Submission to the Senate Committee on Community Affairs Inquiry into the impact on health of air quality in Australia March 2013

Introduction

The Tuggeranong Community Council (TCC) is an incorporated, voluntary, not for profit, non-political, community based association operating within the Tuggeranong District of the Australian Capital Territory. The TCC is formally recognised as the peak community body representing the interests of the local residents and the communities within the Tuggeranong Valley. The TCC received partial funding from the ACT Government.

The TCC's position

The TCC has broadened its stand on air quality issues in the Tuggeranong Valley. The TCC Environment Sub-Committee has formulated a general position on air quality and draft policies on a range of air quality issues which have been adopted by the TCC. These include the impact on air quality in the Valley from industry and other developments, wood burning for domestic heating and vehicles. The TCC is intent on working to protect and improve air quality in Tuggeranong and thereby the health of the community.

Air quality in the Tuggeranong Valley

The largest single source of air pollution in the ACT is from the burning of wood for domestic heating. According to the Australian Bureau of Statistics, 3.9 per cent of Canberra households burn wood as their primary source of domestic heating in 2008 (2.3% today) *(See graph 1)* yet domestic wood burning accounts for more than 70 per cent of particle pollution in the ACT *(See graph 2)* and 66 per cent of PAH pollution in Canberra. *(See graph 3)*

Graph 1: Source ABS (latest data shows the figure is now 2.3%)

