Guide to the Digital Section Pension Modeller
A potentially useful tool.

Introduction

This Microsoft Excel modeller has been designed to be a reasonable approximation of pension values over a lifetime. (This Excel file should also be compatible with Apple Numbers and OpenOffice. If you encounter any problems then let the HPPA team know).

It attempts to better understand and highlight the negative impact of zero discretionary increases over past and future years covering a thirty-year time-horizon, from year of retirement.

The Digital and HP Sections of the HP Retirement Benefits Plan are managed according to different rules and policies and therefore any member surveys ideally need to take these differences into account. It is for this reason that the current HPPA survey is taking a differentiated approach between Digital and HP members.

This modeller is unique to Digital members.

Any pension is made up of various elements and complex calculations so this model will never be totally accurate – but it should hopefully be a useful and valuable indicator.

You should verify the degree of accuracy of the modeller against your actual personal data and factor in any differences in the results in how you interpret the output and form any conclusions or judgements.

The modeller should hopefully provide indicative values and useful insight.

Refer to the "Calculations Section" for further explanation.

The modeller was originally designed with existing pensioners in mind – however – "late modifications" have been made to enable deferred members to enter future dates and values to get a similar style perspective *(and to repeat, this is just an indicative guide and you must do your own calculations and validations*).

Modeller Feedback

If you feel there are significant flaws in the logic of the modeller and don't think it appropriate to your circumstances – then discard using it – and send your feedback to the HPPA team.

If you have any concerns or questions about the use of the modeller as part of this HPPA 2021 Survey – then please send a message to the team and we will attempt to answer any questions and provide clarification.

Overall Approach

Using the input data provided, annual pension increases are calculated using discretionary increases granted in the past and the assumption of continued zero discretionary increases in the future, over a thirty-year horizon.

The *Calculations Section* further below – provides further detail on how pension increases are calculated.

For comparison purposes, an RPI-based pension value is also calculated using actual past RPI values and a default future annual average rate (which can be changed enabling you to simulate different permutations).

A basic "Buying Power" value is calculated – which is the value of the actual pension declining in value against the RPI pension.

The modeller calculates these values and displays them in tables and graphs over a thirty-year period, starting from year of retirement.

The idea of "buying power" and the way the modeller calculates it is again a simple straight-forward approach.

It is based on the declining value of a pension against the RPI pension that is growing according to RPI. The complexities of differentiating between RPI and CPI and "personal inflation" rates are ignored at this stage.

The table below gives a view of the calulcation model used – that is – a pension growing at a slower rate than a pension growing each year based on RPI, and the "buying power" of the pension declining as a result.

The basic "Buying Power" calculation the modeller uses

Year	Pension with discretionary increases	Pension with RPI increases	Pension shortfall against RPI Pension	Buying Power (Pension less shortfall)	Cumulative Shortfall in income against RPI Pension	Buying Power of Pension as % of current pension
1	£10,000	£10,000	£0		£0	
2	£10,025	£10,200	-£175	£9,850	-£175	98%
3	£10,050	£10,500	-£450	£9,600	-£625	96%
4	£10,075	£10,700	-£625	£9,450	-£1,250	94%
5	£10,100	£10,900	-£800	£9,300	-£2,050	92%
Total Income	**£50,250**	**£52,300**				
Difference in Total Incomes	-£2,050					

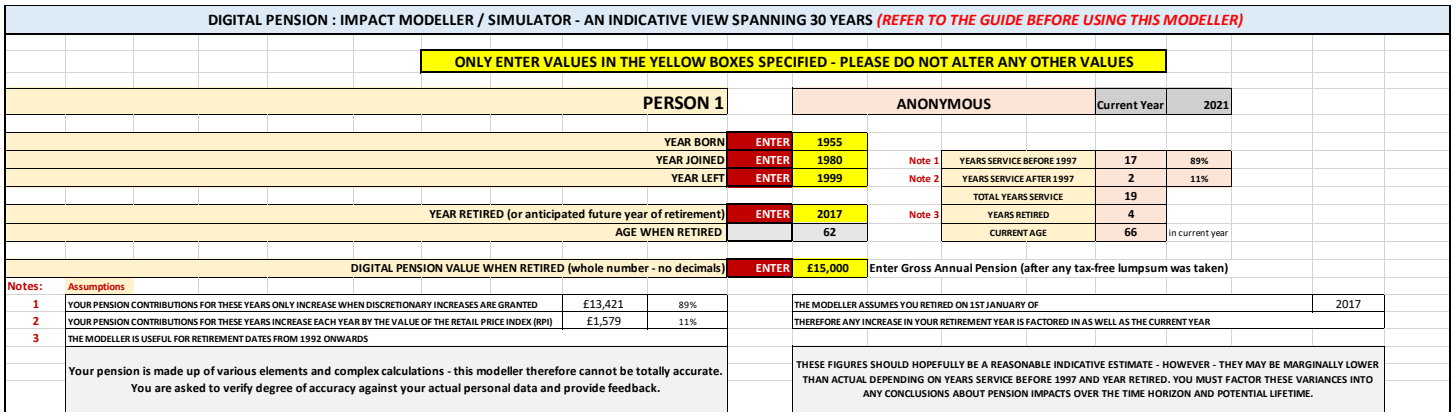
Using the modeller – the various tabs

- Within the Excel spreadsheet there are a number of tabs with titles.
- You input basic values and review the output results on the tab entitled **"Master Summary"**
- You can also view graphs visualising certain data values on the tab entitled **"Summary Graphs"**
- All other tabs contain detailed workings and reference data and are "locked"

Input data Required

- Year Born
- Year joined company
- Year left company
- If already retired
  - Year retired and started taking pension
  - Gross value of annual pension in first year of retirement (after taking any tax free lumpsum)
- If a Deferred member
  - For Year Retired – enter your anticipated future year of retirement
  - Anticipated Gross Value of pension when retiring (after taking any tax free lumpsum)
- Please note – Age When Retired is calculated and will therefore be older than current age if deferred

The section where values are input:



DIGITAL PENSION : IMPACT MODELLER / SIMULATOR - AN INDICATIVE VIEW SPANNING 30 YEARS *(REFER TO THE GUIDE BEFORE USING THIS MODELLER)*

ONLY ENTER VALUES IN THE YELLOW BOXES SPECIFIED - PLEASE DO NOT ALTER ANY OTHER VALUES

PERSON 1		ANONYMOUS			Current Year	2021
YEAR BORN	ENTER	1955				
YEAR JOINED	ENTER	1980	Note 1	YEARS SERVICE BEFORE 1997	17	89%
YEAR LEFT	ENTER	1999	Note 2	YEARS SERVICE AFTER 1997	2	11%
				TOTAL YEARS SERVICE	19	
YEAR RETIRED (or anticipated future year of retirement)	ENTER	2017	Note 3	YEARS RETIRED	4	
AGE WHEN RETIRED		62		CURRENT AGE	66	in current year
DIGITAL PENSION VALUE WHEN RETIRED (whole number - no decimals)	ENTER	£15,000	Enter Gross Annual Pension (after any tax-free lumpsum was taken)			

