

*Northern Territory Supplementary
Superannuation Scheme*

*Actuarial investigation and Report as at
30 June 2016*

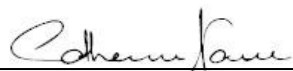
September 2016

Scope and background

The report meets the requirements of the Commissioner of Superannuation

Area covered	Comments
Purpose and scope of report	<ul style="list-style-type: none">• Prepared at request of the Commissioner of Superannuation• Report is at 30 June 2016• Previous report at 30 June 2013, also prepared by Catherine Nance (FIAA) dated September 2013• Next report due no later than 30 June 2019.
Background and governing legislation	<ul style="list-style-type: none">• Report covers NTSSS (a lump sum scheme closed to new members from 9 August 1999)• NTSSS established by an Instrument In Writing last updated on 1 January 2011• NTSSS does not provide death and TPD benefits in addition to accrued benefits• The benefits of the scheme are unfunded, with the cost of benefits being met by the NT government as they become payable.
Taxation and compliance	<ul style="list-style-type: none">• NTSSS is an exempt public sector superannuation scheme• NTSSS conforms with the principles of SIS and other national superannuation standards under the Heads of Government Agreement.
Statement of Compliance	<ul style="list-style-type: none">• Our advice to you constitutes Prescribed Actuarial Advice as defined in the Code of Professional Conduct (the code) issued by the Institute of Actuaries of Australia and our advice complies with the Code in this respect• The report has been prepared in accordance with Professional Standard 400, issued by the Institute of Actuaries of Australia.

Catherine Nance FIAA
Retirement Income and Asset Consulting
Authorised Representative (#265248) of
PricewaterhouseCoopers Securities Ltd



NTSSS

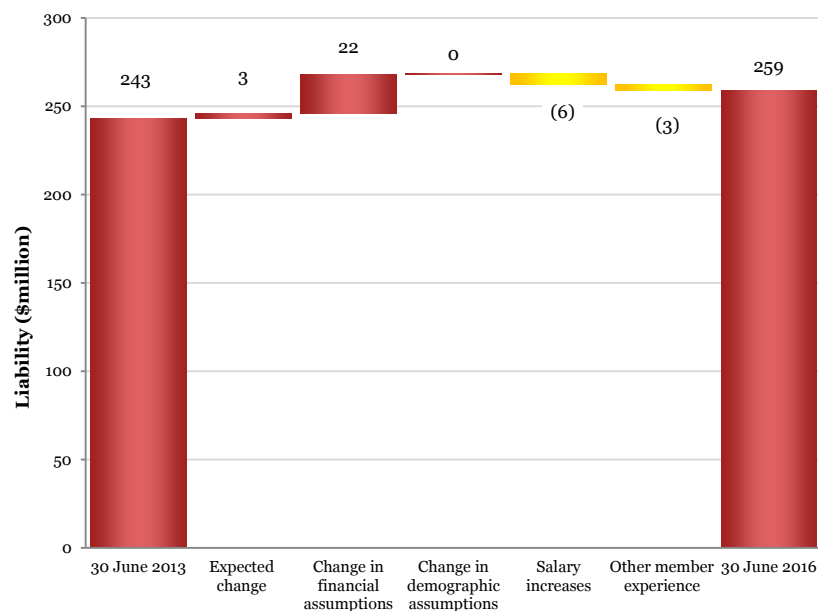
Summary of results as at 30 June 2016

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NTSSS Accrued Liability

The schemes liability has increased by \$16 million (6%) since 30 June 2013. The increase is mainly due to the change in discount rate from 3.8% to 2.0% per annum.