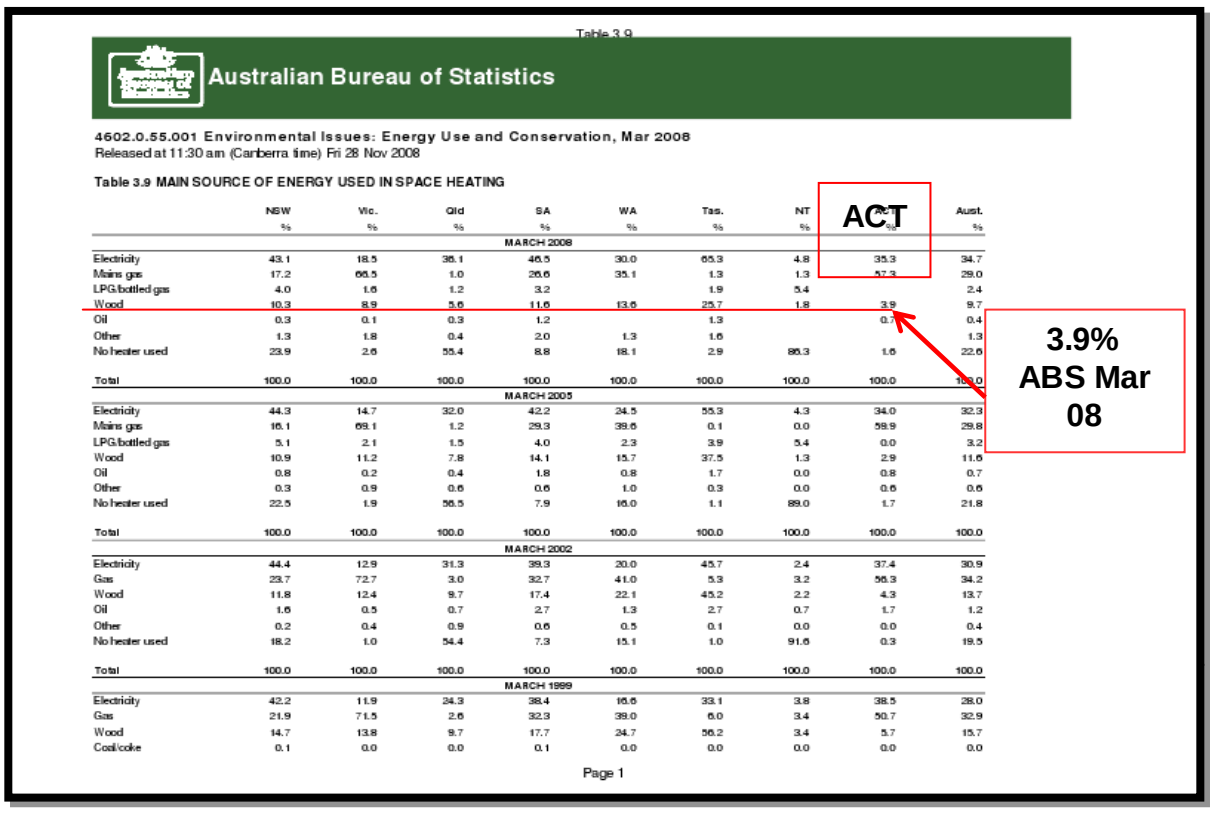

Table 3.9

Australian Bureau of Statistics

4602.0.55.001 Environmental Issues: Energy Use and Conservation, Mar 2008
Released at 11:30 am (Canberra time) Fri 28 Nov 2008

Table 3.9 MAIN SOURCE OF ENERGY USED IN SPACE HEATING

	NSW	Vic.	Qld	SA	WA	Tas.	NT	ACT	Aust.
	%	%	%	%	%	%	%	%	%
MARCH 2008									
Electricity	43.1	18.5	35.1	46.5	30.0	65.3	4.8	35.3	34.7
Mains gas	17.2	66.5	1.0	26.6	35.1	1.3	1.3	57.3	29.0
LPG/bottled gas	4.0	1.6	1.2	3.2		1.9	5.4		2.4
Wood	10.3	8.9	5.6	11.6	13.6	25.7	1.8	3.9	9.7
Oil	0.3	0.1	0.3	1.2		1.3		0.7	0.4
Other	1.3	1.8	0.4	2.0	1.3	1.6			1.3
No heater used	23.9	2.6	55.4	8.8	18.1	2.9	86.3	1.6	22.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MARCH 2005									
Electricity	44.3	14.7	32.0	42.2	24.5	55.3	4.3	34.0	32.3
Mains gas	16.1	69.1	1.2	29.3	39.6	0.1	0.0	58.9	29.8
LPG/bottled gas	5.1	2.1	1.5	4.0	2.3	3.9	5.4	0.0	3.2
Wood	10.9	11.2	7.8	14.1	15.7	37.5	1.3	2.9	11.6
Oil	0.8	0.2	0.4	1.8	0.8	1.7	0.0	0.8	0.7
Other	0.3	0.9	0.6	0.6	1.0	0.3	0.0	0.6	0.6
No heater used	22.5	1.9	56.5	7.9	16.0	1.1	89.0	1.7	21.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MARCH 2002									
Electricity	44.4	12.9	31.3	39.3	20.0	45.7	2.4	37.4	30.9
Gas	23.7	72.7	3.0	32.7	41.0	5.3	3.2	56.3	34.2
Wood	11.8	12.4	9.7	17.4	22.1	45.2	2.2	4.3	13.7
Oil	1.6	0.5	0.7	2.7	1.3	2.7	0.7	1.7	1.2
Other	0.2	0.4	0.9	0.6	0.5	0.1	0.0	0.0	0.4
No heater used	18.2	1.0	54.4	7.3	15.1	1.0	91.6	0.3	19.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MARCH 1999									
Electricity	42.2	11.9	24.3	38.4	16.6	33.1	3.8	38.5	28.0
Gas	21.9	71.5	2.6	32.3	39.0	6.0	3.4	50.7	32.9
Wood	14.7	13.8	9.7	17.7	24.7	56.2	3.4	5.7	15.7
Coal/coke	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0