Notes:	Assumptions		
1	YOUR PENSION CONTRIBUTIONS FOR THESE YEARS ONLY INCREASE WHEN DISCRETIONARY INCREASES ARE GRANTED	£13,421	89%
2	YOUR PENSION CONTRIBUTIONS FOR THESE YEARS INCREASE EACH YEAR BY THE VALUE OF THE RETAIL PRICE INDEX (RPI)	£1,579	11%
3	THE MODELLER IS USEFUL FOR RETIREMENT DATES FROM 1992 ONWARDS		

THE MODELLER ASSUMES YOU RETIRED ON 1ST JANUARY OF 2017

THEREFORE ANY INCREASE IN YOUR RETIREMENT YEAR IS FACTORED IN AS WELL AS THE CURRENT YEAR

Your pension is made up of various elements and complex calculations - this modeller therefore cannot be totally accurate. You are asked to verify degree of accuracy against your actual personal data and provide feedback.

THESE FIGURES SHOULD HOPEFULLY BE A REASONABLE INDICATIVE ESTIMATE - HOWEVER - THEY MAY BE MARGINALLY LOWER THAN ACTUAL DEPENDING ON YEARS SERVICE BEFORE 1997 AND YEAR RETIRED. YOU MUST FACTOR THESE VARIANCES INTO ANY CONCLUSIONS ABOUT PENSION IMPACTS OVER THE TIME HORIZON AND POTENTIAL LIFETIME.

Summary Assessment Section

***Note*:** If using the modeller as a deferred member, the Summary Assessment Section showing the values for "Current Year" - represents the anticipated year of retirement. For existing pensioners, the "Current Year" is obviously 2021.

Using the input values, the modeller runs a number of calculations and provides an "estimated impact assessment".

This section shows:

Current Year Estimates and Age 84

- The estimated current value of your pension based on past discretionary increases for pre-1997 service and RPI increases for any post 1997 service
- The estimated current value of your pension *had it grown each year with RPI* percentage increases
- Differences between the two pension values

- These same values are projected to age 84 and the same comparisons made
- The value of your actual pension is calculated using historical discretionary increases and the continuation of the current practice of zero discretionary increases
- The value of the RPI pension is calculated using historical RPI percentages and a default future average value of RPI embedded within the modeller.

ESTIMATED PENSION VALUE FOR CURRENT YEAR (Refer to detailed tables below)			
This is an estimate using actual discretionary increases and any potential increase for the current year			
YOUR CURRENT PENSION WITH INCREASES SINCE RETIREMENT IS ESTIMATED AT BEING APPROXIMATELY	BEFORE TAX	£15,220	If this value is the exact same as when you retired - it indicates that all years service are pre-1997 and you retired after 2008 - however there are likely to be small increments in your actual pension based on other factors that the model does not/cannot represent.
ESTIMATED IMPACT ASSESSMENT - FROM YEAR OF RETIREMENT TO CURRENT YEAR			
IF FULL RPI HAD BEEN GIVEN EACH YEAR - YOUR PENSION WOULD BE ESTIMATED TO BE WORTH TODAY		£17,191	*This is calculated using actual historical RPI figures (see detailed view below) and estimate for this year
THE DIFFERENCE BETWEEN YOUR CURRENT PENSION AND A PENSION INCREASED BY RPI EACH YEAR IS	BOX 1	-£1,971	
Your current pension is estimated at being	BOX 2	89%	of the value of your pension had it always risen by RPI to the present time
THE PRESENT "BUYING POWER" OF YOUR CURRENT PENSION IS ESTIMATED AS		£13,249	
Your current pension buying power is estimated at being		87%	of the value of your pension when you retired
CUMULATIVE AMOUNT OF "LOST" INCOME SINCE RETIREMENT TO THE CURRENT YEAR IS ESTIMATED AT		-£6,155	Total cumulative income from actual pension compared with total cumulative income from an RPI pension
ESTIMATED IMPACT ASSESSMENT - FROM YEAR OF RETIREMENT TO AGE 84			
AT AGE 84 - THE VALUE OF YOUR PENSION IS ESTIMATED TO BE		£15,807	This is based on continued zero discretionary increases being given over all future years
AT AGE 84 - IF YOUR PENSION INCREASED EVERY YEAR WITH RPI IT WOULD BE ESTIMATED TO BE		£24,553	This is based on using a DEFAULT VALUE for a forecasted annual rate of inflation over future years
AT AGE 84 - your pension is estimated at being		64%	of the value of your pension had it always risen by RPI to this age
AT AGE 84 - THE "BUYING POWER" OF YOUR PENSION IS ESTIMATED TO BE		£7,061	
At age 84 - your pension buying power is estimated to be		45%	of the value of your pension when you retired
AT AGE 84 - CUMULATIVE AMOUNT OF "LOST" INCOME COMPARED TO A PENSION THAT INCREASED WITH RPI		-£102,111	
These results are based on using A DEFAULT VALUE forecast rate of inflation % per year		2.0	based on the default value used below
			CHANGE VALUE BELOW TO SIMULATE DIFFERENT RATE

PLEASE NOTE:

If you choose to use the modeller in conjunction with the survey – the survey gives you the opportunity to submit the output values for BOXES 1-2 above as part of your survey data.

If providing data from the modeller for the survey – you are asked to ensure you use/keep the default future forecast rate of RPI used within the modeller – so that survey data from all those who participate is based on the same baseline assumption.

The survey also gives the opportunity to provide any other feedback on the modeller.

Simulating alternative rates of RPI

The modeller does allow you to change the rate of RPI for simulation purposes – and therefore the ability to change it has not been “disabled”.

What the Modeller aims to show

As well as the summary impact assessment table, the modeller shows the change in pension values over time and the impact of discretionary increases granted or not granted, and compares this against a pension that always rises with inflation.

It compares the difference between pensions in each year as well as cumulative differences and shows the results in various tables, both summary and detailed.

It shows the changing value of "buying power" over time.

The detailed table lists the historical and future forecast values used for RPI and discretionary increases, the resulting pension values and compares the differences.