Movement in liability \$m



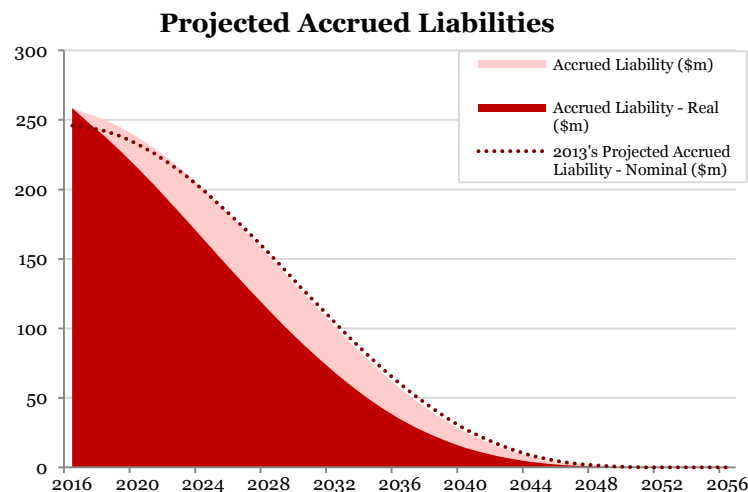
Main reasons

- The liability increased from \$243 million in 2013 to \$259 million in 2016 (\$16 million increase) mainly due to:
 - Expected increase (\$3 million or 1%)
 - Decrease in discount rate from 3.8% pa in 2013 to 2.0% pa in 2016 (\$36 million or 15%)partially offset by;
 - Decrease in salary increase assumptions from 4.5% pa to 3.0% pa for the first year and 4.0% pa thereafter (\$14 million or 6%)
 - Actual salary increases lower than expected (\$6 million or 2%)
 - Membership experience (e.g rates of exit) were higher than expected (\$3 million or 1%)
- The Vested benefits as at 30 June 2016 were \$220 million which is a decrease of \$8 million since 2013 when they were \$228 million.

NTSSS Projected Accrued Liabilities and Cash flows

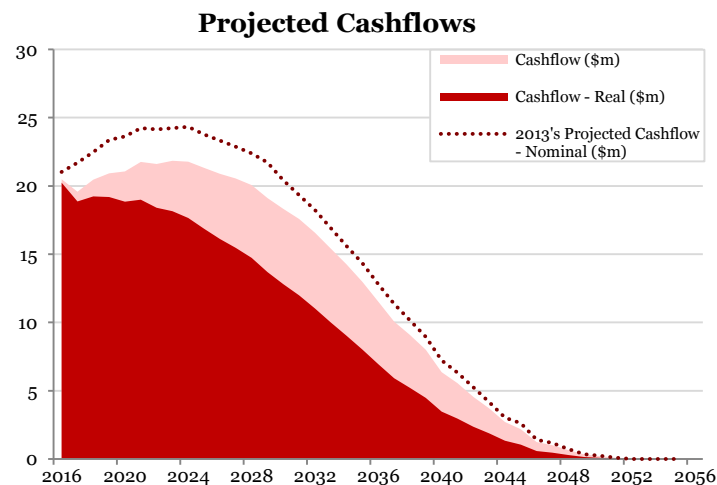
As at 30 June 2016, the value of Northern Territory's liability for NTSSS was \$258.5 million.

Projected Accrued Liabilities



- The accrued liabilities are expected to be at their peak now, at \$258.5 million in 2016
- The last members are expected to leave by 2052, at which stage the liability will be zero
- Current assumptions used for projections are:
 - Discount rate : 2.0% pa
 - Salary increase rate: 3.0% for FY 2017 and 4.0% pa thereafter
- The projected liabilities are higher than in 2013 mainly due to the change in discount rate.

Projected Cash flows



- The cash flows are expected to increase over the next 8 years to peak at \$21.8 million in 2024
- It is expected that cash flows will be zero by 2053.
- The cash flows are projected to be lower than in 2013, mainly due to the change in salary increase assumptions.

