



HELAN COUN

Energy Resources Quarterly Board Update

November 4, 2019

ENERGY PLANNING & TRADING

2019 Q3

Portfolio Overview

Operations and Planning

- » Pricing update
- » Net Wholesale Revenue Forecast update

Market Update

KEY MESSAGE POINTS

The District's 2019 Net Wholesale Revenue and other energy-related revenues forecast for 2019 is \$121.3 million, which is \$8.3 million above budget.

Forecasted specified source energy sales contribute \$5.4 million to the Net Wholesale Revenue forecast, which is \$1.2 million lower than budget. This reduction is due to lower than normal supply because of the below average water year.

Energy Resource Team is monitoring major changes in the western power market

- **Resource Adequacy**

- Northwest Power Pool effort to design resource adequacy program has begun

- **Short term markets (within hour → real-time → day ahead)**

- Many utilities have joined CAISO Energy Imbalance Market (EIM) for within hour products (about 4% of trades)
- CAISO is proposing to expand EIM to the day-ahead market (Extended Day-ahead Market or EDAM)

- **State carbon policies**

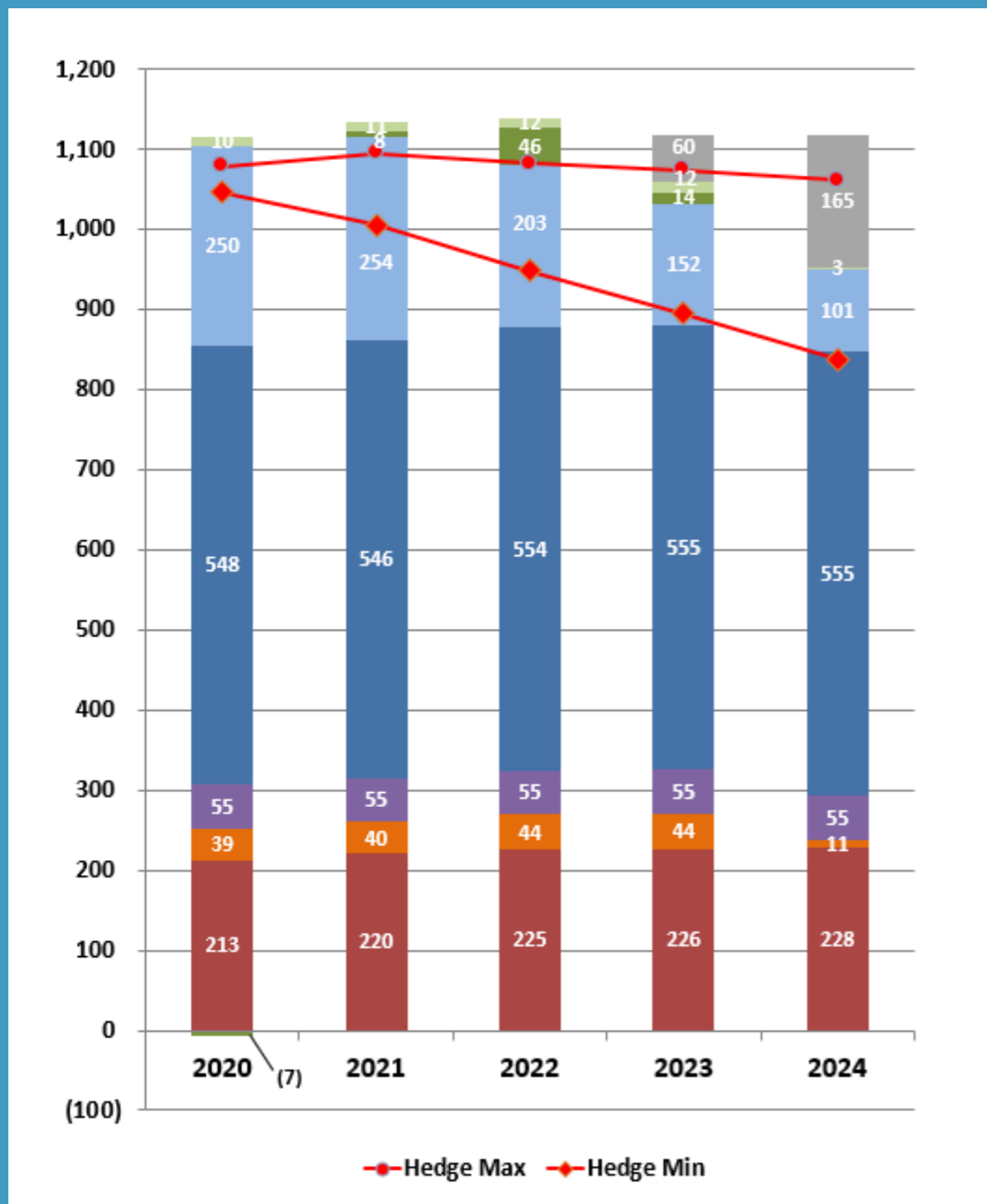
- Rulemaking beginning on WA Clean Energy Transformation Act (CETA)

- **New products and services**

MAJOR TRANSACTIONS

No new major transactions

District's Energy Commitments (average MW)

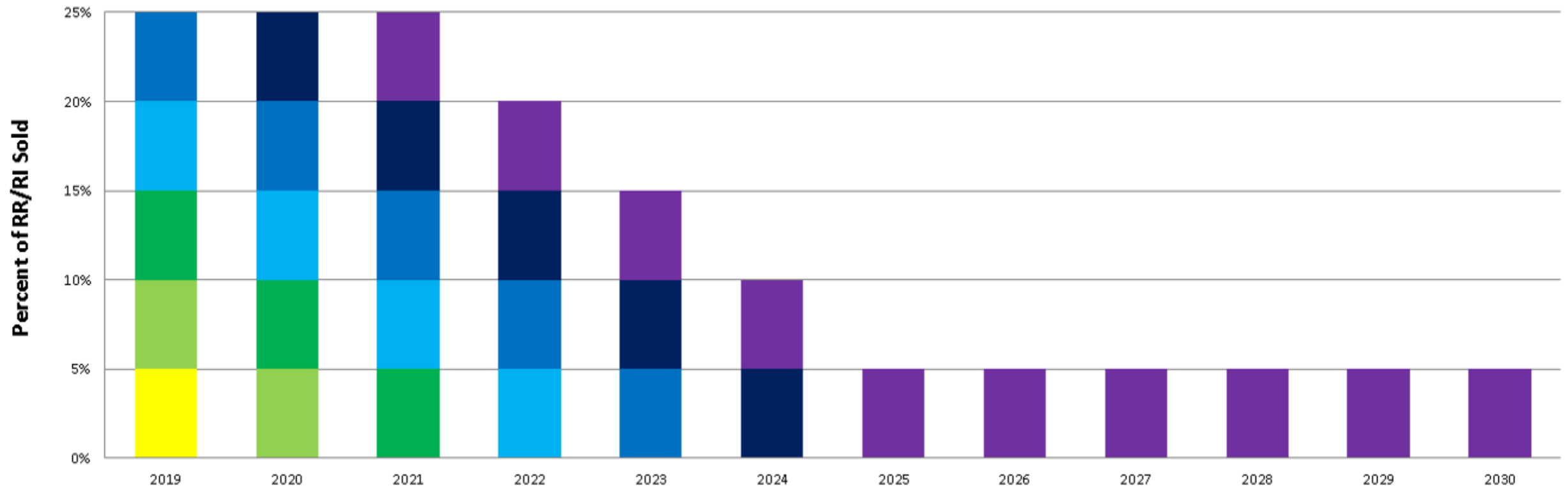


Note: The Power Risk Management Committee (PRMC) approved an exception to policy for commitments in years 2020 through 2022 because index priced sales do not introduce price risk.