Example Tables: Summary Table in 5-year increments to age 84

Past and Future Projected Values - from age 55 to 84 (in 5 year increments)

Comparison of actual pension increases against RPI based increases

YEAR	AGE	Digital Pension	Cumulative Pension Income Received	Pension receiving annual RPI	RPI Pension Cumulative Income	Digital Pension Value Difference with RPI Pension	Digital Cumulative Income Shortfall against RPI
-	55	-	-	-	-	-	-
-	60	-	-	-	-	-	-
2020	65	£15,188	£60,478	£16,854	£64,661	-£1,666	-£4,184
2025	70	£15,348	£136,897	£18,608	£154,122	-£3,260	-£17,225
2030	75	£15,510	£214,124	£20,544	£252,895	-£5,034	-£38,771
2035	80	£15,674	£292,167	£22,683	£361,947	-£7,008	-£69,780
2039	84	£15,807	£355,196	£24,553	£457,307	-£8,746	-£102,111

Example Tables: Detailed Table

DETAILED VIEW - COVERING 30 YEAR HORIZON

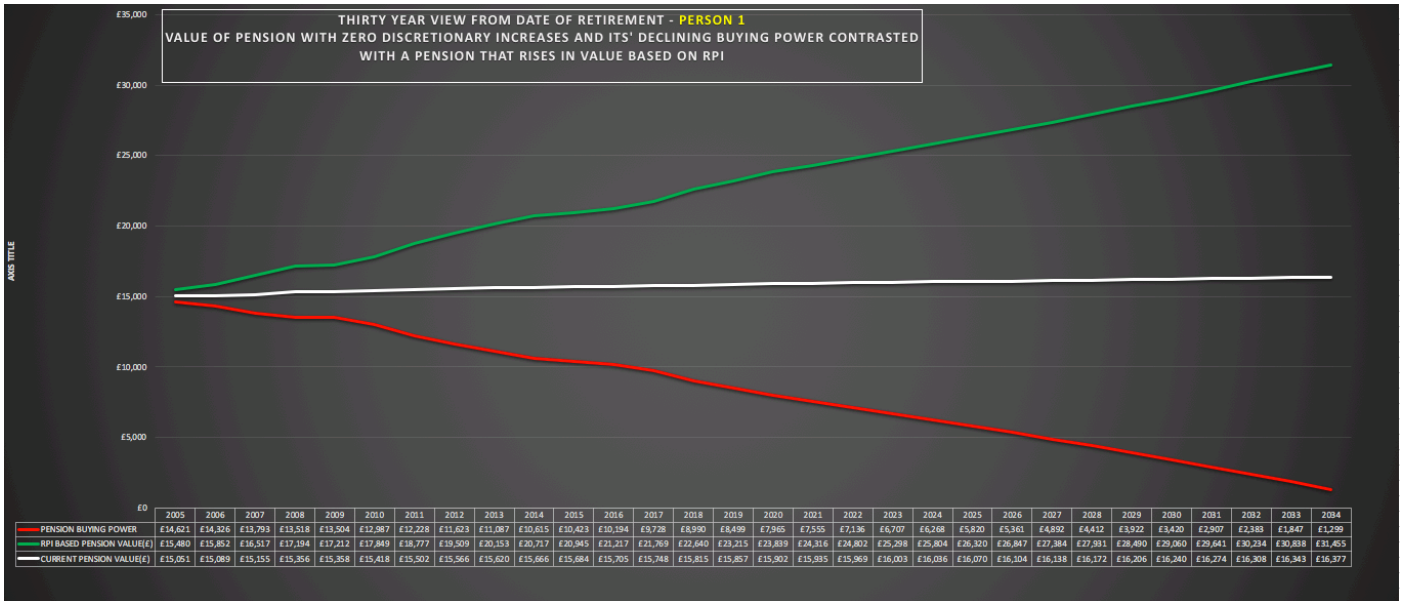
Past Actuals and Future Projections

Year	AGE	Historical RPI applied by Pension Plan and Personal Forecast RPI	Discretionary Pension Increase for Pre'97 service	Digital Pension	Pension with RPI applied	Shortfall Against RPI INCREASES	Your Pension Buying Power	Cumulative Shortfall against RPI Pension	Your Pension Buying Power
			Actual and Forecast	Grows with discretionary increase or Post '97 gains	Growing by RPI increases	Annual difference /reduced income	Declining value due to Inflation	CUMULATIVE LOSS OF INCOME	As % of Pension Value
2017	62	2.6%	0%	£15,041	£15,390	-£349	£14,692	-£349	98%
2018	63	4.0%	0%	£15,104	£16,006	-£901	£14,203	-£1,250	94%
2019	64	2.5%	0%	£15,145	£16,412	-£1,267	£13,877	-£2,518	92%
2020	65	2.7%	0%	£15,188	£16,854	-£1,666	£13,522	-£4,184	89%
2021	66	2.0%	0%	£15,220	£17,191	-£1,971	£13,249	-£6,155	87%
2022	67	2.0%	0%	£15,252	£17,535	-£2,283	£12,969	-£8,437	85%
2023	68	2.0%	0%	£15,284	£17,885	-£2,601	£12,682	-£11,039	83%
2024	69	2.0%	0%	£15,316	£18,243	-£2,927	£12,389	-£13,966	81%
2025	70	2.0%	0%	£15,348	£18,608	-£3,260	£12,089	-£17,225	79%
2026	71	2.0%	0%	£15,381	£18,980	-£3,599	£11,781	-£20,825	77%
2027	72	2.0%	0%	£15,413	£19,360	-£3,947	£11,466	-£24,771	74%
2028	73	2.0%	0%	£15,445	£19,747	-£4,301	£11,144	-£29,073	72%
2029	74	2.0%	0%	£15,478	£20,142	-£4,664	£10,814	-£33,737	70%
2030	75	2.0%	0%	£15,510	£20,544	-£5,034	£10,476	-£38,771	68%
2031	76	2.0%	0%	£15,543	£20,955	-£5,412	£10,131	-£44,183	65%
2032	77	2.0%	0%	£15,576	£21,374	-£5,799	£9,777	-£49,982	63%
2033	78	2.0%	0%	£15,609	£21,802	-£6,193	£9,415	-£56,175	60%
2034	79	2.0%	0%	£15,641	£22,238	-£6,597	£9,045	-£62,772	58%
2035	80	2.0%	0%	£15,674	£22,683	-£7,008	£8,666	-£69,780	55%
2036	81	2.0%	0%	£15,707	£23,136	-£7,429	£8,278	-£77,209	53%
2037	82	2.0%	0%	£15,740	£23,599	-£7,859	£7,882	-£85,068	50%
2038	83	2.0%	0%	£15,774	£24,071	-£8,298	£7,476	-£93,365	47%
2039	84	2.0%	0%	£15,807	£24,553	-£8,746	£7,061	-£102,111	45%
2040	85	2.0%	0%	£15,840	£25,044	-£9,204	£6,637	-£111,314	42%
2041	86	2.0%	0%	£15,873	£25,544	-£9,671	£6,202	-£120,985	39%
2042	87	2.0%	0%	£15,907	£26,055	-£10,149	£5,758	-£131,134	36%
2043	88	2.0%	0%	£15,940	£26,576	-£10,636	£5,304	-£141,770	33%
2044	89	2.0%	0%	£15,974	£27,108	-£11,134	£4,840	-£152,904	30%
2045	90	2.0%	0%	£16,008	£27,650	-£11,643	£4,365	-£164,547	27%
2046	91	2.0%	0%	£16,041	£28,203	-£12,162	£3,879	-£176,709	24%

The Modeller also provides a range of visual outputs.

