



MEMORANDUM

EUGENE WATER & ELECTRIC BOARD

Rely on us.

TO: Commissioners Brown, Carlson, Mital, Simpson, and Helgeson
FROM: Susan Ackerman, Chief Energy Officer; Greg Brownell, Portfolio Management Supervisor; Mike McCann, Generation Manager; Jonathan Hart, Power Trader
DATE: March 6, 2018
SUBJECT: 2018 Power Market, Budget Hedging, and Generation Update
OBJECTIVE: Information Only

Issue

The purpose of this backgrounder is to provide an annual update of wholesale power markets.

Background

The Pricing and Portfolio Management department, along with Trading and Power Operations, manages EWEB's power supply and wholesale market activities consistent with utility financial objectives, in accordance with Board Policy contained in SD8, and as further described in the EWEB Energy Risk Management Procedures.

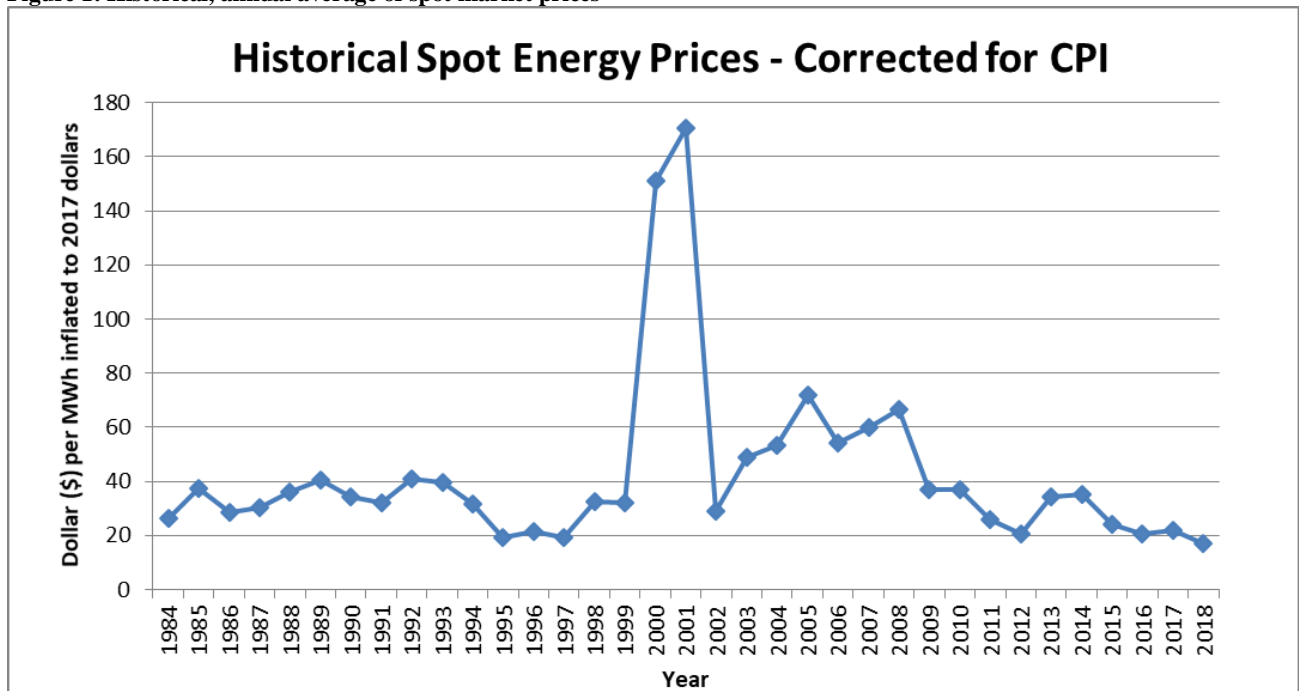
Discussion

Market Price Update

Wholesale energy markets can generally be described as either near term “spot markets” or longer term “forward markets”¹. For spot markets, prices are impacted by weather (e.g., temperature and precipitation) and operational phenomena (e.g., generation and transmission availability), while forward markets reflect longer term market expectations of energy supply and consumer demand.

