



REPORT TWO

A Better Fire and Rescue Service for the ACT:

**Efficiency and Effectiveness.
How does the ACT compare?**

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**UNITED FIREFIGHTERS
UNION OF AUSTRALIA**



ACT BRANCH

1. Introduction

This is the second in a series of four reports commissioned by the United Firefighters Union in the Australian Capital Territory to inform its 2019 enterprise bargaining process.

The first report focused on the context, administrative arrangements and demand pressures facing the Fire Service. It concluded that the Service is under great strain as a result of immense demand pressures associated with population growth, the location within Canberra of a large proportion of the nation's cultural assets (that belong to the Commonwealth Government), the use in the last decade of materials that are a fire risk, the take-up of electric vehicles, the roll-out of light rail and, most importantly, climate change. We also drew attention organisational and governance arrangements which are not fit for purpose.

In this Second Report our attention turns to efficiency and effectiveness. How does the Fire and Rescue Service compare?

This Report should be read in conjunction with:

- Report One – context, administrative arrangements and demand pressures facing the Fire Service.
- Report Three – contains recommendations for change, from organisational arrangements to funding.
- Report Four – outlines specific resources the Service will require over the coming decade.

2. Definitions

In common with many public services (including the military), the efficiency of fire services is notoriously difficult to measure. This is because fire services do not produce clear and measurable “outputs” from combinations of “inputs”¹. Fire services involve not just suppressing and mitigating the damage caused by fires, but also their prevention.

The most efficient fire service is one where there are no fires to put out because of the good work has been done to prevent them occurring in the first place.

¹ There is a small amount of literature on efficiency and productivity in the fire services (Jaldell, 2019). Some of this provides very helpful conceptual understandings of why and how the fire service is different to other industries. Included here is the impressive work done by the Atkinson Review of productivity in the British public services or by papers commissioned by it.

Too often attempts have been made to measure fire service productivity by only focusing on fires. This discourages and fails to recognise the arguably more important work around fire prevention, while encouraging fire services to focus their effort on fighting fires. The policy emphasis should be the other way round.

Complicating matters further is the very complex relationship between fire services and their effects. As the Central Economic Advice Division and Fire Service Directorate Office point out: “(t)he (fire and rescue service) has a number of distinctive features that make output and productivity measurement complex. Measuring the full impact of fire safety and prevention work is virtually impossible because the relationship between the activity and final outcomes (reduced fire deaths or property damage) is not observed. This requires measuring what has not happened”.

In addition, unlike other industries, the efficiency of fire services is affected not just by the level and availability of equipment such as pumpers, but also the location of fire stations as well as the impact of congestion on roads. More and better roads can enable a fire service to get to fires more quickly. On the other hand, more congested roads can be expected to lead to the opposite result. Similarly, well located fire stations with easy access to arterial roads can be expected to have a beneficial effect on the time taken to get to a fire.

Table 1: A summary of fire services

Service	Possible measure
<i>Availability</i>	Number and % of firefighters who are trained and qualified
	Number of fire fighters/stations located within geographical areas per occupied dwelling or per head of population
	Average time for fire service to get to fire by locality
<i>Prevention/mitigation</i>	Number and percentage of dwellings with fire alarms
	The value of property saved by suppressing a fire
	Number of structure fires restricted to room of origin
<i>Suppression</i>	Number of callouts
	Number of deaths and injuries
	Number and value of insurance claims
	Number and percentage of structure fires contained to room of origin
	Number and percentage of structure fires

The efficiency of the fire service is also difficult to measure because one key service provided is availability. As KPMG (2014) puts it in their report for the ACT Government, “While these services are utilised through callouts to incidents, the nature of fire services are such that a large proportion of the costs of the ACT F&R represent capability and a full time availability of the service, irrespective of the volume of use.” (P. 8). This “peace of mind” element includes not just that a fire service is available to fight fires, but that there are sufficient resources to enable all people to be able to be protected within a given time period (time is the crucial variable in determining how much damage a fire can do before it is suppressed and the efficiency of an individual pumper for example is a product of how many fire fighters are ready and able to run them).

