

BP-18 Revenue Requirement Workshop

July 27, 2016



Financial Disclosure

This information was made publicly available on July 22, 2016 and contains information not sourced directly from BPA financial statements.

Purpose

- Review preliminary Power and Transmission revenue requirements based on initial IPR/CIR data
- Review changes and updates to modeling assumptions
- Review repayment modeling

Assumptions

- The following tables are consistent with analysis for the IPR/CIR.
 - Program costs and capital investments are consistent with the [2016 IPR/CIR detailed publication](#).
 - All projected Federal investment is financed with Treasury bonds. The only exception is for the \$15 million/year of Transmission investment financed with reserves, consistent with the Access to Capital Strategy.
- All data contained in this presentation are estimates. This material is intended to provide a preliminary view of the BP-18 initial proposal, as of the release of the 2016 IPR/CIR detailed publication.
- For the initial proposal, changes will include:
 - Updated program costs and capital investments to be consistent with the IPR/CIR close out report.
 - All completed debt transactions.
 - Updated costs produced in the rates modeling process such as power purchases.
 - Updated forecasts that maybe available prior to the production of the initial proposal such as financial reserve balances and plant in service forecasts.

Power Revenue Requirements

Topics

- Income Statement
 - Breakout of Other Income & Expense line
- Statement of Cash Flows
 - Changes to the table



Power Income Statement

		A	B	C	D	E
	(\$000s)	2018	2019	Average	BP-16 Average	Change from BP-16
1	OPERATING EXPENSES					
2	POWER SYSTEM GENERATION RESOURCES					
3	OPERATING GENERATION RESOURCES	712,948	781,742	747,345	717,281	30,064
4	OPERATING GENERATION SETTLEMENT PAYMENTS	22,612	22,997	22,805	19,487	3,318
5	NON-OPERATING GENERATION	1,500	1,534	1,517	1,732	(215)
6	CONTRACTED POWER PURCHASES	<i>calculated in rate case</i>				
7	AUGMENTATION POWER PURCHASES	<i>calculated in rate case</i>				
8	EXCHANGES & SETTLEMENTS	<i>calculated in rate case</i>				
9	RENEWABLE GENERATION	38,332	39,060	38,696	41,314	(2,618)
10	GENERATION CONSERVATION	131,182	131,102	131,142	134,157	(3,015)
11	POWER NON-GENERATION OPERATIONS	98,298	99,249	98,774	98,189	585
12	PS TRANSMISSION ACQUISITION AND ANCILLARY SERVICES	<i>calculated in rate case</i>				
13	F&W/USF&W/PLANNING COUNCIL	322,107	322,916	322,512	314,467	8,044
14	GENERAL AND ADMINISTRATIVE/SHARED SERVICES	86,556	89,592	88,074	73,463	14,610
15	OTHER INCOME, EXPENSES AND ADJUSTMENTS	(82,636)	(80,742)	(81,689)	(113,520)	31,831
16	NON-FEDERAL DEBT SERVICE	646,533	410,596	528,565	594,574	(66,009)
17	DEPRECIATION	144,025	143,585	143,805	141,835	1,970
18	AMORTIZATION	88,504	89,166	88,835	83,692	5,143
19	TOTAL OPERATING EXPENSES	2,209,960	2,050,798	2,130,379	2,106,671	23,708
20						
21	INTEREST EXPENSE:					
22	INTEREST					
23	APPROPRIATED FUNDS	106,034	100,686	103,360	187,904	(84,544)
24	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)	(45,937)	(45,937)	-
25	BONDS ISSUED TO U.S. TREASURY	71,719	85,960	78,839	63,117	15,722
26	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	-	-	-	-	-
27	NON-FEDERAL INTEREST	11,628	10,747	11,188	12,871	(1,683)
28	ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION	(7,128)	(7,065)	(7,097)	(11,045)	3,949
29	INTEREST CREDIT ON CASH RESERVES	(6,617)	(7,656)	(7,136)	(14,931)	7,795
30	NET INTEREST EXPENSE	129,698	136,735	133,217	191,978	(58,761)
31						
32	TOTAL EXPENSES	2,339,658	2,187,534	2,263,596	2,298,650	(35,054)
33						
34	MINIMUM REQUIRED NET REVENUE	-	75,502	37,751	-	37,751
35	PLANNED NET REVENUE FOR RISK	-	-	-	-	-
36	PLANNED NET REVENUE, TOTAL	-	75,502	37,751	-	37,751
37						
38	TOTAL REVENUE REQUIREMENT	2,339,658	2,263,036	2,301,347	2,298,650	2,698

Other Income & Expense Breakout

		A	B	C
		2018	2019	Average
15	OTHER INCOME, EXPENSES AND ADJUSTMENTS	(82,636)	(80,742)	(81,689)
15a	IPR Undistributed Reduction	(10,000)	(10,000)	(10,000)
15b	EE Expense Offset	(60,500)	(60,500)	(60,500)
15c	RCD Effect	57,864	(10,242)	23,811
15d	RCD Offset (non-Slice)	(70,000)	-	(35,000)

- Line 15a, IPR Undistributed Reduction: This offset to total program spending is assumed in the initial IPR forecasts.
- Line 15b, EE Expense Offset: This represents the cash flows freed up by refinancing CGS debt to offset the transition of energy efficiency investments from capital to expense. The refinancings were planned for the BP-16 and BP-18 rate periods. No offset is planned after BP-18.

