

MARKET OVERVIEW

■ Prices at Opal in Wyoming have tumbled in the past week on low weather-related demand. The Opal index in the week ended yesterday averaged \$1.66/mmBtu, down by 22pc from a week earlier and about a third lower than the bid week index. The discount at Opal to the Henry Hub has expanded in the past week to 88¢/mmBtu from an average of 53¢/mmBtu in the prior week. Prices at Opal in April 2018 averaged about \$2/mmBtu as cold weather buoyed demand. Opal gas can reach markets in the Pacific northwest and southern California.

■ Weather models today showed another gain in heating demand that should buoy gas needs. Demand is still low compared with the rest of the year, but the gains in demand today are bringing the week ending 3 May close to seasonal norms, the private forecaster Commodity Weather Group

■ Gas output growth from the Permian basin in March topped increases from other large US fields, according to the US Energy Information Administration (EIA). Dry-gas output from the Permian in west Texas and southeastern New Mexico rose to 9.1 Bcf/d (258mn m³/d), up by 2.6pc from a month earlier and 40pc higher than a year earlier. Output from the Haynesville posted the second largest increases in March, climbing by 2.5pc from February and by 35pc from a year earlier, the EIA said. Output from the Permian has surged on associated production from oil wells.

■ US natural gas inventories should reach 3.68 Tcf ahead of next winter. That total would be near the five-year average, according to Bank of America Merrill Lynch. The startup of Kinder Morgan's Gulf Coast Express pipeline in October could push more gas into storage, and those low-cost supplies could displace more coal-fired power in the fall, the investment bank said.

IN THE NEWS

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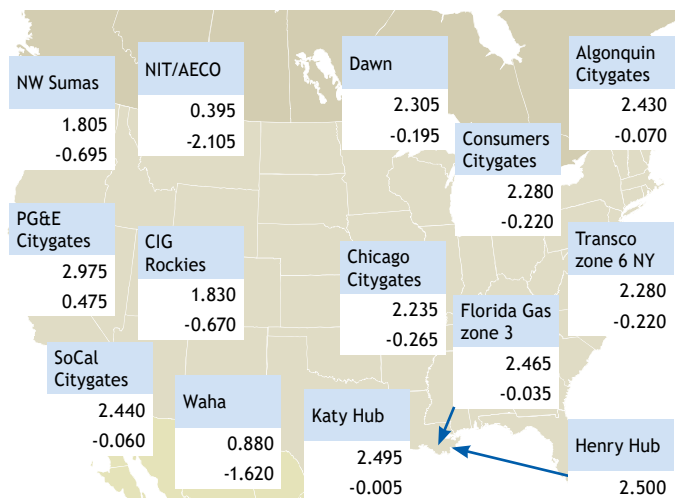
- Oxy moves to outbid Chevron for Anadarko
- Permian sees flaring on weather, maintenance
- Cogent to connect Midland to GCX pipeline

KEY NATURAL GAS PRICES

Transaction date: 24 Apr 19, flow date(s): 25 Apr 19			
	VWA	Daily delta	HH cash basis
Appalachia	2.110	0.095	-0.390
Col Gas, Appalachia	2.210	0.010	-0.290
TETCO M-2 receipts	2.100	-0.035	-0.400
Northeast	2.350	0.015	-0.150
Algonquin Citygates	2.430	0.055	-0.070
Transco zone 6 NY	2.280	-0.025	-0.220
Louisiana/Southeast	2.365	0.000	-0.135
Columbia Gulf Mainline	2.275	0.015	-0.225
Henry Hub	2.500	0.005	0.000
Transco zone 4	2.420	0.040	-0.080
East Texas	2.370	0.010	-0.130
Katy hub	2.495	0.065	-0.005
Midcontinent	1.830	0.065	-0.670
NGPL, Midcontinent	1.820	0.480	-0.680
Upper Midwest	2.210	0.010	-0.290
Chicago Citygates	2.235	-0.010	-0.265
Consumers Citygates	2.280	-0.010	-0.220
REX Moultrie-NGPL	2.240	-0.005	-0.260
Rockies/Northwest	1.840	0.100	-0.660
CIG Rocky Mountains	1.830	0.180	-0.670
Northwest Sumas	1.805	0.080	-0.695
PG&E Citygates	2.975	0.085	0.475
Opal	1.885	0.205	-0.615
Canada	1.150	0.105	-1.350
Dawn, Ontario \$/mmBtu	2.305	0.005	-0.195
NIT/AECO \$/mmBtu	0.395	0.140	-2.105
Southwest	1.455	0.465	-1.045
SoCal Citygates	2.440	0.215	-0.060
Waha	0.880	0.445	-1.620
South Texas	2.360	-0.015	-0.140

Regional price summary

\$/mmBtu



Top number is VWA and bottom is basis to Henry Hub

MARKET OVERVIEW

Prices rise marginally on weather

US natural gas futures ended marginally higher today in thin trading on forecasts for cooler weather.

Nymex gas for May delivery at the Henry Hub rose by less than 1¢/mmBtu to settle at \$2.462/mmBtu. The 12-month strip and 2020-calendar strip both rose slightly to \$2.665/mmBtu and \$2.653/mmBtu, respectively. Prompt-month estimated trade volume dropped sharply today ahead of contract expiration on 26 April.

Today's weather forecast shows some heating demand gains next week as cooler-than-normal weather stretches into the midcontinent and across more of the western US, said private forecaster Commodity Weather Group. The cooler weather should bring demand closer to seasonal norms in the week ended 3 May, the forecaster noted.

The cold could curb injections into gas storage.

US gas inventories have increased rapidly this spring thanks to mild weather in late March and maintenance at Cheniere Energy's Sabine Pass export terminal on the Louisiana coast.

The US Energy Information Administration (EIA) will probably report tomorrow that US gas inventories in the week ended 19 April rose by 90 Bcf (2.55bn m³), according to the average of 10 analyst estimates in an Argus survey. That compares with a five-year-average build for the week of 47 Bcf and a year-earlier draw of 20 Bcf.

If the consensus is correct, total inventories will rise to 1.337 Tcf, 22pc lower than the five-year-average for the week and 4pc above year-earlier levels. Inventories started this year's injection season at the lowest since 2014 and began last winter at the lowest in more than a decade.

Inventory growth last year was sluggish because of rising demand for gas from the US power sector and for exports.

The EIA's weekly inventory reports have been in the spotlight this spring as traders gauge how quickly record gas production will refill storage sites.

US dry-gas production this year is expected to average 91 Bcf/d, up by 7.6 Bcf/d from the average in 2018, the EIA said. That output should allow inventories to begin the winter season at 3.7 Tcf, 13pc higher than October 2018 levels but 1pc lower than the five-year average.

Gas production has surged this year on rising output from the US Appalachian region and associated output from the Permian basin.

Prices that continue to settle below \$2.50/mmBtu could spur additional selling as traders that bet on rising prices surrender their positions, said Kyle Cooper, a consultant with the brokerage Ion Energy.

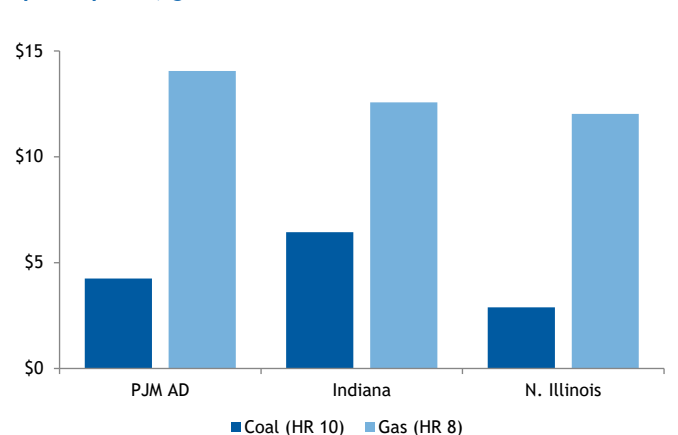
Nymex natural gas settlements			\$/mmBtu
Contract	Price	Change	Volume*
May 19	2.462	0.007	42,061
Jun 19	2.500	0.001	76,725
Jul 19	2.558	0.001	23,370
Aug 19	2.585	0.000	12,724
Sep 19	2.581	0.002	9,956
Oct 19	2.616	0.004	12,089
Nov 19	2.695	0.003	8,368
Dec 19	2.852	0.002	4,937
Jan 20	2.936	0.003	8,502
Feb 20	2.889	0.004	1,263
Mar 20	2.777	0.004	3,328
Apr 20	2.526	0.000	4,771
May 20	2.496	0.001	2,403
Jun 20	2.527	0.001	739
Jul 20	2.562	0.002	360
Aug 20	2.571	0.002	245
Sep 20	2.556	0.003	427
Oct 20	2.579	0.004	2,318
Nov 20	2.629	0.006	720