Also complicating factors is that the services being offered may be a product of decisions made elsewhere. An example of this is a reduction or watering down of building regulations leading to the use of flammable building products as mentioned earlier, leading in turn to a situation where there may be fewer fires but of greater intensity and therefore risk to property and life.

Further, the rise of terrorism in recent decades has no doubt left cities far less safe and placed increased pressure on the fire service as a result to ensure that they can effectively combat a terrorist-induced incident should it occur. These events are random and unknowable in advance², and the significance of fire is often overlooked. As Pfeifer points out, “each of the...(recent major terrorist) attacks is remembered for something other than fire, yet in each it was the fire that complicated rescue operations and drastically increased the lethality of the attacks”.

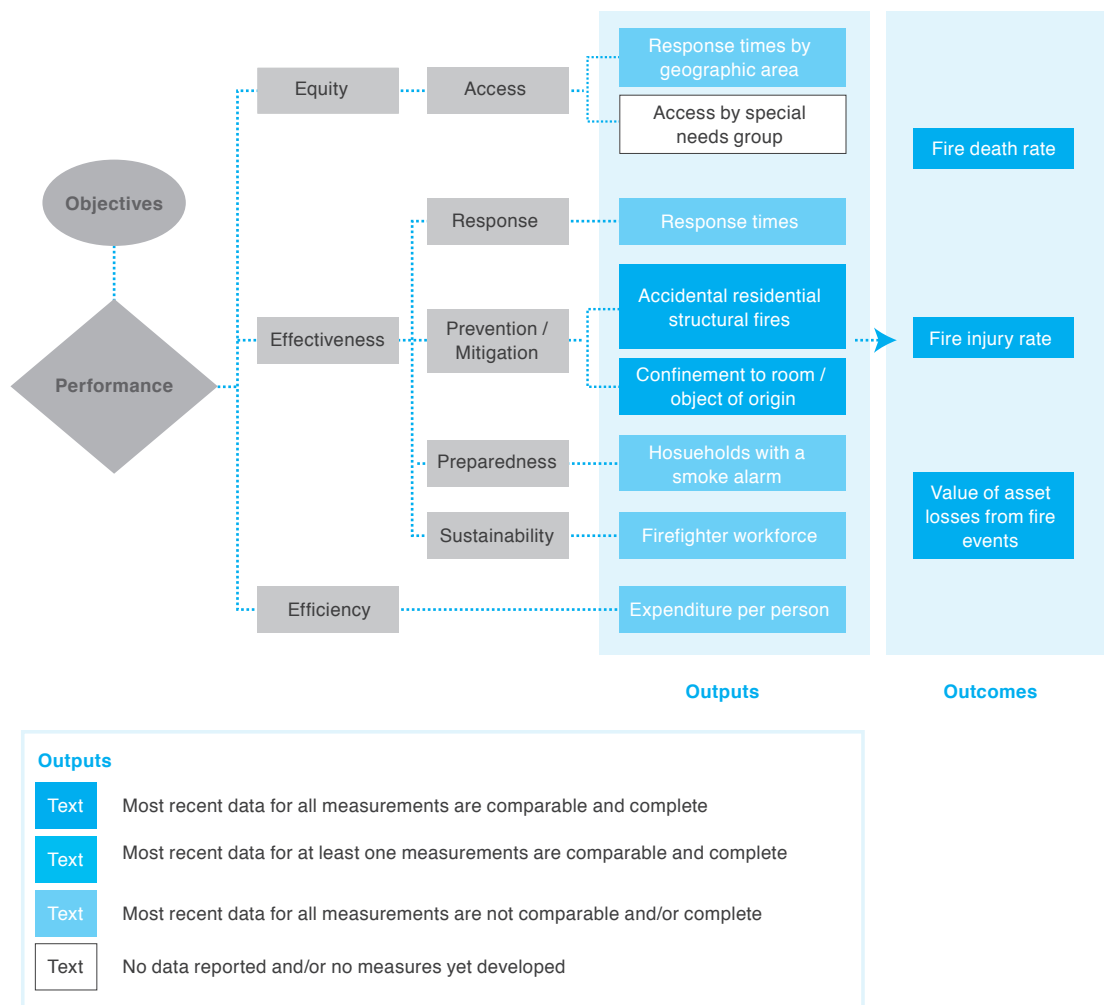
Finally, because of the nature of urban fires in areas that are increasingly characterised by high rise buildings, it might be possible for there to be a significant reduction in the overall number of fires, yet the number of deaths and the value of damage might increase because of one catastrophic fire.

