2024	35.55	-0.41
Quebec diesel CA€/l	2024	14.58	-0.08		2025	37.67	-0.29
Allowance markets, April				New Jersey SREC	2024	208.75	-0.15
	Vintage	Index	±		2025	201.77	+0.17
SO <sub>2</sub> Acid Rain Program \$/allowance	2024	0.65	nc	Pennsylvania Tier I	2024	34.48	-0.66
SO <sub>2</sub> Cross-State Group 1 \$/st	2023	3.00	nc	Pennsylvania SREC	2024	35.73	-0.21
SO <sub>2</sub> Cross-State Group 2 \$/st	2023	2.00	nc	Maryland Tier I	2024	30.90	-2.45
Cross-State annual NO <sub>x</sub> \$/st	2023	3.00	nc	Maryland SREC	2024	59.25	-0.12
Cross-State Group 2 seasonal NO <sub>x</sub> \$/st	2023	775.00	nc	PJM tri-qualified	2024	35.55	-0.43
Cross-State Group 3 seasonal NO <sub>x</sub> \$/st	2023	1,250.00	nc		2025	37.67	-0.29
				District of Columbia SREC	2024	447.92	-0.33

Monthly indexes are calculated as the average daily price published for the named month.

Low-carbon Fuel Standard Program Developments		
Region	Proposed carbon intensity reduction targets	State of Play
Canada	14pc from 2016 levels by 2030	Enforcement began July 2023
California	Tougher targets both pre- and post-2030	Public hearing and vote postponed; public comment completed in February.
Oregon	20pc by 2030	Amendments adopted with 20pc by 2030 target
Washington	20pc from 2017 levels by 2038	Enforcement underway; initial 2023 and 2024 compliance deadline April 2025
Minnesota	25pc from 2018 by 2030, 75pc by 2040	Work group studying LCFS concepts completed
New Mexico	20pc below 2018 by 2030	Expected to be signed by governor, with rulemaking in Autumn 2024.
New York	20pc by 2030	Filed in Assembly, Senate

## NEWS

## CARBON

**Oregon mulls further changes in GHG program**

Oregon regulators continue to weigh aspects of replacing its former greenhouse gas (GHG) emissions trading program, including compliance options and other program mechanisms ahead of their next rulemaking meeting in May.

The Oregon Department of Environmental Quality (DEQ) and its rulemaking advisory committee plans to discuss compliance periods, point of regulation and use of Community Climate Investment (CCI) credits, among other issues, according to materials posted ahead of their second meeting this year on 14 May to reestablish the state's Climate Protection Plan (CPP).

Oregon's former CPP covered emissions from the use of natural gas and other fuels, including gasoline and diesel, with fuel suppliers whose products were responsible for 200,000 metric tonnes (t) of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) each year subject to compliance.

While it is unclear if DEQ intends to change the three-year compliance periods of the original program, it may add flexibility measures given the delay that resulted from the state Court of Appeals overturning the previous program in [December](#).

Stakeholders have shared concerns that a tighter emission cap, assuming it begins at the original 2025 limit of 25.7mn metric tonnes, would [create compliance difficulties](#) because of an illiquid trading market for compliance credits, limited short-term biofuel imports, and a lack of CCI credits.

GHG emissions from biomass-derived fuels were exempt under the prior CPP program, making their use one tool for compliance.

CCIs, the program's version of an offset credit, came from contributing funds to DEQ-approved nonprofits that would invest in projects in Oregon environmental justice communities. The credits were priced at \$123 each [last year](#). However no credits had been sold yet and DEQ only just completed a contract with its first nonprofit two years into the program.

Regulators will also need to define points of regulation going forward, with natural gas utilities Cascade Natural Gas, NW Natural and combination utility Avista urging regulators to separate natural gas supplied for transportation customers, when the utility is simply moving the gas through its system for customers that procured it directly or through a third party.

The companies say while transport customers make up

between 32-35pc of natural gas Cascade Natural Gas and NW Natural delivered in 2023, utilities have little influence or carbon intensity information for fuel purchased by these customers. This leaves transport customers as the more appropriate entity to report and comply with the resulting obligations under the CPP, they say.