NTSSS

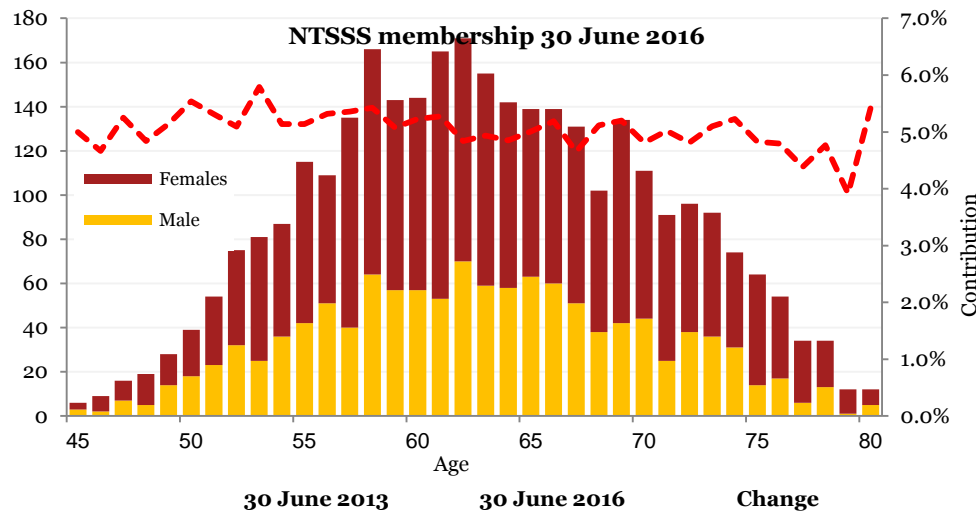
Membership data and review of experience

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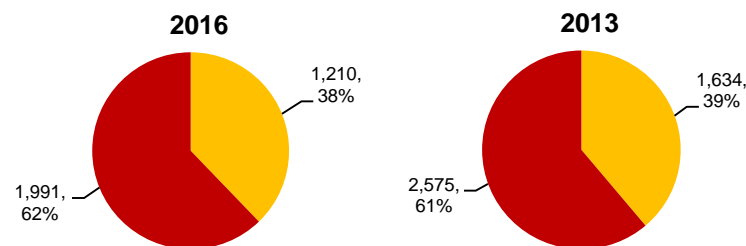
NTSSS – Membership Summary

The scheme is shrinking each year, with membership falling by 7% per annum since 2013.

Females make up the majority of membership.



- Membership is made up of members of either NTGPASS or CSS
- As scheme closed in 1999, youngest members in late 30s
- The members of the scheme are fairly evenly distributed by age, but with a bias to females
- The percentage of females has remained constant at around 60% since 2013.



	30 June 2013	30 June 2016	Change
Number	4,209 ⁽¹⁾	3,201 ⁽²⁾	1,008 7.4% decrease (pa)
Average Salary	\$92,163	\$103,191	12.0% 3.8% increase (pa)
Average Service	19.5	22.1	2.6 0.9 increase (pa)
Average Age	51.9	53.5	1.6 (0.5 pa)

- The number of members will be expected to decrease as defined benefit members leave employment
- The average age is rising, as might be expected
- The average salary has risen slightly below expectations

1. As at 30 June 2013, there were 3,829 NTGPASS contributors and 380 CSS contributors
 2. As at 30 June 2016, there were 2,982 NTGPASS contributors and 219 CSS contributors

We have undertaken high level checks of the data and we believe that the data is reasonable. However, we do not assume any responsibility for the accuracy or completeness of the data provided to us.

NTSSS – Discount rate

From 30 June 2016 determined under AASB1056. Recommend use a discount rate based on government bonds which is consistent with how government values their liabilities.

AASB 119 – employee benefits

- Used by government to value it's defined benefit liabilities
- Rate used to discount benefits (unfunded) is determined by reference to market yield on government bonds with a term consistent with the liabilities as they fall due
- The same approach and rate has been used under AAS25 which applies to superannuation funds to 30 June 2016
- As at 30 June 2015 the discount rate was 3.0% based on a 10 year bond yield and would currently be 2%
- From 30 June 2016 funds must adopt AASB 1056

AASB 1056 – superannuation entities

- Set by fund to value it's defined benefit liabilities from 30 June 2016
- Discount rate to be based on a portfolio of investments estimated to yield future net cash inflows that would be sufficient to meet accrued benefit payments when they are expected to fall due
- Rate must be current, appropriate to the term of the liabilities and include appropriate allowance for tax and investment expenses ⁽¹⁾
- A range of rates could be used, however government bond yields meets these criteria, is consistent with prior years and AASB119 (so same value appears on government and fund balance sheets).
- Scheme has no assets therefore difficult to justify investment return above government bond yields

- **Recommend continue to use a discount rate based on government bond yields**
- **Consistent with AASB119 and no impact on DBO at 30 June 2016**

NTSSS – Experience 2012 – 2015

Given that NTGPASS make up majority of membership of NTSSS, we have used the review of experience for NTGPASS to set the demographic assumptions.