Note 2: Staff is working on a new look for this reporting. The new look will better reflect the District's positions and risks given the changing market and carbon free products.

Market Based Slice Contracts

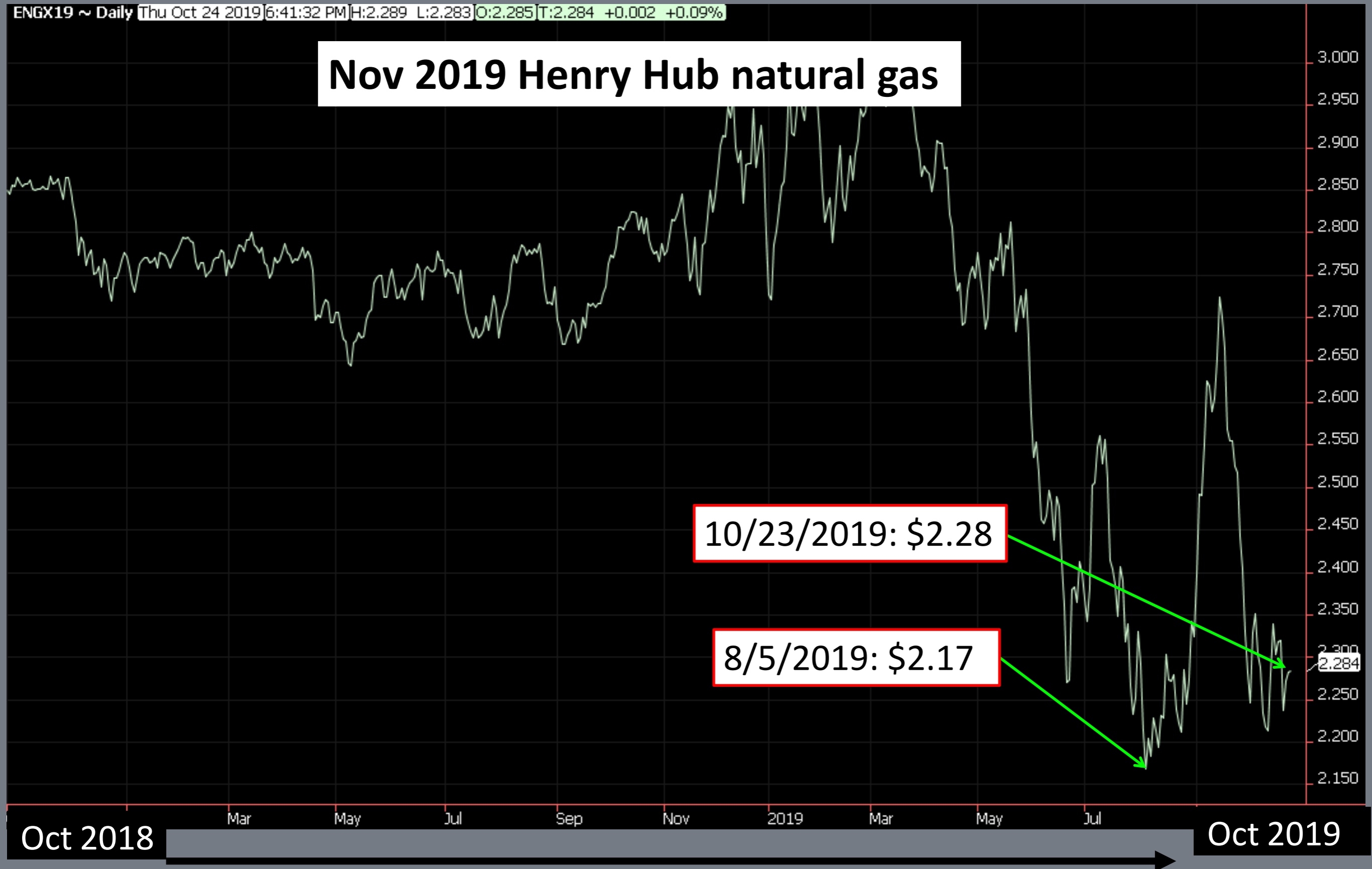
Current Market Position - Market Based Slice Products



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Long Term Slice - Avista			5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Slice Product 34 - Powerex		5.0%	5.0%	5.0%	5.0%	5.0%						
Slice Product 30 - Avangrid	5.0%	5.0%	5.0%	5.0%	5.0%							
Slice Product 29 - Morgan	5.0%	5.0%	5.0%	5.0%								
Slice Product 26 - Morgan	5.0%	5.0%	5.0%									
Slice Product 22 - Avista	5.0%	5.0%										
Slice Product 18 - Exelon	5.0%											

ENGX19 ~ Daily Thu Oct 24 2019 6:41:32 PM H:2.289 L:2.283 O:2.285 T:2.284 +0.002 +0.09%