Other Income & Expense Breakout

- Line 15c, RCD Effect, represents the adjustment made to the revenue requirement for the effect of RCD transactions in the 2018-19 rate period.
 - As with BP-16 and the Debt Optimization program, we do not intend to directly model forecasted refinancing transactions that are associated with the accelerated repayment of Federal appropriations in the revenue requirement study. (Not to be confused with extending CGS debt designed to offset the conversion of the energy efficiency capital program to an expense program which will be forecast)
 - Instead, the revenue requirement will include a forecast of the net effect of the changes to non-Federal debt service, net interest, and Minimum Required Net Revenues (MRNR). This net effect appears in the Other Income & Expense line.
 - FY 2018 is positive because of the conversion of EN debt service from the EN fiscal year to BPA's. The appropriations payment matches the amount of EN debt refinanced. The fiscal year conversion moves ¼ of the EN reduction into the previous fiscal year creating a mismatch. This issue was previously described to customers in the November 2014 QBR (see appendix).
 - The table below summarizes the calculation of the RCD Effect.

	A	B	C	D	E	F
	No RCD Refinancing		Full Refinancing		RCD Effect (Line 15c)	
(\$000s)	2018	2019	2018	2019	2018	2019
1 Non-Federal Debt Service	646,533	410,596	252,519	218,237	(394,014)	(192,360)
2 Depreciation	144,025	143,585	144,025	143,585	0	0
3 Amortization	88,504	89,166	88,504	89,166	0	0
4 Expense Offset	0	0	0	0	0	0
5 Federal Net Interest	129,698	136,735	102,340	98,110	(27,358)	(38,625)
6 MRNR	<u>0</u>	<u>75,502</u>	<u>479,235</u>	<u>296,246</u>	<u>479,235</u>	<u>220,744</u>
7 Total	1,008,760	855,585	1,066,624	845,344	57,864	(10,242)

Other Income & Expense Breakout

- Line 15d, RCD Offset (non-Slice):
 - The RCD transactions began after 2014-15 rates went into effect.
 - The increase in appropriation payments was \$97 million smaller than the reduction in EN debt service which resulted in a significant reduction in actual expenses in FY's 2014 and 2015. The difference is due to the fiscal year conversion of EN debt service described on the previous slide.
 - Slice customers received credits of approximately \$27 million through the true-up. The remaining \$70 million generated through rates by non-Slice customers but not used to pay appropriations was held in the Bonneville Fund for future use.
 - As discussed in the November 2014 QBR (see appendix), we propose to apply the \$70 million in FY 2018 as a reduction to non-Slice rates to fulfill the dollar-for-dollar pledge that cash flows freed up by the RCD refinancings would be used to repay appropriations.

Power Statement of Cash Flows

		A	B	C	D	E
	(\$000s)	2018	2019	Average	BP-16 Average	Change from BP-16
1	CASH FROM OPERATING ACTIVITIES					
2	MINIMUM REQUIRED NET REVENUE 1/	0	75,502	37,751	-	37,751
3	NON-CASH ITEMS:					
4	NON-FEDERAL INTEREST	11,628	10,747	11,188	12,871	(1,683)
5	DEPRECIATION AND AMORTIZATION	232,529	232,751	232,640	225,527	7,113
6	NON-CASH EXPENSES **NEW**	-	-	-	-	-
7	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	-	-	-	-	-
8	CAPITALIZATION ADJUSTMENT	(45,937)	(45,937)	(45,937)	(45,937)	-
9	NON-CASH REVENUES	(34,124)	(34,124)	(34,124)	(34,124)	-
10	CASH PROVIDED BY OPERATING ACTIVITIES	164,096	238,940	201,518	158,337	43,181
11						
12	CASH FROM INVESTMENT ACTIVITIES					
13	INVESTMENT IN:					
14	UTILITY PLANT (INCLUDING AFUDC)	(319,943)	(380,513)	(350,228)	(307,152)	(43,076)
15	ENERGY EFFICIENCY	0	0	0	-	-
16	FISH & WILDLIFE	(51,000)	(44,000)	(47,500)	(52,500)	5,000
17	CASH USED FOR INVESTMENT ACTIVITIES	(370,943)	(424,513)	(397,728)	(359,652)	(38,076)
18						
19	CASH FROM BORROWING AND APPROPRIATIONS:					
20	INCREASE IN BONDS ISSUED TO U.S. TREASURY	274,950	343,300	309,125	237,097	72,028
21	REPAYMENT OF BONDS ISSUED TO U.S. TREASURY	(9,000)	(110,250)	(59,625)	(22,825)	(36,800)
22	INCREASE IN FEDERAL CONSTRUCTION APPROPRIATIONS	95,993	81,213	88,603	90,902	(2,299)
23	REPAYMENT OF FEDERAL CONSTRUCTION APPROPRIATIONS	(127,550)	(71,504)	(99,527)	(79,238)	(20,289)
24	REPAYMENT OF NON-FEDERAL OBLIGATIONS **NEW**	-	-	-	-	-
25	CUSTOMER PROCEEDS	-	-	-	31,653	(31,653)
26	PAYMENT OF IRRIGATION ASSISTANCE	(27,546)	(57,186)	(42,366)	(56,274)	13,908
27	CASH PROVIDED BY BORROWING AND APPROPRIATIONS	187,543	144,408	165,975	201,315	164,096
28						
29	ANNUAL INCREASE (DECREASE) IN CASH	-	-	-	-	-
30						
31	PLANNED NET REVENUE FOR RISK	-	-	-	-	-
32						
33	TOTAL ANNUAL INCREASE (DECREASE) IN CASH	-	-	-	-	-