All this adds up to a complex process that defies easy measurement.

² This issue is covered well by Pfeifer, 2013 (accessed at <https://ctc.usma.edu/fire-as-a-weapon-in-terrorist-attacks/> on March 21).

The Productivity Commission has set out a framework of performance measures of the fire service, which, while flawed, is nevertheless useful. See summarised framework at Figure 1 below. The figure distinguishes between three broad measures of performance: efficiency, effectiveness and equity, with performance measures proposed for each area. Equity for example is measured by response times by geographic area.

Figure 1: Emergency services for fire and other events performance indicator framework



Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra, p.9.5.

The most contentious aspects of the framework is arguably the way it measures efficiency in the form of expenditure per person. Problems with this measure are recognised by the Commission itself:

“High or increasing expenditure per person may reflect deteriorating efficiency. Alternatively, it may reflect changes in aspects of the service (such as improved response), increased resourcing for fire prevention or community preparedness, or the characteristics of fire events (such as more challenging fires). Low or declining expenditure per person may reflect improving efficiency. Alternatively, it may reflect lower quality responses or less challenging fires... Volunteer personnel provide a substantial proportion of fire services (and emergency services more generally). While costs such as the training and equipment associated with volunteers are included in the cost of fire service provision, the labour costs of providing fire services would be greater without volunteers (assuming these functions were still performed)” (Productivity Commission, 2019: 9.16).

Remarkably, having made these rather powerful points, the Productivity Commission then chooses to ignore them, using spending per person as its preferred measure of efficiency!

Bearing this important caveat in mind, what do the Productivity Commission’s data show? We turn to this next.



3. Productivity Commission’s analysis of efficiency, effectiveness and equity

3.1 Equity

We can quickly dispense with this particular measure. The ACT is the only jurisdiction in the country that does not gather data on response times by needs group or by geographical area³.