*Volume data estimated by Nymex, subject to verification

Spark spread, gas vs heating oil



Spark spread, gas vs coal



EAST

East markets								
	VWA \$/mmBtu	Daily delta \$/mmBtu	Low-High \$/mmBtu	Mid-Range \$/mmBtu	Volume mmBtu/d	Trades	HH cash basis \$/mmBtu	Bid week delta \$/mmBtu
Appalachia								
Col Gas, Appalachia	2.210	0.010	2.190-2.225	2.201-2.219	106,300	23	-0.290	-0.275
Dominion, North Point	2.130	0.015	2.110-2.140	2.123-2.138	114,188	15	-0.370	-0.295
Dominion, South Point	2.125	0.020	2.080-2.140	2.110-2.140	151,100	22	-0.375	-0.305
Leidy Line	2.085	0.070	2.080-2.100	2.080-2.090	40,000	10	-0.415	-0.335
Millennium receipts	2.000	0.280	2.000-2.040	1.990-2.010	25,428	8	-0.500	-0.395
TGP station 313	2.185	—	2.170-2.200	2.178-2.193	45,800	10	-0.315	-0.295
TGP zone 4 Marcellus	1.935	0.335	1.870-1.960	1.913-1.958	26,800	8	-0.565	-0.410
TGP zone 4 200 Line	2.220	0.010	2.210-2.230	2.215-2.225	104,489	21	-0.280	-0.310
TETCO M-2 receipts	2.100	-0.035	2.080-2.125	2.089-2.111	58,800	12	-0.400	-0.305
Northeast								
Algonquin Citygates	2.430	0.055	2.400-2.500	2.405-2.455	54,427	16	-0.070	-0.510
Cove Point supply	2.415	0.035	2.330-2.425	2.391-2.439	182,200	6	-0.085	N/A
Iroquois, Waddington	2.360	0.015	2.280-2.380	2.335-2.385	38,450	15	-0.140	-0.390
Iroquois, zone 1	—	—	—	—	0	0	—	N/A
Iroquois zone 2	2.375	0.025	2.360-2.385	2.369-2.381	124,226	21	-0.125	-0.405
TGP zone 5 200 line delivered	2.325	0.045	2.300-2.350	2.313-2.338	54,659	5	-0.175	N/A
TGP zone 6 200 Line	2.390	0.030	2.340-2.450	2.363-2.418	24,200	12	-0.110	-0.960
TETCO M-3	2.215	-0.055	2.200-2.250	2.203-2.228	34,800	8	-0.285	-0.300
Transco zone 5 delivered	2.405	0.040	2.375-2.450	2.386-2.424	123,000	12	-0.095	-0.320
Transco zone 5 North	2.400	0.050	2.375-2.400	2.394-2.406	78,600	5	-0.100	-0.295
Transco zone 5 South	2.420	0.040	2.395-2.450	2.406-2.434	44,400	7	-0.080	-0.310
Transco zone 6 nonNY	2.280	-0.010	2.220-2.290	2.263-2.298	32,400	8	-0.220	-0.230
Transco zone 6 nonNY North	2.280	-0.010	2.220-2.290	2.263-2.298	32,400	8	-0.220	-0.230
Transco zone 6 NY	2.280	-0.025	2.250-2.305	2.266-2.294	148,465	23	-0.220	-0.305

Appalachia average: 2.110 Northeast average: 2.350

- The Marcellus shale in Pennsylvania and the surrounding states had 62 working gas rigs last week, 13pc more than the year-earlier total of 55, according to Baker Hughes. Last week's total was unchanged from the prior week and down from a three-year high of 68 reached in the week ended 5 April.
- The Utica shale field that lies underneath portions of the Marcellus had 18 gas-focused rigs last week, down by 22pc from the year-earlier total of 23 rigs, Baker Hughes said.
- Pennsylvania issued 132 well permits in March. Those permits included 113 for unconventional wells and 19 for conventional wells, according to the state's Department of Environmental Protection (DEP). Operators drilled 57 wells in the state in March, 46 of which were unconventional wells and

11 were conventional, DEP said. In the first three months of the year, Pennsylvania issued 490 well permits, including 421 for unconventional wells and 69 for conventional wells. Operators from January to March drilled 196 unconventional and 24 conventional wells for a total of 220, DEP said.

- Discounts to the Henry Hub for Millennium receipts so far this month have widened to an average of 36¢/mmBtu from an average discount in March of 19¢/mmBtu. Millennium's average discount so far in April has narrowed from the year-earlier average discount of 69¢/mmBtu. Day-ahead Millennium prices have averaged \$2.28/mmBtu so far this month, compared with \$2.71/mmBtu in March and \$2.06/mmBtu in the year-earlier period.
- Transcontinental storage sites were 48pc full last week.

GULF

Gulf markets								
	VWA \$/mmBtu	Daily delta \$/mmBtu	Low-High \$/mmBtu	Mid-Range \$/mmBtu	Volume mmBtu/d	Trades	HH cash basis \$/mmBtu	Bid week delta \$/mmBtu
Louisiana/Southeast								
ANR, Louisiana	2.425	0.015	2.375-2.475	2.400-2.450	68,530	9	-0.075	-0.200
Columbia Gulf, La	2.350	0.015	2.345-2.370	2.344-2.356	16,000	5	-0.150	-0.260
Columbia Gulf Mainline	2.275	0.015	2.250-2.290	2.265-2.285	379,500	57	-0.225	-0.275
Egan	2.405	0.015	2.380-2.420	2.395-2.415	463,893	10	-0.095	N/A
Florida Citygates	—	—	—	—	0	0	—	N/A
Florida Gas zone 2	2.350	-0.120	2.350-2.350	2.330-2.370	10,000	1	-0.150	-0.320
Florida Gas zone 3	2.465	0.075	2.430-2.475	2.454-2.476	56,953	7	-0.035	-0.240
Gulf South expansion	2.285	-0.015	2.270-2.295	2.279-2.291	29,900	6	-0.215	-0.270
Henry Hub	2.500	0.005	2.480-2.520	2.490-2.510	144,900	22	0.000	-0.215
Pine Prairie	2.395	0.025	2.370-2.405	2.386-2.404	186,500	20	-0.105	-0.245
SESH receipts	2.300	0.020	2.300-2.300	2.280-2.320	20,000	1	-0.200	N/A
SoNat La	2.430	0.035	2.400-2.445	2.419-2.441	300,400	41	-0.070	-0.220
TETCO E La	2.315	0.015	2.305-2.340	2.306-2.324	7,000	3	-0.185	-0.265
TETCO M-1 30	—	—	—	—	0	0	—	—
TETCO W La	2.380	0.020	2.360-2.395	2.371-2.389	90,900	11	-0.120	-0.250
TGP La 500 Leg	2.425	0.035	2.400-2.450	2.413-2.438	257,200	42	-0.075	-0.225
TGP La 800 Leg	2.365	0.015	2.360-2.375	2.361-2.369	219,900	25	-0.135	-0.250
TGP zone 1 100 leg	2.275	0.010	2.255-2.280	2.269-2.281	137,800	15	-0.225	N/A
TGT zone 1	2.280	0.025	2.245-2.300	2.266-2.294	333,400	41	-0.220	-0.290
Transco zone 3	2.420	0.040	2.420-2.430	2.418-2.423	32,000	4	-0.080	-0.240
Transco zone 4	2.420	0.040	2.380-2.440	2.405-2.435	332,200	39	-0.080	-0.245
Trunkline, La	2.375	0.000	2.375-2.375	2.355-2.395	1,112	1	-0.125	-0.210
Trunkline Z1A	2.250	0.015	2.240-2.260	2.245-2.255	90,800	13	-0.250	-0.315
East Texas								
Carthage	2.270	-0.045	2.270-2.270	2.250-2.290	5,000	1	-0.230	-0.290
Florida Gas zone 1	2.360	0.010	2.360-2.360	2.340-2.380	6,500	1	-0.140	N/A
Houston Ship Channel (All)	2.490	0.055	2.450-2.520	2.473-2.508	48,716	6	-0.010	-0.235
Katy Hub	2.495	0.065	2.450-2.550	2.470-2.520	256,100	27	-0.005	-0.270
Moss Bluff	2.455	0.015	2.440-2.460	2.450-2.460	75,700	8	-0.045	N/A
NGPL, Texok zone	2.270	0.015	2.250-2.280	2.263-2.278	348,100	38	-0.230	-0.285
TETCO ETX	2.340	-0.005	2.320-2.340	2.335-2.345	25,600	7	-0.160	-0.220
Tolar Hub	2.290	0.025	2.265-2.305	2.280-2.300	119,100	20	-0.210	N/A
Transco zone 2	—	—	—	—	0	0	—	—
Tres Palacios	2.355	-0.005	2.310-2.490	2.310-2.400	180,900	35	-0.145	N/A
South Texas								
NGPL, South Texas zone	2.400	-0.040	2.400-2.400	2.380-2.420	20,000	2	-0.100	-0.225
TETCO South Texas zone	2.360	0.000	2.350-2.380	2.353-2.368	72,300	12	-0.140	-0.255
TGP zone 0	2.280	-0.020	2.200-2.370	2.238-2.323	136,500	21	-0.220	-0.345
Transco zone 1	2.390	0.000	2.390-2.390	2.370-2.410	11,100	2	-0.110	-0.225
Louisiana/Southeast average: 2.365 East Texas average: 2.370 South Texas average: 2.360								