1/ Minimum required net revenues are added to ensure sufficient cash flow is available to repay the federal investment.

Changes to Statement of Cash Flows

- Consistent with the May 2016 QBR (see appendix), we have added two new lines to the revenue requirement. Highlighted in yellow on the previous page are “Non-Cash Expenses” and “Repayment of Non-Federal Obligations.”
 - Non-Cash Expenses recognizes that some EN expenses will be non-cash because EN will use a line of credit as the source of cash. The funds collected in rates for these expenses will instead be freed up to accelerate the repayment of appropriations.
 - Repayment of Non-Federal Obligations recognizes the repayment of the line of credit used in the previous year.
- For Power, the revenue requirement, the RAM cost table, and the Slice true-up tables are interrelated. Changes in one table, such as the addition of a line item, require changes to all tables to ensure consistency which is especially important for the Slice true-up.
- For the Initial Proposal, the new lines will have zero for values. The use of a line of credit is part of the RCD transactions that we are not directly forecasting. Instead, it is embedded in the calculation of the RCD Effect described earlier.
- The Final Proposal will likely have a non-zero value in these lines for 2018. Assuming EN uses a line of credit in FY 2017, there will be an actual cash obligation that needs to be repaid in FY 2018 so the Final Proposal revenue requirement would reflect this repayment. The net effect on the revenue requirement will be the same as if it were left in the calculation of the RCD Effect.

Transmission Revenue Requirements

Topics

- Income Statement
- Statement of Cash Flows
- Updates for Large Projects
- Scheduling Transmission Repayment



Transmission Income Statement

		A	B	C	D	E
	(\$000s)	2018	2019	Average	BP-16 Average	Change from BP-16
1	OPERATING EXPENSES					
2	TRANSMISSION OPERATIONS	174,772	171,983	173,377	158,037	15,340
3	TRANSMISSION ENGINEERING	59,688	60,765	60,227	54,668	5,559
4	TRANSMISSION MAINTENANCE INCLUDING ENVIRONMENT	176,893	178,365	177,629	163,412	14,217
5	TRANSMISSION ACQ & ANCILLARY SERVICES	145,059	145,274	145,166	140,775	4,392
6	BPA INTERNAL SUPPORT	98,602	100,786	99,694	83,280	16,414
7	OTHER INCOME, EXPENSES & ADJUSTMENTS	(11,831)	(11,825)	(11,828)	(2,100)	(9,728)
8	OTHER - USE OF RESERVES FOR RATE RELIEF	-	-	-	-	-
9	DEPRECIATION & AMORTIZATION	285,467	289,445	287,456	244,091	43,365
10	TOTAL OPERATING EXPENSES	928,649	934,792	931,721	842,163	89,558
11						-
12	INTEREST EXPENSE					-
13	INTEREST EXPENSE					-
14	FEDERAL APPROPRIATIONS	4,615	-	2,307	11,670	(9,363)
15	CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)	(18,968)	(18,968)	-
16	ON LONG-TERM DEBT	136,061	153,677	144,869	125,697	19,172
17	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	561	561	561	561	-
18	DEBT SERVICE REASSIGNMENT INTEREST	13,968	5,111	9,540	27,251	(17,712)
19	NON-FEDERAL INTEREST (INCL COI & LGIA)	63,277	70,421	66,849	52,817	14,032
20	PREMIUMS/DISCOUNTS	12	5,062	2,537	-	2,537
21	AFUDC	(24,424)	(23,183)	(23,803)	(42,116)	18,313
22	INTEREST INCOME	(8,415)	(10,199)	(9,307)	(12,244)	2,937
23	NET INTEREST EXPENSE	166,687	182,482	174,584	144,669	29,915
24						
25	TOTAL EXPENSES	1,095,336	1,117,274	1,106,305	986,832	119,473
26						
27	MINIMUM REQUIRED NET REVENUE	1,802	-	901	98,199	(97,298)
28	PLANNED NET REVENUES FOR RISK	-	-	-	-	-
29	TOTAL PLANNED NET REVENUE	1,802	-	901	98,199	(97,298)
30						-
31	TOTAL REVENUE REQUIREMENT	1,097,138	1,117,274	1,107,206	1,085,031	22,175