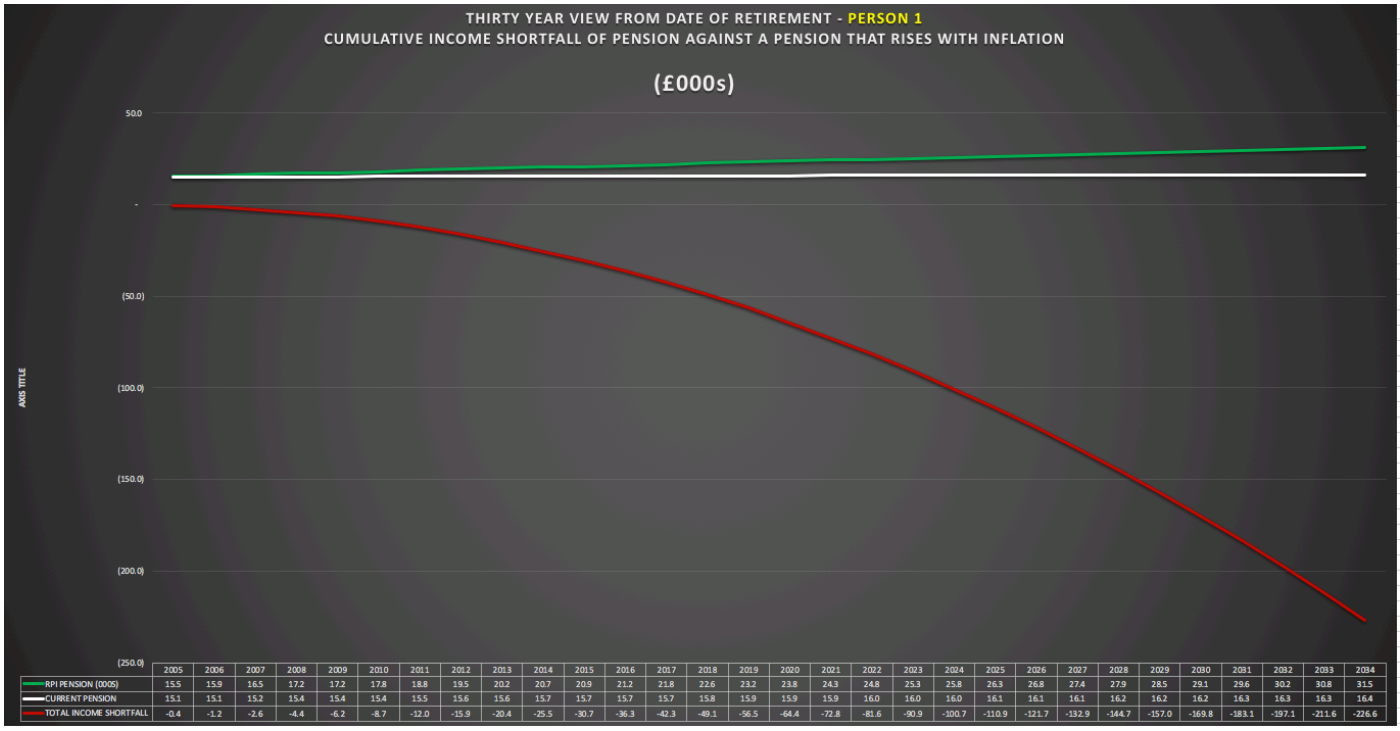
These can be viewed on the “Summary Graphs” tab

Graph 1 Example: Annual Pension, RPI Pension and Buying Power



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
PENSION BUYING POWER	£14,621	£14,326	£13,793	£13,518	£13,504	£12,987	£12,228	£11,623	£11,087	£10,615	£10,423	£10,194	£9,728	£8,990	£8,499	£7,965	£7,555	£7,136	£6,707	£6,268	£5,820	£5,361	£4,892	£4,412	£3,922	£3,420	£2,907	£2,383	£1,847	£1,299
RPI BASED PENSION VALUE(£)	£15,480	£15,852	£16,517	£17,194	£17,212	£17,849	£18,777	£19,509	£20,153	£20,717	£20,945	£21,217	£21,769	£22,640	£23,215	£23,839	£24,316	£24,802	£25,298	£25,804	£26,320	£26,847	£27,384	£27,931	£28,490	£29,060	£29,641	£30,234	£30,838	£31,455
CURRENT PENSION VALUE(£)	£15,051	£15,089	£15,155	£15,356	£15,358	£15,418	£15,502	£15,566	£15,620	£15,666	£15,684	£15,705	£15,748	£15,815	£15,857	£15,902	£15,935	£15,969	£16,003	£16,036	£16,070	£16,104	£16,138	£16,172	£16,206	£16,240	£16,274	£16,308	£16,343	£16,377

Graph 2 Example: The Cumulative “lost income”



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
RPI PENSION (000S)	15.5	15.9	16.5	17.2	17.2	17.8	18.8	19.5	20.2	20.7	20.9	21.2	21.8	22.6	23.2	23.8	24.3	24.8	25.3	25.8	26.3	26.8	27.4	27.9	28.5	29.1	29.6	30.2	30.8	31.5
CURRENT PENSION	15.1	15.1	15.2	15.4	15.4	15.4	15.5	15.6	15.6	15.7	15.7	15.7	15.7	15.8	15.9	15.9	15.9	16.0	16.0	16.0	16.1	16.1	16.1	16.2	16.2	16.2	16.3	16.3	16.3	16.4
TOTAL INCOME SHORTFALL	-0.4	-1.2	-2.6	-4.4	-6.2	-8.7	-12.0	-15.9	-20.4	-25.5	-30.7	-36.3	-42.3	-49.1	-56.5	-64.4	-72.8	-81.6	-90.9	-100.7	-110.9	-121.7	-132.9	-144.7	-157.0	-169.8	-183.1	-197.1	-211.6	-226.6

Simulating "WHAT IF" scenarios

As well as the basic calculations described above – the modeller considers and calculates a number of additional "What if" scenarios.

While members of the HPPA continue to engage with the company and Trustee Directors to find ways to influence a change in strategy and approach towards future discretionary increases, *there is no guarantee of success or significant sustainable change.*

These "what if" ideas represent extremely optimistic aspirational thinking for putting forward suggestions and challenges to HPE and Trustees, however, it must be remembered that the company has absolute discretion on granting discretionary increases, there is complexity in funding future increases as well as significant challenges involved in even just getting such ideas put forward for consideration.

Having said that – it is considered there is still value in using such ideas to explore and consider what it would take to bring about such significant positive change.

Unfortunately – it also highlights the negative impact of continued zero discretionary increases for those who have been retired for some time as well as recent retirees.

