



## **Riverina Community Firewood and Home Heating Taskforce**

Report prepared for the NSW Minister for the Environment



October 2013

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Front cover: Tin Hut firewood collection zone in the Murray Valley National Park (coarse woody debris measured at 49 tonnes per hectare). Photo: NPWS

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## Chairman's foreword

Dear Minister

I have much pleasure in submitting to you the report of the Riverina Community Firewood and Home Heating Taskforce.

The review has been an extensive and thorough investigation of all the issues surrounding the future supply of domestic firewood to the community from the national parks, created in the decision of October 2010, and the future resource located in the state forests, the western lands leases and on private property. Future supplies from wood merchants have also been assessed, together with the prices expected.

The issue of alternative heating options to residents was also exhaustively investigated and an analysis is provided in the report. The provision of natural gas to the town of Deniliquin remains a critical issue, together with many smaller towns and villages which would benefit greatly from having access. These include Hay, Balranald and Darlington Point. Relative costings are provided on the various alternative heating options.

The taskforce engaged John Madden from Arché Consulting to do qualitative and quantitative research into current use and supply expectations from a broad range of permit holders, and to provide detailed information on home heating options and their costing and availability. This information gave the taskforce critical information on which to make our recommendations.

The taskforce is presenting to you 21 recommendations, addressing the terms of reference provided to it, and seeking to find solutions to the decreasing supply of available firewood. The recommendations address improving access and maximising the resource in the national parks and state forests, and on western lands leases and other Crown lands. There is also another set of recommendations which address supporting any transition for the community, in particular the vulnerable, to other heating alternatives and how other agencies and local councils can assist.

I would like to thank the members of the taskforce for their participation and willingness to find sustainable solutions for the future. I would particularly like to acknowledge Tania Munn from the Office of Environment and Heritage and the Western Director of the National Parks and Wildlife Service, Mark Peacock, together with many staff from the National Parks and Wildlife Service, Forestry Corporation of NSW and Environment Protection Authority.

Yours sincerely

A handwritten signature in blue ink that reads "Richard Bull". The signature is written in a cursive style with a large, sweeping flourish at the end.

**Richard Bull**



## Executive summary

In July 2010, a group of state forests in the Riverina region of NSW became national and regional parks under the management of the National Parks and Wildlife Service (NPWS), following the enactment of the *National Park Estate (Riverina Red Gum Reservations) Act 2010* by the then NSW Government.

Prior to 2010, timber harvesting in the former state forests produced residue logs which could be collected for firewood under a permit scheme operated by the Forestry Corporation of NSW (FCNSW). In recognition of the importance of firewood as a source of home heating for many Riverina residents, the river red gum legislation included provisions to allow NPWS to authorise firewood collection on these lands. The NPWS Domestic Firewood Collection Program was established on 1 July 2010 and essentially mirrors the program FCNSW had operated previously.

Forestry operations on the lands now managed by NPWS have ceased, and therefore the significant volume of residue material required to support a domestic firewood program at current collection rates is no longer being produced.

Community concerns about access to firewood, home heating costs and, for many, a lack of natural gas connection prompted the Minister for the Environment to establish the Riverina Community Firewood and Home Heating Taskforce.

The taskforce examined the future supply of firewood and consulted with the Riverina commercial firewood sector, community and industry representatives and other land managers. The taskforce also commissioned independent analysis of firewood use and the relative costs of home heating alternatives in the Riverina.

Without change to current practices, firewood availability in national and regional parks in the Murrumbidgee area is expected to reach a critical shortage in the next 12 months, and 36 months in the Murray area.

The supply of firewood from state forests and other public lands is not forecast to be dwindling. Very large volumes of firewood collection can be sustained from state forests in the central Murray, where the bulk of current collection activity is by commercial operators who market firewood to Melbourne and other centres outside the Riverina. There are, however, barriers preventing many domestic consumers from accessing firewood from these lands, the principal barrier being travel distance to the collection area.

The taskforce has made 21 recommendations to address a range of issues to improve the availability of firewood. Additional recommendations have been made with regard to alternative forms of heating, and possible community assistance measures that could ameliorate the impacts of a reduction in firewood availability.



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# 1 Background

In November 2009, the NSW Natural Resources Commission (NRC) presented its river red gum forest assessment report to the then NSW Government. The NRC recommended that significant areas of state forest no longer be managed primarily for timber production but instead be managed primarily for conservation.

On 1 July 2010, the then NSW Government enacted the *National Park Estate (Riverina Red Gum Reservations) Act 2010*. Under this new legislation, the Barooga and Millewa groups of state forests, and the riparian state forests on the Lachlan, Murrumbidgee and lower Murray rivers, became national and regional parks under the management of the National Parks and Wildlife Service (NPWS).

Community concerns about the 'river red gum decision' were well publicised at the time. These included concerns regarding ongoing access for domestic firewood collection – an important source of home heating for some residents.

Prior to the change in land tenure, Riverina residents were able to obtain a permit to collect firewood from the residues of commercial timber harvesting under a firewood permit system operated by the Forestry Corporation of NSW.

In order to conserve habitat for flora and fauna, the collection of firewood for domestic heating purposes is not permitted in land reserved under the *National Parks and Wildlife Act 1974*. However, in recognition of the importance of firewood collection in some Riverina communities, the *National Park Estate (Riverina Red Gum Reservations) Act 2010* included unique provisions to provide a legal mechanism for the NPWS to continue to authorise domestic firewood collection by Riverina residents.