Transmission Statement of Cash Flows

		A	B	C	D	E
	(\$000s)	2018	2019	Average	BP-16 Average	Change from BP-16
1	CASH FROM CURRENT OPERATIONS:					
2	MINIMUM REQUIRED NET REVENUE	1,802	-	901	98,199	(97,298)
3	DRAWDOWN OF CASH RESERVES FOR CAPITAL FUNDING	15,000	15,000	15,000	15,000	-
4	EXPENSES NOT REQUIRING CASH:					
5	DEPRECIATION & AMORTIZATION	285,467	289,445	287,456	244,091	43,365
6	TRANSMISSION CREDIT PROJECTS NET INTEREST	4,054	3,774	3,914	5,445	(1,531)
7	AMORTIZATION OF CAPITALIZED BOND PREMIUMS	561	561	561	561	-
8	CAPITALIZATION ADJUSTMENT	(18,968)	(18,968)	(18,968)	(18,968)	-
9	NON-CASH REVENUES					
10	LGIA (INCL COI)	(18,618)	(17,137)	(17,878)	(32,963)	15,086
11	AC INTERTIE CO/FIBER	(6,887)	(6,887)	(6,887)	(6,853)	(34)
12	CASH PROVIDED BY CURRENT OPERATIONS	262,412	265,788	264,100	304,511	(40,411)
13						
14	CASH USED FOR CAPITAL INVESTMENTS:					
15	INVESTMENT IN:					
16	UTILITY PLANT	(477,279)	(487,214)	(482,246)	(622,576)	140,330
17	CASH USED FOR CAPITAL INVESTMENTS	(462,279)	(472,214)	(467,246)	(622,576)	155,330
18						
19	CASH FROM TREASURY BORROWING AND APPROPRIATIONS:					
20	INCREASE IN LONG-TERM DEBT	462,279	472,214	467,246	607,576	(140,330)
21	DEBT SERVICE REASSIGNMENT PRINCIPAL	(191,504)	(4,838)	(98,171)	(192,647)	94,476
22	REPAYMENT OF CAPITAL LEASES	(1,874)	(12,466)	(7,170)	(1,439)	(5,731)
23	REPAYMENT OF LONG-TERM DEBT	(5,076)	(248,484)	(126,780)	(30,225)	(96,555)
24	REPAYMENT OF CAPITAL APPROPRIATIONS	(63,958)	-	(31,979)	(65,200)	33,221
25	CASH FROM TREASURY BORROWING AND APPROPRIATIONS	199,867	206,426	203,147	318,066	(114,919)
26						
27	ANNUAL INCREASE (DECREASE) IN CASH	-	0	0	-	0
28	PLANNED NET REVENUES FOR RISK	-	-	-	-	-
29	TOTAL ANNUAL INCREASE (DECREASE) IN CASH	-	0	0	-	0

Updates to the Revenue Requirement

- The Initial Proposal revenue requirement will use historical plant in service data as of the end of FY 2015, the last complete fiscal year.
- A forecast of Plant in Service (PIS) will be used for FY's 2016-19 to project segmented net plant investment during the rate period.
- The PIS forecast will be based on initial capital spending levels currently being discussed in the 2016 IPR/CIR process. This will include forecasts of the three large projects (Big Eddy Knight, Central Ferry Lower Monumental, and Celilo) that will be energized in FY 2016.
- Consistent with past practice, the Final Proposal will replace the FY 2016 PIS forecasts with FY 2016 actuals.

Scheduling Transmission Repayment

- Repayment in FY 2019 was fixed to match the amount of cash being generated in the revenue requirement. We call this action hardwiring amortization.
- The revenue requirement must meet two tests:
 - Revenues must at least match expenses (income statement test)
 - Revenues need to supply sufficient cash to make the scheduled principal payments (statement of cash flows test). If it is insufficient, we add a new “expense,” Minimum Required Net Revenues (MRNR), to the income statement.
- It is possible for revenues to match expenses and generate more cash than is needed for principal payments. In this case, there would be no MRNR, net revenues would be zero, and the revenue requirement would produce positive net cash flow which would increase financial reserves.
- For Power, this condition was called the Anticipated Accumulation of Cash (AAC). We began hardwiring repayment in BP-12 to avoid equity issues between Slice and non-Slice customers.
- In FY 2019, the repayment study scheduled Federal repayment at a level low enough that the revenue requirement would produce positive net cash flow and add to Transmission reserves. To avoid this outcome, we propose to increase repayment to eliminate the positive cash flow. This would be consistent with the treatment for Power.

