# buckconsultants<sup>-</sup>

A Xerox Company

January 24, 2012

Mr. Mark Grady Principal Assistant Corporation Counsel Employees' Retirement System of the County of Milwaukee 901 N. 9<sup>th</sup> St. Milwaukee, WI 53233

# **RE:** Actuary's Review of the Financial Impact of Closing the Defined Benefit Plan

Dear Mark:

The Employee Benefits Workgroup has requested that Buck estimate the cost of closing the Employees' Retirement System under two scenarios: (1) a scenario that closes the plan for all new employees hired on or after January 1, 2012 and (2) a scenario where the plan is closed completely for all employees as of December 31, 2011 (i.e., no further accrual of benefits after that date for anyone). This analysis is an update to our analysis dated September 15, 2011. We have updated the analysis to reflect:

- State-Mandated Employee Pension Contributions (refer to our letter dated July 11, 2011)
- The decrease in the multiplier from 2.0% to 1.6% for current members' future service & future hires' total service, and the increase the normal retirement age to 64 for future hires only for certain employee groups (refer to our letter dated July 19, 2011)

This letter includes our analysis.

## Actuarial Analysis

There are two components to this analysis. The first is component is the change in benefits and eligibilities. Under Scenario (1), benefits for those hired before January 1, 2012 remain unchanged. Those that are hired on or after January 1, 2012 received no benefits from the Retirement System. Under Scenario (2), no future benefits are accrued under the Retirement system on or after January 1, 2012. This not only impacts those that are hired on or after January 1, 2012, but also those already in the Retirement system. For those in the Retirement System as of January 1, 2012, benefits are frozen as of January 1, 2012. This means that benefits will not increase due to pay or service on or after January 1, 2012. Members will be allowed to accrue eligibility service in this analysis.

The second component is the recommendation that the funding policy be changed to reflect the closing of the retirement system. The current funding policy of the Retirement System includes amortizing unfunded actuarial accrued liability based on the source of the unfunded liability: contribution variances are amortized over 5 years, administrative expenses over 10 years and all other unfunded liability over 30 years. While the Retirement System is open to new hires, funding these liabilities over up to thirty years is reasonable because contributions will continue to be made to the Retirement System based on the payroll of future active members of the plan. When a retirement system is closed to new hires, recommended actuarial practice is that the funding policy be revised so that the unfunded liability is paid off at the moment the Retirement System is projected to no longer have active members. More

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specifically, for pay related plans such as the Employees' Retirement System, unfunded liability is paid off over the future projected salary of covered members. The following exhibit details the impact of closing the Employees Retirement System under Scenarios (1) and (2).

As of January 1, 2011		Scenario (1) New Employees	Scenario (2) No Future Accruals	
Valuation Results				
1. Present Value of Future Benefits	\$	2,199,829,706	\$	1,929,427,864
2. Market Value of Assets	\$	1,895,166,843	\$	1,895,166,843
3. Present Value of Future Member Contributions	\$	101,554,288	\$	-
4. Liabilities remaining to be funded: (1 - 2 - 3)	\$	203,108,575	\$	34,261,021
5. Present Value of Future Payroll of Members				
remaining in the Fund	\$	1,509,565,199	\$	1,509,565,199
6. Contribution Rate		13.4547733 %		2.2695953 %
7. Actual Funding Contribution Calculated by Actuary	\$	30,992,099	\$	5,227,849

### Impact of Closing the Employees' Retirement System

Item 1, the present value of future benefits (PVFB) is the total amount of projected benefits to be funded under the respective scenario. For comparison purposes, the actuarial accrued liability (AAL) of the Retirement System is just under \$2.1 billion as of January 1, 2011. The PVFB is larger than the AAL under Scenario (1) because Scenario (1) incorporates all projected service. The PVFB is smaller than the AAL under Scenario (2) because Scenario (2) does not include future salary increases, and similar to the AAL, does not include future service. Subtracting the market value of liabilities under Item 2 and the present value of future member contributions under Item 3, we are left with the remaining amount of liabilities to be funded in Item 4. Because the Retirement system is closed under both scenarios, we finance the liabilities remaining to be funded over the present value of future payroll in Item 5, to arrive at the contribution rate in Item 6. The contribution rate is as a percent of pay of members in the retirement system. While the rate is designed to remain level if the assumptions are met, as payroll shrinks, the dollar amount will eventually reduce to zero. The Dollar contributions under Item 7 are for year one. It represents the projected payroll for the group multiplied by the contribution rate.