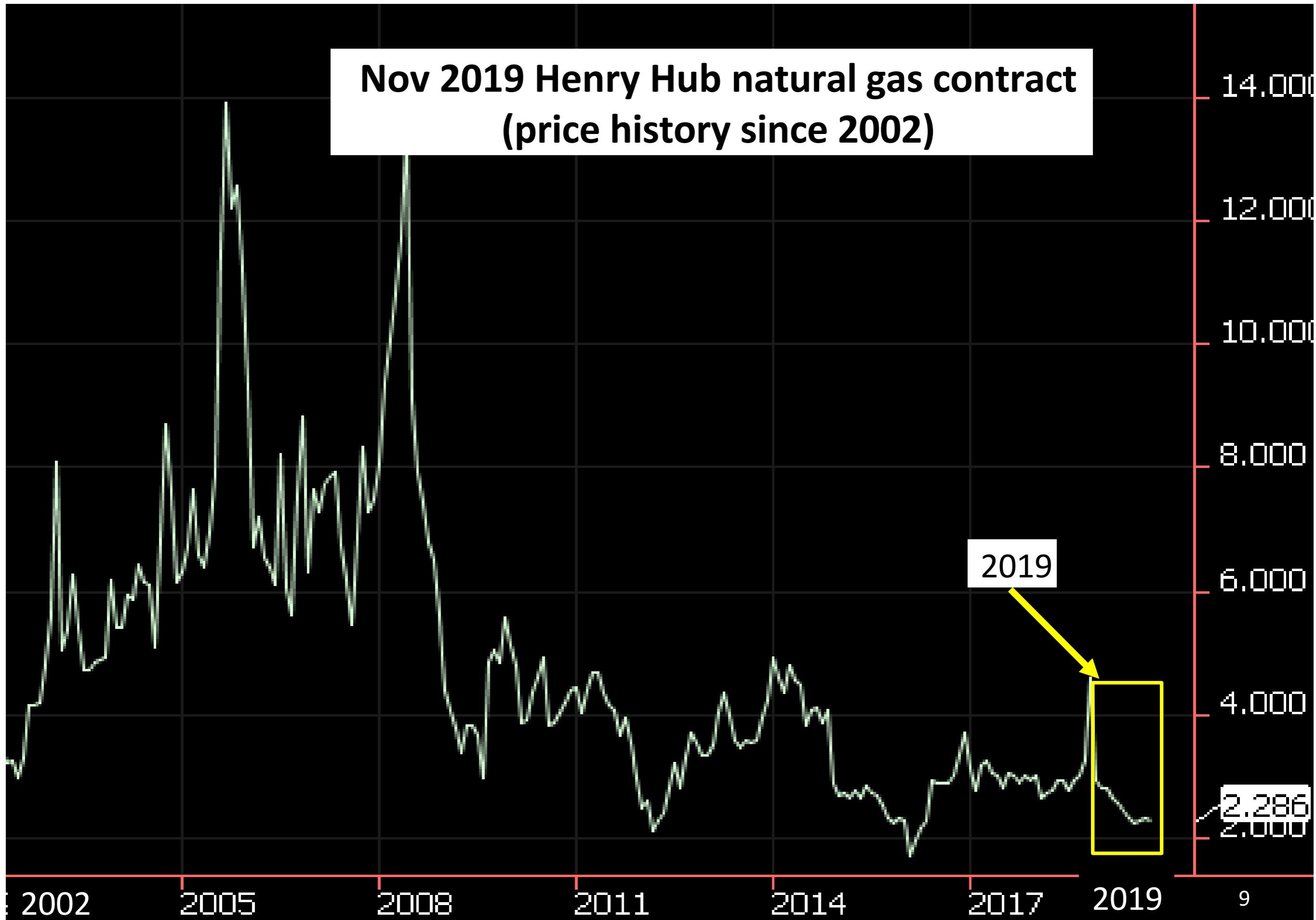
Nov 2019 Henry Hub natural gas



Oct 2018

Oct 2019

Nov 2019 Henry Hub natural gas contract (price history since 2002)



2019

14.000

12.000

10.000

8.000

6.000

4.000

2.286

2.000

2002

2005

2008

2011

2014

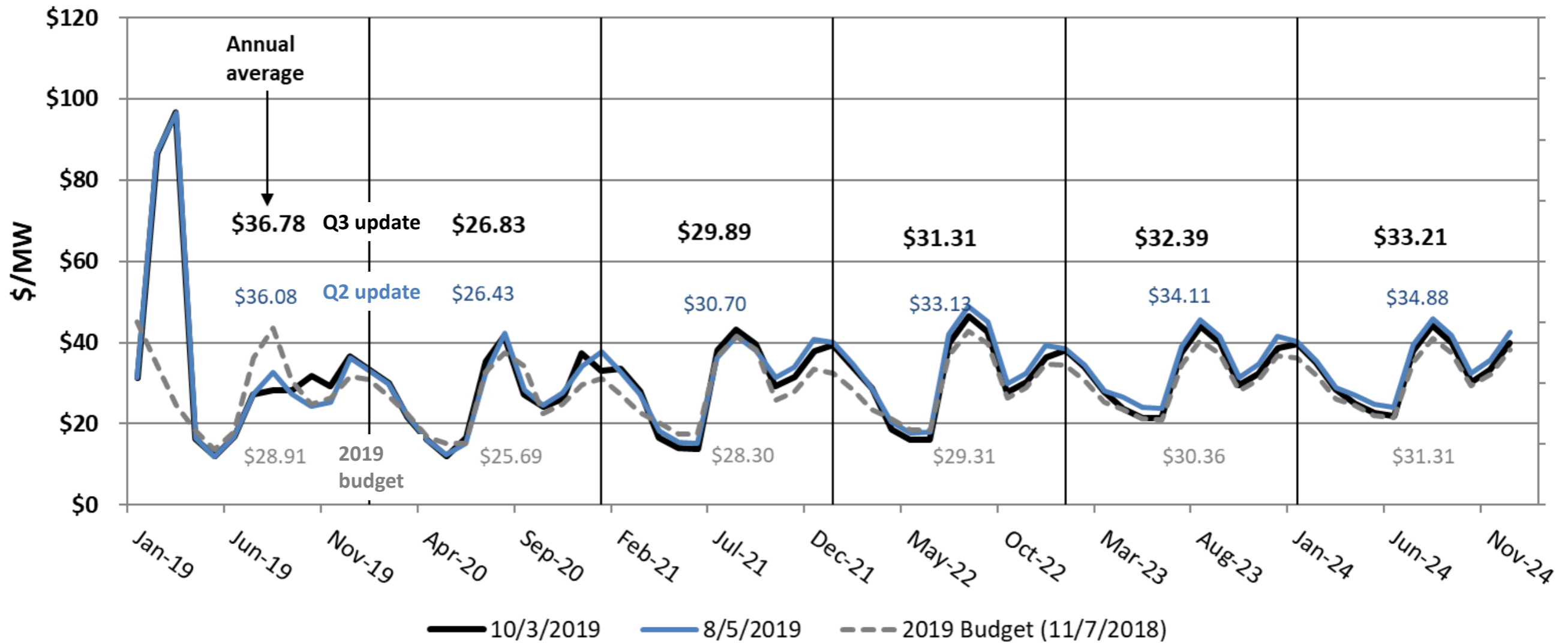
2017

2019

9

MIDC forward price curve

**MIDC Flat Forward Price Curve
(ICE DA index prices for previous months)**



2019 NWR and Other Energy-Related Revenue

(amounts in millions)

	Budget		Forecast [1]		Variance
Net Wholesale Revenue (NWR)					
Energy Sales	\$ 94.9		\$ 71.6		\$ (23.4)
Specified Source Premium	\$ 6.7		\$ 5.4		\$ (1.2)
Renewables- Bundled	\$ 0.8		\$ 0.7		\$ (0.1)
NWR Sub-total [2]	\$ 102.4		\$ 77.7		\$ (24.7)
Off-System End-Use Revenue					
Off-System End-Use Sales [3]	\$ -		\$ 11.5		\$ 11.5
Off-System End-Use Sub-total	\$ -		\$ 11.5		\$ 11.5
Other Energy-Related Revenue					
LT Power Contract- Retained Surplus	\$ -		\$ 20.0		\$ 20.0
LT Power Contract- Admin Fees	\$ 2.0		\$ 2.0		\$ -
Frequency Response & Load Shedding	\$ 1.1		\$ 1.1		\$ -
Other [4]	\$ 0.4		\$ 0.4		\$ 0.0
Renewables- Unbundled	\$ 0.1		\$ 0.1		\$ (0.0)
Real-Time Revenue	\$ 7.0		\$ 8.5		\$ 1.5
Other Energy-Related Sub-total	\$ 10.6		\$ 32.1		\$ 21.6
NWR and Other Energy-Related Revenue	\$ 112.9		\$ 121.3		\$ 8.3

[1] 2019 forecast based on preliminary Jan-Sep actuals and Oct-Dec estimates (10/3/19 NWR forecast).