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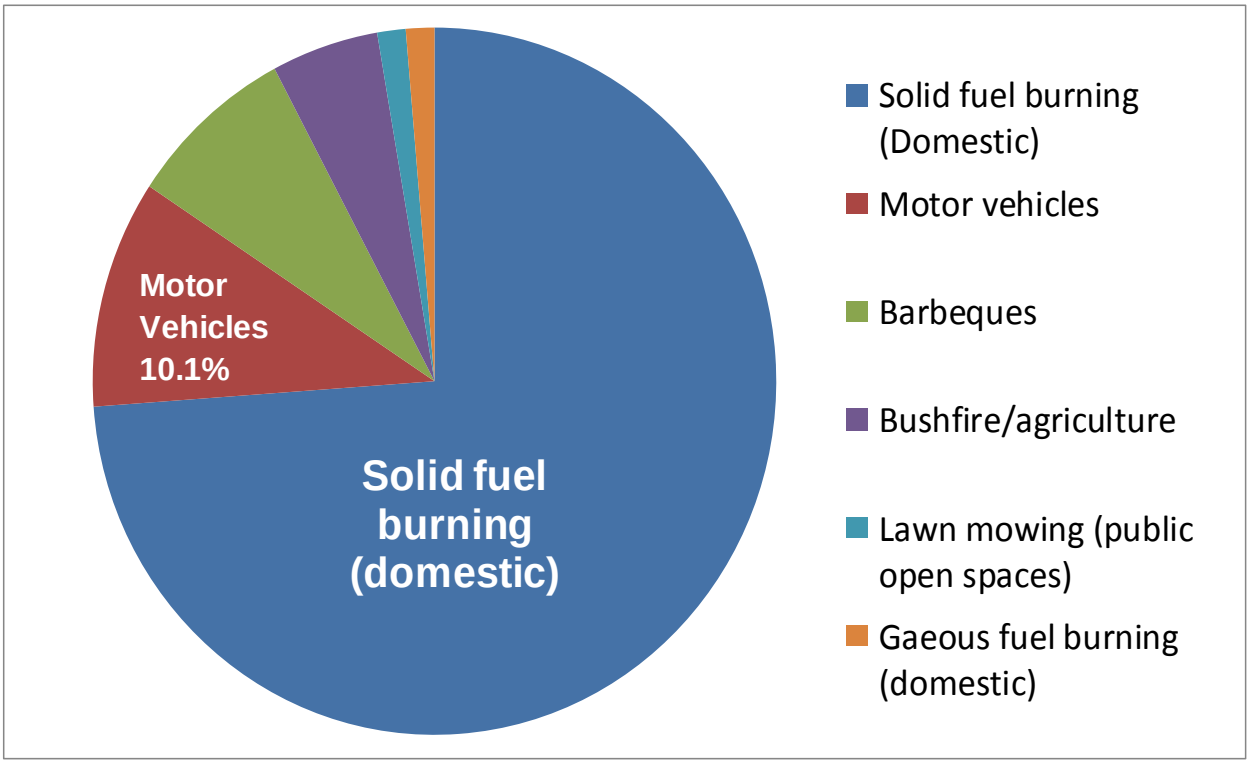
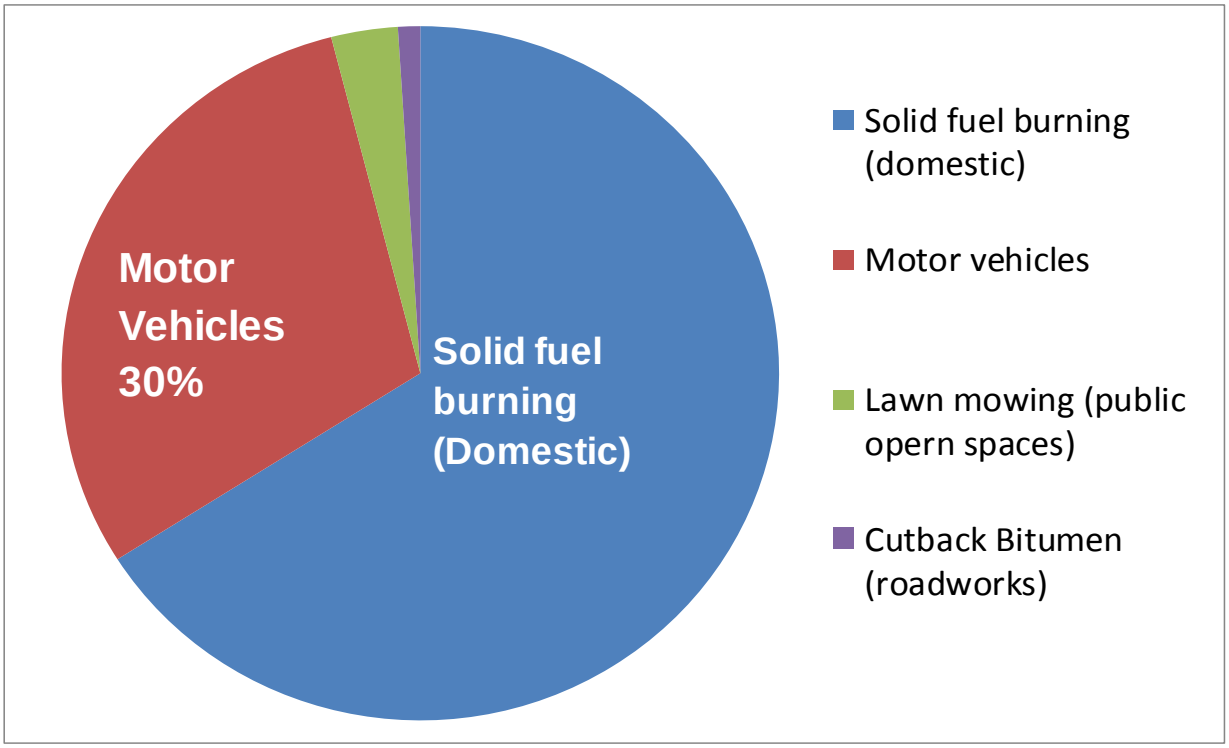
3.9% ABS Mar 08