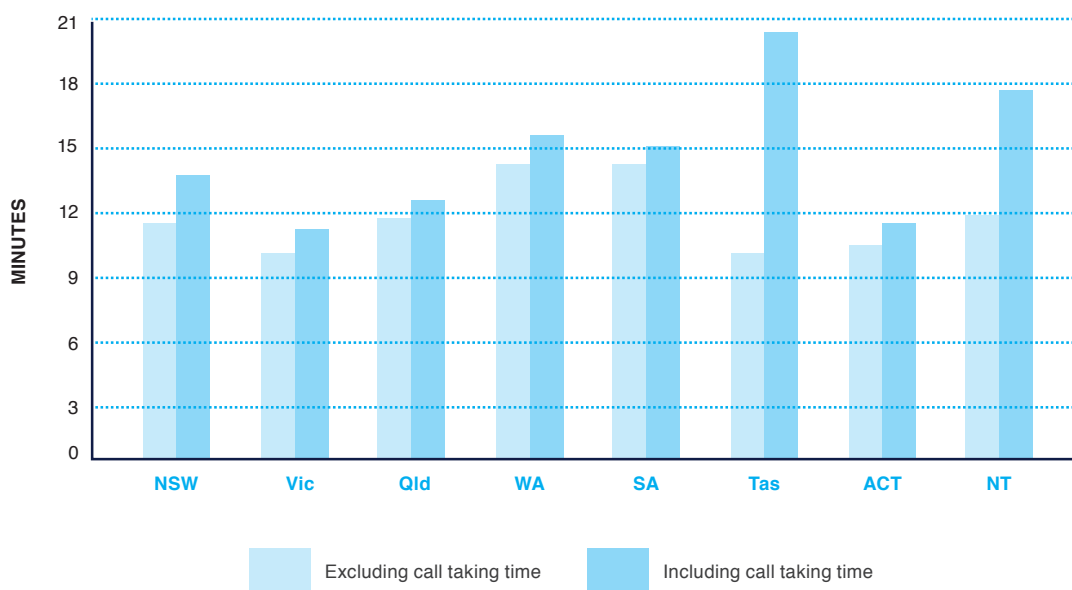
3.2 Effectiveness

The Productivity Commission identifies four areas that cover the effectiveness of fire services: response, prevention/mitigation, preparedness and sustainability

3.3 Response

Figure 2 shows response times to structure fires by jurisdiction for 2017/18.

Figure 2: Response times to structure fires, statewide, 2017-18, 90th percentile



Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra

³ It is also one of 4 jurisdictions that does not collect data on fire alarm penetration rates.

The data are not comparable across jurisdictions.

To address this, additional information is provided in Table 2, which shows trends over time in response times by 50th and 90th percentile for each jurisdiction. Response times have broadly improved in the ACT at the 50th percentile, while slightly declining for the 90th. No clear trend is observable.

This should be understood in the context of the 20% increase in the population mentioned earlier, and declining travel times due to congestion.

Table 2: response times (mins) by jurisdiction, 2013/14-1017/18.

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
<i>Statewide</i>								
2017-18 (number)	5 919	5 653	2 251	1 059	1 327	570	260	175
<i>50th percentile</i>								
2017-18	7.2	6.9	7.9	8.7	8.0	8.5	7.1	7.9
2016-17	7.5	6.8	8.1	8.7	8.1	9.0	6.8	7.8
2015-16	7.7	6.8	8.1	8.6	8.0	9.1	6.7	8.3
2014-15	7.4	6.8	7.7	8.7	7.5	9.3	7.0	11.4
2013-14	7.5	6.8	7.6	8.5	na	8.6	7.2	7.6
<i>90th percentile</i>								
2017-18	13.5	11.0	12.3	15.5	15.0	20.4	11.3	17.6
2016-17	14.5	10.8	12.5	15.4	12.5	17.5	10.5	18.8
2015-16	14.4	10.6	12.2	15.7	12.9	17.2	10.2	15.8
2014-15	14.1	10.9	12.3	15.2	11.7	17.7	11.0	23.2
2013-14	15.4	10.9	12.4	14.1	na	19.6	10.4	18.0

Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra

3.4 Number of accidental fires

Table 3 shows the number of accidental fires by jurisdiction over the five years to 2017/18 per 100,000 households. The number of fires in the ACT has remained relatively constant at around 85 per 100,000, slightly above the national average. In 2017/18 the number fell to 71 per 100,000, well below the national average.

Table 3: Number of accidental structure fires by jurisdiction, 2013/4-2017/18 (per 100,000 households)

	NSW (d)	Vic (d)	Qld (d)	WA (d)	SA (d)	Tas (d)	ACT	NT (d)	Aust
2017-18	103.3	108.4	54.9	57.7	81.2	125.8	71.4	66.0	87.6
2016-17	97.3	90.0	59.6	65.0	80.3	111.7	87.0	67.2	82.9
2015-16	79.0	111.4	62.1	58.4	76.7	102.0	87.4	73.6	81.9
2014-15	95.2	113.4	46.9	60.3	73.6	112.9	89.1	51.4	84.5
2013-14	98.5	121.2	46.4	61.8	75.2	127.1	84.1	59.2	88.1

Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra

3.5 Confinement to room of origin

Table 4 shows the percentage of fires contained to the room/object of origin by jurisdiction in the five years to 2017/18. The table shows the ACT has consistently been one of the nation's best performing fire services, with between 70%-80% of fires contained.