The following is a similar exhibit for OBRA. The concept is similar to that outlined for ERS in the prior paragraph.

#### Impact of Closing the OBRA Retirement System

As of January 1, 2011		cenario (1) Iew Employees	Scenario (2) No Future Accruals		
Valuation Results					
1. Present Value of Future Benefits	\$	7,519,731	\$	5,519,524	
2. Market Value of Assets	\$	1,402,225	\$	1,402,225	
3. Present Value of Future Member Contributions	\$	3,058,753	\$	-	
4. Liabilities remaining to be funded: (1 - 2 - 3)	\$	3,058,753	\$	4,117,299	
5. Present Value of Future Payroll of Members					
remaining in the Fund	\$	71,643,208	\$	71,643,208	
6. Contribution Rate		4.2694250 %		5.7469495 %	
7. Actual Funding Contribution Calculated by Actuary	\$	396,489	\$	533,703	

Exhibit I contains a projection of the contributions under the current plan and the two scenarios for ERS. Note that the Current Plan contributions are for an open group. For a reasonable comparison, the two scenarios should be added to the plan, if any, for new hires. Exhibit II contains a projection of contributions under the current plan and the scenario for ERS with the 1%-4% replacement plan based on service. The current ERS plan is valued at 8.457% of payroll. This amount is based on the composite rate of the entire group. The normal cost for members of ERS for those in the most recently enacted provisions of the groups is much lower at 7.166%.

Exhibit III contains a projection of the contributions under the current plan and the two scenarios for OBRA. This exhibit is similar to Exhibit I for ERS. Note that the Current Plan contributions are for an open group. For a reasonable comparison, the two scenarios should be added to the plan, if any, for new hires. Exhibit IV contains a projection of contributions under the current plan and the one scenario for OBRA with 1%-4% replacement plan based on service. The current OBRA plan is valued at 2.04% of payroll. This amount is based on the composite rate of the entire group. One item to note is that the OBRA plan replacement plans do not include a component for expenses. Expenses are a fairly significant part of the current OBRA plan.

## Basis for the Analysis

Unless otherwise noted in this analysis, we have based this analysis on the data, assumptions and methods used for the preliminary results of the January 1, 2011 actuarial valuation. For purpose of this analysis, current provisions include the provisions included for the January 1, 2011 actuarial valuation, updated for the results of the state mandated member contributions and age 64/1.6% multiplier analysis noted in the first paragraph of this analysis.

We understand that Scenario (1) would impact all future employees of the County and that Scenario (2) would impact all current and future employees of the County. We made use of the market value of assets instead of the actuarial value of assets that would be used in the valuation. We made use of the market value of assets to give a better sense of the long term contribution rate. Use of the actuarial value of assets as of January 1, 2011 of \$1.93 billion would result in lower contribution rates in early years and higher contributions later than that shown in Item 7. We assumed that the retirement system would be closed as of January 1, 2011 instead of 2012 to simplify the analysis. One additional year of benefit accruals would increase the amount of contributions, but does not materially impact the illustration.

The undersigned is a Member of the American Academy of Actuaries and meets the Academy's Qualification Standards to issue this Statement of Actuarial Opinion.

Please call if you have any questions.

Sincerely,

Larry Langer, ASA, EA, MAAA Principal, Consulting Actuary

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cc: Paul Wilkinson Emily Urbaniak

#### Exhibit I Employees' Retirement System of the County of Milwaukee Projection of County Contributions under Current Provisions and Alternate Scenarios 1 and 2 Scenario 1: Plan is closed to new hires Scenario 2: Plan is closed to future accruals (Amounts in Millions)