■ Houston Ship Channel prices have declined in the past week on low weather-related demand in Texas. The ship channel index in the week ended yesterday averaged \$2.45/mmBtu, down by 7pc from a week earlier and 10pc lower than the bid week index. The discount there to the Henry Hub has expanded in the past week to an average of 9¢/mmBtu from 3¢/mmBtu in the prior week.

■ Thunderstorms forecast for Texas this week should bring heavy rain to west, north-central and south-central portions of the state this week. The clouds and rain should keep a lid on temperatures through at least tomorrow, according to ERCOT, operator of Texas' electric grid. The cooler weather could limit demand for gas-fired power to cool homes and businesses.

MIDCONTINENT

Midcontinent markets								
	VWA \$/mmBtu	Daily delta \$/mmBtu	Low-High \$/mmBtu	Mid-Range \$/mmBtu	Volume mmBtu/d	Trades	HH cash basis \$/mmBtu	Bid week delta \$/mmBtu
Midcontinent								
ANR, Oklahoma	1.850	0.195	1.840-1.885	1.839-1.861	43,800	10	-0.650	-0.370
Enable East	2.110	0.040	2.100-2.140	2.100-2.120	19,100	3	-0.390	-0.385
NGPL, Amarillo	1.965	-0.080	1.900-2.010	1.938-1.993	31,584	13	-0.535	N/A
NGPL, Midcontinent	1.820	0.480	1.790-1.850	1.805-1.835	256,047	30	-0.680	-0.400
Oneok, Oklahoma	1.595	0.085	1.510-1.650	1.560-1.630	60,500	11	-0.905	-0.445
Panhandle Oklahoma Mainline	1.750	0.160	1.700-1.790	1.728-1.773	173,654	28	-0.750	-0.410
Southern Star	1.705	0.055	1.650-1.860	1.653-1.758	16,800	4	-0.795	-0.545
TETCO M-1 24	—	—	—	—	0	0	—	N/A
Upper Midwest								
Alliance, into interstates	2.225	0.015	2.215-2.230	2.221-2.229	142,700	16	-0.275	N/A
ANR ML7	2.280	0.015	2.275-2.290	2.276-2.284	1,146	3	-0.220	-0.465
Chicago Citygates	2.235	-0.010	2.210-2.250	2.225-2.245	112,960	23	-0.265	-0.425
Chicago Nicor	2.230	-0.010	2.220-2.250	2.223-2.238	12,735	5	-0.270	-0.405
Chicago Nipsco	2.230	-0.020	2.220-2.240	2.225-2.235	49,900	7	-0.270	-0.440
Chicago Peoples	2.240	-0.015	2.210-2.250	2.230-2.250	50,000	10	-0.260	-0.455
Consumers Citygates	2.280	-0.010	2.275-2.300	2.274-2.286	226,675	31	-0.220	-0.390
Emerson, Viking GL	2.045	0.120	2.000-2.100	2.020-2.070	177,000	36	-0.455	-0.430
Joliet Hub	2.200	-0.025	2.200-2.200	2.180-2.220	15,000	2	-0.300	N/A
Lebanon	2.200	0.010	2.200-2.210	2.198-2.203	38,800	6	-0.300	-0.370
Mich Con Citygates	2.285	-0.010	2.260-2.315	2.271-2.299	271,700	31	-0.215	-0.345
NGPL Iowa Illinois	2.255	0.025	2.180-2.320	2.220-2.290	54,400	8	-0.245	N/A
NBPL-Vector	2.200	-0.030	2.200-2.205	2.199-2.201	29,500	4	-0.300	N/A
Northern Border Ventura Transfer	2.150	0.045	2.100-2.165	2.134-2.166	78,100	12	-0.350	N/A
NNG Demarc	2.140	0.040	2.060-2.160	2.115-2.165	361,200	46	-0.360	-0.335
NNG Ventura	2.140	0.035	2.100-2.155	2.126-2.154	99,400	17	-0.360	-0.335
REX Edgar-Midwestern	2.220	0.015	2.210-2.240	2.213-2.228	78,800	11	-0.280	-0.355
Rex Douglas-Trunkline	2.200	—	2.200-2.200	2.180-2.220	20,000	3	-0.300	-0.380
REX Moultrie-NGPL	2.240	-0.005	2.220-2.260	2.230-2.250	370,300	44	-0.260	-0.340
REX Putnam-Panhandle	—	—	—	—	0	0	—	—
REX Shelby-ANR	2.205	0.020	2.190-2.210	2.200-2.210	110,900	21	-0.295	-0.360
REX zone 3	2.230	0.000	2.190-2.260	2.213-2.248	591,000	80	-0.270	-0.335
Midcontinent average: 1.830 Upper Midwest average: 2.210								

■ TransCanada's ANR pipeline initiated an open season this week for firm transportation and storage capacity along its Michigan ML7 leg. ANR is offering two service packages. The first includes 6.8 Bcf (193mn m³/d) of storage capacity for 90 days starting 1 May, 75mn cf/d of firm transportation service from ANR storage sites to Detroit, Michigan, and 39mn cf/d of firm service from ANR's Joliet hub in Will County, Illinois, to ANR storage sites in Michigan. The second option includes the same amount of storage capacity, but no transportation capacity. The ANR ML7 May value was \$2.36/mmBtu today, 16pc below the May bid-week index for 2018, according to Argus forward curves.

■ Exelon's 1,158MW Byron 2 nuclear reactor in Ogle County, Illinois, is likely ramping back up after being shut earlier this month for planned maintenance. Output today increased by 12pc from zero yesterday. The drop in nuclear output would have required an additional 295mn cf/d (8.4mn m³/d). Three other nuclear reactors in the region remain shut. Nuclear power plant maintenance is usually scheduled in the spring and fall because of low weather-related power demand.

■ Output from electric utilities in the central-industrial US in the week ended 20 April was 11.54TWh, up by 2.8pc from a week earlier, but down by 7.5pc from the same period in 2018, according to the Edison Electric Institute.