The actual number of exits were slightly higher than expected (106%)

Exit Type	Actual (A)	Expected (E)	A / E
Age Retirements	496	505	98%
Deaths	14	12	116%
Invalidity Retirements	21	21	99%
Resignations	262	278	94%
Retrenchments	72	0	0%
Transfers	1	0	0%
Total	866*	817	106%

Please note that we made no allowance for retrenchments and transfers in 2013 and intend to do the same for this review, because these are ad-hoc events and subject to the control of the employer

* NTGPASS makes up 93% of NTSSS members

NTSSS - Rates of retirement

Overall the rates of retirement have been in line with expected, so we recommend retaining the rates going forward

Summary of actual v/s expected rates of retirement



Findings

- Actual (A) = 496, Expected (E) = 505, A/E = 98%
- We propose to retain rates for all members leaving at all age
- In 2013, we increased the age members are expected to retire and we can see the trend continuing, especially if investment markets remain volatile

- Recommend to retain for all ages
- Updated rates are the same as in 2013 - No impact on DBO at 30 June 2016

NTSSS - Rates of resignation

The rates of resignation have been fairly consistent with expected rates, and as membership ages, it becomes less material. Hence we recommend rates be retained at 4% per annum

Summary of actual v/s expected rates of resignation



Findings

- Actual (A) = 262, Expected (E) = 278, A/E = 94%
- Overall the rates of resignation have been fairly close to expected (94%)
- The rate of resignations are above 4% pa for age band 35-40 but below for ages over 40
- As these rates offset each other and are not very material, we propose to retain the rate of resignation at 4% pa

- Recommend retain rate of resignation at 4% per annum for all ages
- Updated rates are the same as in 2013 - No impact on DBO at 30 June 2016
- Rules are assumed to be same for males and females

NTSSS - Rates of deaths and invalidities

We recommend retaining the death rate and invalidity rate at 40% and 70% of latest population tables respectively

Rates of Death

- Actual (A) = 14, Expected (E) = 12, A/E = 116%
- Broadly consistent with the expected deaths
- Hence, we recommend retaining the assumption at 40% of the most recent mortality table*

Rates of Invalidity

- Actual (A) = 21, Expected (E) = 21, A/E = 99%
- In line with the expected invalidities
- Hence, we recommend retaining the assumption at 70% of the most recent mortality table *

* In 2013, we used Australian Life Table (ALT) tables 05 – 07 with the 25 year improvement factors published by the Government Actuary. For this review, we intend to use the latest population tables ALT 10-12 with the allowance for the latest 25 years improvement factors

- **Recommend maintain death rates at 40% of population mortality rates (use ALT 2010-12 with 5 year improvements in line with 25 year improvement factor table)**
- **Recommend maintain invalidity rates at 70% of the population mortality rates (use ALT 2010-12 with 5 year improvements in line with 25 year improvement factor table)**
- **Although the updated mortality rates are lower than in 2013 (so expect marginally fewer deaths and invalidities), it does not have a material impact on the DBO**

NTSSS – Summary of changes and their impact

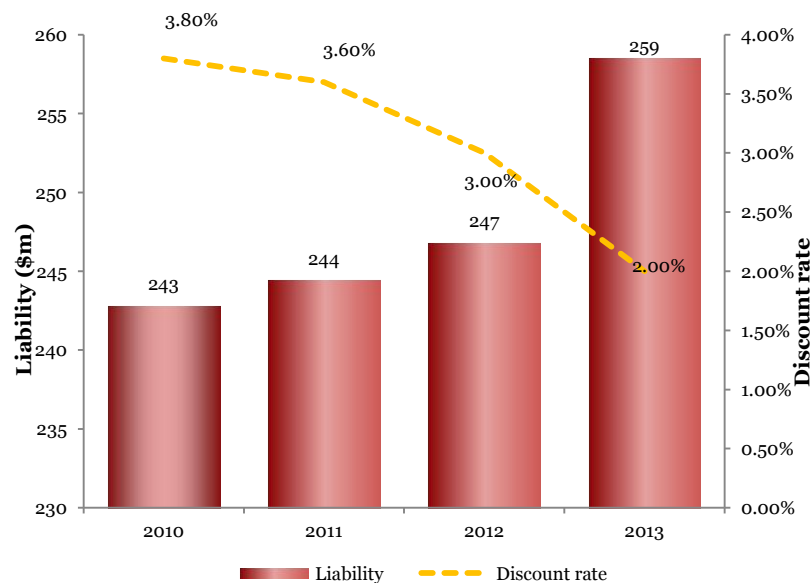
The overall impact is to reduce the liabilities due to the lower salary increase expectations. The impact is approximately \$14 million or 5%.