		Projec	Projected County Contributions			Savings/(Cost Increase)		
Year	Projected Salary for Current actives	Current Provisions	Scenario 1	Scenario 2	Current Plan less Scenario 1	Current Plan less Scenario 2		
2011	221.6	15.9	31.0	5.2	(15.1)	10.7		
2012	202.6	18.9	28.3	4.8	(9.4)	14.1		
2013	186.8	21.7	26.1	4.4	(4.4)	17.3		
2013	173.1	20.3	24.2	4.1	(3.9)	16.2		
2015	160.9	26.3	22.5	3.8	3.8	22.5		
2016	149.6	28.2	20.9	3.5	7.3	24.7		
2017	138.8	29.1	19.4	3.3	9.7	25.8		
2018	128.4	30.2	18.0	3.0	12.2	27.2		
2010	119.1	31.2	16.7	2.8	14.5	28.4		
2020	110.6	32.2	15.5	2.6	16.7	29.6		
2021	102.9	33.3	14.4	2.4	18.9	30.9		
2021	96.1	34.4	13.4	2.4	21.0	32.1		
2022	89.4	35.6	12.5	2.5	23.1	33.5		
2023	83.1	36.8	11.6	2.0	25.2	34.8		
2024	76.9	38.1	10.8	2.0	25.2	36.3		
2023	70.7	39.3	9.9	1.8	27.5	37.6		
2028	64.3	39.3 40.7	9.9 9.0	1.7	29.4 31.7	39.2		
2027	58.0	40.7	9.0 8.1	1.5	33.9	40.6		
2028	51.9	42.0	7.3	1.4		40.0		
	46.4		6.5		36.2			
2030		45.0		1.1	38.5	43.9		
2031	41.3	46.5	5.8	1.0	40.7	45.5		
2032	36.4	48.1	5.1	0.9	43.0	47.2		
2033	31.7	49.7	4.4	0.7	45.3	49.0		
2034	27.6	20.0	3.9	0.7	16.1	19.3		
2035	23.6	10.0	3.3	0.6	6.7	9.4		
2036	19.9	0.5	2.8	0.5	(2.3)	0.0		
2037	16.7	10.1	2.3	0.4	7.8	9.7		
2038	13.9	11.9	1.9	0.3	10.0	11.6		
2039	11.5	46.6	1.6	0.3	45.0	46.3		
2040	9.5	38.5	1.3	0.2	37.2	38.3		
2041	7.7	37.3	1.1	0.2	36.2	37.1		
2042	6.2	32.2	0.9	0.1	31.3	32.1		
2043	4.9	28.1	0.7	0.1	27.4	28.0		
2044	3.8	35.5	0.5	0.1	35.0	35.4		
2045	2.9	36.7	0.4	0.1	36.3	36.6		
2046	2.2	38.0	0.3	0.1	37.7	37.9		
2047	1.6	37.8	0.2	0.0	37.6	37.8		
2048	1.2	39.1	0.2	0.0	38.9	39.1		
2049	0.9	40.4	0.1	0.0	40.3	40.4		
2050	0.6	41.8	0.1	0.0	41.7	41.8		
2051	0.4	43.2	0.1	0.0	43.1	43.2		
2052	0.3	44.7	0.0	0.0	44.7	44.7		
2053	0.2	46.2	0.0	0.0	46.2	46.2		
2054	0.1	47.8	0.0	0.0	47.8	47.8		
2055	0.1	49.4	0.0	0.0	49.4	49.4		
2056	0.0	51.1	0.0	0.0	51.1	51.1		
2057	0.0	52.8	0.0	0.0	52.8	52.8		
2058	0.0	54.6	0.0	0.0	54.6	54.6		
2059	0.0	56.5	0.0	0.0	56.5	56.5		
2060	0.0	58.4	0.0	0.0	58.4	58.4		
2061	0.0	60.4	0.0	0.0	60.4	60.4		
TOTAL	2,596.4	1,856.6	363.1	61.3	1,493.5	1,795.3		
NET PRES	ENT VALUE	378.4	203.6	34.3	174.8	344.1		

#### Exhibit II Employees' Retirement System of the County of Milwaukee Projection of County Contributions under Current Provisions and Alternate Scenarios 1 and 2 with 1%-4% Replacement Plan Based on Service Scenario 1: Plan is closed to new hires Scenario 2: Plan is closed to future accruals (Amounts in Millions)