Graph 2 Source Environment Department, National Pollution Inventory



Graph 3



The health costs

The NSW Department of Environment and Climate Change Action for Air Update 2009 said; *Health research identifies particles of less than 2.5 micrograms (PM2.5) as a particular concern because their smaller size means they can be inhaled deeper into the lungs, and because there is* ***no safe threshold level*** *to use for setting standards.*"

The Health Promotion Journal (2005) estimated the national health costs for wood heaters. It found that each wood heater in the ACT added more than $8,000.00 to the Territory's annual health bill. *(See Graph 4)*

Graph 4

Table 2: Annual health costs of transport emissions in capital cities (BTRE estimates, A$ millions, based on data for 2000),[4] estimated cost per kg of PM10 emissions and estimated health costs of woodheater emissions.

Airshed City	Syd metro[a] Sydney	Port Philip Melbourne	SE Qld Brisbane	Adelaide Adelaide	Perth Perth	Hobart Hobart	ACT ACT	Darwin Darwin	Total
Average annual PM10 exposure and percentage of exposure due to vehicle emissions									
PM10 ($\mu g/m^3$)[a]	18.0	18.0	18.7	19.0	18.8	16.0	16.3	14.9	
Vehicle %[a]	43	33	31	19	20	10	12	37	
Annual health costs of transport emissions									
Deaths (n)[a]	549	344	151	87	80	6	6	4	1,228
Cost ($m)[a]	713	448	197	113	104	8	8	5	1,596
Morbidity (n)[a]	1,071	682	321	168	165	10		9	2,425
Asthma attacks[a]	392	593	181	52	50	0		0	1,269
Morb. cost ($m)[a]	323	211	98	49	49	3		2	735
Total cost ($m)[a]	1,036	658	295	162	153	11	8	7	2,330
Cost ($/kg)[b]	179	188	134	284	96	61	87	101	166[c]
Annual health costs of woodheater emissions[d]									
Cost ($m)	554	1,297	11	426	220	128	56		2,692
No heaters[e]	351,800	240,900	128,700	107,400	176,400	104,700	6,700	1,800	1,118,400
Cost ($/heater)[f]	1,574	5,385	82	3,969	1,247	1,226	8,306		2,407[c]

(a) BTRE estimates;[4] morbidity cases (number of admissions) and asthma attacks tabulated separately, except ACT where no morbidity data available.[4] The Australia-wide total cost of transport emissions was $2663 million.