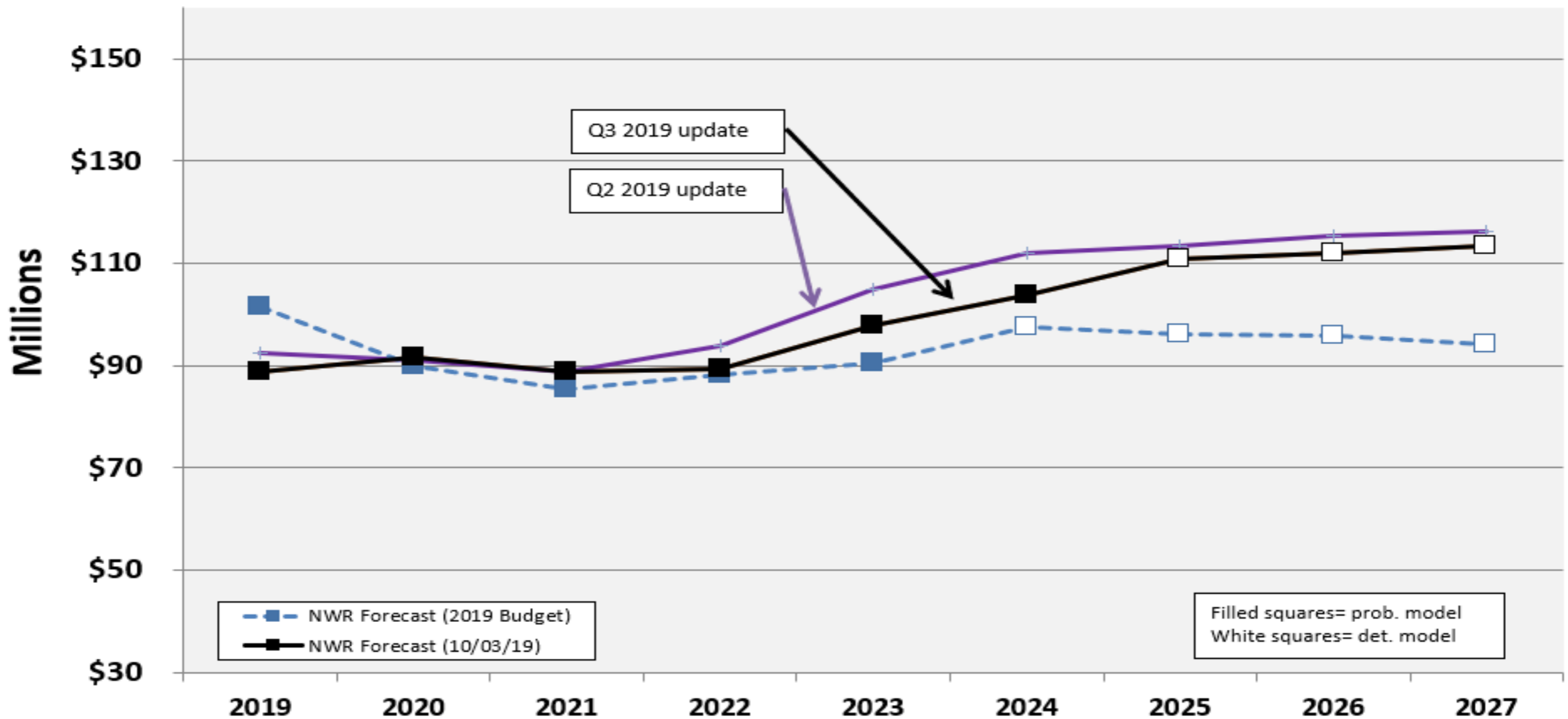
[2] NWR includes PWX specified source sale/full requirements purchase and transmission pass through costs.

[3] Off-system end-use sale includes transmission pass through costs, but not the transaction specific costs.

[4] Other includes scheduling & admin fees and the sale of reserves.

Net Wholesale Revenue + Off System End-Use sales forecast

Net Wholesale Revenue + Off System End-Use Sales Forecast



Market Info

Community Choice Aggregator's (CCA's) had 16.8% of wholesale power purchase in Cal-ISO market in Q2 2019

- ...totaled 16.8%, which was double the share of CCAs in the same quarter last year.
- 17 CCAs buying power, compared with 16 in the second quarter of 2018 and eight in Q2 2017.
- San Diego City Council okayed the city of San Diego to participate in the San Diego Regional Community Choice Energy Authority. Primary goal of achieving a 100% renewable energy portfolio by 2021.

California may delay gas plant retirements, order more resources to avoid shortage

- Proposal could delay retirement of 3,750 MW gas-fired plants with "once-through" ocean water cooling systems
- Extend retirement up to three years past the initial end-of-2020 deadline ocean water cooling systems to address power shortages concerns
- Proposal requiring Southern California Edison Co. and other electric service providers to solicit 2,500 MW of generation capacity to address potential power shortages beginning in 2021.
- Judge Fitch: "Western states are retiring coal resources and adding significant amounts of renewables, so CA can no longer assume it can rely on surplus imports, including hydropower from the NW"

SUMMARY

The District's 2019 Net Wholesale Revenue and other energy-related revenues forecast for 2019 is \$121.3 million, which is \$8.3 million above budget.

Forecasted specified source energy sales contribute \$5.4 million to the Net Wholesale Revenue forecast, which is \$1.2 million lower than budget. This reduction is due to lower than normal supply because of the below average water year.

An aerial photograph of a golf course. A large, winding river flows through the left side of the image. The golf course features several green fairways, sand traps, and a prominent water hazard with a waterfall. The landscape is heavily wooded with tall evergreen trees. In the background, there are some buildings and a parking lot. The word "Questions" is overlaid in the center in a large, white, sans-serif font.