			Current Provisions With 1%-4% Replacement Plan Based on Service				vice	
	Projected	Salary for	Projected County Contributions	Projected County Contributions		Savings/(Cost Increase)		
		Current and Future		2	Č.	Current Plan less	Current Plan less	
Year	Current Actives	Actives	Current Provisions	Scenario 1	Scenario 2	Scenario 1	Scenario 2	
2011	221.6	221.6	15.9	31.0	10.9	(15.1)	5.0	
2012	202.6	229.4	18.9	28.6	11.2	(9.7)	7.7	
2013	186.8	237.4	21.7	26.6	11.5	(4.9)	10.2	
2014 2015	173.1 160.9	245.7 254.3	20.3 26.3	24.9 23.4	11.8 12.3	(4.6) 2.9	8.5 14.0	
2015	149.6	263.2	28.2	23.4	12.3	5.0	14.0	
2010	138.8	203.2	20.2	22.1	13.0	7.0	16.1	
2018	128.4	282.0	30.2	21.0	12.9	9.2	17.3	
2019	119.1	291.9	31.2	20.1	13.0	11.1	18.2	
2020	110.6	302.1	32.2	19.3	13.1	12.9	19.1	
2021	102.9	312.7	33.3	20.7	13.3	12.6	20.0	
2022	96.1	323.6	34.4	20.3	13.3	14.1	21.1	
2023	89.4	334.9	35.6	19.9	13.2	15.7	22.4	
2024	83.1	346.6	36.8	19.5	13.4	17.3	23.4	
2025	76.9	358.8	38.1	19.2	13.5	18.9	24.6	
2026	70.7	371.3	39.3	20.4	13.7	18.9	25.6	
2027	64.3	384.3	40.7	20.2	13.8	20.5	26.9	
2028	58.0	397.8	42.0	20.0	13.9	22.0	28.1	
2029	51.9	411.7	43.5	19.9	14.1	23.6	29.4	
2030	46.4	426.1	45.0	19.8	14.1	25.2	30.9	
2031	41.3	441.0	46.5	21.8	14.1	24.7	32.4	
2032	36.4	456.5	48.1	21.9	14.0	26.2	34.1	
2033	31.7	472.4	49.7	22.1	14.0	27.6	35.7	
2034	27.6 23.6	489.0 506.1	20.0	22.3 22.6	14.1	(2.3)	5.9	
2035 2036	19.9	523.8	10.0 0.5	22.0	14.2 14.0	(12.6) (22.4)	(4.2) (13.5)	
2030	19.9	542.1	10.1	22.9	14.0	(13.2)	(13.5) (3.9)	
2037	13.9	561.1	11.9	23.8	13.9	(11.9)	(2.0)	
2039	11.5	580.8	46.6	24.4	13.6	22.2	33.0	
2040	9.5	601.1	38.5	25.0	13.2	13.5	25.3	
2041	7.7	622.1	37.3	13.4	12.8	23.9	24.5	
2042	6.2	643.9	32.2	13.6	13.2	18.6	19.0	
2043	4.9	666.4	28.1	13.9	13.6	14.2	14.5	
2044	3.8	689.8	35.5	14.2	14.0	21.3	21.5	
2045	2.9	713.9	36.7	14.6	14.5	22.1	22.2	
2046	2.2	738.9	38.0	15.0	14.9	23.0	23.1	
2047	1.6	764.7	37.8	15.5	15.4	22.3	22.4	
2048	1.2	791.5	39.1	16.0	15.9	23.1	23.2	
2049	0.9	819.2	40.4	16.5	16.5	23.9	23.9	
2050	0.6	847.9	41.8	17.0	17.0	24.8	24.8	
2051	0.4	877.6	43.2	17.6	17.6	25.6	25.6	
2052	0.3	908.3	44.7	18.2	18.2	26.5 27.4	26.5	
2053	0.2 0.1	940.1 973.0	46.2 47.8	18.8 19.5	18.8 19.5	27.4 28.3	27.4 28.3	
2054 2055	0.1	1,007.0	47.8	20.1	20.2	28.3 29.3	28.5 29.2	
2055	0.1	1,042.3	51.1	20.1	20.2	29.5 30.2	30.2	
2050	0.0	1,042.5	52.8	20.9	20.9	31.2	31.2	
2057	0.0	1,116.5	54.6	22.3	22.3	32.3	32.3	
2050	0.0	1,110.5	56.5	22.5	23.1	33.4	33.4	
2060	0.0	1,196.0	58.4	23.9	23.9	34.5	34.5	
2061	0.0	1,237.9	60.4	24.8	24.8	35.6	35.6	
TOTAL	2,596.4	30,273.1	1,856.6	1,050.7	776.8	805.9	1,079.8	
	NT VALUE		378.4	288.9	166.1	89.5	212.3	