*By Denise Cathey*

**Connecticut GHG emissions rebound in 2021, 2022**

Connecticut greenhouse gas (GHG) emissions rebounded from the coronavirus pandemic in 2021 and 2022, posing challenges for the state's climate targets, according to a new report.

GHG emissions in the state rose about 6pc from 2020 levels to hit 34.7mn metric tons (t) of CO<sub>2</sub> equivalent (CO<sub>2</sub>e) in 2021. Preliminary data suggests emissions rose to 35mn t in 2022, which would be 28pc below 2011 levels, according to the Department of Energy and Environmental Protection's (DEEP) latest GHG inventory.

State climate law mandates a 10pc reduction in GHG emissions from 1990 levels by 2020, which the state met that year, as well as a 45pc reduction from 2001 levels by 2030 and an 80pc cut below 2001 levels by 2050.

Transportation was the largest source of the state's emissions in both 2021 and 2022, rebounding as the economy recovered. DEEP said that transportation emissions have not significantly decreased compared to 1990 levels and will likely continue to be the top source absent new policies. Emissions from transportation rose by 10pc in 2021 to 14.3mn t CO<sub>2</sub>e and by an estimated 4pc in 2022 to 14.9mn t because of personal vehicle travel picked up from Covid-19.

Electric power consumption emissions declined by 6pc in 2021 and are estimated to have fallen by more than 16pc in 2022, as electricity demand decreased, and the state dispatched more renewables. Connecticut participates in the Regional Greenhouse Gas Initiative (RGGI) CO<sub>2</sub> cap-and-trade program for power plants.

Industrial emissions increased by an estimated 18pc in 2022, with the use of sulfur hexafluoride, a potent GHG used in circuit breakers, insulated electric substations and other switchgear, contributing to higher numbers for the sector. Commercial and residential sectors also increased slightly from 2021 to 2022.

Waste emissions fell by 29pc in 2022, which would be the largest decrease of the sectors tracked in the inventory, as the state increasingly exports more waste to landfills out of state.

NEWS

State climate targets “will require deeper, more rapid emissions reductions from the transportation and building sectors in particular, and policies to ensure those reductions are sustained,” the Connecticut Coalition for Climate Action, which includes various local environmental groups, said in response to the inventory. The coalition pointed to climate legislation pending in the legislature, HB5004, as one necessary policy.

The bicameral Appropriations Committee voted 37-16 last week to advance that bill, but numerous provisions were cut from an earlier version. The current version calls on the state to develop a plan to install more heat pumps for residential heating systems throughout the state but now omits an [economy-wide net-zero](#) by 2050 target. This year’s abbreviated legislative session ends next month.

By Mia Westley

**California lawmakers advance ocean CO2 storage**

California legislative committee has advanced a bill that could allow ocean CO<sub>2</sub> removal (CDR) projects generate credits for the state’s Low Carbon Fuel Standard (LCFS) or cap-and-trade programs.

The proposal, AB 2572, by state assemblymember Al Muratsuchi (D), would require the California Air Resources Board (CARB) to develop criteria and permitting for sustainable and environmentally sound ocean CDR projects for inclusion to the state’s Carbon Capture Storage and Utilization (CCUS) Program, and to evaluate the eligibility of these projects to generate LCFS credits or cap-and-trade program carbon offsets.

The Assembly Natural Resources Committee passed the bill 11-0 on 22 April, sending it to the Appropriations Committee.

The legislature in 2022 tasked CARB to evaluate, develop, and adopt a permitting process by 1 January 2025 for building and operating CDR and CCUS projects to aid the state in reaching its goals of a 40pc reduction in greenhouse gas emissions by 2030, from 1990 levels, and net-zero by 2045.

Marine CDR is not one of the technologies under consideration in CARB’s current program, which has a focus on geologic storage of CO<sub>2</sub>. But these may be on hold as the use of CO<sub>2</sub> pipeline transportation is not allowed in the state until the US Department of Transportation’s Pipelines and Hazardous Materials Safety Administration completes its rulemaking to update existing CO<sub>2</sub> pipeline safety requirements, according to a Natural Resources Committee analysis.

Muratsuchi said there are possible immediate benefits of utilizing ocean-based projects, given that geologic storage of CO<sub>2</sub> represents just one part of the solution to meet the state’s climate goals.