ROCKIES AND WEST

Rockies and west markets								
	VWA \$/mmBtu	Daily delta \$/mmBtu	Low-High \$/mmBtu	Mid-Range \$/mmBtu	Volume mmBtu/d	Trades	HH cash basis \$/mmBtu	Bid week delta \$/mmBtu
Rockies/Northwest								
Cheyenne	1.810	0.170	1.800-1.830	1.803-1.818	216,800	29	-0.690	-0.395
CIG Rocky Mountains	1.830	0.180	1.800-1.850	1.818-1.843	25,600	6	-0.670	-0.425
GTN, Kingsgate	0.610	-0.925	0.350-1.100	0.423-0.798	75,300	19	-1.890	N/A
Kern River receipts	1.855	0.185	1.800-1.925	1.824-1.886	149,600	16	-0.645	-0.665
Northwest Wyoming	1.820	0.175	1.760-1.865	1.794-1.846	94,300	14	-0.680	-0.635
Northwest, s. of Green River	1.785	0.360	1.700-1.820	1.755-1.815	94,500	13	-0.715	N/A
Northwest Sumas	1.805	0.080	1.730-1.910	1.760-1.850	146,400	31	-0.695	-0.875
Opal	1.885	0.205	1.830-1.940	1.858-1.913	225,400	28	-0.615	-0.645
PG&E Citygates	2.975	0.085	2.940-3.000	2.960-2.990	105,000	21	0.475	-0.690
PG&E Malin, Oregon	1.935	0.215	1.880-2.150	1.868-2.003	152,600	29	-0.565	-0.650
Questar	—	—	—	—	0	0	—	N/A
Stanfield	1.905	0.255	1.825-2.040	1.851-1.959	89,100	21	-0.595	N/A
White River Hub	1.855	0.180	1.840-1.880	1.845-1.865	101,300	7	-0.645	-0.485
Canada								
Dawn, Ontario C\$/GJ	2.945	0.015	2.940-2.965	2.940-2.955	540,285	61	0.000	-0.435
Dawn, Ontario \$/mmBtu	2.305	0.005	2.300-2.320	2.300-2.310	512,305	61	-0.195	-0.365
Empress C\$/GJ	2.135	0.255	1.900-2.575	1.966-2.304	111,482	32	0.000	-0.590
Empress \$/mmBtu	1.670	0.195	1.485-2.015	1.540-1.800	105,709	32	-0.830	-0.480
NIT/AECO C\$/GJ	0.505	0.180	0.250-0.640	0.408-0.603	748,519	129	0.000	-0.810
NIT/AECO \$/mmBtu	0.395	0.140	0.195-0.500	0.320-0.470	709,756	129	-2.105	-0.645
Westcoast station 2 C\$/GJ	0.295	0.115	0.225-0.400	0.251-0.339	53,335	21	0.000	-0.445
Westcoast station 2 \$/mmBtu	0.230	0.090	0.175-0.315	0.195-0.265	50,573	21	-2.270	-0.355
Southwest								
El Paso Bondad	1.700	0.800	1.680-1.750	1.683-1.718	27,500	5	-0.800	N/A
El Paso, Permian Basin	0.830	0.365	0.500-1.600	0.555-1.105	593,100	66	-1.670	0.115
El Paso, San Juan Basin	1.670	0.765	1.590-1.700	1.643-1.698	52,200	9	-0.830	0.190
El Paso, South Mainline	1.735	0.510	1.650-2.000	1.648-1.823	37,800	5	-0.765	N/A
Kern River, delivered	2.230	0.245	2.150-2.320	2.188-2.273	275,000	39	-0.270	N/A
Permian Basin	0.855	0.400	0.500-1.600	0.580-1.130	991,539	145	-1.645	0.525
PG&E South	1.725	0.695	1.570-1.900	1.643-1.808	36,300	8	-0.775	-0.080
SoCal Citygates	2.440	0.215	2.400-2.600	2.390-2.490	224,000	43	-0.060	-1.800
SoCal Gas Co	1.870	0.380	1.300-2.300	1.620-2.120	133,590	23	-0.630	-0.790
Transwestern Permian Basin	0.935	0.495	0.860-1.030	0.893-0.978	83,600	16	-1.565	0.905
Transwestern San Juan Basin	1.600	0.705	1.530-1.650	1.570-1.630	53,400	11	-0.900	0.120
Waha	0.880	0.445	0.600-1.050	0.768-0.993	314,839	63	-1.620	0.985
Waha Enterprise	1.000	—	1.000-1.000	0.980-1.020	29,900	7	-1.500	N/A
Waha Oasis	0.870	0.455	0.600-1.050	0.758-0.983	225,600	45	-1.630	0.975
Rockies/Northwest average: 1.840 Canada average: 1.150 Southwest average: 1.455								

■ SoCal Gas' system has excess gas scheduled through the weekend. The pipeline has an excess of 15mn cf/d (424,500 m³) scheduled for 26 April, and an excess of 190mn cf/d scheduled on 27-28 April.

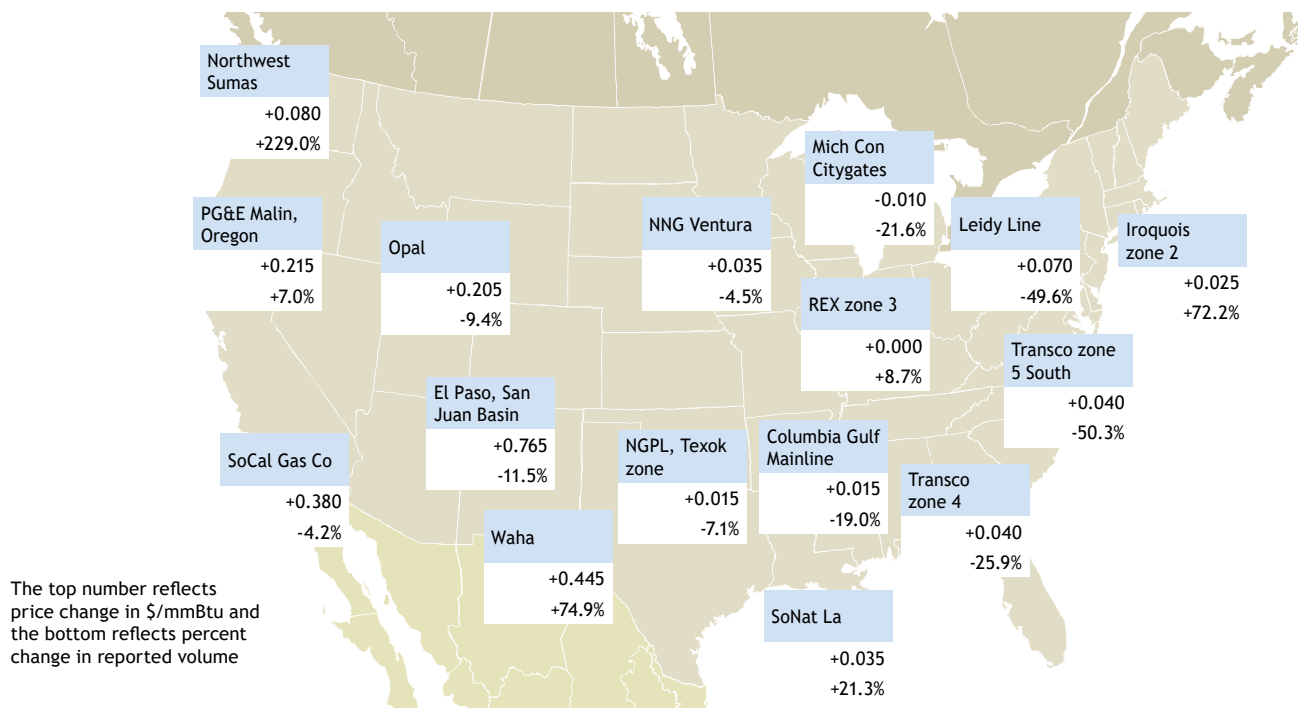
■ Linepack on Kern River Gas Transmission's pipeline returned to normal yesterday from high levels on 22 April. The line is a key outlet for Rockies supply. Kern River said that the 15 April *force majeure* at its Fillmore compressor station in Utah is still in effect.

■ Output from electric utilities in the Rocky Mountain and Pacific northwest states decreased for the week ending 20 April, according to the Edison Electric Institute. Pacific northwest utilities dispatched 2.7TWh, 8.4pc less than a week earlier. Rocky Mountain output decreased by almost 8pc to 4.2TWh. Pacific southwest generation slightly increased last week to 4.6TWh.