The "what if" scenarios used in the modeller are as follows:

Impact of "WHAT IF" simulation of alternative strategies - from 2021 onwards				
STRATEGY AD-HOC	STRATEGY - ETHICAL 1	STRATEGY - ETHICAL 2	STRATEGY - ETHICAL 3	STRATEGY - ETHICAL 4
NO REAL STRATEGY - assume 1% INCREASE EVERY 12 YEARS	REGULAR INCREASE BY RPI EVERY 2 YEARS	REGULAR INCREASE BY 50% OF RPI EVERY YEAR	INCREASE BY 50% OF RPI EVERY YEAR WITH FULL RPI EVERY 3 YEARS	SLIDING SCALE OF RPI BASED INCREASES OVER FUTURE HORIZON

The modeller calculates what the impact would be on future pension values if each of the above "strategies" were applied and then compares the impact against the present practice of continued zero discretionary increases.

The modeller starts with a default future annual rate of RPI which is used within each of these strategies - but you can change this for simulation purposes.

The impact of these strategies on future pension values and income is displayed in tables and graphs.

The Master Summary Page includes a table that shows the positive impact of each strategy aligned to the 5 year summary table, indicating the amount by which your annual pension would increase and the total additional income that would be achieved over the 5-year age brackets.

The "What if" table is shown below.

Example: Someone who retired in 1999

SUMMARY VIEW - UP TO AGE 84

Past and Future Projected Values - from age 55 to 84 (in 5 year increments)								Impact of "WHAT IF" simulation of alternative strategies - from 2021 onwards									
Comparison of actual pension increases against RPI based increases								STRATEGY AD-HOC		STRATEGY - ETHICAL 1		STRATEGY - ETHICAL 2		STRATEGY - ETHICAL 3		STRATEGY - ETHICAL 4	
								NO REAL STRATEGY - assume 1% INCREASE EVERY 12 YEARS		REGULAR INCREASE BY RPI EVERY 2 YEARS		REGULAR INCREASE BY 50% OF RPI EVERY YEAR		INCREASE BY 50% OF RPI EVERY YEAR WITH FULL RPI EVERY 3 YEARS		SLIDING SCALE OF RPI BASED INCREASES OVER FUTURE HORIZON	
YEAR	AGE	Digital Pension	Cumulative Pension Income Received	Pension receiving annual RPI	RPI Pension Cumulative Income	Digital Pension Value Difference with RPI Pension	Digital Cumulative Income Shortfall against RPI	Pension will have increased by	Total Additional Income Gained	Pension will have increased by	Total Additional Income Gained	Pension will have increased by	Total Additional Income Gained	Pension will have increased by	Total Additional Income Gained	Pension will have increased by	Total Additional Income Gained
-	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2005	60	£15,051	£15,051	£15,480	£15,480	-£429	-£429	-	-	-	-	-	-	-	-	-	-
2010	65	£15,418	£91,426	£17,849	£100,104	-£2,431	-£8,677	-	-	-	-	-	-	-	-	-	-
2015	70	£15,684	£169,464	£20,945	£200,204	-£5,261	-£30,740	-	-	-	-	-	-	-	-	-	-
2020	75	£15,902	£248,491	£23,839	£312,883	-£7,937	-£64,392	-	-	-	-	-	-	-	-	-	-
2025	80	£16,070	£328,504	£26,320	£439,424	-£10,250	-£110,920	143	714	876	2,601	730	2,172	879	2,613	1,487	4,396
2029	84	£16,206	£393,123	£28,490	£550,075	-£12,284	-£156,952	145	1,291	1,500	7,349	1,350	6,632	1,820	8,459	2,467	12,774

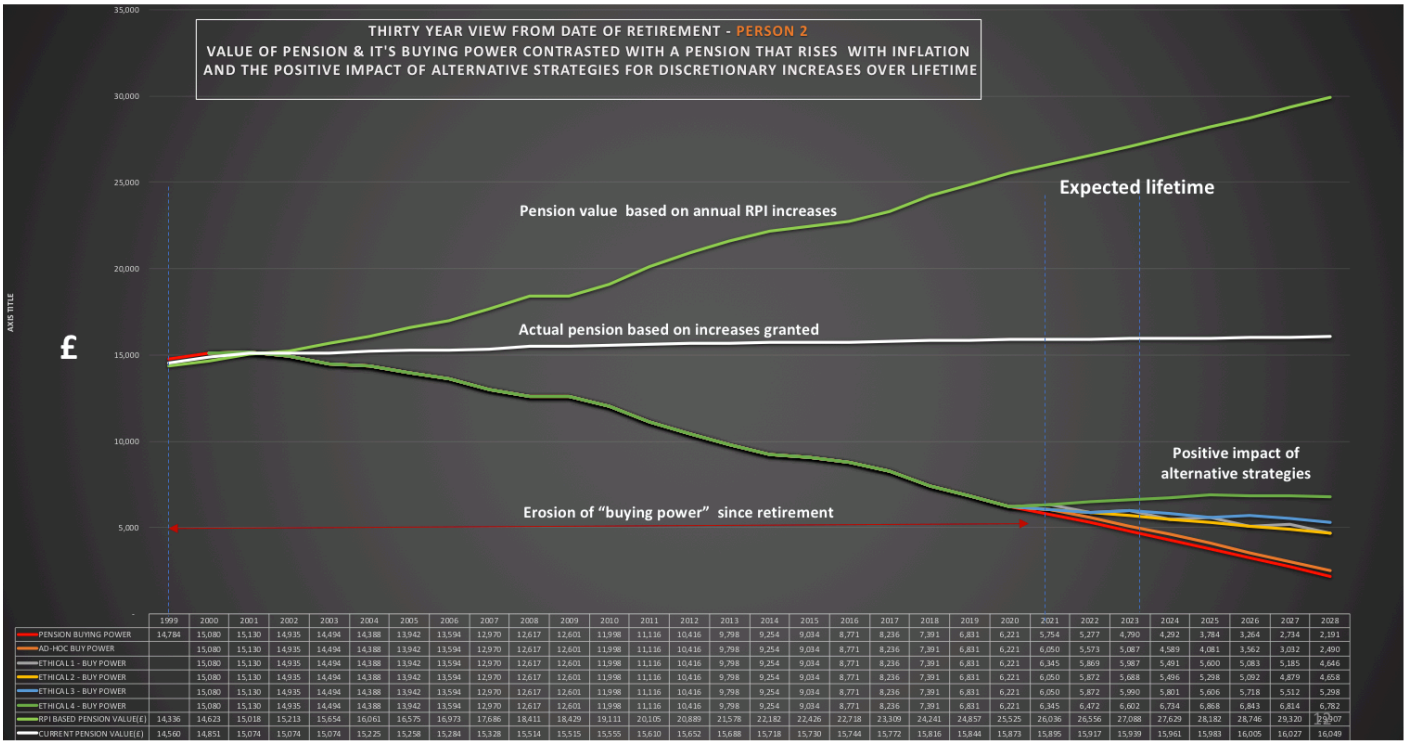
SIMULATION OF "WHAT IF" STRATEGIES FROM 2021 ONWARDS