Questions

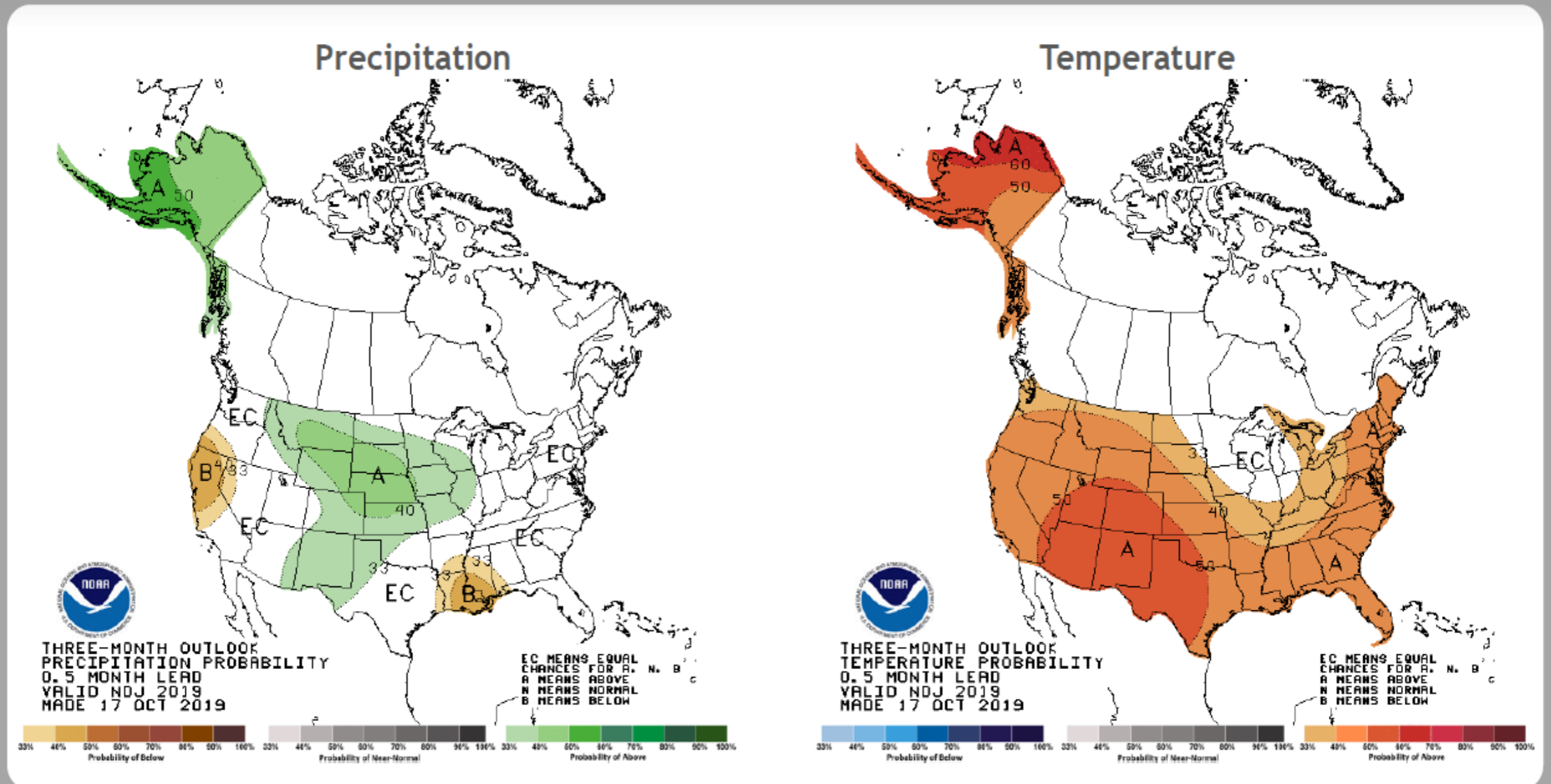
Appendix

**Supplemental Information not
part of public presentation**

U. S. Seasonal Outlooks

November-January 2019

The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when appropriate, ENSO.



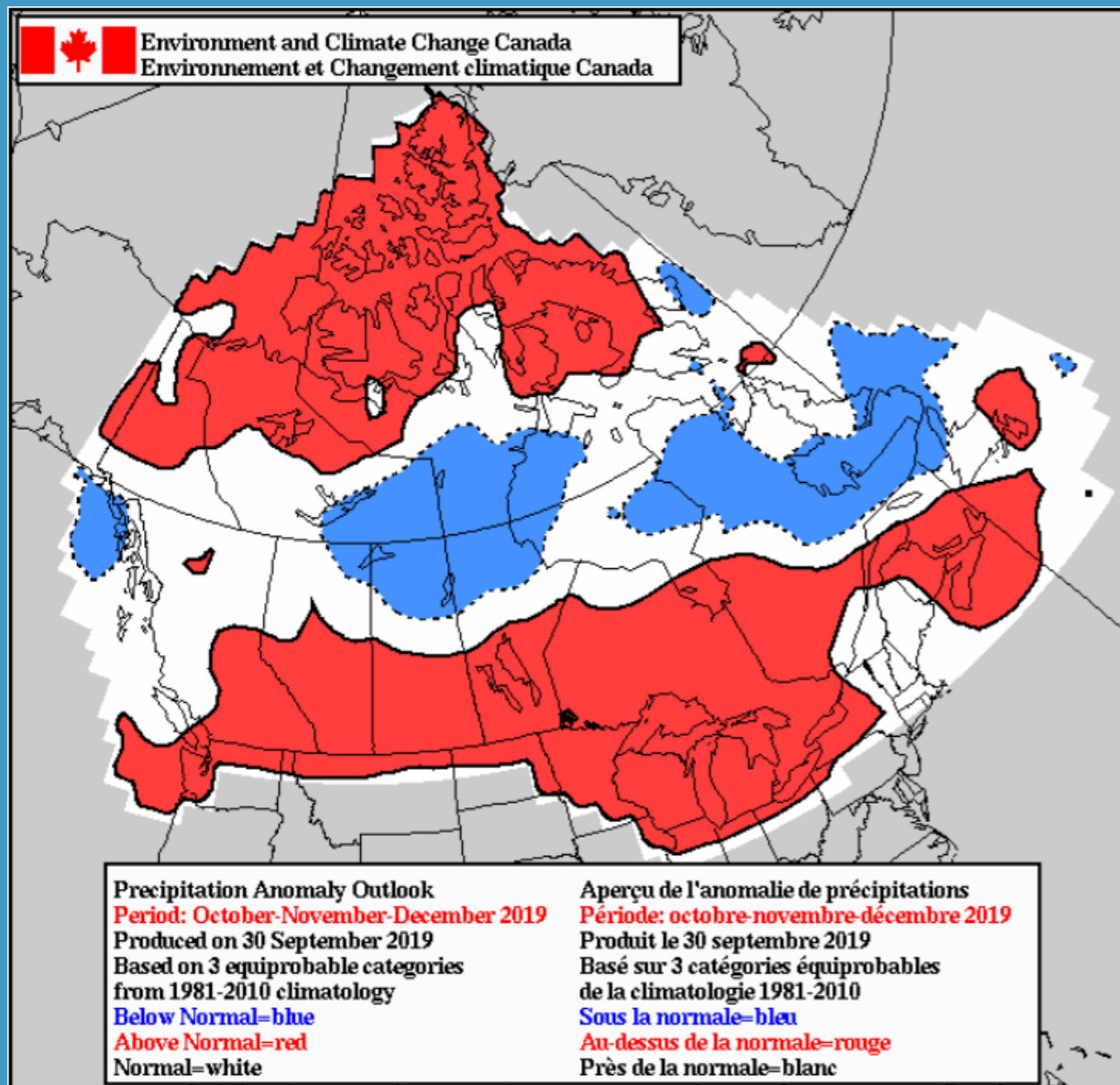
Canadian Aug-Oct forecasts

Temperature and precipitation deterministic forecasts

Precipitation

Red = Above (wetter)