Forward curve differentials to Henry Hub										\$/mmBtu
	May			May 19-Oct 19			Nov 19-Mar 20			
	Bid	Ask	Midpoint	Bid	Ask	Midpoint	Bid	Ask	Midpoint	
East										
Col Gas Appalachia	-0.270	-0.250	-0.260	-0.331	-0.311	-0.321	-0.291	-0.266	-0.278	
Dominion Appalachia	-0.435	-0.415	-0.425	-0.522	-0.502	-0.512	-0.427	-0.402	-0.414	
Texas Eastern zone M3	-0.355	-0.315	-0.335	-0.418	-0.378	-0.398	1.231	1.276	1.253	
Transco zone 6 NY	-0.365	-0.325	-0.345	-0.368	-0.328	-0.348	2.646	2.691	2.668	
Gulf/Texas										
Florida Gas, zone 3	-0.018	-0.003	-0.010	-0.003	0.013	0.005	-0.016	0.004	-0.006	
Houston Ship Channel	0.016	0.021	0.018	0.012	0.017	0.014	-0.043	-0.028	-0.035	
Transco zone 3	-0.065	-0.050	-0.057	-0.057	-0.042	-0.049	-0.058	-0.038	-0.048	
Transco zone 4	-0.068	-0.053	-0.060	-0.063	-0.048	-0.055	-0.061	-0.041	-0.051	
Trunkline La	-0.078	-0.063	-0.070	-0.071	-0.056	-0.063	-0.065	-0.045	-0.055	
Midcontinent										
Chicago Citygates	-0.183	-0.168	-0.175	-0.247	-0.232	-0.239	-0.118	-0.098	-0.108	
Dawn Ontario	-0.175	-0.155	-0.165	-0.220	-0.200	-0.210	-0.104	-0.079	-0.091	
Mich Con Citygates	-0.191	-0.176	-0.183	-0.240	-0.225	-0.232	-0.209	-0.189	-0.199	
NGPL Midcontinent	-0.648	-0.633	-0.640	-0.608	-0.593	-0.600	-0.495	-0.475	-0.485	
NGPL Texok zone	-0.208	-0.183	-0.195	-0.235	-0.210	-0.222	-0.246	-0.216	-0.231	
NNG Ventura	-0.383	-0.358	-0.370	-0.358	-0.333	-0.345	-0.006	0.024	0.009	
Panhandle Oklahoma Mainline	-0.768	-0.753	-0.760	-0.651	-0.636	-0.643	-0.499	-0.479	-0.489	
Enable East	-0.349	-0.324	-0.336	-0.331	-0.306	-0.318	-0.296	-0.266	-0.281	
Rockies & West										
NIT/AECO	-1.611	-1.596	-1.603	-1.696	-1.681	-1.688	-1.550	-1.530	-1.540	
El Paso Permian Basin	-2.298	-2.268	-2.283	-1.651	-1.621	-1.636	-1.098	-1.063	-1.080	
El Paso San Juan Basin	-1.135	-1.105	-1.120	-0.576	-0.546	-0.561	-0.217	-0.182	-0.199	
NWPL Rocky Mountains	-0.568	-0.553	-0.560	-0.411	-0.396	-0.403	-0.242	-0.222	-0.232	
PG&E Citygates	0.606	0.621	0.613	0.734	0.749	0.741	0.749	0.769	0.759	
SoCal Citygates	-0.605	-0.595	-0.600	-0.075	-0.065	-0.070	0.196	0.211	0.203	
Northwest Sumas	-0.685	-0.655	-0.670	-0.253	-0.223	-0.238	0.305	0.340	0.322	
Waha	-2.380	-2.355	-2.367	-1.817	-1.792	-1.804	-1.256	-1.226	-1.241	

Market data provided by Argus Media group. Contact riskmanagement@argusmedia.com for more information.

DAILY MARKET CHANGES



PRICES AND PIPELINE FLOWS

Pipeline capacity		
Pipeline	Location	Available capacity
Algonquin	Lambertville	61%
Algonquin	Ramapo Receipts	80%
Dominion	Oakford Receipts	92%
Iroquois	Brookfield Receipts	20%
Iroquois	Waddington Receipts	89%
Portland NGTS	Pittsburg Receipts	9%
Tennessee	Station 321	19%
Tennessee	Station 245	1%
Tennessee	Niagara River Delivery (Exports)	12%
Transco	Station 190	59%
Transco	Station 520	0%

West pipeline capacity		
Pipeline	Location	Available capacity
REX	WY CO ST. Line to Cheyenne Hub	24%
CIG	Wy-Co St Line to Cheyenne CS	64%
Kern River	Opal WFS	90%
El Paso	Bondad	59%
El Paso	Waha Oasis Receipts	100%
GTN	Kingsgate	21%
GTN	Malin Delivery	41%
Socal	Northern Zone	55%
Socal	Southern Zone	53%
TWPL	Williams Field Milagro	83%
PG&E	Baja Path	41%

Argus dailies: Selected price spreads, 24 Apr 19								\$/mmBtu
	NIT/AECO	Chicago Citygates	Dawn Ontario	Opal	SoCal Gas Co	TGP zone 6 200 Line	Transco zone 6 NY	
Henry Hub	-2.105	-0.265	-0.195	-0.615	-0.630	-0.110	-0.220	
Trunkline Z1A	-1.855	-0.015	0.055	-0.365	-0.380	0.140	0.030	
Katy Hub	-2.100	-0.260	-0.190	-0.610	-0.625	-0.105	-0.215	
Northwest Sumas	-1.410	0.430	0.500	0.080	0.065	0.585	0.475	
Transco zone 4	-2.025	-0.185	-0.115	-0.535	-0.550	-0.030	-0.140	
TGP zone 4 Marcellus	-1.540	0.300	0.370	-0.050	-0.065	0.455	0.345	
Houston Ship Channel (All)	-2.095	-0.255	-0.185	-0.605	-0.620	-0.100	-0.210	

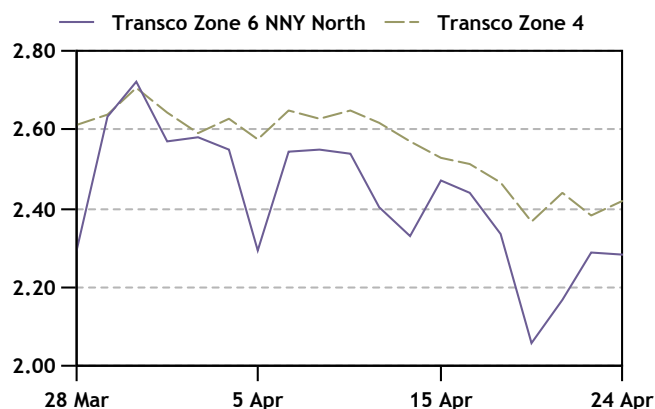
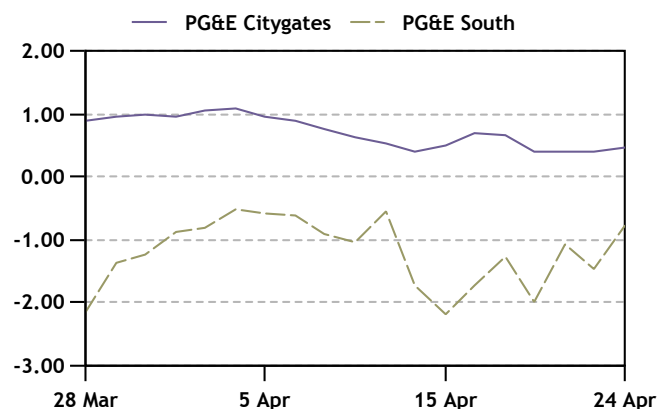
Differentials represent hubs listed horizontally less hubs listed vertically.

Daily basis to Henry Hub

\$/mmBtu

Transco zone 6 Non-Ny to zone 4

\$/mmBtu



AMERICAS LNG

Texas' Annova LNG gets final environmental OK

The US Federal Energy Regulatory Commission (FERC) has given final environmental approval to the planned mid-scale Annova LNG export terminal near Brownsville, Texas.