Year to date, northwest spot market prices are among the lowest seen in decades (See Figure 1). Several factors are contributing to these historic prices. The Columbia River Basin is currently on track to reach 110% of its normal water supply for the season (Oct-Sep). This ranks the water year 17th out of the last 58 years tracked by NOAA². Season to date, the NW has been relatively warm compared to historical average temperatures. As a result, weak demand from regional retail consumption contributes to lower wholesale prices. Natural gas prices saw modest improvement in 2017, however they are expected to remain relatively flat in 2018³, meaning volatile price change from near term gas fluctuations is not expected. Further, there is an excess of low cost energy, while demand remains flat resulting in little expectation that the 2018 spot market will look materially different than 2017.

Figure 1: Historical, annual average of spot market prices



¹ Spot markets typically refer to markets where commodities are traded for immediate (next day, next hour) delivery, whereas forward markets imply markets where the traded commodity is delivered in a future period.

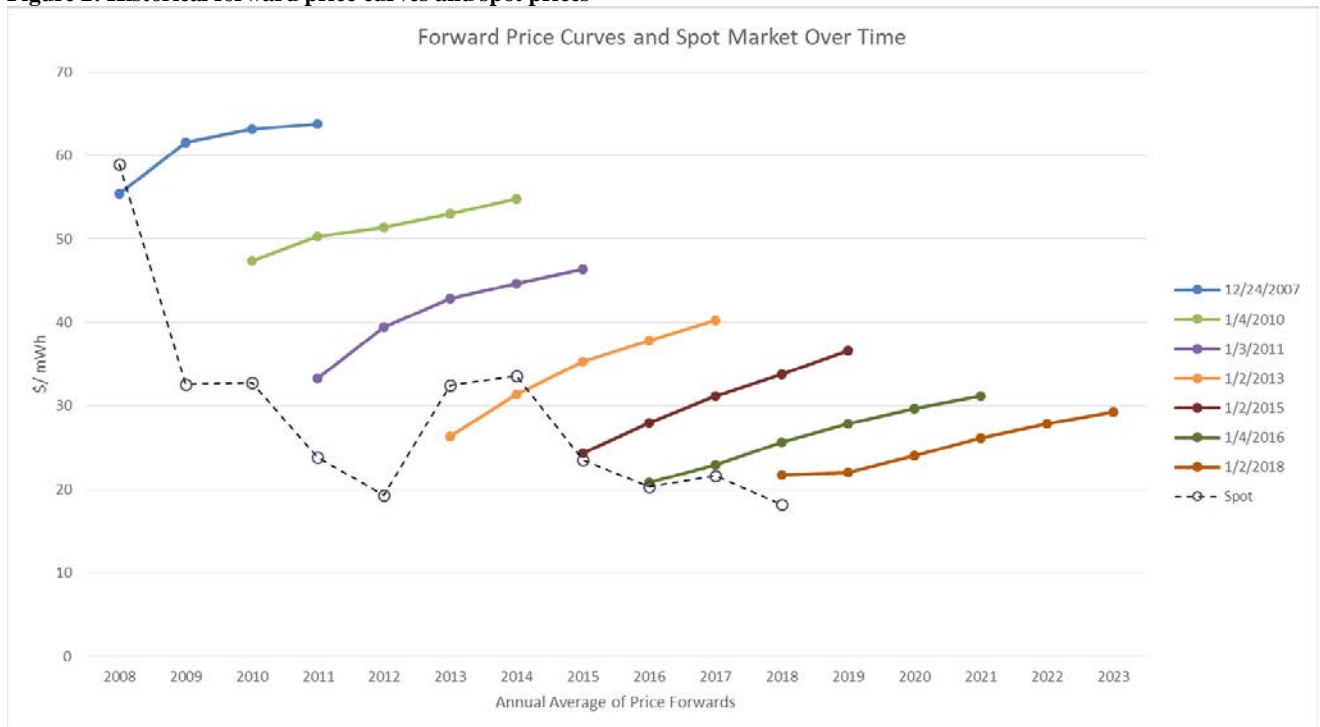
² https://www.nwrfc.noaa.gov/water_supply/ws_ranking.cgi?id=TDA03&per=OCT-SEP