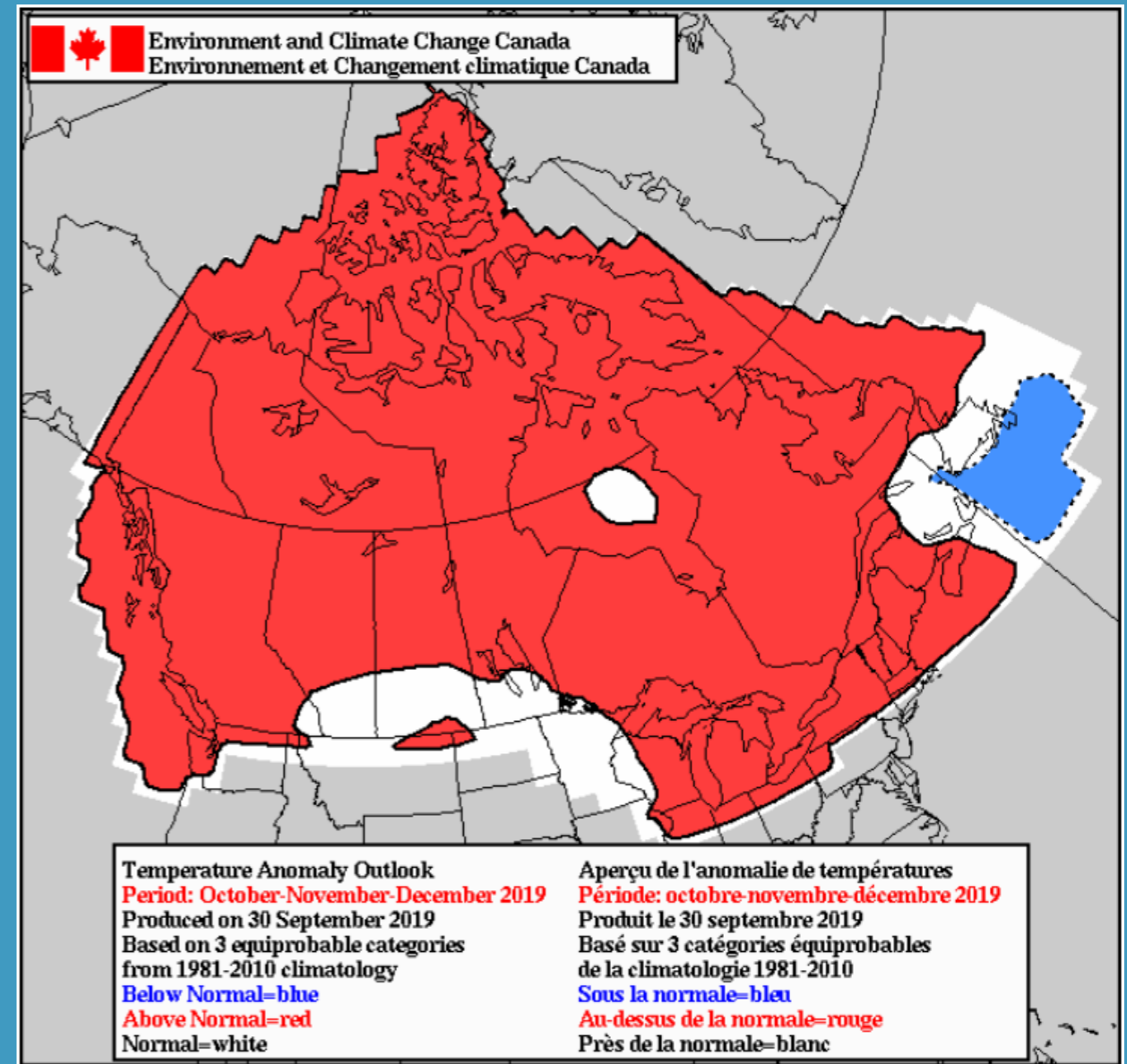
Blue = Below (drier)



Temperature

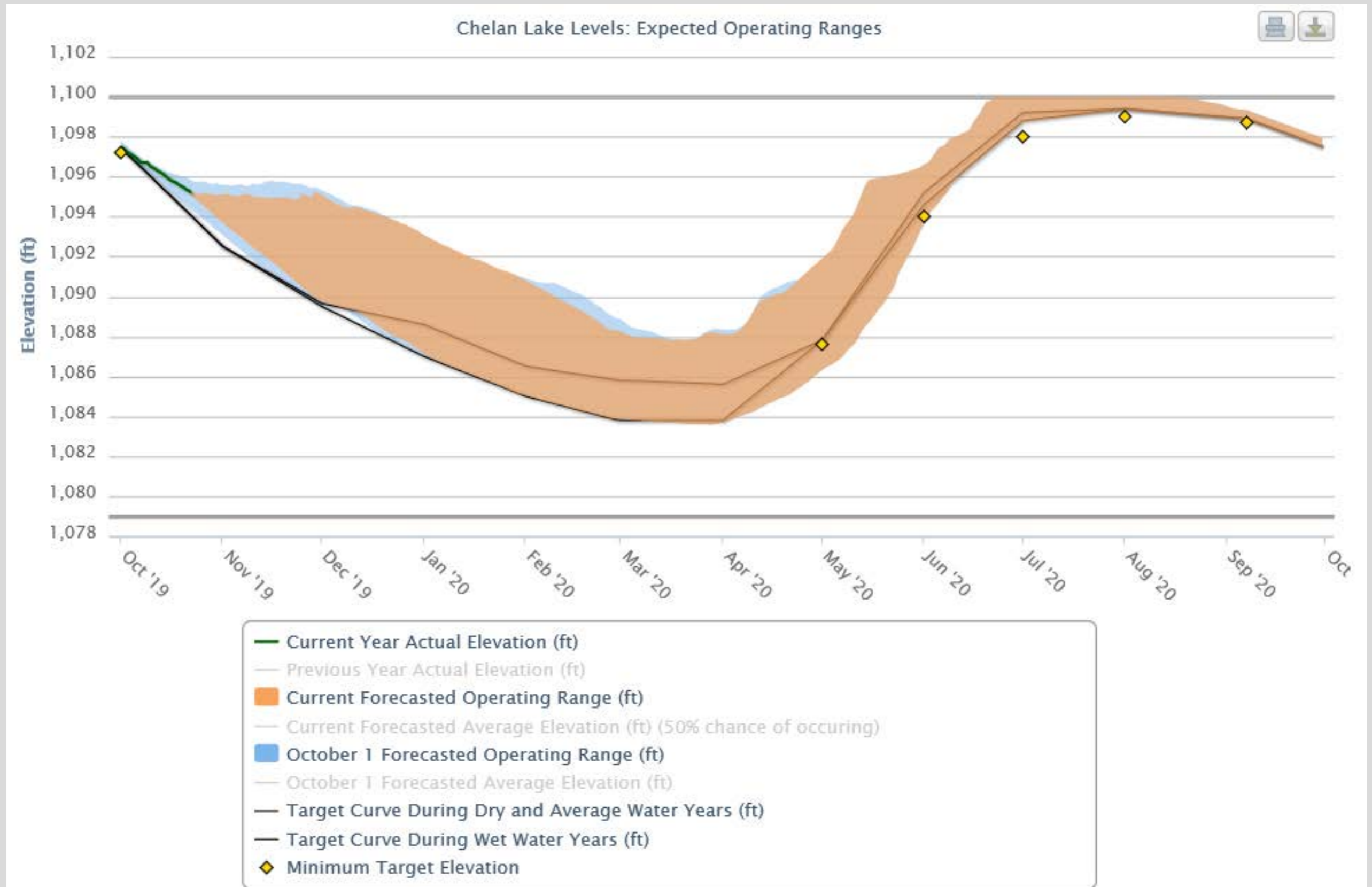
Red = Above (warmer)