The project will not significantly harm the environment if specified mitigation measures are implemented, FERC said in the final environmental impact statement it issued last week. The agency will likely authorize construction of the project in about three months.

Annova has an estimated cost of \$3bn for nameplate capacity of 6mn t/yr, equivalent to about 800mn cf/d (23mn m³/d) of gas, from six equal-sized liquefaction trains, and combined peak capacity of 6.95mn t/yr. It would be built in three 2mn t/yr phases.

The project expects to come on line in 2024, but it is unclear if it would be funded because it has not yet secured any customers. Annova is targeting customers that would sign long-term deals for about 1mn t/yr each.

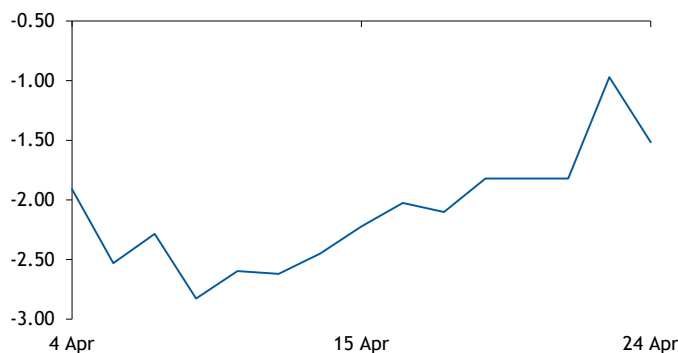
Annova's majority owner is Chicago-based electricity provider Exelon, a major producer of nuclear power in the US and the owner of energy retailer Constellation.

US Gulf coast netback arbitrage	\$/mmBtu
Arbitrage	
Milford Haven, Wales (half-month 1)	-0.740
Tokyo (half-month 1)	-2.515
Pecem, Brazil (prompt)	-1.000
LNG markets: Argus daily spreads	\$/mmBtu
Spread	
Transco zone 6 New York-NBP	-1.737
Henry Hub-NBP	-1.517
Henry Hub-TTF	-2.174
Henry Hub-Zeebrugge	-2.152
Henry Hub-PEG	-2.199

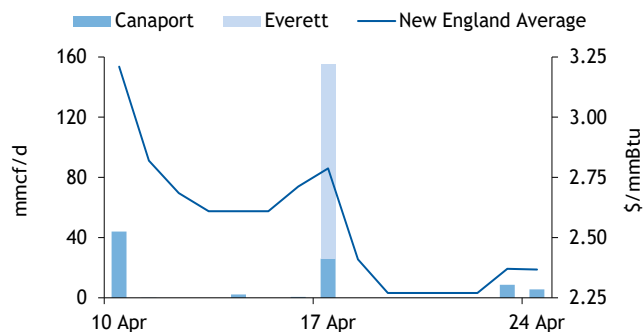
The project would receive feed gas from an intrastate pipeline lateral that would connect to Enbridge's \$1.6bn, 2.6-Bcf/d Valley Crossing pipeline. The lateral would be built and operated by an undetermined third party. Valley Crossing would stretch from the Agua Dulce hub near Corpus Christi, Texas, south to Mexico and through the US Gulf, where it would connect with the Mexico-owned Marina pipeline.

Henry Hub vs NBP spread

\$/mmBtu



Daily LNG sendout vs realized price



Note: New England includes Algonquin Citygates and Tennessee zone 6

NORTH AMERICAN NGL

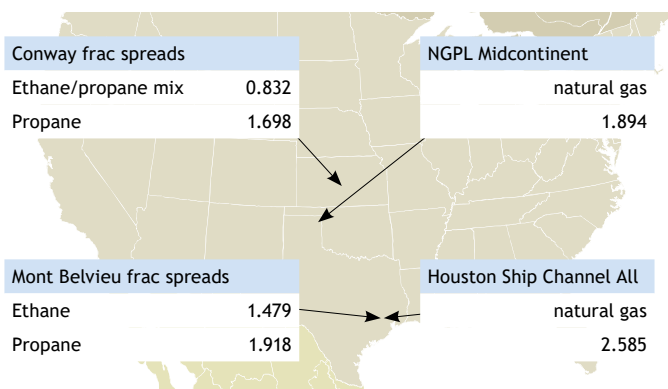
Market overview

- Mont Belvieu, Texas, LST propane rose sharply and was valued at a stronger 42.87pc of WTI. The US Energy Information Administration reported a 1mn bl build in inventories last week.
- Mont Belvieu, Texas, ethane rose sharply, supported by export demand.
- Gains in Mideast VLGC freight bolstered sentiment for the Houston-Chiba route.
- Mont Belvieu, Texas, butane rose, valued at a stronger 50.12pc of WTI.

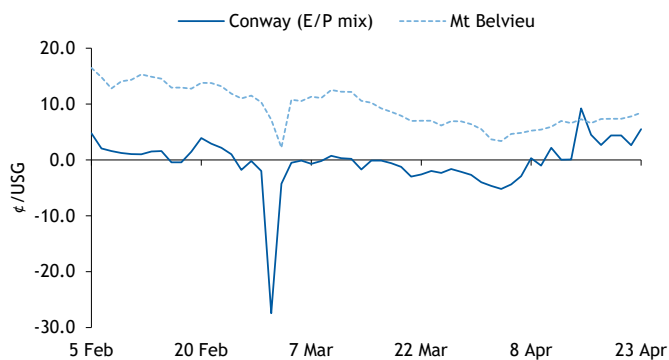
NGL fractionation spreads		
	¢/USG	\$/mmBtu
Gulf, Mont Belvieu		
Ethane Enterprise	8.463	1.587
Propane Enterprise	42.951	2.011
Normal butane Enterprise	52.794	0.531
Isobutane Enterprise	53.317	0.784
Natural gasoline Enterprise	106.893	1.638
Total barrel value		6.551
Total barrel frac spread		4.061
Midcontinent, Conway		
Ethane-propane mix	2.461	0.916
Propane	41.086	1.766
Normal butane	49.619	0.462
Iso-butane	54.367	0.728
Natural gasoline	106.322	1.540
Total barrel value		5.412
Total barrel frac spread		3.592

US EIA propane inventories				
	mn bl			
	19 Apr 19	Week change	20 Apr 18	Year vs year
PADD 1	3.037	0.337	2.812	0.225
PADD 2	9.943	0.563	8.876	1.067
PADD 3	43.481	0.300	22.539	20.942
PADDs 4 & 5	1.318	-0.158	1.483	-0.165
Propylene	5.982	-0.200	2.772	3.210
Total	57.779	1.042	35.710	22.069

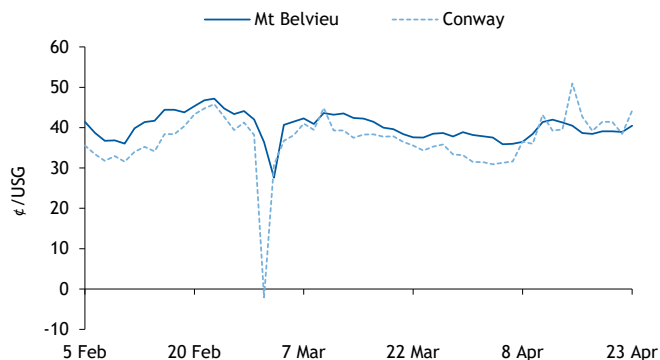
MTD average



Ethane fractionation spreads



Propane fractionation spreads



NEWS

Oxy moves to outbid Chevron for Anadarko

Occidental Petroleum has made a counter-offer to buy fellow independent Anadarko at a significant premium to Chevron's earlier offer, setting up a bidding war as availability of core shale acreage in the Permian runs out.

Anadarko's deepwater US Gulf of Mexico operations and massive liquefied natural gas (LNG) development in Mozambique are highly sought-after assets, but its acreage in the Permian basin may be the driver for Occidental's bid of roughly \$76/share, much higher than Chevron's \$65/share offer announced last week.

In a call with investors today, Occidental chief executive Vicki Hollub focused on the advantages the combined companies will enjoy in the onshore basin, with an expanded production base, lowered costs and an ability to generate positive cash flow at current prices.