#### Exhibit III OBRA 1990 Retirement System of the County of Milwaukee Projection of County Contributions under Current Provisions and Alternate Scenarios 1 and 2 Scenario 1: Plan is closed to new hires Scenario 2: Plan is closed to future accruals (Amounts in Millions)

	D. 1. 101	Projected County Contributions			Savings/(Cost Increase) Current Plan less Current Plan less		
Year	Projected Salary for Current actives	Current Provisions	Scenario 1	Scenario 2	Scenario 1	Scenario 2	
2011	8.9	0.4	0.4	0.5	0.0	(0.1)	
2012	7.8	0.4	0.3	0.5	0.1	(0.1)	
2013	7.0	0.4	0.3	0.4	0.1	0.0	
2014	6.4	0.4	0.3	0.4	0.1	0.0	
2015	6.0	0.4	0.3	0.4	0.1	0.0	
2016	5.8	0.5	0.3	0.3	0.2	0.2	
2017	5.6	0.5	0.2	0.3	0.3	0.2	
2018	5.4	0.5	0.2	0.3	0.3	0.2	
2019	5.2	0.5	0.2	0.3	0.3	0.2	
2020	5.0	0.5	0.2	0.3	0.3	0.2	
2021	4.9	0.5	0.2	0.3	0.3	0.2	
2022	4.8	0.6	0.2	0.3	0.4	0.3	
2023	4.8	0.6	0.2	0.3	0.4	0.3	
2024	4.8	0.6	0.2	0.3	0.4	0.3	
2025	4.8	0.6	0.2	0.3	0.4	0.3	
2026	4.7	0.6	0.2	0.3	0.4	0.3	
2027	4.7	0.6	0.2	0.3	0.4	0.3	
2028	4.7	0.6	0.2	0.3	0.4	0.3	
2029	4.5	0.6	0.2	0.3	0.4	0.3	
2030	4.5	0.7	0.2	0.3	0.5	0.4	
2031	4.5	0.7	0.2	0.3	0.5	0.4	
2032	4.4	0.7	0.2	0.3	0.5	0.4	
2033	4.5	0.7	0.2	0.3	0.5	0.4	
2034	4.4	0.6	0.2	0.3	0.4	0.3	
2035	4.3	0.6	0.2	0.3	0.4	0.3	
2036	4.3	0.6	0.2	0.3	0.4	0.3	
2037	4.2	0.6	0.2	0.3	0.4	0.3	
2038	4.3	0.6	0.2	0.3	0.4	0.3	
2039 2040	4.3 4.2	0.6	0.2 0.2	0.3	0.4 0.4	0.3	
2040 2041	4.2	0.6 0.6	0.2	0.2 0.2	0.4	0.4 0.4	
2041 2042	4.1 3.9	0.6	0.2	0.2	0.4	0.4	
2042 2043	3.9	0.6	0.2	0.2	0.4	0.4	
2043	4.0	0.6	0.2	0.2	0.4	0.4	
2044	3.8	0.6	0.2	0.2	0.4	0.4	
2045	3.6	0.6	0.2	0.2	0.4	0.4	
2040	3.5	0.0	0.2	0.2	0.4	0.4	
2047	3.1	0.7	0.2	0.2	0.6	0.5	
2040	2.9	0.7	0.1	0.2	0.6	0.5	
2019	2.6	0.7	0.1	0.2	0.6	0.5	
2050	2.5	0.7	0.1	0.1	0.6	0.6	
2052	2.2	0.7	0.1	0.1	0.6	0.6	
2053	1.9	0.7	0.1	0.1	0.6	0.6	
2054	1.6	0.7	0.1	0.1	0.6	0.6	
2055	1.3	0.7	0.1	0.1	0.6	0.6	
2056	0.9	0.7	0.0	0.1	0.7	0.6	
2057	0.6	0.7	0.0	0.0	0.7	0.7	
2058	0.3	0.8	0.0	0.0	0.8	0.8	
2059	0.1	0.8	0.0	0.0	0.8	0.8	
2060	0.0	0.8	0.0	0.0	0.8	0.8	
2061	0.0	0.8	0.0	0.0	0.8	0.8	
TOTAL	200.5	31.3	8.9	12.2	22.4	19.1	
NET PRES	ENT VALUE	6.6	3.1	4.3	3.5	2.3	