Assumption	Change and Impact
1 Salary Inflation	<ul style="list-style-type: none">• Salary increase reduced by 0.5% to 4.0% pa (3.0% for 2016/17)• Impact of using a salary increase of 4.0% pa is a decrease in the liabilities at 30 June 2016 of \$14 million (5%)
2 Rates of retirement	<ul style="list-style-type: none">• No change to retirement rates by age compared to our last review (in 2013)• No impact on the liability
3 Rates of resignation	<ul style="list-style-type: none">• Retain rates at 4% per annum for all ages• No impact on the liability
4 Rates of death and invalidity	<ul style="list-style-type: none">• Updated to the most recent mortality tables and retain adjustment factors• No material impact on the liability
Which gives....	
Total Impact	<ul style="list-style-type: none">• Reducing salary increase assumption to 4.0% per annum would decrease the liabilities at 30 June 2016 by \$14 million or 5%• Other changes have no material impact

NTSSS – Financial Assumptions

The discount rate has decreased by 1.8%, from 3.8% per annum to 2.0% per annum in 2016 and salary increase assumption has decreased from 4.5% per annum to 3.0% for the first year and 4.0% thereafter in 2016

Historical liability and discount rate



Change in financial assumptions

- The discount rate has a significant impact on the liability
- The discount rate has decreased from 3.8% pa in 2013 to 2.0% pa in 2016
 - The fall is due to the reduction in yields on government bonds which are required to be used for the Territory's accounting liabilities
 - This causes the liability to increase by \$36 million

Offset by;

- The salary increase assumption has decreased from 4.5% pa to 3.0% for the first year and 4.0% pa thereafter in 2016. This causes the liability to decrease by \$14 million

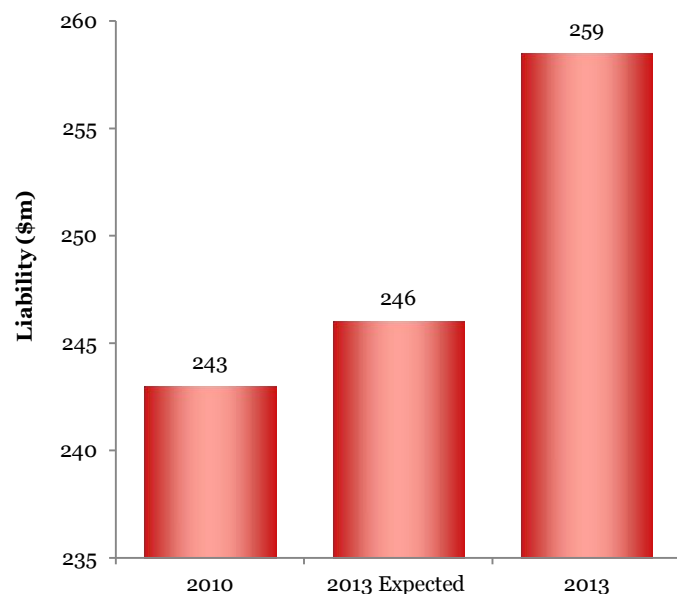
NTSSS

Accrued and vested benefit liabilities

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NTSSS Accrued Liability Results

The accrued liabilities increased by \$16 million or 6% since 2013, and by \$13 million or 5% more than expected mainly due to the change in discount rate.