³ <https://www.eia.gov/todayinenergy/detail.php?id=34672>

The drivers noted above also impact forward markets. As such, forward market prices continues to fall relative to historical norms. This pattern is further driven by continued expectations for low price natural gas, flat regional load growth, and the anticipated increases in renewable generation necessary to meet Oregon and Washington RPS mandates⁴. This update does not consider the market impact of various emissions regulations being considered by Oregon and Washington.

Figure 2 shows both forward market price curves, and spot market prices, over time. A forward curve reflects prices, which can be traded at today, for future periods of delivery. The first line reflects a forward curve was taken at the end of 2007. Trades executed during this time would likely reflect this sort of pricing. The subsequent lines reflect changing forward price curves for each year after that.

Figure 2: Historical forward price curves and spot prices



⁴ <http://www.pnucc.org/sites/default/files/file-uploads/2017%20PNUCC%20NRF.pdf>

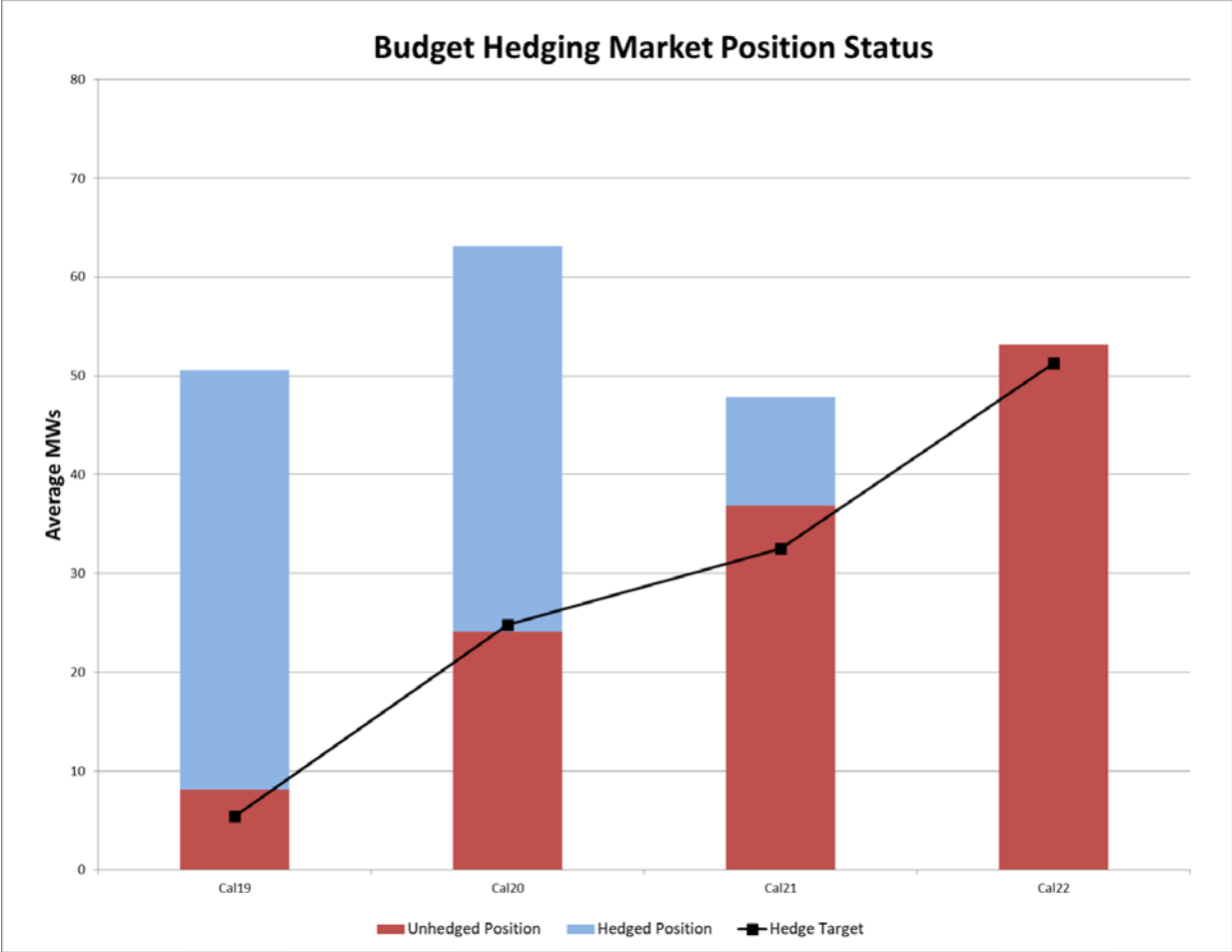
Surplus Position Hedging Update

Figure 3 shows EWEB’s surplus market position for 2019-2022 based on the budget hydro assumption, 90% of expected hydro generation. The top of each stacked column indicates EWEB’s original surplus market position. The blue bar represents the volume of energy hedged⁵ by staff. The red bar represents the remaining unhedged surplus. The black line reflects the desired volume of hedging the RMC would like to achieve over time.

EWEB hedges a portion of its surplus position up to five years in advance. This provides two benefits: 1) it reduces financial exposure related to market prices; and 2) it results in sales executed at various times which diversifies the sales price by “dollar cost averaging” through time. This strategy results in near term years being fully hedged while year five is the least hedged, with interim years somewhere in between. Beyond five years EWEB does not hedge any surplus energy.

The value of all current executed hedges for forward periods is approximately \$10M of forward value when compared to today’s market. Said another way, EWEB has benefited by an estimated \$10M compared to not hedging for the period from today through 2022.