“If we can remove carbon dioxide from our oceans, we can help it absorb more from the atmosphere and give us a fighting chance at keeping our planet below 2 degrees Celsius and avoid the worst effects of climate change” Muratsuchi said.

Allowing these projects to generate credits under the LCFS or cap-and-trade programs would provide an incentive for development given the lack of state subsidies to advance research, development, and deployment in this area, the committee said.

Neither program currently has a credit generation pathway for CDR projects, but it has been floated in both markets, particularly during the ongoing cap-and-trade rulemaking. CARB has said that deployment of CCUS and CDR at-scale is needed to help the state meet its climate goals, including a potentially more-stringent carbon market target of a 48pc reduction in GHG emissions, from 1990 levels, by 2030.

LCFS programs require yearly reductions in transportation fuel carbon intensity and entities must offset deficits from higher carbon fuels with credits generated from approved, lower-carbon fuels or credit generation pathways.

The state’s cap-and-trade program covers major sources of California’s GHG gas emissions, including power plants and transportation fuel. It currently requires a 40pc reduction in emissions by 2030.

By Denise Cathey

CCA prompt-month vs December delivery spread \$/t



## NEWS

## RENEWABLE FUELS

**California LCFS adds to record credit pile**

Continued growth in renewable diesel and biogas supplied to California in the fourth quarter of 2023 lifted Low Carbon Fuel Standard (LCFS) credits available for future compliance by a record 2.9mn metric tonnes (t), according to state data published today.

A widening gap between newly generated credits and deficits has helped to drag credit prices down to roughly six-year lows. Credits available for future LCFS compliance, which do not expire, increased by more than half in 2023 to a volume able to satisfy an additional year of new deficits without any new lower-carbon fuel use.

Rising renewable diesel and biogas for transportation continued to drive the build in credits in excess of current compliance needs, which increased by 14pc in the fourth quarter. New renewable diesel credits rose by 6.7pc from the previous quarter to make up 40pc of all new credits for the final period of 2023. The fuel made up 58pc of the liquid diesel pool and petroleum diesel shrank to less than a third. Biogas, the second largest source of LCFS credits, grew by 6pc to hold about 17pc of all new credits in the quarter.

CARBOB consumption meanwhile fell by 3.3pc from the previous quarter. The fuel still makes up 89pc of all new program deficits.

LCFS programs require yearly reductions in transportation fuel carbon intensity. Higher-carbon fuels that exceed the annual limits incur deficits that suppliers must offset with credits generated from the distribution of approved, lower-carbon alternatives.

The previous quarter recorded a 2.2mn t build in credits available for future compliance, helping to drop confirmed trade to \$56.60/t in February.

An ongoing California Air Resources Board (CARB) rulemaking could rebalance the widening gap between new credits and new deficits. Staff continue to seek comment on the approach participants would prefer.

Scenarios offered at a mid-month workshop considered different paths through a 30pc reduction target, compared to the current 20pc target, by the end of the decade. A 9pc reduction in 2025 targets – a drop more than seven times steeper than recent 1.25pc annual target adjustments – would trim available credits for future compliance by more than 8mn

t before continuing to work toward a 30pc target in 2030, according to CARB.

A 5pc reduction in 2025 would have limited immediate effect on banked credits, based on staff simulations. Conditions would instead trigger a proposed mechanism that automatically accelerates to tougher targets at least once before 2030, and potentially twice – toughening the reduction target to 39pc.

Public comment on this balancing of program pace continues to 10 May.

*By Elliott Blackburn*

## RENEWABLE ENERGY CERTIFICATES (RECS)

**PJM issues record RECs in March**

The PJM Interconnection issued a record number of renewable energy certificates (RECs) in March, fueled by an uptick in solar and coal mine methane-fired generation.

PJM minted 10.2mn RECs for March, up by about 8pc from March 2023, which previously held the high-water mark. Beyond solar and coal mine methane, waste coal, wind and hydropower were other sectors where generation was higher this year than last.