#### Exhibit IV OBRA 1990 Retirement System of the County of Milwaukee Projection of County Contributions under Current Provisions and Alternate Scenarios 1 and 2 with 1%-4% Replacement Plan Based on Service Scenario 1: Plan is closed to new hires Scenario 2: Plan is closed to future accruals (Amounts in Millions)

Year         Current Active           2011         2012           2013         2014           2015         2016           2017         2018           2019         2020           2021         2023           2022         2023           2024         2025           2026         2027           2028         2029           2030         2031           2032         2033           2034         2035           2035         2036           2037         2038           2039         2030           2031         2032           2033         2034           2035         2036           2037         2038           2039         2040           2041         2042           2043         2044           2045         2046           2047         2048           2049         2050           2051         2052           2053         2054           2055         2056           2057         2058			Current Provisions	s With 1%-4% Replacement Plan Based on Service				
Year         Current Active           2011         2012           2013         2014           2015         2016           2017         2018           2019         2020           2021         2022           2023         2024           2025         2026           2027         2028           2029         2030           2031         2032           2033         2034           2035         2036           2037         2038           2039         2040           2041         2042           2043         2044           2045         2046           2047         2048           2044         2045           2045         2046           2047         2048           2049         2050           2051         2052           2053         2054           2055         2056           2057         2058	ected S	Salary for	Projected County Contributions	Projected Coun	ty Contributions	Savings/(Cost Increase)		
2011           2012           2013           2014           2015           2016           2017           2018           2019           2020           2021           2022           2023           2024           2025           2026           2027           2028           2029           2030           2031           2032           2033           2034           2035           2036           2037           2038           2039           2034           2035           2036           2037           2038           2039           2040           2041           2042           2043           2044           2045           2046           2047           2048           2049           2050           2051           2052           2053           2054	ected S	Current and Future	Contributions	riojected Couli	Tiojected County Contributions		Current Plan less	
2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2044 2045 2046 2047 2048 2044 2045 2046 2047 2048 2044 2045 2046 2047 2048 2040 2041 2045 2055 2056 2055 2056 2057 2058	ves	Actives	Current Provisions	Scenario 1	Scenario 2	Scenario 1	Scenario 2	
2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2037 2038 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	8.9	8.9	0.4	0.4	0.8	0.0	(0.4)	
2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2036 2037 2038 2039 2040 2041 2042 2043 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2047 2048 2044 2045 2046 2047 2048 2047 2048 2049 2050 2051 2055 2056 2057 2058	7.8	9.2	0.4	0.4	0.7	0.0	(0.3)	
2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	7.0	9.5	0.4	0.3	0.7	0.1	(0.3)	
2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2051 2052 2055 2056 2057 2058	6.4	9.8	0.4	0.3	0.7	0.1	(0.3)	
2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2040 2041 2042 2043 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2051 2055 2056 2057 2058	6.0	10.1	0.4	0.3	0.7	0.1	(0.3)	
2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2040 2041 2042 2043 2044 2045 2046 2047 2048 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	5.8	10.4	0.5	0.3	0.7	0.2	(0.2)	