- The accrued liabilities increased by 6% over the past three years
- The main reasons for the increase are:
 - Expected increase (\$3 million or 1%)
 - Decrease in discount rate from 3.8% pa in 2013 to 2.0% pa in 2016 (\$36 million or 15%)
partially offset by;
 - Decrease in salary increase assumptions from 4.5% pa to 3.0% pa for the first year and 4.0% pa thereafter (\$14 million or 6%)
 - Actual salary increases lower than expected (\$6 million or 2%)
 - Membership experience (e.g rates of exit) were higher than expected (\$3 million or 1%)
- The Vested benefits as at 30 June 2016 were \$220 million which is a decrease of \$8 million since 2013 when they were \$228 million.

1. The figures are rounded to the nearest million.

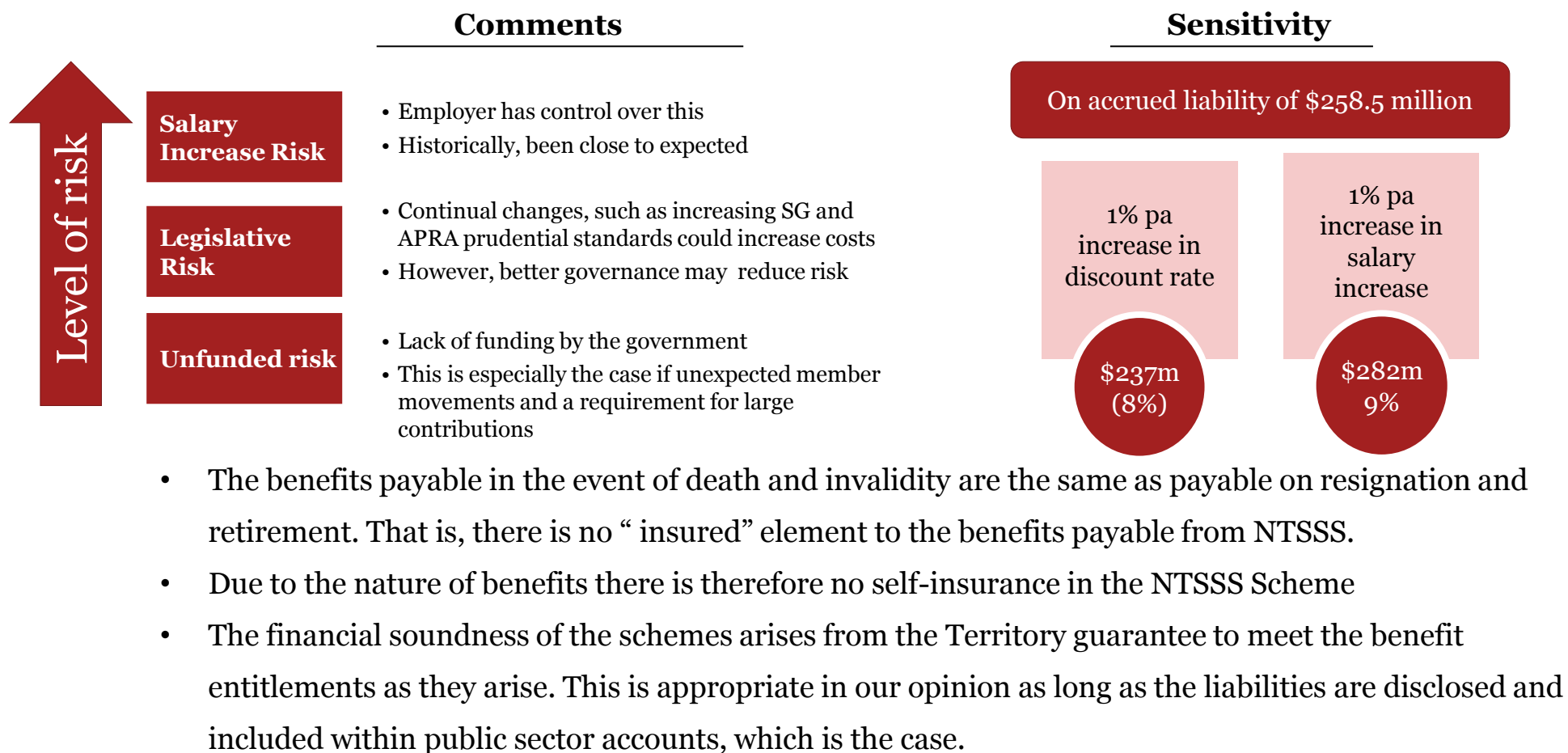
NTSSS

Risks faced by the Scheme & Insurance

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NTSSS Key Risks

The key risk faced by the scheme/employer is actual salary increases significantly exceeding the expected salary increases.