Photovoltaic generation increased by almost 14pc to supply the region with 2.15mn RECs, while coal mine methane produced just over 419,000 credits, an almost eightfold increase from their March 2023 tally. While states in the PJM footprint universally consider solar a Class I or Tier I resource – oftentimes setting up carve-outs within that category specifically for in-state projects – eligibility for coal mine methane is rarer. But Pennsylvania does count it as a Tier I generator.

RECs from waste coal, used most notably toward Pennsylvania's Tier II requirements, rose by more than 17pc to about 638,000. Gains in other sectors were smaller. The wind RECs rose by about 2pc from last March to just under 4.2mn credits, while credits from hydropower rose by about 3pc to 1.32mn.

Declines from other resources were mild on the whole, with the largest coming from landfill gas, which decreased by almost 29pc to about 149,000 credits last month.

During the first quarter of 2024, the PJM region has issued almost 27.4mn RECs, a 6pc increase over the first quarter of 2023. Solar has produced 4.93mn credits, up by about 22pc from the same stretch last year, while wind and hydro generation have each fallen by about 3pc to 11.1mn and 3.83mn RECs, respectively.

## NEWS

Through March, totals for the 2024 reporting year – which runs from June 2023-May 2024 and aligns with compliance periods in New Jersey and Pennsylvania – have surpassed 80mn credits, a 1pc increase over the same part of the 2023 period. Solar RECs have reached a new high for the reporting year to date, jumping by 17pc to 18.5mn credits.

At the same time, wind has generated 27.4mn, its lowest through March since the 2021 reporting period, while the 8.96mn RECs from hydropower mark the lowest tally in the past four years, coming in below the 2023 period's 9.94mn total.

By Patrick Zemanek

### New Jersey calls for more wind, solar

New Jersey today kicked off its fourth offshore wind solicitation and expanded the capacity allocated to the state's community solar program for the 2024 energy year.

The New Jersey Board of Public Utilities (BPU) voted unanimously to launch the new offshore wind solicitation, through which the state will seek 1,200-4,000MW of ocean-based generation and the associated offshore renewable energy certificates (ORECs).

The call for projects, which officially opened Tuesday, will run until 5pm ET on 10 July.

Governor Phil Murphy (D) has called for the state to reach 11,000MW of offshore wind by 2040 and 100pc zero-emissions electricity by 2035. State lawmakers are currently [working to codify](#) the latter objective in law, which would make it harder for future administrations to back away from the objective.

BPU also approved changes to its community solar program, the most notable of which expands the capacity for the 2024 energy year – which spans June 2023-May 2024 – to 500MW, up from 225MW.

The board will begin accepting submissions for the new capacity on 15 May and will select projects on a first-come, first-served basis, with the caveat that projects filed during the first 10 business days of the window will be treated as simultaneous submissions. Should the board need a tiebreaker, it would select projects based on those that could offer the highest guaranteed bill credits to their subscribers.

Any unclaimed capacity would roll into the 2025 energy year.

The expansion comes after Murphy in January signed into law a provision that automatically allocates another 275MW

to the community solar program for the 2024 period if the number of applications to the initiative exceeds 225MW. BPU originally opened the community solar program in November and provisionally selected 224 projects with an overall capacity of 225MW, but the agency noted that [applications exceeded 300MW](#).

BPU's approval came with several adjustments to the program, including the removal of certain requirements pertaining to co-location with regard to rooftop solar installations, the addition of mining sites as permitted project locations and requiring a minimum bill credit of at least 20pc for all projects.

Community solar programs allow electricity customers to subscribe to a local photovoltaic system in return for a credit on their monthly bills for a share of the system's generation. They offer an alternative for ratepayers who cannot host rooftop solar projects but still want to decarbonize their electricity use.

In New Jersey, community solar projects receive \$90/MWh under the administratively determined incentive (ADI) segment of the state's SREC-II program.

By Patrick Zemanek

### US plans offshore wind sales on two coasts

The US is proposing offshore wind lease sales in the Gulf of Maine and the Pacific Ocean near Oregon, intending to sell areas that could collectively host more than 18,000MW of capacity.

The US Bureau of Ocean Energy Management (BOEM) is seeking feedback on plans to sell more areas that could ultimately host offshore wind generation, as the administration of President Joe Biden pursues a 100pc zero-emissions grid by 2035.