Blue = Below (colder)



Lake Chelan lake level webpage

(10/22/19)



Columbia River Flow Update for 2019

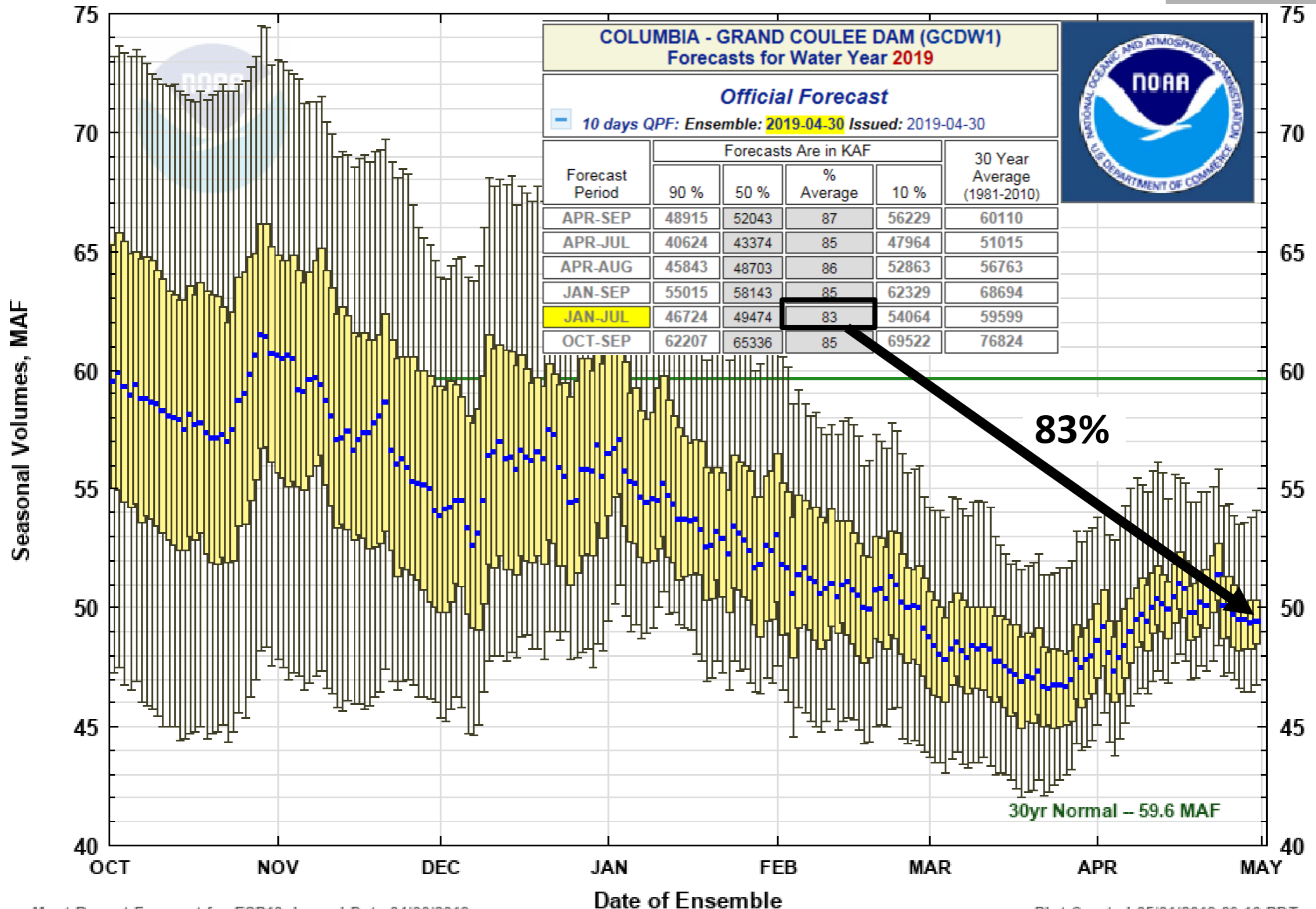
2019	Rocky Reach Flow (kcfs)	Budget Rocky Reach Flow (kcfs)	Difference from budget (kcfs)	% of Budget
Jan	92	139	-46	67%
Feb	88	108	-20	81%
Mar	72	89	-17	81%
Apr	76	113	-37	68%
May	133	140	-7	95%
Jun	110	178	-68	62%
Jul	93	144	-51	65%
Aug	91	114	-22	80%
Sep	53	59	-7	89%
Oct		73		
Nov		96		
Dec		107		
YTD Average	90	120	-30	75%

* Budgeted Rocky Reach flow is 1929-2016 average

WY 2019 Water Supply Forecast

Water Supply Forecasts COLUMBIA - GRAND COULEE DAM Period JAN to JUL - Water Year 2019

