

2020 Flex Spill Recap

Power Principle & Lessons Learned

Technical Management Team
Annual Review of Lessons Learned
December 2, 2020

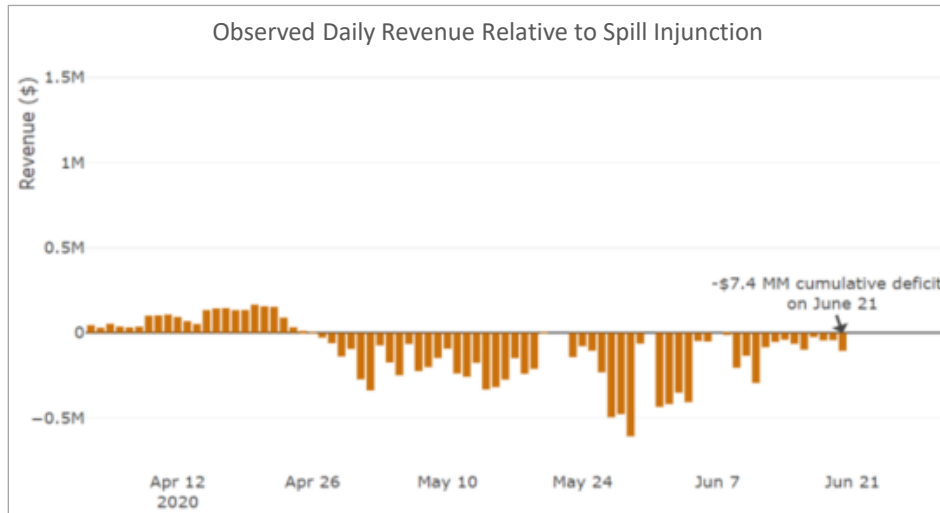


2020 Flex Spill

- 2020 is the second year of implementation of the Flexible Spill Agreement, and included two changes from the 2018 baseline (Spill Injunction) that impact the goal of financial neutrality with 2018:
 - Spring Spill: Six CRS projects operated up to a 125% TDG standard (two at a lower level) with the option to reduce spill at seven of the eight fish passage projects for 8 hours per day.
 - Summer Spill: Reduced to levels sufficient to support surface passage structures only beginning on August 15.

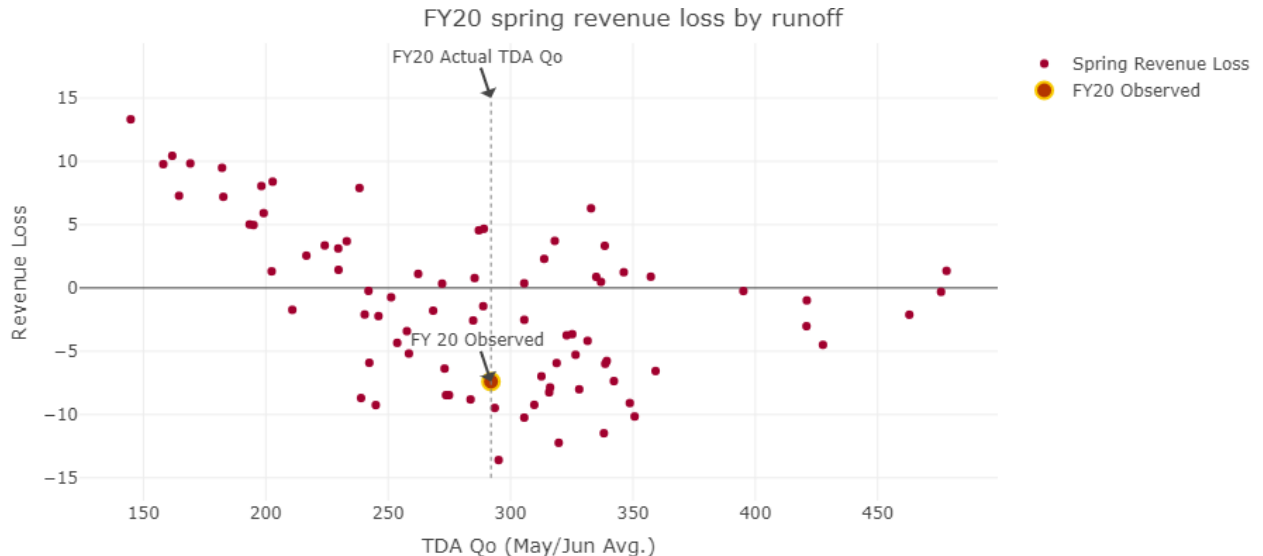
2020 Spring Flex Spill

- 2020 spring flex spill operations resulted in an observed revenue loss (relative to 2018 injunction) of \$7.4 MM