Repayment Modeling

Topics

- Background
- How the model works
- Issues
 - Modeling Lease Purchase Agreements
 - Transmission Interest Expense
 - Transmission Replacements
- Customer Access to the Model

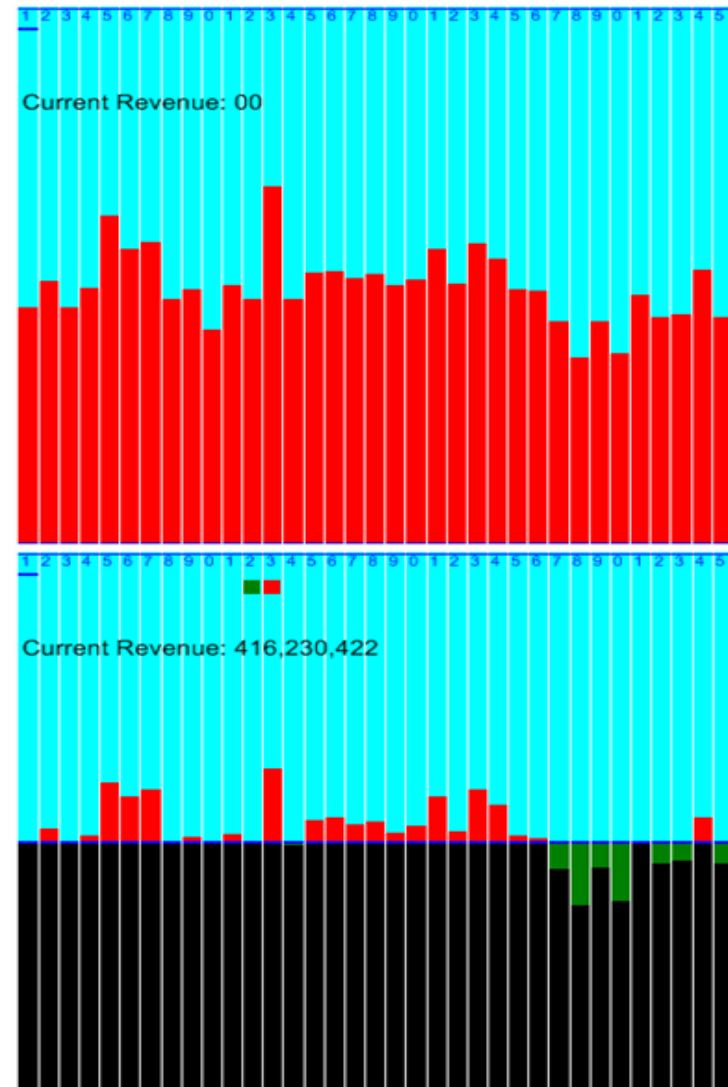


What is the Repayment Model?

- The primary purpose of the repayment model is to determine a schedule of Federal principal payments that satisfy all statutory requirements and ensure timely repayment of the Federal investments. It also calculates interest expense that is based on the repayment schedule.
- For the rate case, the repayment model schedules the total Federal repayment for each year of the rate period. BPA will pay, at a minimum, the total amount of Federal debt scheduled in the rate case, more can always be paid. The mix of bonds and appropriations actually repaid may vary from what the model selected.
- Given the variables provided, the model seeks to create level debt service (i.e. interest and principal for both Federal and non-Federal debt) at the lowest possible cost that can be held constant over the repayment period (50 years for Power and 35 years for Transmission).
- Studies are performed separately for Power and Transmission.

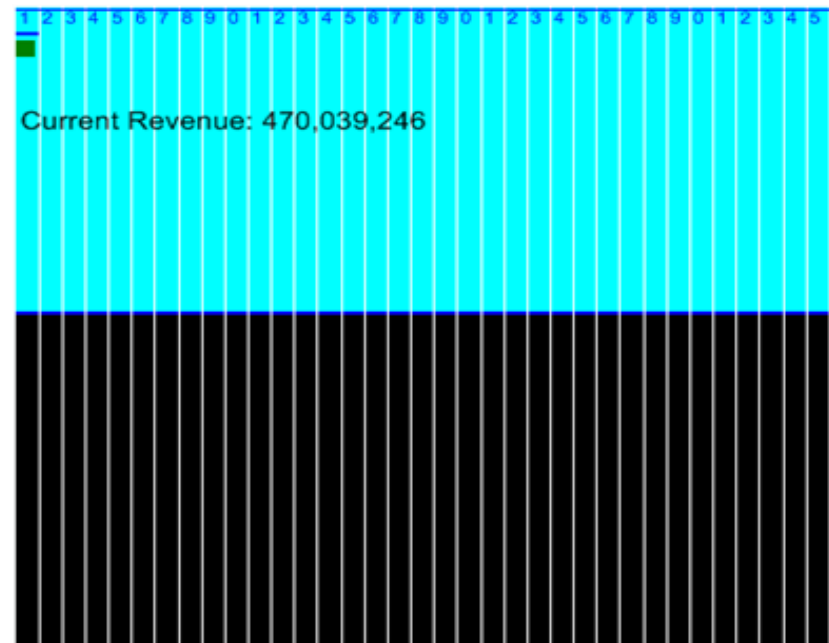
How the Repayment Model Works – Process

- The first repayment year of a study is the current fiscal year, now 2016.
- Each annual study includes all outstanding debt, projected debt through the year being studied, and a set of replacements.
- Non-Federal debt is fixed and considered immovable around which Federal debt is scheduled.
- All Federal debt is collectively positioned at its maturity date which usually creates a rather choppy debt service. This is seen in the top graph on the right in **RED**.
- A starting level of debt service is then determined by the first year in the study, it is labelled “Current Revenue” and is represented by the black line across the screen on the bottom graph.
- Any year with debt service above this line is considered a shortfall, which is shown in **RED**. Any year with debt service below this line has surplus revenue, which is shown in **GREEN**.