Table 4: Containment of fires to room/object of origin (%).

	NSW	Vic	Qld (c)	WA (c)	SA (c)	Tas (c)	ACT	NT (c)
<i>All ignition types</i>								
2017-18	79.6	72.9	71.0	70.3	67.6	56.4	75.0	80.2
2016-17	76.6	71.1	68.4	69.5	69.5	56.9	69.6	74.0
2015-16	73.3	71.7	68.2	69.4	66.3	57.0	78.0	90.4
2014-15	68.3	71.8	69.5	65.9	66.2	60.4	73.4	94.0
2013-14	63.2	73.5	69.0	66.1	66.1	59.9	80.3	81.8

Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra

3.6 Sustainability

We now turn our attention to the sustainability of the fire service. The Productivity Commission operationalises this by looking at data on workforce. The crucial measure is staff turnover. These data are shown by jurisdiction in Table 5 for the four years to 2017/18 (earlier data are not available).

The Table shows that the ACT has a relatively high turnover of firefighters by comparison to other jurisdictions and that the situation has worsened dramatically in 2017/18, with the attrition rate more than doubling to 6.8% compared to the previous year (2.9%), a rate 2.5 percentage points higher than Australia as a whole.

Table 5: Attrition rates for fire services by jurisdiction, 2014/15-2018/18

	NSW	Vic	Qld	WA	SA	TAS	ACT	NT	Aust
2014/15	1.8	5.0	3.3	2.5	4.1	2.0	3.1	2.9	3.1
2015/16	1.4	4.0	3.6	1.3	na	1.4	2.8	2.2	na
2016/17	1.3	4.0	3.8	1.9	2.0	2.7	2.9	3.6	2.8
2017/18	1.2	4.0	3.4	4.0	2.9	2.7	6.3	5.3	3.8

Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra



Image: Firefighters participating in the Camp Quality Verticool Challenge, 2012.

4. Efficiency

We pointed out earlier that the Productivity Commission defines efficiency in a problematic way by choosing to measure expenditure on fire services. This is not really a measure of efficiency, but spending: a policy choice. As the single most important component of fire service expenditure is wages and salaries of employees, this leads to the troubling conclusion that the fire service that pays the least is likely to be defined as the most efficient.

Putting this important point aside, the Productivity Commission's data are reproduced in Table 6. Interesting, the Table shows that, as measured by spending per 100,000 population, the ACT Fire and Rescue Service (\$216.34) is at the higher end of all jurisdictions — the average for all states and territories is \$169.24.

However, there are two important qualifications to this data. First, labour costs per FTE are relatively low (\$108,804 for the ACT of \$115,890 for Australia as a whole) and have been falling in real terms quite markedly over the last 5 years (by more than 17%). In addition, the Productivity Commission's data includes all staff employed by the fire services and not just fire fighters. We saw earlier that in the ACT fire services are dominated by paid employees, whereas the other states and territories rely much more heavily on a largely unpaid, volunteer workforce. Also, in the ACT the fastest growth in employee numbers has been in support staff not firefighters. Finally, the figures for Australia as a whole will be disproportionately affected by the comparatively low paid workforce of NSW, the only workforce to have experienced a faster real decline in labour costs per FTE than the ACT. For all these reasons, we believe it would be highly misleading to portray the ACT Fire and Rescue Service as inefficient.



Image: Firefighters rally in support of workplace rights, 2019.