In the Gulf of Maine, BOEM would sell eight lease areas that altogether span about 1mn acres. Wind potential in the area could ultimately support about 15,000MW of offshore wind capacity, according to the agency.

Regulators will field feedback on the proposed sale from 1 May-1 July 2024. BOEM mentioned its interest in receiving comments addressing the potential use of bidding credits, which incentivize developers to commit resources to workforce and supply chain development, as well as which areas the agency should prioritize including or excluding from the potential sale.

The proposed sale in Oregon would cover two lease areas



## NEWS

with a combined size just under 195,000 acres in the Coos Bay and the Brookings Wind Energy Areas.

With a 40pc capacity factor – which measures a facility's actual generation compared to its theoretical maximum output – projects in the two could collectively generate almost 11.1mn MWh/yr. The areas have been [points of contention](#), with policymakers from the state on the local and federal levels, who have asked BOEM for more time to address concerns raised by coastal residents.

In addition, BOEM today issued its draft environmental assessment for the two Oregon areas. The assessment differs from the project-specific environmental reviews conducted by the agency after it receives a developer's construction and operations plan, which would come much later in the hypothetical regulatory cycle. The current analysis deals with site-characterization activities, with BOEM finding that the impacts of moving ahead would be largely "negligible" or "minor."

Comments on the assessment are due by 31 May.

President Joe Biden's administration is targeting 30,000MW of offshore wind by 2030 and 15,000MW of floating wind capacity by 2035. US offshore wind development in the Pacific is in its early stages, with BOEM holding its first ever lease sale on the west coast in late 2022.

By *Patrick Zemanek*

## FEDERAL

### US power sector rules may hinge on permitting

The success of President Joe Biden's latest regulations to cut CO<sub>2</sub> emissions from the power sector could depend on the efficiency of federal permitting processes that frequently delay the construction of energy projects.

The climate regulations, [finalized](#) last week, contemplate adding vast amounts of renewable energy onto the electric grid and requiring all existing coal-fired power to install carbon capture and storage (CCS) by 2032 or to commit to retire. The regulations would mean that by 2035, installed wind and solar capacity will likely need to nearly double, while only about 11pc of the existing coal fleet would still be operating, nearly all of it with CCS, according to the US Environmental Protection Agency.

But doubling the amount of installed renewable capacity and retrofitting an estimated 19GW of coal plants with CCS

within a decade would be a vast undertaking that might not be possible with existing permitting rules, industry officials say. A single electric transmission line, the SunZia project in the southwest US, was subject to a 17-year permitting process that only concluded last year. The US only has one coal-fired plant with CCS, the 240MW Petra Nova plant in Texas that was mothballed for three years before it restarted in 2023.

Industry groups say the tax credits for renewables and carbon sequestration in the Inflation Reduction Act should support the development of the power projects contemplated under the climate regulations. But the failure of the US Congress to make substantial permitting changes could prevent projects from moving ahead on reasonable timelines, they say, slowing electric transmission lines and projects needed to install CCS.

"Congress and the president have not enacted permitting reform, making it impossible to achieve the EPA's highly aspirational mandates," National Association of Manufacturers chief executive Jay Timmons said.

Permitting legislation appears increasingly unlikely to advance this year, dealing a blow to oil industry and renewable energy groups that spent much of 2023 dedicated to the issue. US Senate Energy and Natural Resources Committee chairman Joe Manchin (D-West Virginia) last month said he was still doing "everything I can" to advance a permitting bill before their August recess but acknowledged the chances of success were slim.

The Biden administration has tried to tap existing authorities to expedite permitting of clean energy. The US Department of Energy last week finalized a rule that seeks to finish the federal permitting process of electric transmission projects within a two-year deadline. The US Federal Energy Regulatory Commission (FERC) has scheduled a vote on 13 May on rules that are intended to support the build-out of electric transmission facilities.

"It is an urgent need for the commission to act on these," FERC chairman Willie Phillips said.

Renewable industry groups continue to push for faster permitting. A group of nearly 200 companies led by the Solar Energy Industries Association sent a letter on 17 April to congressional leaders offering support for "streamlining and standardizing" the federal permitting process as a way to cut down on greenhouse gas emissions.