How the Repayment Model Works – Process

- The goal is to move the shortfalls into years with surplus revenue by calling some Federal debts into earlier maturities and refinancing others to later maturities.
- For a rate case, the model will prioritize the repayment of Federal debt based on the highest interest rate first consistent with the requirements of DOE Order RA 6120.2.
- If all the outstanding debt is unable to be paid within the current revenue level, the level is increased and the process continues.
- After moving Federal debt and leveling the debt service over the required time period, the study moves onto the next repayment year and repeats the process with the debt for that year.
- The new set of debt is the same as the set from the previous year less any payments made in that study year (i.e. 2016), any new projected debt (i.e. 2017), and a new set of replacements.
- While many of these parameters are set for rate case purposes, they can be adjusted to analyze a wide variety of debt management actions.



How the Repayment Model Works - Issuance Dates for Projected Federal Debt

- All issuance dates for projected Federal debt are based on a historical monthly shaping factor for each capital program.
- The historical actuals of capital spending per month for each capital program are turned into a percentage of total fiscal year capital spending which are then multiplied by each capital program's projected borrowing.
 - > For example, historical spending indicates that transmission spends, on average, roughly 6% of its construction capital in October; therefore, 6% of the projected borrowing needs will be issued in October.
- This process is followed if the total capital budget is more than \$30 million per year.
- If the total annual capital budget is between \$10 million and \$30 million, the borrowing is split evenly between March and September issuances.
- If the total annual capital budget is less than \$10 million, the entire borrowing is issued in September.
- With the expected loss of the interest offset credit (IOC) in FY 2016, this procedure may change.
 - > BPA is considering methods to minimize the impact of losing the IOC such as reducing the frequency of borrowing to reduce interest expense.
 - > If BPA changes its operational practices, the procedure described here will likely change to be consistent with practices.

How the Repayment Model Works - Maturities for Projected Federal Debt

- Step 1: Run base repayment study. All projected debt is modelled to be issued to the maximum term allowable under the Treasury MOU and no historical debt is refinanced.
- Step 2: Review the results for the first study year. Any critical year, a year without any discretionary debt repayment, is reviewed to determine if it is driven by historical or projected debt.
 - > If driven by historical debt, some of the debt due in that year will be targeted to be refinanced.
 - > If driven by projected debt, the projected debt will be placed in a different year with discretionary payments.
- Step 3: Modify the maturities of the projected debt. The first issuance is placed in the earliest year in which any projected debt is called in the study. The remainder of the debt will be issued past that point in accordance with the amount of discretionary payments made in a particular year.
- Step 4: Rerun the model and repeat steps 1-3. Continue to repeat the process until a critical year no longer appears or is seen in the last few years, making it unavoidable.
- The above process is performed again for the next study year and for every year being reviewed in the assigned rate case.
 - > In the context of the BP-18 rate case, this means that the first repayment year under review is 2017 because it is still a forecast period. Then, the process is performed for 2018 and finally for 2019, which is the last year in the rate case.