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Table 6: Fire service costs (\$000) by jurisdiction, 2017/18

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
2017-18									
	<i>Labour costs</i>								
\$	648 598	791 633	368 495	206 297	205 511	46 554	49 576	35 557	2 352 221
Per FTE	\$95,805	\$122,034	\$117,523	\$131,729	\$175,921	\$108,804	\$108,586	\$124,395	\$115,890
% change cf. 2008/9	-19.5%	55.3%	22.3%	19.1%	67.2%	20.4%	-17.1%	4.0%	17.2%
Depreciation	53 901	94 271	4 853	18 152	18 875	6 534	5 808	3 798	206 192
User cost of capital - Other	43 112	109 766	1 349	21 962	20 414	7 830	5 994	5 013	215 442
Other costs	357 791	453 110	289 642	172 151	67 629	34 340	28 599	15 121	1 418 383
Total costs	1 103 402	1 448 780	664 340	418 562	312 429	95 258	89 977	59 489	4 192 238
Per person in the population	139.41	226.87	133.80	161.93	180.80	181.56	216.34	241.11	169.24

Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra

5. Outcomes

So far, we have seen that the ACT Fire and Rescue Service is by Australian standards an effective one, and on some measures is best in class (containment of fires and number of accidental fires). One area where the ACT fire service lags and by an increasing margin is in the area of staff turnover, which brings with it significant additional and unnecessary costs (we return to this below).

We now turn our attention to what the Productivity Commission terms “outcomes”. There are 3 key measures here: the number of deaths, the number of injuries and the value of property losses.

5.1 Fire deaths

Table 7 shows the number and rate per million of fire deaths for each jurisdiction for the 5 years to 2017. The Table shows that the ACT was the only jurisdiction to have zero deaths in two of these years. In fact, the number of deaths each year in the ACT is so low that there really is little point showing the numbers as a rate per million.

Table 7: fire deaths by jurisdiction, number and rate per million population, 2013-17

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust (h)
<i>Deaths</i>	<i>number</i>								
<i>Fire deaths</i>									
2017	33	17	11	11	8	10	–	8	88
2016	24	27	28	11	4	1	3	–	97
2015	21	25	19	10	9	4	3	1	95
2014	35	32	18	9	6	1	–	4	105
2013	31	22	23	10	14	–	4	3	99
<i>Rate per million population</i>									
2017	4.2	2.7	2.2	4.3	4.6	19.2	–	32.5	3.6
2016	3.1	4.4	5.8	4.3	2.3	1.9	7.4	–	4.0
2015	2.8	4.2	4.0	3.9	5.3	7.8	7.6	4.1	4.0
2014	4.7	5.4	3.8	3.6	3.6	1.9	–	16.5	4.5
2013	4.2	3.8	4.9	4.0	8.4	–	10.4	12.4	4.3

Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra



5.2 fire injuries

Table 8 provides data on the number of fire related injuries by jurisdiction for the 2 years to 2018. The Table shows that the ACT is best in class, with the lowest rate of admissions for both years and also a rate well below the national average.

Table 8: fire related injuries by jurisdiction, 2013-2017 (number and rate per 100,000 population)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust (c)
<i>Hospital admissions due to fire injury</i>									
<i>Annual rate</i>									
2016-17	13.3	10.6	15.5	18.0	18.2	20.2	10.1	69.8	14.7
2015-16	13.1	9.3	16.0	14.6	19.6	21.7	9.3	76.2	14.2
<i>Total fire injury admissions</i>									
	<i>number</i>								
2016-17	1 039	664	755	462	312	105	41	171	3 574
2015-16	1 005	566	767	372	334	112	37	186	3 416

Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra



Image: Compressed Air Foam System (CAFS) Tankers en-route to a grass fire. Canberra led the nation in the commissioning of these appliances following the 2003 fires.

5.3 Fire damage

The third and final outcome area nominated by the Productivity Commission concerns fire damage to property. Table 9 sheds light on this issues by showing the annual total value of insurance claims by jurisdiction over the five years to 2017/18.