The combined company will expand Occidental's existing position as the largest producer in the basin, with a total net output of 533,000 b/d of oil equivalent (boe/d) that spans the entire Delaware region of the Permian. It will add thousands of drilling locations in the "core of the core" of the Delaware, Occidental said.

"The main driver of growth for us will continue to be our shale play in at least over the next two to three years," Hollub said today.

The competing public bids are somewhat of a rarity in the US exploration and production industry, but they underscore the intense desire among companies to secure as large a spot as possible in the Permian where, as Petrohawk founder Floyd Wilson noted recently, the amount of available acreage has shrunk. Chevron said its offer was driven in part by its ambitions to boost Permian production from 310,000 boe/d last year to 900,000 boe/d in 2023. And large merger deals last year – including Concho acquiring RSP Permian and Diamond-back scooping up Energen – were all driven by the desire to go big in the Permian.

In addition to the Permian, Occidental is also betting on Anadarko's Denver-Julesburg basin assets in Colorado to drive growth. Current output from the region is about 250,000 boe/d, with over 10 years of undrilled inventory remaining, Occidental said. Hollub added that the new entity will focus only on assets that offer the best returns, without giving further details. Overall, Occidental is targeting \$10bn-\$15bn of asset sales to help rapidly deleverage its books following the acquisition.

"We understand better than anyone else how to identify high return opportunities and also which assets do not generate competitive returns," Hollub said. "We also understand when and how to monetize assets."

If the counter-bid was successful Occidental expects that international assets, including blocks that Occidental just acquired in Oman and Abu Dhabi, are expected to kick in for growth between three to six years after the merger, along with its Colombia properties. On Anadarko's Mozambique portfolio, Hollub said Occidental has the expertise to execute large world-class projects, citing the example of the \$10bn Al Hosn gas field in the United Arab Emirates.

But she reiterated the focus on the US onshore assets saying "it's important to remember that the bulk of the value here is in the shale play."

Even so, the combined company would lower its output growth target to about 5pc annually, and maintain it at that level for coming years, from Occidental's current plan of about 5-8pc out to 2022. Occidental currently operates about a dozen rigs in the Permian, while Anadarko has about 10. The total would decline to around 15 once the deal is done, as the company "focuses on deleveraging and good healthy growth but less growth and much more free cash flow," chief financial officer Cedric Burgher said.

Occidental had set the 5-8pc growth target to increase its cash flows following divestitures in 2017 and earlier. Those divestitures and overall restructuring meant that company did not have the cash flow it needed to grow its dividend, Hollub said.

Occidental puts current production of the two firms combined at over 1.4mn boe/d. Of the total, 38pc will come from the Permian, 34pc from other regions in the US such as the Gulf and the DJ basin, and the rest from overseas. Anadarko's output averaged almost 670,000 boe/d last year.

Chevron announced a proposed cash-and-shares takeover of Anadarko for around \$50bn, including net debt, on 12 April. Anadarko has accepted Chevron's \$65/share offer.

Occidental said its \$76/share proposal was a 50-50 cash and stock transaction valued at \$57bn, based on Occidental's closing price on 23 April. Chevron's proposed deal is structured as 75pc stock and 25pc cash.

Permian sees flaring on weather, maintenance

Overnight power outages in west Texas and maintenance this week resulted in venting of field gas and flaring at natural gas facilities, according to emissions filings.

Occidental's Ector County tank battery reported two hours of gas flaring after a compressor shut down following an overnight power loss. In Upton county, a booster station reported venting of gas to the atmosphere after a third-party power loss.

NEWS

Separately, work at DCP Midstream's 160mn cf/d (4.53mn m³/d) Goldsmith gas processing plant in Ector County, Texas, resulted in flaring at adjacent facilities in the region. Occidental reported flaring in Ector County starting 23 April because of maintenance at DCP's Goldsmith gas plant.

XTO Energy reported flaring of NGLs from its Andrews County tank battery because of operating problems at the Canyon gas plant.

Targa's Midkiff gas plant in Reagan County reported flaring because of maintenance on a third-party discharge pipeline.

Gas takeaway constraints from the Permian basin and pipeline maintenance issues have dragged down prices in the area. Waha hub index prices have moved between positive and negative territory over the last several weeks, bottoming out on 4 April at -\$5.23/mmBtu.

Operating glitches in the Permian Basin had little impact on downstream NGL markets at Mont Belvieu, Texas, today. NGL prices at Mont Belvieu, Texas, rose on bullish sentiment because of demand from waterborne exports. A 1mn bl build in propane inventories last week, which was much lower than the 2.4mn bl build in inventories a week earlier, contributed to the gains.

Cogent to connect Midland to GCX pipeline

Cogent Midstream plans to construct a 25-mile (40km) natural gas pipeline connecting its Big Lake natural gas processing complex in west Texas' Midland basin to Kinder Morgan's Gulf Coast Express Pipeline (GCX), the company said.

The pipeline, which has an expected capacity of 400mn cf/d (11mn m³/d), should also cross the proposed Permian Highway and Whistler pipelines, Cogent said.

GCX is set to come online in October, while the Permian Highway and Whistler are expected to be online in the fourth quarter of 2020.

Cogent said its connecting pipeline should be in service by the fourth quarter of this year, which should align with the startup of its 200mn cf/d Big Lake II cryogenic processing plant.

US coastal states work to block offshore drilling

South Carolina, Georgia and Florida lawmakers are renewing a push to stop President Donald Trump's administration from allowing drilling off their shorelines.

Political leaders in the states, which are led by Republican governors and Republican-majority legislatures, are leaning on their political clout with the White House in hopes of being removed from a federal leasing plan that in a draft envisions

oil and gas leasing on more than 90pc of federal waters.

If that effort fails, state officials are also laying the groundwork to stymie drilling through other means.

The pushback comes as the administration nears the release of an updated version of its offshore drilling plan. An earlier draft called for starting oil and gas leasing in the Atlantic next year and in areas in the eastern Gulf off-limits after June 2022. Trump has made his offshore plan a major part of his push for "energy dominance" and increased domestic oil and gas production.

But state leaders worry opening their coastlines to drilling could harm their economy and impair their quality of life, through oil spills and the build-out of energy infrastructure in tourism-dependent coastal communities. So they are prodding the administration to look elsewhere for oil and gas, while attempting to tamp down industry interest by erecting new barriers to development.

South Carolina's state Senate, for example, last week voted to adopt a budget amendment that seeks to deny state regulators any funding to approve offshore oil and gas development, starting 1 July.

Governor Henry McMaster (R) supports the restriction, which could not stop drilling in federal waters but would block development of pipelines and other infrastructure up to three miles from the coastline.

South Carolina attorney general Alan Wilson last month separately asked a federal judge for an injunction to block the start of seismic oil and gas testing in the Atlantic. The Trump administration on 22 April asked the judge to dismiss part of the state's request.

Florida lawmakers have lobbied the administration heavily to drop the state from the offshore plan. Representatives Debbie Wasserman Schultz (D-Florida) and Matt Gaetz (R-Florida) this week sponsored a bill to ban drilling. Senator Marco Rubio (D-Florida), who wants to extend a leasing ban in the eastern Gulf by five years until 2027, says he expects Florida will be excluded.

"I have spoken to Mr. Bernhardt & to [the White House] on this," senator Marco Rubio (D-Florida) wrote on Twitter two weeks ago, referring to US interior secretary David Bernhardt. "I am VERY confident that when all is said & done no oil drilling is coming to our coastline."

Even earlier supporters of drilling in the Atlantic are reversing course. Representative Earl Carter (R-Georgia), who represents a district that includes all six of Georgia's coastal counties and once backed drilling, earlier this month said he now wants the administration to exclude the state from offshore development.

NEWS

US LNG export projects, Pacific coast

State	Project	Peak capacity	Contracted capacity	Start-up	FTA application	Non-FTA application		FERC or MARAD status	
		Bcf/d	Bcf/d		Status	Bcf/d	Status		Bcf/d
Oregon	Jordan Cove Energy Project	1.2		2024	Approved	1.2	Approved	0.8	Applied
Alaska	Kenai LNG	0.2		Mothballed	Approved	0.1	Approved	0.1	Approved
Alaska	Alaska LNG	2.6		2025-26	Approved	2.5	Approved	2.5	Applied
Total		4.0	0.0			3.8		3.4	

Totals may or may not reflect rounding.