— 30yr Normal
■ ESP10



WY 2019 Water Supply Forecast

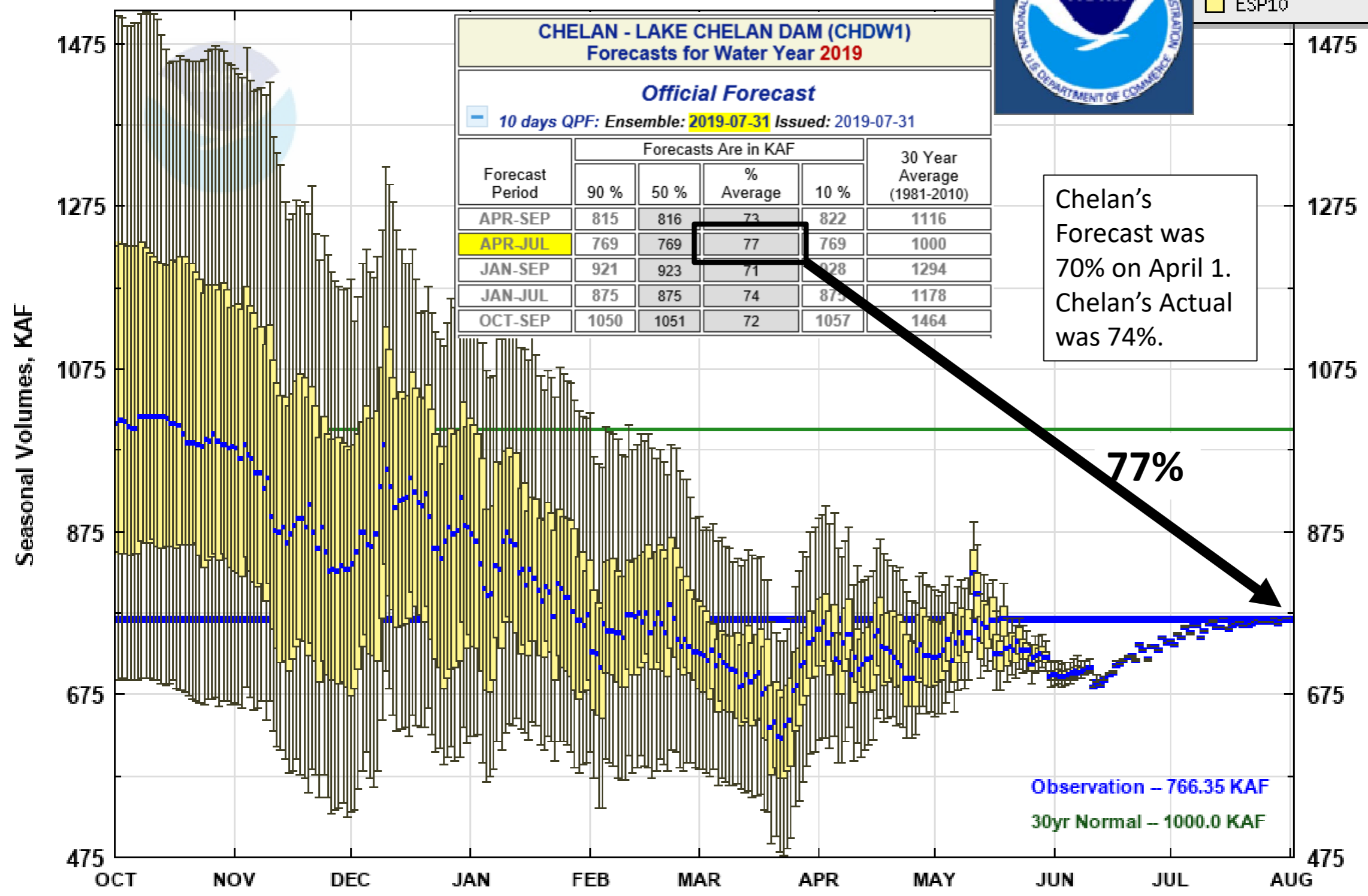
Water Supply Forecasts CHELAN - LAKE CHELAN DAM Period APR to JUL - Water Year 2019



- 30yr Normal
- Observation
- ESP10

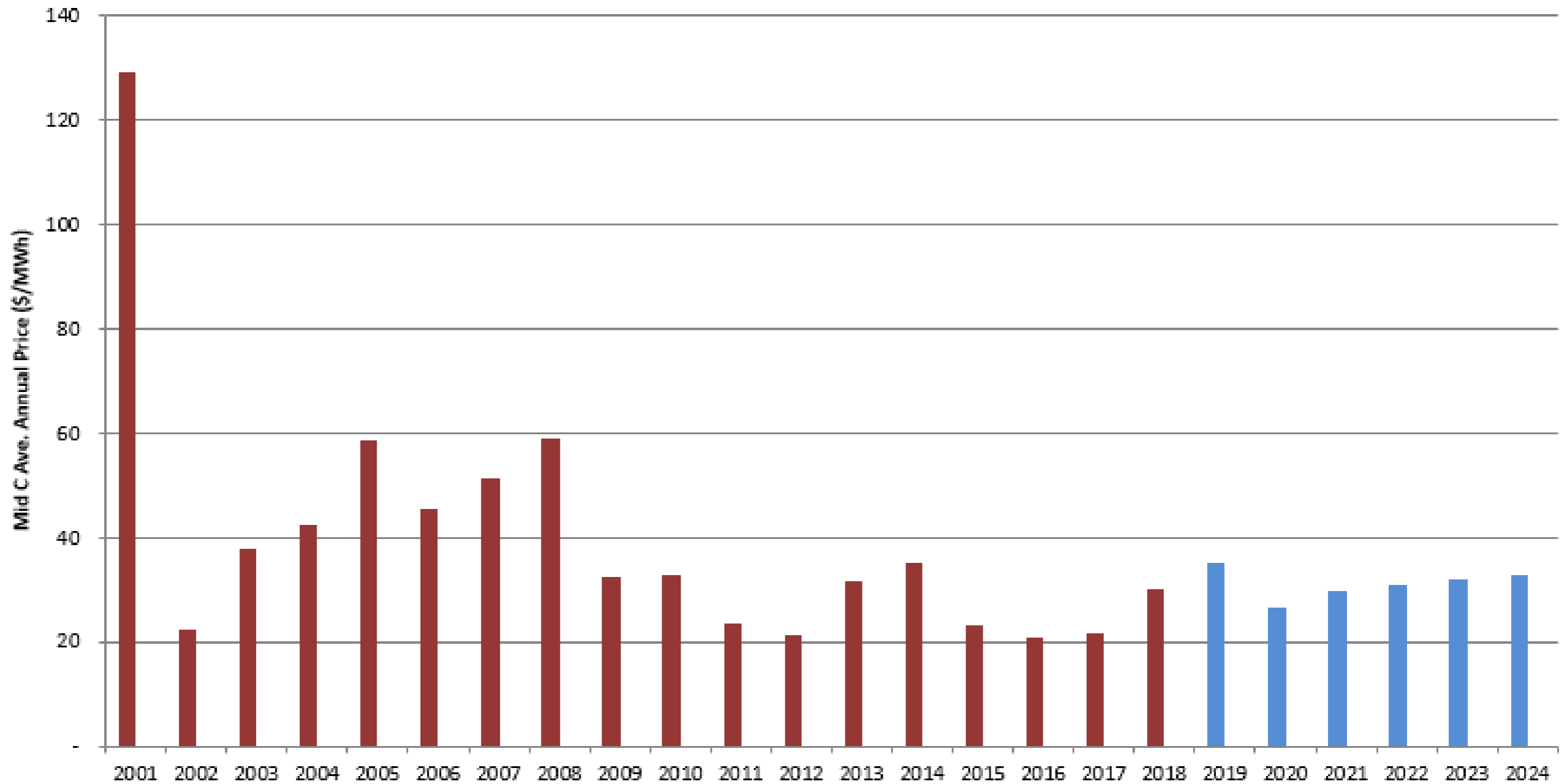
CHELAN - LAKE CHELAN DAM (CHDW1) Forecasts for Water Year 2019					
Official Forecast					
10 days QPF: Ensemble: 2019-07-31 Issued: 2019-07-31					
Forecast Period	Forecasts Are in KAF				30 Year Average (1981-2010)
	90 %	50 %	% Average	10 %	
APR-SEP	815	816	73	822	1116
APR-JUL	769	769	77	769	1000
JAN-SEP	921	923	71	928	1294
JAN-JUL	875	875	74	875	1178
OCT-SEP	1050	1051	72	1057	1464

Chelan's Forecast was 70% on April 1. Chelan's Actual was 74%.



Observation - 766.35 KAF
30yr Normal - 1000.0 KAF

MIDC flat annual Wholesale Electricity Prices



Red = Historical prices
Blue = Forward price curve