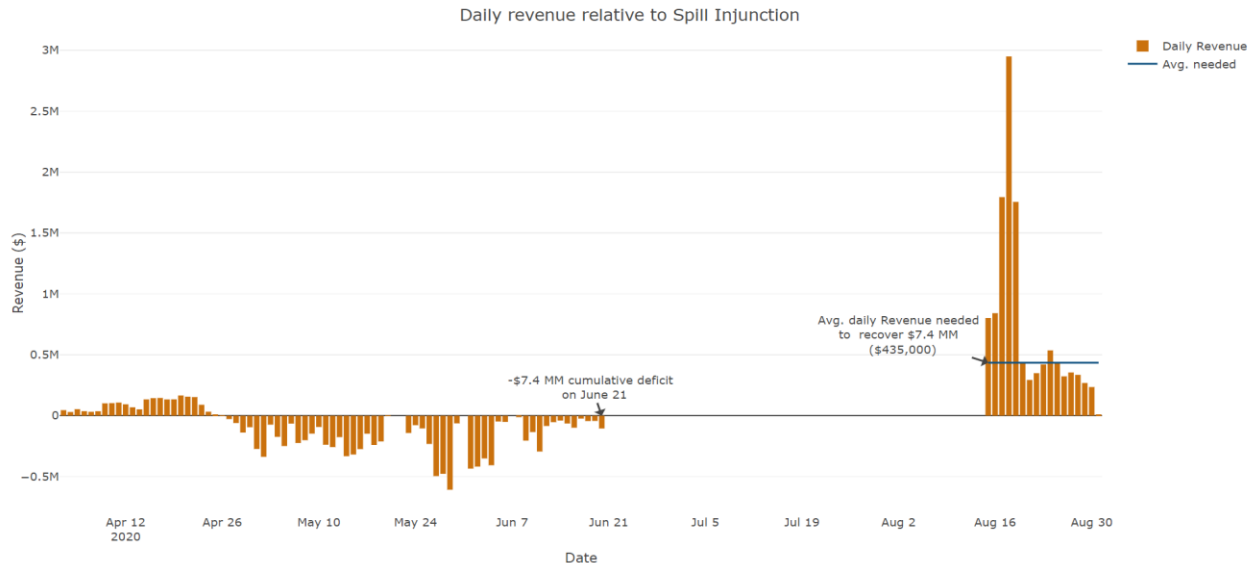
2020 Spring Flex Spill (cont.)

- The 2020 spring observed revenue loss of \$7.4 MM fell within the expected range from the initial power valuation modeling estimates



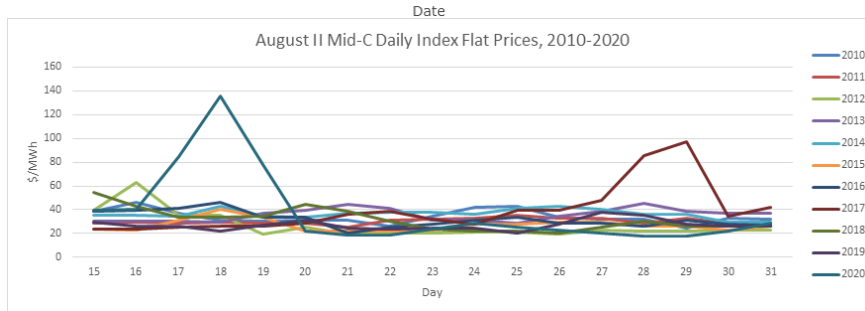
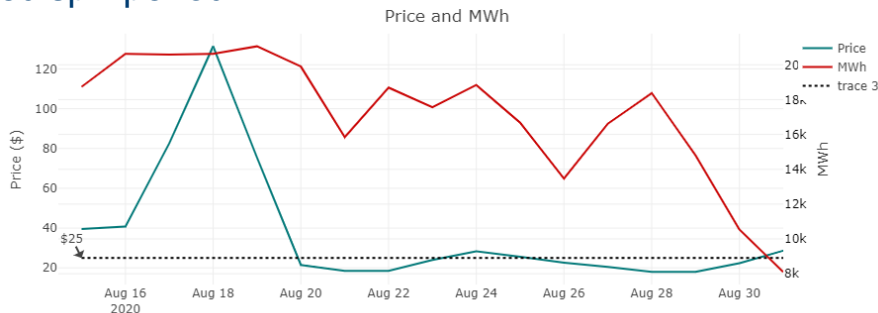
2020 Reduced Summer Spill