Figure 3: Budget Hedging Progress



⁵ A hedge is a trade or set of trades that reduces the market price exposure risk inherent in EWEB’s portfolio length.

EWEB Owned-Generation Update

A number of EWEB's generating facilities will have significant capital project or maintenance outages in 2018. The Carmen Power Plant will be offline for turbine shutoff valve replacement work from April through October (see figure 4). The Stone Creek facility is scheduled to be offline for substation work for six weeks in September and October. The cogeneration facility at International Paper will be offline for a major maintenance overhaul in May and June. The other generation facilities are scheduled to have typical minor maintenance outages throughout the year. Excepting for unplanned revisions to schedule, these maintenances are included in the current budget.

The 2018 hydrologic year for the Oregon Cascades, which will affect EWEB's owned hydroelectric resources, looks to be well below average, with current snowpack estimates of approximately 35% of normal. In previous similar years, this has meant reduced generation from Trail Bridge, Leaburg and Walterville by early summer. Based on current flow projections, it appears that we may lose the ability to generate electricity from all three of these plants by late summer. The power generated from these facilities will need to be replaced through market purchases. However, it should be noted that because of the low flow condition on the McKenzie, the delayed TSV replacement at Carmen may prove to be well timed. Replacing the valve in 2017, a very good hydro year, would likely have resulted in a greater loss of generation than we are currently forecasting in 2018. Further, the impact of replacing the lost energy from the lower three McKenzie projects, if needed, should be relatively modest given the prevailing market conditions described above.

Other than the maintenance overhaul at the IP cogeneration facility, our other generating resources should be available and generating throughout the year.

Figure 4: New turbine shutoff valve



Requested Board Action - None