"WHAT IF" STRATEGIES FOR FUTURE DISCRETIONARY INCREASES

		STRATEGY - AD HOC		STRATEGY - ETHICAL 1		STRATEGY - ETHICAL 2		STRATEGY - ETHICAL 3		STRATEGY - ETHICAL 4		
		IF ANY OF THESE STRATEGIES WERE IMPLEMENTED - THE POTENTIAL IMPACT IN HELPING TO REDUCE FUTURE "LOST INCOME' OVER REMAINING YEARS IS ESTIMATED AS FOLLOWS										
		NO REAL STRATEGY - assume 1% INCREASE EVERY 12 YEARS		REGULAR INCREASE BY RPI EVERY 2 YEARS		REGULAR INCREASE BY 50% OF RPI EVERY YEAR		INCREASE BY 50% OF RPI EVERY YEAR WITH FULL RPI EVERY 3 YEARS		SLIDING SCALE OF RPI BASED INCREASES OVER FUTURE HORIZON		
YEAR	AGE	%	INCREASE TO PENSION	%	INCREASE TO PENSION	%	INCREASE TO PENSION	%	INCREASE TO PENSION	% INCREASE	% OF RPI	INCREASE TO PENSION
2021	76	1.0%	£176	2.0%	£318	1.0%	£176	1.0%	£176	2.0%	100.0%	£318
2022	77	0.0%	£34	0.0%	£34	1.0%	£178	1.0%	£178	2.0%	100.0%	£324
2023	78	0.0%	£34	2.0%	£325	1.0%	£180	2.0%	£325	2.0%	100.0%	£331
2024	79	0.0%	£34	0.0%	£35	1.0%	£182	1.0%	£183	2.0%	100.0%	£338
2025	80	0.0%	£34	2.0%	£332	1.0%	£184	1.0%	£185	2.0%	100.0%	£344
2026	81	0.0%	£34	0.0%	£36	1.0%	£186	2.0%	£339	1.5%	75.0%	£273
2027	82	0.0%	£34	2.0%	£340	1.0%	£188	1.0%	£191	1.5%	75.0%	£277
2028	83	0.0%	£34	0.0%	£36	1.0%	£190	1.0%	£193	1.5%	75.0%	£281
2029	84	0.0%	£34	2.0%	£347	1.0%	£192	2.0%	£353	1.5%	75.0%	£285
2030	85	0.0%	£34	0.0%	£37	1.0%	£194	1.0%	£199	1.5%	75.0%	£290
2031	86	0.0%	£34	2.0%	£355	1.0%	£196	1.0%	£201	1.5%	75.0%	£294
2032	87	0.0%	£35	0.0%	£38	1.0%	£198	2.0%	£369	1.0%	50.0%	£213
2033	88	1.0%	£182	2.0%	£363	1.0%	£201	1.0%	£208	1.0%	50.0%	£215
2034	89	0.0%	£35	0.0%	£39	1.0%	£203	1.0%	£210	1.0%	50.0%	£218

Example Graph: Depicting the impact of alternative strategies

The pension situation of a person who retired in 1999



	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
PENSION BUYING POWER	14,784	15,080	15,130	14,935	14,494	14,388	13,942	13,594	12,970	12,617	12,601	11,998	11,116	10,416	9,798	9,254	9,034	8,771	8,236	7,391	6,831	6,221	5,754	5,277	4,790	4,292	3,784	3,264	2,734	2,191
AD-HOC BUY POWER		15,080	15,130	14,935	14,494	14,388	13,942	13,594	12,970	12,617	12,601	11,998	11,116	10,416	9,798	9,254	9,034	8,771	8,236	7,391	6,831	6,221	6,050	5,573	5,087	4,589	4,081	3,562	3,032	2,490
ETHICAL 1 - BUY POWER		15,080	15,130	14,935	14,494	14,388	13,942	13,594	12,970	12,617	12,601	11,998	11,116	10,416	9,798	9,254	9,034	8,771	8,236	7,391	6,831	6,221	6,345	5,869	5,987	5,491	5,600	5,083	5,185	4,646
ETHICAL 2 - BUY POWER		15,080	15,130	14,935	14,494	14,388	13,942	13,594	12,970	12,617	12,601	11,998	11,116	10,416	9,798	9,254	9,034	8,771	8,236	7,391	6,831	6,221	6,050	5,872	5,688	5,496	5,298	5,092	4,879	4,658
ETHICAL 3 - BUY POWER		15,080	15,130	14,935	14,494	14,388	13,942	13,594	12,970	12,617	12,601	11,998	11,116	10,416	9,798	9,254	9,034	8,771	8,236	7,391	6,831	6,221	6,050	5,872	5,990	5,801	5,606	5,718	5,512	5,298
ETHICAL 4 - BUY POWER		15,080	15,130	14,935	14,494	14,388	13,942	13,594	12,970	12,617	12,601	11,998	11,116	10,416	9,798	9,254	9,034	8,771	8,236	7,391	6,831	6,221	6,345	6,472	6,602	6,734	6,868	6,843	6,814	6,782
RPI BASED PENSION VALUE(£)	14,336	14,623	15,018	15,213	15,654	16,061	16,575	16,973	17,686	18,411	18,429	19,111	20,105	20,889	21,578	22,182	22,426	22,718	23,309	24,241	24,857	25,525	26,036	26,556	27,088	27,629	28,182	28,746	29,320	29,907
CURRENT PENSION VALUE(£)	14,560	14,851	15,074	15,074	15,074	15,225	15,258	15,284	15,328	15,514	15,515	15,555	15,610	15,652	15,688	15,718	15,730	15,744	15,772	15,816	15,844	15,873	15,895	15,917	15,939	15,961	15,983	16,005	16,027	16,049

Calculations Section and Reference tables

Notes

Initial basic calculations based on user details

- Years of service before 1997 and as a % of total years of service
- Years of service after 1997 and as a % of total years of service
- The value and percentage of the starting pension that is attributable to pre/post 1997 service
- These values are then used to determine the amount by which the pension increases based on the discretionary increase percentage granted by the company

For each year from date of retirement and for the next 30 years, the modeller calculates values as follows:

- Uses the Reference Tables to determine past and future RPI values and discretionary increases

  Actual Pension
  - Before 2005 the value of the pension increases by the discretionary % increase granted
  - After 2005
    - The post '97 pension amount is automatically increased by the rate of inflation
    - If the discretionary increase is greater than 0% then:
      - The pre'97 pension amount is increased by the value of the discretionary percentage granted
      - *NOTE: The use of the above calculation needs to be validated – but is considered a "workable" approach at this time. The alternative is to apply the discretionary increase % to the entire pension, should any increase happen to be greater than RPI.*

  RPI-based pension
  - The RPI-based pension is always increased by the value of RPI from the year of retirement onwards using actual historical values and future forecast.

  Calculates the *"Buying Power"* of the pension

You are asked to assess the modeller approach and outputs against your own calculations, views and provide feedback.