- Early spill reduction in August is needed to offset the losses from higher spring spill (net \$7.4 MM)
- Between August 15 and 31, BPA realized \$12.1 MM in benefits due to reduced spill



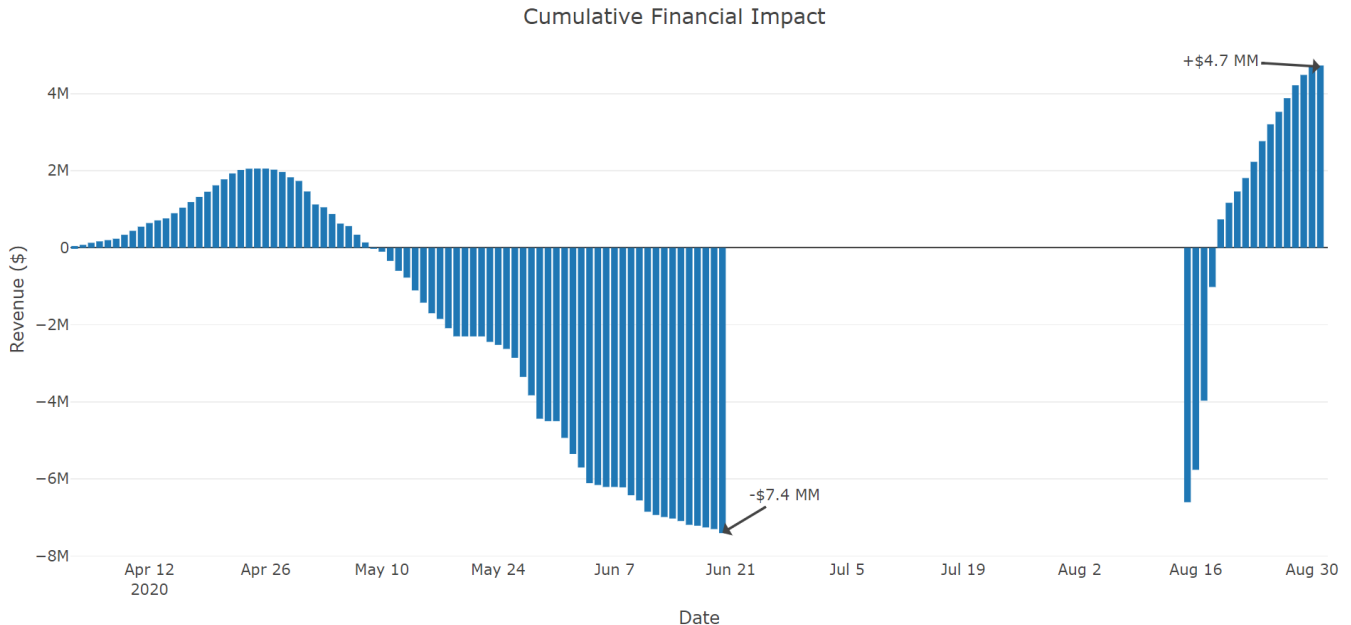
2020 Reduced Summer Spill (cont.)

- Extremely high prices during the August reduced spill period resulted in uncharacteristically high revenue
- For 2020, financial neutrality required ~\$25 flat price for the August reduced spill period



2020 Spill Season

- BPA's net benefit from the 2020 flexible spill operation was \$4.7 MM



2020 Flex Hour Position

- The increased frequency and duration of “min gen/spill the rest” operations in 2020 made it critical for BPA to align flex hours with peak load hours in order to meet the Power Principle
 - In 2019 BPA was able to meet the 120% spill requirements and still increase generation on non-flex hours. Flex spill was more of an off-peak and Light Load Hour (2200 – 0600) asset in 2019.
 - During the increased frequency of “min gen/spill the rest” operations in 2020, the only way to increase generation was to use a flex hour. Therefore, the placement of flex hours was more critical in 2020 than it was in 2019. Flex spill was a peak hour and Heavy Load Hour (0600 – 2200) asset in 2020.