Appendices

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A	• Reliance and limitations
B	• Summary of valuation methodology
C	• Summary of benefits
D	• Summary of assumptions

APPENDIX A: Reliance and Limitations

- Our work has been conducted for the sole use and benefit of Northern Territory Superannuation Office. No third party may use or rely on our work for any purpose.
- No oral or written reference to the content of this report may be made to any third parties without our prior written consent. We may, at our discretion grant or withhold our consent or grant it subject to conditions.
- Our responsibilities and liabilities are to Northern Territory Superannuation Office in the context of the use of our report for the purpose set out above. We do not accept any liability or responsibility in relation to the use of our report for any other purpose.
- The advice contained in this report is based on the circumstances of Northern Territory Superannuation Office as a whole. It does not take into account the specific circumstances of any individual.
- This report must be read in its entirety. Individual sections of this report could be misleading if considered in isolation from each other.

APPENDIX B: Summary of Valuation methodology

- A discounted cashflow method has been used to value the past service liabilities relating to members.
- We calculate the accrued lump sum benefit that would be paid to members in each future year in the event that they retire, resign or die.
- The accrued lump sum benefit is calculated as the appropriate percentage (depending on benefit points accrued to date) times the current salary inflated to the expected date of payment.
- The projected benefits are multiplied by the probability that the member does retire, resign or die in each future year. This gives us our expected future cashflow in each year.
- The expected future cashflows are then discounted to the valuation date using the assumed discount rate. The resulting amount is the past service liability.
- The accrued liability is the amount which if invested, together with the interest earned (equal to the discount rate), would be sufficient to meet the expected future cash flows as and when they fall due.

APPENDIX C: NTSSS Scheme Rules

The benefits provided by NTSSS are summarised below:

Membership and member contributions

- Members can retire from their preservation age, which is usually 55
- Members do not contribute.

Benefits

- The standard benefit is 3% of annual salary + approved allowance on the last day of employment for each year of service since 1 October 1988
- For service after 1 July 1992, NTSSS takes into account the SG minimum benefit. The extent to which the standard benefit is increased depends on any other employer-financed superannuation benefits, such as NTGPASS and CSS ⁽¹⁾.

Death and Disability Benefit

- There is no insurance benefit payable in the event of death and invalidity. The benefit payable is the same as the standard benefit.

1. Please note, we have not included the Superannuation Guarantee top up in the numbers in the report. The Superannuation Guarantee is explained in detail on the next page, including reasons for not including it.

Superannuation Guarantee

The SG minimum benefit requirements are summarised below:

For service after 1 July 1992, the Superannuation Guarantee (Administration) Act required the super benefits paid by Northern Territory are at least equivalent in value to these percentages of salary.

Dates	Percentage of Salary
1 July 1992 to 30 June 1993	4%
1 July 1993 to 30 June 1995	5%
1 July 1995 to 30 June 1998	6%
1 July 1998 to 30 June 2000	7%
1 July 2000 to 30 June 2002	8%
1 July 2002 to 30 June 2016	9%
1 July 2013 to 30 June 2014	9.25%
1 July 2014 to 30 June 2020	9.5%
1 July 2021 to 30 June 2022	10.0%
1 July 2022 to 30 June 2023	10.5%
1 July 2023 to 30 June 2024	11%
1 July 2024 to 30 June 2025	11.5%
30 June 2025 onwards	12%

The first 3% of the above contribution requirements are met by the standard benefit payable by NTSSS. The remaining SG contribution requirements are defined in terms of NTSSS final salary and are as follows:

Date of membership	Employees aged less than 55 years % of Final Salary	Employees aged 55 years or older % of Final Salary
1 July 1992 to 30 June 1995	2%	3%
1 July 1995 to 30 June 1998	3%	3%
1 July 1998 to 30 June 2000	4%	4%
1 July 2000 to 30 June 2002	5%	5%
1 July 2002 to 30 June 2016	6%	6%
1 July 2013 to 30 June 2014	6.25%	6.25%
1 July 2014 to 30 June 2020	6.5%	6.5%
1 July 2021 to 30 June 2022	7%	7%
1 July 2022 to 30 June 2023	7.5%	7.5%
1 July 2023 to 30 June 2024	8%	8%
1 July 2024 to 30 June 2025	8.5%	8.5%
30 June 2025 onwards	9%	9%