Reference Tables

Actual discretionary increases granted in the past and Default RPI forecast values used

RPI and actual disctretionary increases granted					
Actual & FUTURE FORECASTS					
Year	RPI used by the company	Discretionary increases Granted			
1989	7.00%	7.00%			
1990	5.80%	5.80%			
1991	10.00%	10.00%			
1992	4.10%	4.10%			
1993	1.70%	1.70%			
1994	1.25%	1.25%			
1995	0.00%	0.00%			
1996	3.00%	3.00%			
1997	2.80%	2.80%			
1998	3.30%	0.00%			
1999	2.40%	4.00%			
2000	2.00%	2.00%			
2001	2.70%	1.50%			
2002	1.30%	0.00%			
2003	2.90%	0.00%			
2004	2.60%	1.00%			
2005	3.20%	0.00%			
2006	2.40%	0.00%			
2007	4.20%	0.00%			
2008	4.10%	1.00%			
2009	0.10%	0.00%			
2010	3.70%	0.00%			
2011	5.20%	0.00%			
2012	3.90%	0.00%			
2013	3.30%	0.00%			
2014	2.80%	0.00%			
2015	1.10%	0.00%			
2016	1.30%	0.00%			
2017	2.60%	0.00%			
2018	4.00%	0.00%			
2019	2.54%	**0.00%**			
2020	2.69%	**0.00%**			
2021	**2.00%**	**2.00%**	Forecast basd on user input		
2022	**2.00%**	**2.00%**	Forecast basd on user input		
2023	**2.00%**	**2.00%**	Forecast basd on user input		
2024	**2.00%**	**2.00%**	Forecast basd on user input		
2025	**2.00%**	**2.00%**	Forecast basd on user input		
2026	**2.00%**	**2.00%**	Forecast basd on user input		
2027	**2.00%**	**2.00%**	Forecast basd on user input		
2028	**2.00%**	**2.00%**	Forecast basd on user input		
2029	**2.00%**	**2.00%**	Forecast basd on user input		
2030	**2.00%**	**2.00%**	Forecast basd on user input		
2031	**2.00%**	**2.00%**	Forecast basd on user input		
2032	**2.00%**	**2.00%**	Forecast basd on user input		
2033	**2.00%**	**2.00%**	Forecast basd on user input		
2034	**2.00%**	**2.00%**	Forecast basd on user input		
2035	**2.00%**	**2.00%**	Forecast basd on user input		
2036	**2.00%**	**2.00%**	Forecast basd on user input		
2037	**2.00%**	**2.00%**	Forecast basd on user input		
2038	**2.00%**	**2.00%**	Forecast basd on user input		
2039	**2.00%**	**2.00%**	Forecast basd on user input		
2040	**2.00%**	**2.00%**	Forecast basd on user input		
2041	**2.00%**	**2.00%**	Forecast basd on user input		
2042	**2.00%**	**2.00%**	Forecast basd on user input		
2043	**2.00%**	**2.00%**	Forecast basd on user input		
2044	**2.00%**	**2.00%**	Forecast basd on user input		
2045	**2.00%**	**2.00%**	Forecast basd on user input		
2046	**2.00%**	**2.00%**	Forecast basd on user input		
2047	**2.00%**	**2.00%**	Forecast basd on user input		
2048	**2.00%**	**2.00%**	Forecast basd on user input		
2049	**2.00%**	**2.00%**	Forecast basd on user input		
2050	**2.00%**	**2.00%**	Forecast basd on user input		
2051	**2.00%**	**2.00%**	Forecast basd on user input		
2052	**2.00%**	**2.00%**	Forecast basd on user input		
2053	**2.00%**	**2.00%**	Forecast basd on user input		
2054	**2.00%**	**2.00%**	Forecast basd on user input		
2055	**2.00%**	**2.00%**	Forecast basd on user input		
2056	**2.00%**	**2.00%**	Forecast basd on user input		
2057	**2.00%**	**2.00%**	Forecast basd on user input		
2058	**2.00%**	**2.00%**	Forecast basd on user input		
2059	**2.00%**	**2.00%**	Forecast basd on user input		
2060	**2.00%**	**2.00%**	Forecast basd on user input		

"WHAT IF" SIMULATION VALUES USED IN THE MODELLER

NOTE: If the Future Forecast value of RPI from 2021 onwards is changed for simulation purposes – the figures used in these tables are automatically adjusted.