"While I will continue to be an ardent supporter of American energy independence, I believe that the will of our state and local communities must be respected in a decision of this magnitude," he said in a 3 April letter to Bernhardt.

The US Interior Department was expected to publish its updated offshore leasing plan in January, but that timeline has slipped.

Bernhardt on 28 March testified that the agency was on "step one, not step seven" with the leasing plan. But Walter Cruickshank, the acting director of the Interior's Bureau of Ocean Energy Management, said earlier this month that it would be released in a matter of weeks.

US-China trade talks to continue in May

China and the US are scheduled to hold two more rounds of negotiations in coming weeks in hopes of ending their trade dispute, although Washington's latest push to cut off Iranian oil exports may complicate efforts to reach a resolution.

US trade representative Robert Lighthizer and treasury secretary Steven Mnuchin will travel to Beijing for talks starting 30 April. Chinese vice premier Liu He, who leads the trade talks for China, will return to Washington on 8 May for another round, the White House said late yesterday. Beijing has not independently confirmed the schedule of talks.

President Donald Trump at the conclusion of the previous round of talks on 4 April said he expected negotiations to wrap up by 2 May, with another two weeks to finalize the agreement. Both Washington and Beijing insist that "substantive progress" has been made. But they have offered no details on how the sides have resolved their key differences on two key areas: when the US would remove tariffs affecting a large portion of imports from China and how a sweeping trade agreement would be enforced.

The US energy industry has been caught in the middle of the trade war – Chinese customers have scaled back purchases of crude and LNG from the US last summer after the US started to impose tariffs on imports from China. Beijing has reciprocated with a 10pc duty on LNG imports from the US. Imports of crude from the US are not taxed for now.

"This is a challenging time for US companies in our business," LNG exporter Cheniere Energy senior vice president Chris Smith said today at a conference hosted by the US Association for Energy Economics in Washington.

But demand for US LNG remains strong, Smith said. "Even in that environment we are successful in signing long-term agreements in China. The business cycle that we operate on is longer than the political cycle."

Washington's decision to fully enforce sanctions against Iranian oil exports is adding another complication to trade talks. China imported 508,000 b/d from Iran in February and imports possibly rose further in March, with loadings at 610,000 b/d.

Beijing has so far given no indication of whether it plans to comply with the US ban on Iranian imports. "Normal cooperation between China and Iran is legitimate and lawful," China's foreign ministry said today. "We urge the US to refrain from undermining China's rights and interests, and we will continue to safeguard the lawful and legitimate rights and interests of Chinese businesses."

Beijing's defiance would risk potentially damaging financial sanctions on its energy companies and banking institutions that service such trade.

"China appears the least likely to submit to US intimidation," law firm Clifford Chance attorney George Kleinfeld, an expert on sanctions law, said in a note yesterday. He cited

NEWS

Beijing's willingness last year to match US tariffs with retaliatory tariffs of its own.

"If the People's Bank of China were to be involved in the trade (with Iran), then the decision to impose sanctions against that bank could be deeply prejudicial to other US interests," former State Department sanctions policy deputy coordinator Richard Nephew said.

But the administration is comfortable with the notion of disruptive politics and economic effects, Washington think-tank CNAS' energy program director, Elizabeth Rosenberg, said today. "The group of leaders engineering these policies is comfortable with sanctioning a variety of significant energy producers in the world, and I expect would be comfortable going even further," Rosenberg said. "Venezuela is one country where we should look for more pressure in the near future."

China is an indirect target of Washington's separate set of sanctions on Venezuela's oil industry. Venezuela's state-owned PdV supplies crude to China to service billions of dollars in debt to Beijing.

US declines to treat oil, gas waste as hazardous

The US Environmental Protection Agency (EPA) has rebuffed a push from activists to reclassify waste produced during oil and gas development as a hazardous material that could require special treatment for disposal.

The EPA said today it found revising its rules for managing oil and gas waste was "not necessary at this time," in part because existing state regulations for handling those materials are robust. Waste spills are primarily due to human error and failure to comply with existing state rules, problems that are unlikely to be resolved by adopting new federal requirements, the EPA said.

"The available information does not indicate that new federal solid waste regulations would prevent or substantially mitigate these types of releases," the EPA said in a 279-page report it published in response to a lawsuit environmentalists filed nearly three years.

Oil and natural gas producers generate waste at many stages of exploration and production, such as drill cuttings, drilling fluids and produced water. The industry injects most wastewater deep underground into disposal wells, but some solid waste is sent to landfills while other wastes are spread onto roads as a de-icing agent.

The EPA for years has declined, most recently in 1988, to regulate the industry's waste under a law named the Resource Conservation and Recovery Act, which imposes stringent regulations for handling, storage and disposing of hazardous and non-hazardous waste. The lawsuit from environmentalists forced the EPA to revisit

that determination and decide if changes were warranted.

Those same environmentalists today criticized the EPA's decision, which they said would leave the public exposed to environmental and health hazards from oil and gas waste. Environmental Integrity Project senior attorney Adam Kron said the agency has known for years its rules "are not up to par" but has "shirked its duties" to protect the public.

The EPA last year separately said it was taking a "holistic look" at whether it could revise its regulations to allow more oil and gas wastewater to be treated and discharged into lakes and rivers. The EPA in 2016 barred oil and gas producers from sending wastewater to publicly-owned water treatment plants because of concerns it could overwhelm their systems.

Two Pemex board members approved, one rejected

Pemex has filled two vacancies for independent board members but the senate rejected one of the president's picks. Mexico's senate has approved two government candidates for the board of state-owned Pemex, while rejecting a third.

Senators voted in favour of Juan Jose Paullada Figueroa and Jose Eduardo Beltran Hernandez, filling two of three vacant seats on Pemex's board, but turned down Edmundo Sanchez Aguilar.

President Andres Manuel Lopez Obrador had already put Sanchez forward as a candidate for Mexican energy regulator CRE, but he was rejected by a congressional committee because of a lack of relevant experience. Lopez Obrador is required to submit a new candidate for the third vacancy at Pemex and has the right to appoint a candidate of his choice if his final nominee is rejected.

The posts were vacated by Felipe Duarte Olvera and Jorge Borja Navarrete, who completed their terms before Lopez Obrador took office, and Maria Teresa Fernandez, who resigned because of alleged disagreements over government policy. Two further board members – Carlos Elizondo and Octavio Pastrana – are expected to tender their resignations for the same reason.

Officials from the energy, finance, economy and environment ministries, as well as from state-owned utility CFE, make up the rest of the 10-member board.

Separately, CRE commissioner Guillermo Zuniga has resigned for personal reasons. His departure follows that of four other commissioners who served during the presidency of Enrique Pena Nieto. Their exits led to a tussle between Lopez Obrador and the senate after lawmakers rejected his list of candidates, which resulted in CRE losing its quorum. The president then appointed replacements directly without congressional approval.

DEFINITIONS

Degree day graphs

Actual and forecast heating degree days (HDDs) and cooling degree days (CDDs) are sourced from Accuweather. HDDs are the number of degrees by which the average outside temperature falls short of, or is forecast to fall short of 65° F on the given day. CDDs are the number of degrees by which the average outside temperature exceeds, or is forecast to exceed 65° F on the given day.

Pipeline capacity

Percentages are based on the most recent pipeline cycle available at 4pm EST. They represent the proportion of available capacity confirmed by pipelines at that time.

Fractionation spreads

For details on how Argus calculates fractionation spreads, see Argus Natural Gas Americas methodology at www.argusmedia.com/methodology.

Natural Gas Prices daily summary tables (pp. 1-2)

This table is comprised of five columns. To the right of the hub name on the far left, is listed:

- VWA is the volume-weighted average, or index
- Daily delta is the change from the prior trading day
- HH cash basis is the difference in price from the Argus Henry Hub daily index. Where there is no daily index, the value in the column is designated as a dash, or -.
- Bid week delta is the difference between the daily index and the bid week index for the current month. Where there is no bid week index, the value in the column is N/A. Where there is no daily index, the value in the column is designated as a dash, or -.



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