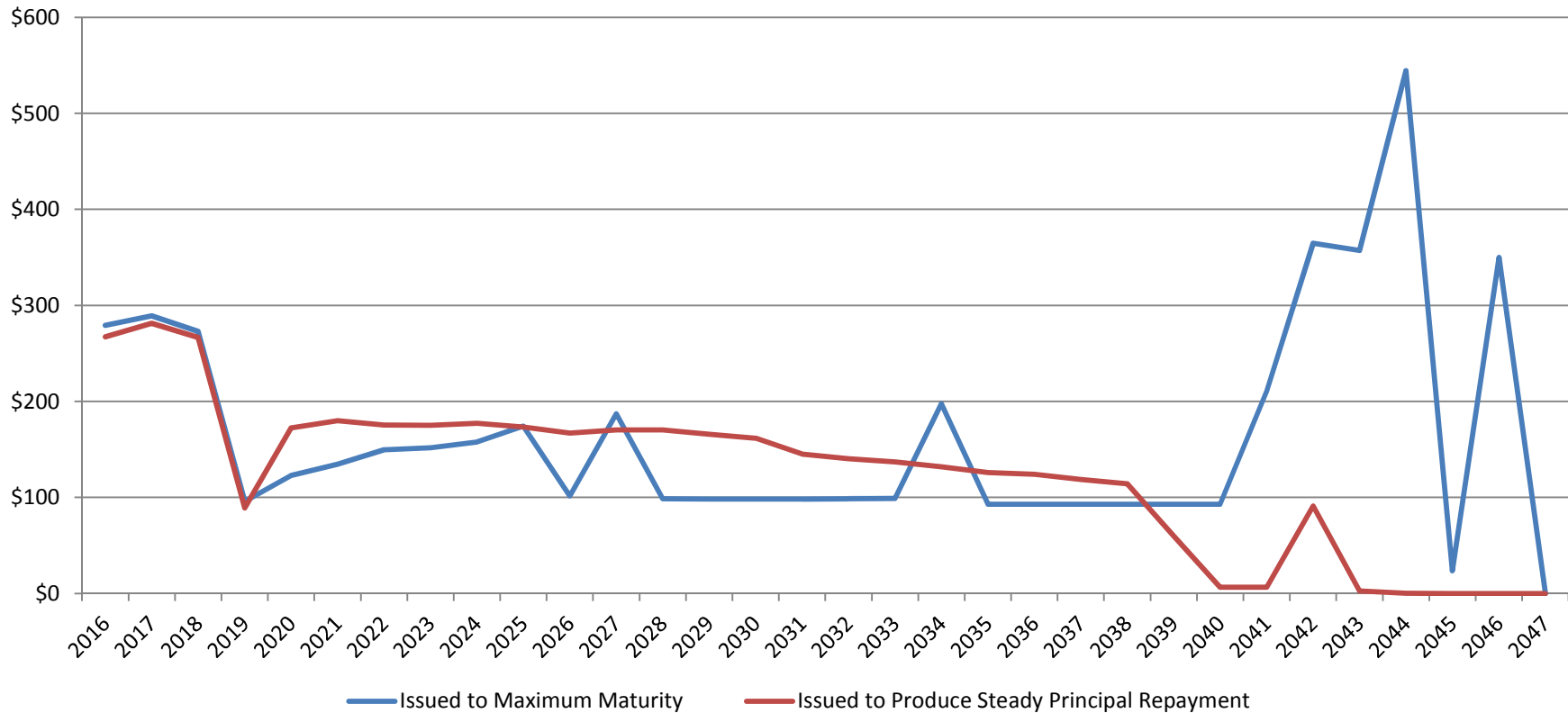
Issues - Transmission Lease Purchase Agreements

- BPA has refined the treatment of un-bonded lease purchase agreements in Transmission repayment studies.
- Lease purchase borrowing is done in two phases.
 - First, a short-term line of credit is used to finance capital investments. The line of credit can have a life of up to 7 years.
 - Second, once the line of credit is full, bonds are issued with a maximum maturity of 23 years.
 - This process results with the debt being outstanding for a total of 30 years, which is meant to mimic the maximum maturity on a single issuance for Treasury bonds.
- The repayment study includes all actual lease purchase transactions, some of which are lines of credit.
 - In the past, these lines of credit were given the maximum 7 year life at which point they were rolled into long-term bonds, which were given the maximum 23 year term.
 - In practice, these bonds are not being issued to the maximum term. Instead, they are being placed more strategically to avoid large peaks in the out-years and to reduce interest expense.
- We now assume varying maturities for the long term bonds in order to flatten non-Federal debt service and eliminate peaks in principal repayment of lease purchase debt.
- The resulting debt service stream is treated as a fixed schedule around which Federal debt is scheduled. The flatter payment schedule allows the repayment model to solve at a lower debt service level.

Issues - Transmission Lease Purchase Agreements

- Assuming maximum maturities (**Blue**) for lease purchase bonds creates large peaks of non-Federal debt in the 2040's which forces the model to solve at a higher level.
- Assuming varying maturities (**Red**) flattens non-Federal debt service which allows the model to solve at a lower level.

Transmission Non-Federal Debt Service (millions)



Issues - Transmission Interest Expense

- In BP-16, parties questioned the forecasting of Transmission interest expense. Rate case forecasts tend to be higher than actual results.
- The rate case interest expense forecast is an key output of the repayment model.
- The causes of the variances have been discussed periodically over the years. While the magnitude may change, the variances are largely due to differences between rate case and the operating year for capital spending, interest rates, and the source of funds (Treasury v. Lease Purchase). Refinancing opportunities in the operating year also influence on the variance.
- We are reviewing ways to address these variances in rate case forecasts. The material presented today does not reflect any potential adjustments to methodologies or modeling assumptions.
- Our intention is to include any changes to methodology or assumptions in the initial proposal. We would come back to a future workshop to discuss our proposal.

Issues - Transmission Replacements

- The repayment model includes a forecast of replacement costs through Transmission's 35 year repayment period. This simulates the cost of ensuring that the revenue generating capability in the study year is present in each year of the repayment period.
- The calculation of Transmission replacements has been refined.
 - The historical plant data set now factors in retirements.
 - Retired facilities have either been replaced with new facilities or been shut down without replacement. Regarding the former, the replacements forecast should be based on the existing plant instead of both the original plant and its replacement. In the latter case, there is no need to replace the facilities because they are no longer associated with revenue generation.
 - The refinement results in a lower forecast of replacement costs which means there will be less debt through the repayment period. This allows the repayment study to levelize at a lower point.