DISCRETIONARY INCREASE VALUES TO BE USED FOR PRE 97 PENSIONERS - PAST AND FUTURE AND TO SIMULATE VARIOUS STRATEGIES												
CURRENT SITUATION		STRATEGY AD-HOC		STRATEGY - ETHICAL 1		STRATEGY - ETHICAL 2		STRATEGY - ETHICAL 3		STRATEGY - ETHICAL 4		
Actual & POTENTIAL increases		Actual & SIMULATION increases		Actual & SIMULATION increases		Actual & SIMULATION increases		Actual & SIMULATION increases		Actual & SIMULATION increases		
Year	% increase	Year	% increase	Year	% increase	Year	% increase	Year	% increase	Year	% increase	
1989	7.00%	1989	7.0%	1989	7.0%	1989	7.0%	1989	7.0%	7.0%	7.0%	Actual
1990	5.80%	1990	5.8%	1990	5.8%	1990	5.8%	1990	5.8%	1990	5.8%	Actual
1991	10.00%	1991	10.0%	1991	10.0%	1991	10.0%	1991	10.0%	1991	10.0%	Actual
1992	4.10%	1992	4.1%	1992	4.1%	1992	4.1%	1992	4.1%	1992	4.1%	Actual
1993	1.70%	1993	1.7%	1993	1.7%	1993	1.7%	1993	1.7%	1993	1.7%	Actual
1994	1.25%	1994	1.3%	1994	1.3%	1994	1.3%	1994	1.3%	1994	1.25%	Actual
1995	0.00%	1995	0.0%	1995	0.0%	1995	0.0%	1995	0.0%	1995	0.0%	Actual
1996	3.00%	1996	3.0%	1996	3.0%	1996	3.0%	1996	3.0%	1996	3.0%	Actual
1997	2.80%	1997	2.8%	1997	2.8%	1997	2.8%	1997	2.8%	1997	2.8%	Actual
1998	0.00%	1998	0.0%	1998	0.0%	1998	0.0%	1998	0.0%	1998	0.0%	Actual
1999	4.00%	1999	4.0%	1999	4.0%	1999	4.0%	1999	4.0%	1999	4.0%	Actual
2000	2.00%	2000	2.0%	2000	2.0%	2000	2.0%	2000	2.0%	2000	2.0%	Actual
2001	1.50%	2001	1.5%	2001	1.5%	2001	1.5%	2001	1.5%	2001	1.5%	Actual
2002	0.00%	2002	0.0%	2002	0.0%	2002	0.0%	2002	0.0%	2002	0.0%	Actual
2003	0.00%	2003	0.0%	2003	0.0%	2003	0.0%	2003	0.0%	2003	0.0%	Actual
2004	1.00%	2004	1.0%	2004	1.0%	2004	1.0%	2004	1.0%	2004	1.0%	Actual
2005	0.00%	2005	0.0%	2005	0.0%	2005	0.0%	2005	0.0%	2005	0.0%	Actual
2006	0.00%	2006	0.0%	2006	0.0%	2006	0.0%	2006	0.0%	2006	0.0%	Actual
2007	0.00%	2007	0.0%	2007	0.0%	2007	0.0%	2007	0.0%	2007	0.0%	Actual
2008	1.00%	2008	1.0%	2008	1.0%	2008	1.0%	2008	1.0%	2008	1.0%	Actual
2009	0.00%	2009	0.0%	2009	0.0%	2009	0.0%	2009	0.0%	2009	0.0%	Actual
2010	0.00%	2010	0.0%	2010	0.0%	2010	0.0%	2010	0.0%	2010	0.0%	Actual
2011	0.00%	2011	0.0%	2011	0.0%	2011	0.0%	2011	0.0%	2011	0.0%	Actual
2012	0.00%	2012	0.0%	2012	0.0%	2012	0.0%	2012	0.0%	2012	0.0%	Actual
2013	0.00%	2013	0.0%	2013	0.0%	2013	0.0%	2013	0.0%	2013	0.0%	Actual
2014	0.00%	2014	0.0%	2014	0.0%	2014	0.0%	2014	0.0%	2014	0.0%	Actual
2015	0.00%	2015	0.0%	2015	0.0%	2015	0.0%	2015	0.0%	2015	0.0%	Actual
2016	0.00%	2016	0.0%	2016	0.0%	2016	0.0%	2016	0.0%	2016	0.0%	Actual
2017	0.00%	2017	0.0%	2017	0.0%	2017	0.0%	2017	0.0%	2017	0.0%	Actual
2018	0.00%	2018	0.0%	2018	0.0%	2018	0.0%	2018	0.0%	2018	0.0%	Actual
2019	0.00%	2019	0.00%	2019	0.00%	2019	0.00%	2019	0.00%	2019	0.00%	Actual
2020	0.00%	2020	0.00%	2020	0.00%	2020	0.00%	2020	0.00%	2020	0.00%	Actual
2021	0.00%	2021	1.00%	2021	2.0%	2021	1.0%	2021	1.0%	2021	2.00%	100%
2022	0.00%	2022	0%	2022	0.0%	2022	1.0%	2022	1.0%	2022	2.00%	100%
2023	0.00%	2023	0.00%	2023	2.0%	2023	1.0%	2023	2.0%	2023	2.00%	100%
2024	0.00%	2024	0.00%	2024	0.0%	2024	1.0%	2024	1.0%	2024	2.00%	100%
2025	0.00%	2025	0.00%	2025	2.0%	2025	1.0%	2025	1.0%	2025	2.00%	100%
2026	0.00%	2026	0.00%	2026	0.0%	2026	1.0%	2026	2.0%	2026	1.50%	75%
2027	0.00%	2027	0.00%	2027	2.0%	2027	1.0%	2027	1.0%	2027	1.50%	75%
2028	0.00%	2028	0.00%	2028	0.0%	2028	1.0%	2028	1.0%	2028	1.50%	75%
2029	0.00%	2029	0.00%	2029	2.0%	2029	1.0%	2029	2.0%	2029	1.50%	75%
2030	0.00%	2030	0.00%	2030	0.0%	2030	1.0%	2030	1.0%	2030	1.50%	75%
2031	0.00%	2031	0.00%	2031	2.0%	2031	1.0%	2031	1.0%	2031	1.50%	75%
2032	0.00%	2032	0.00%	2032	0.0%	2032	1.0%	2032	2.0%	2032	1.00%	50%
2033	0.00%	2033	1.00%	2033	2.0%	2033	1.0%	2033	1.0%	2033	1.00%	50%
2034	0.00%	2034	0%	2034	0.0%	2034	1.0%	2034	1.0%	2034	1.00%	50%
2035	0.00%	2035	0.00%	2035	2.0%	2035	1.0%	2035	2.0%	2035	1.00%	50%
2036	0.00%	2036	0.00%	2036	0.0%	2036	1.0%	2036	1.0%	2036	1.00%	50%
2037	0.00%	2037	0.00%	2037	2.0%	2037	1.0%	2037	1.0%	2037	1.00%	50%
2038	0.00%	2038	0.00%	2038	0.0%	2038	1.0%	2038	2.0%	2038	1.00%	50%
2039	0.00%	2039	0.00%	2039	2.0%	2039	1.0%	2039	1.0%	2039	1.00%	50%
2040	0.00%	2040	0.00%	2040	0.0%	2040	1.0%	2040	1.0%	2040	1.00%	50%
2041	0.00%	2041	0.00%	2041	2.0%	2041	1.0%	2041	2.0%	2041	1.00%	50%
2042	0.00%	2042	0.00%	2042	0.0%	2042	1.0%	2042	1.0%	2042	1.00%	50%
2043	0.00%	2043	0.00%	2043	2.0%	2043	1.0%	2043	1.0%	2043	1.00%	50%
2044	0.00%	2044	0.00%	2044	0.0%	2044	1.0%	2044	2.0%	2044	1.00%	50%
2045	0.00%	2045	0.00%	2045	2.0%	2045	1.0%	2045	1.0%	2045	1.00%	50%
2046	0.00%	2046	1%	2046	0.0%	2046	1.0%	2046	1.0%	2046	0.50%	25%
2047	0.00%	2047	0.00%	2047	2.0%	2047	1.0%	2047	2.0%	2047	0.50%	25%
2048	0.00%	2048	0.00%	2048	0.0%	2048	1.0%	2048	1.0%	2048	0.50%	25%
2049	0.00%	2049	0.00%	2049	2.0%	2049	1.0%	2049	1.0%	2049	0.50%	25%
2050	0.00%	2050	0.00%	2050	0.0%	2050	1.0%	2050	2.0%	2050	0.50%	25%
2051	0.00%	2051	0.00%	2051	2.0%	2051	1.0%	2051	1.0%	2051	0.50%	25%
2052	0.00%	2052	0.00%	2052	0.0%	2052	1.0%	2052	1.0%	2052	0.50%	25%
2053	0.00%	2053	0.00%	2053	2.0%	2053	1.0%	2053	2.0%	2053	0.50%	25%
2054	0.00%	2054	0.00%	2054	0.0%	2054	1.0%	2054	1.0%	2054	0.50%	25%
2055	0.00%	2055	0.00%	2055	2.0%	2055	1.0%	2055	1.0%	2055	0.50%	25%
2056	0.00%	2056	0.00%	2056	0.0%	2056	1.0%	2056	2.0%	2056	0.50%	25%
2057	0.00%	2057	0.00%	2057	2.0%	2057	1.0%	2057	1.0%	2057	0.50%	25%
2058	0.00%	2058	1%	2058	0.0%	2058	1.0%	2058	1.0%	2058	0.50%	25%
2059	0.00%	2059	0.00%	2059	2.0%	2059	1.0%	2059	2.0%	2059	0.50%	25%
2060	0.00%	2060	0.00%	2060	0.0%	2060	1.0%	2060	1.0%	2060	0.50%	25%