Once again the ACT is close to, if not, best in class, with annual insurance claims typically the lowest in the country and often less than half the national average.

Table 9: Total value of insurance claims per 100,000 population by state and territory, 2013/14-2017/18

	NSW	Vic	Qld	WA	SA	Tas (i)	ACT	NT	Aust
2017-18	26.16	24.47	20.75	15.87	19.60	56.61	11.84	3.45	23.28
2016-17	22.92	21.28	25.55	19.96	19.37	52.79	12.59	21.78	22.91
2015-16	21.61	26.66	27.89	22.81	38.27	64.53	15.14	17.71	26.24
2014-15	18.12	20.74	22.37	14.07	32.59	65.69	6.75	16.44	21.06
2013-14	21.79	25.07	14.94	12.70	15.29	56.72	11.51	12.86	20.29

Source: Productivity Commission, **Report on Government Service Provision, 2019**, Canberra

6. Summary

In summary, the ACT Fire and Rescue Service appears to be close to, if not the best in class in Australia. Year in year out, outcomes as nominated by the Productivity Commission are excellent, and on most measures of effectiveness the ACT leads the nation. The one clear exception is staff turnover, where it is bottom of the national ladder; it is a laggard not a leader. While expenditure on the Fire and Rescue Service appears high, this is not because of wages per EFT, which have fallen in real terms by over 17% over the last five years and are the lowest in the land.

What emerges from this analysis is a picture of a fire service that is ripe for further investment given that performance is so strong.

If we add to this conclusion our findings from the first part of our report — that there are overwhelming demographic, environmental and policy reasons for a substantial investment in the Fire and Rescue service — the question that arises is whether there are funds available to pay for such an investment. It is to this question that we now turn our attention.

About the researchers

David Hayward

Dr David Hayward is Emeritus Professor of Public Policy and the Social Economy at RMIT University.

He is a former Dean of Business at Swinburne University (2004-2009), Dean of Social Science at RMIT University (2004-2016), and member of the Board of Directors of the Royal Melbourne Hospital (he Chaired the Finance Committee) (2008-2013). He is a life member of the Victorian Council of Social Service and in 2015 was invited to become a seconded member of its governing board (resigned in June 2018). In 2013, he was elected (twice re-elected unopposed) as Chair of RMIT's Academic Board (the University's principal academic committee), retiring in December 2018, during which time he also served on University Council and its Infrastructure and Information Technology sub-committee.

David's research interests are the funding of social policy, with a focus on the State Governments.

He has published widely, most recently on the NDIS (Journal of Critical Social Policy), the Social Economy (published by VCOS), and state and federal government elections (the Conversation). He is a regular commentator on social and economic affairs for ABC radio and The Age newspaper.

Vin Virtue

Vin is a private consultant in Human Resources and Service Delivery Structures in the public and private sector.

Vin had an extensive career with the Department of Education in Victoria. He was the Principal of three state secondary schools as well as having policy and operational roles as Assistant General Manager of Communications, Regional Director in Ballarat, Bendigo and Southern Metropolitan Melbourne, and as General Manager of School Operations.

In the early part of his career Vin also had experience as an elected Union official.

About the researchers

Liss Ralston

Urban Statistician, Centre for Urban Transitions, Swinburne University of Technology

Liss is a statistician at Swinburne Institute for Social Research. Her work involves questionnaire design, data cleaning and statistical analysis for surveys as well as data cleaning and analysis for large secondary data sets. Liss has extensive experience in working with a broad range of ABS data (including very large data sets; HES, SIH, HILDA , Census), Valuer-General's property data, Centrelink data, local council rates data and other data sets, as well as human demography data, including Census Data and GIS.

Liss has been engaged in private consultancies for Local Governments, National Library of Australia, community organisations and produces two reports for the Real Estate Institute of Australia on a quarterly basis.