Customer Access to Repayment Model

- In BP-16, parties asked for access to the repayment model. It is not possible to provide a functional model that can be installed on your desktop because of the way it is designed.
- Earlier this year, BPA received a Freedom of Information Act (FOIA) request to obtain “a complete copy of all source code and design documentation for the Dynamic Debt Repayment System.”
- The request, tracking number BPA-2013-00804-F, can be found on BPA’s website. (News & Us → Freedom of Information Act → FOIA Library and Resources → FY 2016 FOIA Requests)
- BPA’s response will be posted at the same location. The expected completion date for this request is July 30, 2016.
- Although we plan to release the source code, significant effort will be required for non-BPA use of the model.
 - Portions of the code may need to be modified or re-written in order for it to function on a non-BPA network.
 - The model relies on DBC Debt Manager as the database system. One time fee of \$125,000 as well as an annual maintenance fee of \$32,500
 - Considerable staff time will be required to learn how to operate the model.
- BPA understands these limitations and would like to be as accommodating as possible. As in BP-16, we would be willing to run a small set of scenarios through the model on behalf of parties. If needed, staff would meet with interested parties to develop scenarios.



Appendix



Effects of Regional Cooperation Debt (RCD) Extension

- BPA’s advanced Federal appropriation payments are matched to the EN bond refinancing. For example, EN completed an RCD transaction in August 2014 for \$321 million. At the end of September, 2014, BPA paid down \$321 million in appropriations.
- EN and BPA are on different fiscal years, and debt service appears in BPA’s income statement in accordance with Generally Accepted Accounting Principles (GAAP).
- Converting EN debt service from its fiscal year to the Federal fiscal year requires a ¼ - ¾ split. For example, one-quarter of the debt service in EN’s FY 2015 will appear in BPA’s FY 2014. The remaining ¾ stays in BPA’s FY 2015 which also picks up ¼ of EN’s FY 2016.
- As a result of the fiscal year conversion, the reduction in EN debt service is much larger than the appropriation payment at the beginning of the five year period. It reverses at the end.
- Assuming that RCD transactions occur through FY 2018, the table below shows how each RCD transaction would affect the income statement in comparison to the advanced appropriations payment.

1	PRINCIPAL ONLY	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	Grand Total
2	EN Reduction (P1/3)	(378,079)	(268,438)	(383,724)	(394,216)	(322,350)		(1,746,808)
3	Fed Approp Payment	320,615	229,858	384,180	382,355	429,800		1,746,808
4	Grand Total	(57,464)	(38,581)	456	(11,861)	107,450	-	-
5	Slice Effect	(15,515)	(10,417)	123	(3,203)	29,012	-	-

Effect Over Time

- Slice customers should see large true-up credits associated with RCD transactions in FYs 2014 and 2015.
- In the BP-16 rate period, savings will be embedded in the revenue requirement and will affect the base rate rather than the true-up.
- In FY 2018, the Federal appropriations payment will be much larger than the income statement effect of the 2018 RCD transaction because of the fiscal year conversion. This effect will be embedded in the BP-18 revenue requirement. The Slice base rate will increase. The Slice effect will be neutral over the 2014-2018 period.
- The situation is different for non-Slice customers. Their rates in 2014-2015 will not change even though the RCD transactions will result in lower costs. All else being equal, non-Slice customers will contribute to reserves in this period. BPA plans to apply reserves accumulated in this rate period due to the RCD transactions to offset the non-Slice portion of the 2018 increase.

Accelerating Appropriations and Slice True-Up

- Accelerating the repayment of appropriations using cash freed up by an EN line of credit and from prepay requires changes to the FY 2016 Slice True-Up.
- The Slice True-Up table is not equipped to show the funds made available to offset the higher appropriations payment. It is also not equipped to show the repayment of the EN line of credit. However, the Slice True-Up will show the higher appropriations payment. Without modification, Slice customers would be responsible for their share of the higher appropriations payment.
- We propose two additional lines in the calculation of minimum required net revenues for the FY 2016 Slice True-Up.
 - Non-Cash Expenses: This will equal the portion of EN's annual budget that is covered by the line of credit which allows BPA to accelerate repayment of appropriations.
 - Customer proceeds: This will equal the amount of prepay funds committed to accelerate repayment of appropriations.
- For the FY 2017 Slice True-Up, we will propose an additional line that reflects the repayment of the EN line of credit obtained in FY 2016. If this line were not added to the Slice True-Up, Slice customers would receive a credit based on the lower EN debt service even though the cash freed up by the transaction would be used to repay the line of credit.
- These changes will be subject to review in the BP-18 rate proposal as described in Section 2.7.3 of the Tiered Rate Methodology.