By *Chris Knight*



## MARKET TRADES AND DEALS

RECs daily deals summary					
Market	Vintage	Delivery	Trades	Total MWh	Range \$/MWh
NJ Solar (CBL)	2020	Trade	2	20	206.00 - 206.00
NJ Solar (CBL)	2021	Trade	2	13	206.00 - 206.00
NJ Solar (CBL)	2022	Trade	2	24	206.00 - 206.00
NJ Solar (CBL)	2023	Trade	1	54	206.00 - 206.00
NJ Solar (CBL)	2024	Trade	1	6,834	207.00 - 207.00
PA Tier I*	2025	Futures (Jul 25)	1	20,000	35.26 - 35.26
PA Tier I*	2024/2027	Spread (Jul 24/Jul 27)	1	10,000	0.25 - 0.25
PJM Class I*	2024	Futures (Jul 24)	5	51,500	35.50 - 35.75
PJM Class I	2024	Trade	1	40,000	35.60 - 35.60
PJM Class I*	2025	Futures (Jul 25)	20	69,500	37.50 - 38.05
PJM Class I*	2026	Futures (Jul 26)	13	44,000	39.50 - 40.00
PJM Class I*	2027	Futures (Jul 27)	16	94,900	40.85 - 41.00
PJM Class I*	2024/2025	Spread (Jul 24/Jul 25)	2	5,000	-2.25 - -2.25
PJM Class I*	2025/2026	Spread (Jul 25/Jul 26)	7	9,600	-2.25 - -1.85
PJM Class I*	2026/2027	Spread (Jul 26/Jul 27)	1	500	-1.15 - -1.15
PJM Class I/PA Tier I*	2025	Spread (Jul 25)	1	2,500	2.85 - 2.85
MA APS (CBL)	2023	Trade	1	359	1.00 - 1.00
PA Tier II (Nodal)	2025	Futures (Jul 25)	1	25,000	38.90 - 38.90
PA Tier II (Nodal)	2026	Futures (Jul 26)	2	10,000	39.60 - 39.70
PA Tier II (Nodal)	2027	Futures (Jul 27)	7	77,500	39.50 - 40.00
PA Tier II (Nodal)	2026-2027	2-yr strip (Jul 26-Jul 27)	1	25,000/yr	39.70 - 39.75
ME Class IA (CBL)	2023	Trade	2	1,000	38.25 - 38.75
NJ Class II (Nodal)	2025	Futures (Jul 25)	1	25,000	38.00 - 38.00
TX renewables, CRS (Nodal)	BH2024	Futures (Mar 25)	1	10,000	2.75 - 2.75
TX renewables, CRS (Nodal)	BH2025	Futures (Mar 26)	1	15,000	3.45 - 3.45
TX renewables, CRS (Nodal)	BH2026	Futures (Mar 27)	13	430,000	4.15 - 4.25
TX renewables, CRS (Nodal)	BH2026-BH2027	3-vintage strip (Mar 27-Mar 28)	1	50,000-25,000/vintage	4.15 - 4.75
TX renewables, CRS (Nodal)	BH2027	Futures (Mar 28)	9	131,000	4.80 - 4.90
TX renewables, CRS (Nodal)	FH2026	Futures (Sep 26)	2	40,000	3.55 - 3.65
TX renewables, CRS (Nodal)	FH2027	Futures (Sep 27)	2	30,000	4.45 - 4.45
TX renewables, CRS (Nodal)	FH2027-BH2027	2-vintage strip (Sep 27-Mar 28)	7	225,000/vintage	4.60 - 4.75
US/TX wind/solar, CRS	2027	Trade	1	-200,000	4.65 - 4.65

Renewable fuels daily deals summary					
Market	Vintage	Delivery	Trades	Volume	Range
LCFS*		Future (Dec 25)	2	1,000	66.50 - 67.00
LCFS*		Future (Dec 24)	1	5,000	59.00 - 59.00
LCFS (Nodal)		Future (Dec 24)	1	2,500	59.50 - 59.50
D6	2024		15	12,330	42.00 - 43.00
D4	2024		7	10,000	42.00 - 43.00
D3	2024		6	7,500	323.00 - 323.00
D3	2025		1	5,000	273.00 - 273.00

