May 23, 2018

Follow-up to Preliminary FY 2018 Spill Surcharge Workshop

During the May 16, 2018, public workshop to review the calculation of the preliminary FY 2018 Spill Surcharge, certain attendees requested additional information. This document includes:

1. Response to questions regarding: why the spill amount in the preliminary FY 2018 surcharge differs from an estimate provided in early 2017; and Ice Harbor Dam monthly spill cap estimates.

2. Spill Surcharge Cost Reduction (CostR) and Power CRAC probabilities: Power Cost Recovery Adjustment Clause probabilities of triggering for FY 2019 associated with different levels of the Cost Reduction component (CostR) of the Spill Surcharge.

1. **Response to customer question regarding why the spill amount in the 2018 preliminary surcharge differs from an estimate provided in early 2017 (May 16, 2018 workshop, slide 8)**

   For the preliminary FY 2018 spill surcharge, BPA calculated the eighty-year average lost generation associated with the planned 2018 spring spill levels, which entail spilling water at eight federal lower Columbia and Snake River dams up to applicable water quality standards for total dissolved gas ("gas cap spill"). This model run resulted in 253 aMW of additional lost generation, relative to the generation assumed at the time BP-18 rates were set. At the spill surcharge workshop on May 16, 2018, BPA staff noted as a point of reference that this figure differed from an earlier 2017 estimate of the generation impact of gas cap spill (see Table below). That 2017 estimate had been calculated for a separate proceeding and is not directly relevant to the 2018 spill surcharge, but an explanation of the differences between the two model runs is useful.

   There are two general categories of differences between these two model runs: 1) different base studies; and 2) updated spill cap estimates (gas-to-spill conversions). Each of these categories contribute to roughly half of the 50 aMW difference between the lost generation estimates.

   - **Different base studies**: To estimate the impact of a different spill operation, the results from a hydro study modeling the alternative spill operation are compared to the results from the original hydro study that did not include the alternative spill operation (i.e., the base study). Per the methodology established through the ratemaking process, the preliminary FY 2018 spill surcharge uses the BP-18 Final Proposal hydro study as the base study. In contrast, the February 2017 estimate used a base hydro study that was similar in vintage to the hydro studies completed for the BP-16 Final Proposal.

     BPA regularly updates hydro study inputs as part of its modeling process. For examples of the types of inputs that have been updated in the past, please see the BP-18 Final Power Loads and Resources Study (BP-18-FS-BPA-03), which includes a list of the more significant updates made between the BP-16 Final Proposal and BP-18 Final Proposal.

   - **Updated spill cap estimates (gas-to-spill conversions)**: The preliminary FY 2018 spill surcharge and the 2017 estimate both involved modeling gas cap spill operations at the eight fish passage projects during the spring spill season. Modeling this operation required estimates of the amount of spill needed to reach the gas cap at each project (referred to as the "spill cap"). The 2017 estimate and the preliminary FY 2018 spill surcharge analyses included different estimates of the amount of spill needed to reach the gas cap. The 2017 estimate used gas-to-spill conversions provided by the U.S. Army Corps of Engineers (the Corps) in early 2017. The preliminary FY 2018 spill surcharge uses updated gas-to-spill conversion estimates produced by the Corps that were presented and considered during Regional Implementation Oversight Group meetings during the summer of 2017 and trued up based on an analysis of historical data.

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80-Year Average Lost Generation	Base Study Hydro Model	Spill Assumption	Spill Cap Estimates (Gas-to-Spill Conversions)	Amount of Reduced Generation Resulting from Additional Spill
Preliminary FY2018 Spill Surcharge	BP-18 Final Proposal	Gas Cap Spill	2018 Vintage from Corps & BPA	253 aMW
February 2017 Estimate	BP-16 Variant	Gas Cap Spill	2017 Vintage from Corps	203 aMW

Ice Harbor Dam

A separate but related question received during the workshop was regarding monthly spill cap estimates at Ice Harbor Dam. The differences in estimated spill caps between April and May/June are primarily related to changes in the tailwater elevations at Ice Harbor that are typical as flows increase in the spring, as well as atmospheric effects (e.g., water temp, barometric pressure, etc.) that are predicted to influence the effect of Ice Harbor spill levels at the Ice Harbor tailrace and McNary Dam forebay gauges.

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2. Spill Surcharge Cost Reductions (CostR) and Power CRAC probabilities

The following table summarizes the results of analyses requested by customers at the May 16, 2018, preliminary FY 2018 Spill Surcharge workshop on the effect of different assumptions for the CostR component of the Spill Surcharge on the probability of the Power CRAC triggering for FY 2019.

		Base	Scenarios		
		FY 2018 Q2 QBR	**1. No Spill Surcharge**	**2. Preliminary FY 2018 Spill Surcharge**	**3. No CostR**
1	**Modeling assumptions:** 1/				
2	Spill Surcharge revenue	None	None	$10.2 million	$22.4 million
3	Forecast F&W cost reductions 2/	No	Yes	Yes	Yes
4	**Results:**				
5	Mean of risk distribution (Power reserves)	$46 million	$58 million	$68 million	$80 million
6	Power CRAC probability of triggering for FY 2019	8%	5%	2%	0.4%

1/ All analyses (base and scenarios) include $18 million in forecast non-F&W Power Services cost reductions and corresponding impact on the Slice true-up.

2/ Scenarios model $12 million of net F&W cost reductions: forecast $20 million F&W cost reduction * .777 (NW Power Act section 4(h)(10)(C)) * .7726 (non-slice portion)