Operational Lessons Learned

- DEC Reserves
- Fixed PS Spill Blocks during Lack-of-Market (LOM) Conditions



DEC Reserves

Issue:

- In April, JDA was generating above the FOP 50-60 kcfs minimum generation level while spilling less than the 120% spill requirement in order to carry DEC reserves

Fish Impacts:

- Operating above JDA FOP minimum generation levels resulted in a decrease in spill

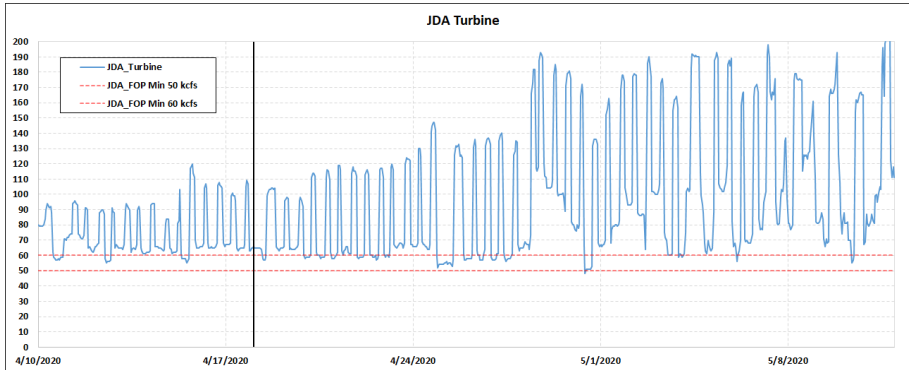
In-season Coordination:

- Need to alter spill levels to carry DEC reserves was discussed at TMT and elevated to FSWG
- BPA prepared guidance for real-time desk to better consider fish impacts (Apr 17) based on input from FSWG

2021 Implementation Need:

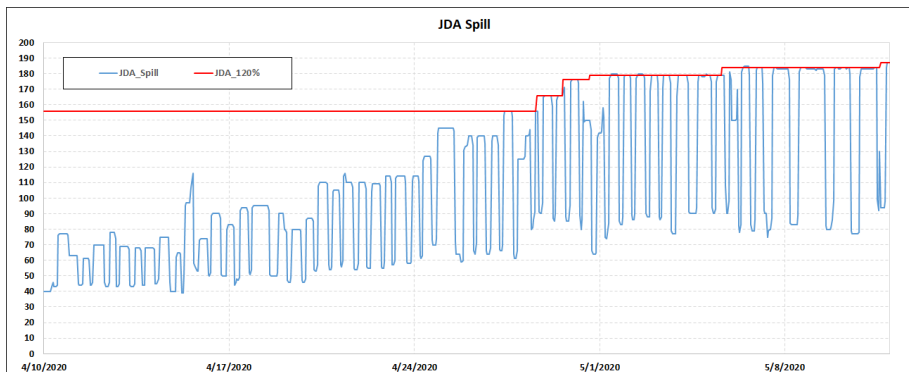
- BPA must continue to operate to carry DEC reserves and will utilize the April 2020 guidance to continue to incorporate fish impact considerations when allocating DEC reserves

DEC Reserves (cont.)



John Day: 2020 Flex Spill	4/10 - 4/17	4/18 - 4/28*
Tot # Hours (2400-0500)	40 hrs	55 hrs
Hours (2400-0500) > 60 kcfs	40 hrs	27 hrs
Percent Hrs (2400-0500) > 60 kcfs	100%	49%

**After 4/28 JDA was able to meet its 120% FOP requirement and generation during 2400 – 0500 timeframe was routinely above minimum generation*



Fixed PS Spill Blocks during LOM Conditions

Issue:

- In June lack-of-market conditions made it challenging for BPA to implement the hours of 0400 – 1200 performance standard (PS) spill (hours were hard-coded into the FOP) at Little Goose
- Adding fixed PS spill blocks to other projects, as was done for 1 week at Lower Monumental, can decrease the probability of achieving the PS spill block at any of the requested projects during lack-of-market conditions

Fish Impacts:

- Not achieving 8 hours of PS spill could further impact adult travel times in the Lower Snake River

In-season Coordination:

- An alternative operation was implemented in 2020 at LGS to provide a greater probability of achieving the 8-hour morning block of PS spill during lack-of-market conditions
 - The target hours for PS spill remained 0400 – 1200
 - The goal was to still achieve a continuous 8-hour block if possible
 - BPA had the flexibility to start the block later in the morning (after 0400) and extend the block beyond 1200 in order to align the PS spill block with hours of higher demand

2021 Implementation Need:

- It is important that BPA retains flexibility in the placement of the fixed PS spill hours during lack-of-market conditions in order to increase the probability of achieving the requested operation.

Questions



Appendix A – Load Shapes