(b) Obtained by dividing the cost of transport emissions in each capital city by kg of transport emissions to the surrounding airshed. This is an under-estimate, particularly for Sydney, where health costs of transport in Sydney were divided by transport emissions for the entire metropolitan airshed (Sydney, Newcastle and Wollogong). The true cost, see discussion, is likely to be substantially higher; less conservative estimates per kg PM2.5 would emphasise the importance of control strategies.

(c) Costs (per kg of emissions and per woodheater) averaged over all capital cities.

(d) Calculated by multiplying kg woodheater emissions in the airshed by estimated cost/kg (derived from transport emissions).

(e) Number of households in the entire State using wood as the main form of heating (from ABS report 4602.0).

(f) Estimated cost of emissions (in the airshed) divided by the number of households in the entire State using wood as the main form of heating.

Health cost per wood heater = $8306

Wood smoke and the Tuggeranong Valley

"At times, particle levels in Canberra and Launceston are amongst the highest in Australia. Domestic wood fires in winter, combined with light winds and the location of the two cities in valleys, cause high air pollution readings." Dr Melita Keywood, CSIRO

As its name suggests, Tuggeranong sits in a Valley. In winter smoke from wood fires can be trapped by an upper layer of cold air leading to high levels of air pollution. This is especially the case in many neighbourhoods with a large number of wood heaters. Wood smoke pollution is known to have a serious impact on the young whose lungs are still developing, the elderly and those with a pre-existing lung or heart condition. Exposure to wood smoke can lead to hospitalisation and even death.
Many wood heaters were installed in homes in Tuggeranong in the 1980's and are uncertified, meaning they do not meet current air pollution standards. (Even the newer wood heaters that meet or exceed the current air pollution standards have been found to pollute when they are not used properly)
The failure to use wood heaters correctly is a major contributor to Tuggeranong's air pollution problems. Despite decades of taxpayer funded education programs many owners of wood heaters use them as household incinerators and burn cheap, unseasoned, timber and wood collected from building sites, parks and reserves. This is especially so as firewood becomes scarce and more expensive.
ACT Government has implemented a wood heater buyback scheme which has had some success with the removal of almost 1,000 wood heaters and a reduction in air pollution in many neighbourhoods. But it is under- funded, allows to the re-installation of a wood heater and does not give residents the option to transfer to gas heating.

Conclusion

Wood heaters are the primary source of air pollution in Canberra and especially the Tuggeranong Valley. Wood smoke has a serious and costly impact on public health.
The Tuggeranong Community Council does NOT advocate a ban on wood heaters. It supports the introduction of a new testing regime to determine a new national health based emissions standard for wood heaters in Australia. It also supports the introduction of a new efficiency standard for wood heaters, programs to remove dirty old polluting ones and policies aimed at encouraging residents to transfer to cleaner more efficient form of heating. The TCC believes that if these measures are adopted residents who wish to heat their homes with wood in winter can continue to do so and they will have the option to switch to wood heaters that are cleaner, more efficient, cheaper to run and healthier for the community. We have introduced legislation making vehicles cleaner. This had led to the development of new technologies. Why can't we do it for wood heaters?

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Wood smoke inm the Tuggeranong Valley ACT

A wood heater in operation in Tuggeranong ACT

A wood heater in operation in Tuggeranong ACT

A typical winter's day in Tuggeranong ACT