2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2040 2041 2042 2043 2044 2045 2046 2047 2048 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	5.6	10.7	0.5	0.3	0.7	0.2	(0.2)	
2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	5.4	11.0	0.5	0.4	0.7	0.1	(0.2)	
2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2044 2045 2046 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	5.2	11.3	0.5	0.4	0.7	0.1	(0.2)	
2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2037 2038 2039 2040 2041 2042 2043 2044 2044 2045 2046 2047 2048 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	5.0	11.7	0.5	0.4	0.7	0.1	(0.2)	
2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2036 2037 2038 2039 2040 2041 2042 2043 2044 2044 2045 2046 2047 2048 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.9	12.0	0.5	0.4	0.7	0.1	(0.2)	
2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2044 2045 2046 2047 2048 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.8	12.4	0.6	0.4	0.7	0.2	(0.1)	
2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.8	12.7	0.6	0.5	0.7	0.1	(0.1)	
2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.8	13.1	0.6	0.5	0.7	0.1	(0.1)	
2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.8	13.5	0.6	0.5	0.7	0.1	(0.1)	
2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.7	13.9	0.6	0.5	0.7	0.1	(0.1)	
2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.7	14.3	0.6	0.5	0.7	0.1	(0.1)	
2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.7	14.8	0.6	0.6	0.7	0.0	(0.1)	
2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.5	15.2	0.6	0.6	0.7	0.0	(0.1)	
2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.5	15.7	0.7	0.6	0.8	0.1	(0.1)	
2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.5	16.1	0.7	0.7	0.7	0.0	0.0	
2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	4.4	16.6	0.7	0.7	0.7	0.0	0.0	
2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.5	17.1	0.7	0.7	0.7	0.0	0.0	
2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.4	17.6	0.6	0.7	0.7	(0.1)	(0.1)	
2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.3	18.2	0.6	0.7	0.7	(0.1)	(0.1)	
2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	4.3	18.7	0.6	0.8	0.7	(0.2)	(0.1)	
2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2047 2048 2049 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	4.2	19.3	0.6	0.8	0.7	(0.2)	(0.1)	
2040 2041 2042 2043 2044 2045 2046 2047 2048 2047 2048 2049 2050 2051 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	4.3	19.8	0.6	0.8	0.7	(0.2)	(0.1)	
2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	4.3	20.4	0.6	0.8	0.7	(0.2)	(0.1)	
2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	4.2	21.1	0.6	0.9	0.7	(0.3)	(0.1)	
2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	4.1	21.7	0.6	0.5	0.7	0.1	(0.1)	
2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	3.9	22.3	0.6	0.5	0.7	0.1	(0.1)	
2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2055 2056 2057 2058	3.9	23.0	0.6	0.6	0.7	0.0	(0.1)	
2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	4.0	23.7	0.6	0.6	0.7	0.0	(0.1)	
2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	3.8	24.4	0.6	0.6	0.7	0.0	(0.1)	
2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	3.6	25.1	0.6	0.6	0.7	0.0	(0.1)	
2049 2050 2051 2052 2053 2054 2055 2056 2057 2058	3.5	25.9	0.7	0.6	0.7	0.1	0.0	
2050 2051 2052 2053 2054 2055 2056 2057 2058	3.1	26.7	0.7	0.6	0.7	0.1	0.0	
2051 2052 2053 2054 2055 2056 2057 2058	2.9	27.5	0.7	0.6	0.7	0.1	0.0	
2052 2053 2054 2055 2056 2057 2058	2.6	28.3	0.7	0.6	0.7	0.1	0.0	
2053 2054 2055 2056 2057 2058	2.5	29.2	0.7	0.6	0.7	0.1	0.0	
2054 2055 2056 2057 2058	2.2	30.0	0.7	0.7	0.7	0.0	0.0	
2055 2056 2057 2058	1.9	30.9	0.7	0.7	0.7	0.0	0.0	
2056 2057 2058	1.6	31.9	0.7	0.7	0.7	0.0	0.0	
2057 2058	1.3	32.8	0.7	0.7	0.7	0.0	0.0	
2058	0.9	33.8	0.7	0.7	0.7	0.0	0.0	
	0.6	34.8	0.7	0.7	0.7	0.0	0.0	
	0.3	35.9	0.8	0.7	0.7	0.1	0.1	
	0.1	36.9	0.8	0.7	0.7	0.1	0.1	
	0.0	38.0	0.8	0.8	0.8	0.0	0.0	
	0.0	39.2	0.8	0.8	0.8	0.0	0.0	
TOTAL 20 NET PRESENT VALUE	00.5	1,047.1	31.3 6.6	29.8 5.8	<u>36.1</u> 9.0	1.5 0.8	(4.8)	