The extent to which the Northern Territory is required to pay the above benefits depends on any other employer financed superannuation schemes (i.e. NTGPASS and CSS) which are used to offset the above requirements, with a “top-up” being payable in the event of the other benefits not meeting the SG minimum requirements. This top up has not been valued for the purpose of this report, mainly due to materiality. This is because:

- **NTGPASS** – For members, where the VB is less than the SG minimum requirement at 30 June 2016, the VB increases rapidly such that any additional SG benefit is likely to reduce to zero before these members are expected to leave.
- **CSS** – An additional SG payment is only likely if a member chooses to take a lump sum benefit on resignation.

APPENDIX D: NTSSS – Summary of assumptions

The 2013 assumptions, along with those used for 2016 are detailed below

Rates of retirement (per 100,000 people)

Age	2013 Assumption	2016 Assumption	Change (%)
55	6,000	6,000	0%
56	6,000	6,000	0%
57	6,000	6,000	0%
58	6,000	6,000	0%
59	8,000	8,000	0%
60	20,000	20,000	0%
61	15,000	15,000	0%
62	12,000	12,000	0%
63	15,000	15,000	0%
64	20,000	20,000	0%
65	22,000	22,000	0%
66	22,000	22,000	0%
67	22,000	22,000	0%
68	22,000	22,000	0%
69	22,000	22,000	0%

Rates of resignation (per 100,000 people)

Age	2013 Assumption	2016 Assumption	Change (%)
30	4,000	4,000	0%
35	4,000	4,000	0%
40	4,000	4,000	0%
45	4,000	4,000	0%
50	4,000	4,000	0%
55	4,000	4,000	0%

MALES - Rates of death (per 100,000 people)

	2013 Assumption (1)	2016 Assumption (2)	Change (%)
20	23	20	-13%
25	28	23	-19%
30	35	30	-14%
35	42	39	-7%
40	52	50	-3%
45	69	70	1%
50	99	102	3%
55	145	153	6%
60	227	226	-1%

- (1) 40% of ALT 2005-07 with improvement to 2013
 (2) 40% of ALT 2010-12 with improvement to 2016

MALES - Rates of disability (per 100,000 people)

	2013 Assumption (1)	2016 Assumption (2)	Change (%)
20	41	36	-13%
25	50	40	-19%
30	61	53	-14%
35	74	68	-7%
40	91	88	-3%
45	121	122	1%
50	173	179	3%
55	253	267	6%
60	398	396	-1%

- (1) 70% of ALT 2005-07 with improvement to 2013
 (2) 70% of ALT 2010-12 with improvement to 2016

FEMALES - Rates of death (per 100,000 people)

	2013 Assumption (1)	2016 Assumption (2)	Change (%)
20	10	9	-3%
25	11	10	-10%
30	14	13	-8%
35	19	19	0%
40	28	29	3%
45	43	44	2%
50	64	65	2%
55	91	94	3%
60	146	142	-3%

FEMALES - Rates of disability (per 100,000 people)

	2013 Assumption (1)	2016 Assumption (2)	Change (%)
20	17	16	-3%
25	18	17	-10%
30	24	22	-8%
35	34	34	0%
40	50	51	3%
45	75	77	2%
50	111	114	2%
55	160	165	3%
60	255	248	-3%

NTSSS Assumptions

The financial assumptions are stated below:

Financial Assumptions

Assumption	2016	2013
Discount rate	2.0% pa	3.8% pa
Salary Inflation	3.0% pa for first year and 4.0% pa thereafter	4.5% pa
Inflation(CPI)	2.5% pa	2.5% pa

- This is an unfunded scheme so interest is not earned
- We have used a salary increase rate of 3.0% per annum for the first year and 4.0% per annum thereafter, as confirmed by the Department of Treasury and Finance
- Discount rate is based on yield on a 10 year Commonwealth government bond
- Discount rate is consistent with that required to be used for accounting purposes (AASB119).