Trade volumes and values are shown in metric tonnes and \$/t for CA, OR and WA LCFS, and in CAD for Canadian LCFS and €/t for RINs  
 \*Represents deals executed and/or cleared on ICE

## MARKET TRADES AND DEALS

### Carbon daily deals summary

Market	Vintage	Delivery	Trades	Total tons	Range \$/t
CCA*	2024	Future (May 24)	4	109,000	37.40 - 37.50
CCA*	2024	Future (Jun 24)	5	25,000	37.66 - 37.66
CCA*	2024	Future (Dec 24)	227	1,929,000	38.72 - 39.05
CCA*	2024	50.00 call (Dec 24)	3	410,000	0.52 - 0.55
CCA*	2024	45.00 call (Dec 24)	1	150,000	1.25 - 1.25
CCA*	2024	Spread (Jun 24/Dec 24)	1	2,000	-1.15 - -1.15
CCA*	2024	40.00 call (Jun 24)	8	280,000	0.41 - 0.50
CCA*	2024	Spread (May 24/Jun 24)	1	2,000	-0.17 - -0.17
CCA*	2024	Spread (May 24/Dec 24)	5	14,000	-1.32 - -1.30
CCA*	2024/2025	Spread (Dec 24/Dec 25)	9	360,000	-2.68 - -2.65
WCA*	2024	Future (May 24)	1	35,000	36.50 - 36.50
WCA*	2024	Future (Dec 24)	10	137,000	37.50 - 37.75
WCA*	2024	ACP Current Future (Jun 24)	1	15,000	0.40 - 0.40
RGGI*	2024	20.00 call (Dec 24)	2	100,000	3.14 - 3.30
RGGI*	2024	Future (Dec 24)	105	3,383,000	21.26 - 21.95
RGGI*	2025	Future (Dec 25)	2	1,200,000	22.71 - 23.01
RGGI*	2025	Future (Dec 26)	1	1,000,000	24.60 - 24.60

Trade volumes and values are shown in metric tonnes and \$/t for CA, OR and WA LCFS, and in CAD for Canadian LCFS and €/t for RINs

\*Represents deals executed and/or cleared on ICE

### SO<sub>2</sub> allowance transfers, 29 Apr

st

Transferor	Transferee	Vintage	Volume	Type
EPA reported no transfers for today				

### Annual NO<sub>x</sub> allowance transfers, 29 Apr

st

Transferor	Transferee	Vintage	Volume	Type
Vistra Energy	Omnis Fuel Technologies	2019	405	CSAPR

### Seasonal NO<sub>x</sub> allowance transfers, 29 Apr

st

Transferor	Transferee	Vintage	Volume	Type
EPA reported no transfers for today				



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## RENEWABLE GENERATION

## Adjusted heat rates and carbon cost

Marginal unit	NP15		SP15	
	Heat rate mmBtu/ MWh	Carbon cost \$/MWh	Heat rate mmBtu/ MWh	Carbon cost \$/MWh
Gas-implicit	9.36	19.40	1.62	3.36
Carbon-adjusted	4.87	10.09	0.64	1.32
Western grid electric exports				16.68
Bonneville Power Administration exports				0.62
Powerex electric exports				na

## Adjusted spark spreads

Heat rate	\$/MWh			
	7	8	10	12
NP15				
Gas-implicit	5.30	3.06	-1.43	-5.92
Carbon-adjusted	-9.20	-13.52	-22.15	-30.79
Carbon cost	14.51	16.58	20.72	24.87
SP15				
Gas-implicit	-7.21	-8.55	-11.23	-13.91
Carbon-adjusted	-21.72	-25.13	-31.95	-38.78
Carbon cost	14.51	16.58	20.72	24.87

## Associated day-ahead power and natural gas markets

	Mid	±
Power NP15 peak price \$/MWh	21.02	+3.10
Power NP15 off-peak price \$/MWh	34.10	+4.39
Power SP15 peak price \$/MWh	2.17	-4.20
Power SP15 off-peak price \$/MWh	34.45	+4.53
Natural gas PG&E Citygates index \$/mmBtu	2.25	+0.17
Natural gas SoCal Gas Co index \$/mmBtu	1.34	+0.12



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