This legislation enabled NPWS to establish a firewood collection program that essentially mirrors the program that was administered by the Forestry Corporation of NSW prior to the transfer of the state forests to NPWS management.

Community concerns regarding access to traditional firewood collection zones were likely exacerbated by the breaking of the drought and the resultant high river flows that restricted access, particularly to the Murray zones, during the winters of 2010, 2011, 2012 and 2013. Firewood collection areas in national parks, regional parks and state forests were periodically closed following widespread flooding. During these periods, NPWS implemented emergency firewood collection provisions which enabled firewood to be collected outside designated collection zones.

The NPWS firewood collection program opens on 1 April each year and runs through to 30 September. Since 2010, two collection zones have been established each year within the Murray Valley National Park and regional park and within the Murrumbidgee Valley National Park and regional park. The zones have been in different locations at times to take into account changing firewood availability and flooding. NPWS regularly reviews the availability of firewood collection areas and the related environmental impacts, including pre-season monitoring, to ensure that firewood supplies and access are available in the established zones.

The issues raised by the community are discussed in detail in Section 2.3. The majority of the issues relate to access to the firewood resource, home heating costs, and a lack of natural gas connection for some Riverina communities.

In response to community concerns regarding access to firewood on NPWS-managed lands, the Minister for the Environment established the Riverina Community Firewood and Home Heating Taskforce in May 2013.

The taskforce has investigated issues impacting on the availability of firewood for home heating purposes in the Riverina region and has developed recommendations relating to the long-term sustainable supply of energy for home heating, particularly for those members of the community most reliant on firewood as their primary energy source for home heating.

## **Taskforce terms of reference**

The taskforce was established to investigate and consider issues impacting on the availability of firewood for home heating purposes in the Riverina.

The taskforce principally focused on the home heating energy needs of those community members who access firewood under the NPWS Domestic Firewood Collection Program. In particular, the taskforce was required to:

1. Determine the current and predicted availability of firewood for Riverina residents including factors impacting supply and demand.
2. Determine the nature of firewood demand, generally in the Riverina, and specifically in relation to the NPWS Domestic Firewood Collection Program.
3. Identify key stakeholder issues.
4. Determine the capacity of the NPWS to meet the anticipated future demand for domestic firewood from NPWS managed reserves.
5. Determine alternate home heating options and their relative costs.
6. Recommend options to address the home heating energy supply needs for those community members most reliant on firewood.
7. Recommend options for sustainable environmental, social and financial outcomes.

## **Taskforce membership**

Mr Richard Bull (Chair)

Mr John Williams MP, Member for Murray-Darling

Mr Lindsay Renwick, Mayor, Deniliquin Council

Mr Paul Maytom, Mayor, Leeton Shire Council

Associate Professor Gary Luck, Charles Sturt University

Ms Eliza Smith, Homes Out West

Mr Paul Harding, Department of Family and Community Services

Mr Paul Wells, Department of Primary Industries (DPI) (representing DPI and the Forestry Corporation of NSW)

Mr Mark Peacock, NSW National Parks and Wildlife Service.

## **Consultation**

The taskforce has consulted with the Riverina commercial firewood sector, community and industry representatives, and other land managers, as required, to inform the development of appropriate recommendations. A consultant was engaged to undertake independent analysis of firewood demand and the relative costs of home heating alternatives in the Riverina.

The taskforce held three meetings in Deniliquin (11 June, 21 August and 11 September 2013).

## 2 Key findings and recommendations

### 2.1 Firewood supply

**TOR1: Determine the current and predicted availability of firewood for Riverina residents including factors impacting supply and demand.**

**TOR3: Determine the capacity of the NPWS to meet the anticipated future demand for domestic firewood from NPWS managed reserves.**

Firewood for domestic use in the Riverina is sourced from the following lands, each discussed below:

1. National and regional parks as part of the NPWS Domestic Firewood Collection Program.
2. State forests as part of the Forestry Corporation of NSW (FCNSW) Firewood Permit System.
3. State forests as part of timber harvesting operations operating under licence from the Forestry Corporation of NSW (accessed by commercial firewood suppliers).
4. Western lands leases as part of timber harvesting operations operating under licence from the Forestry Corporation of NSW and with leaseholder consultation.
5. Travelling stock reserves under a permit system operated by the Livestock Health and Pest Authority (LHPA).
6. Private property sourced by timber or firewood businesses operating in accordance with a property vegetation plan.
7. Private property with the consent of the owner.

Firewood supply has been categorised into two 'management areas':

- **Murrumbidgee management area:** Narrandera, Leeton, Murrumbidgee, Hay, Griffith and Carrathool local government areas (LGAs)
- **Murray management area:** Corowa, Berrigan, Murray, Wakool, Deniliquin, Conargo, Jerilderie, Balranald and Wentworth LGAs.

#### The NPWS Domestic Firewood Collection Program

The river red gum national parks span almost 66,000 hectares. National parks in NSW are managed by the NPWS in accordance with the requirements and objectives of the *National Parks and Wildlife Act 1974* (NPW Act), and in the case of the river red gum parks, the *National Park Estate (Riverina Red Gum Reservations) Act 2010*. There are 15,259 hectares of regional parks in the Riverina which are also managed by NPWS under the NPW Act. A further 11,658 hectares are held by the Minister for the Environment and are proposed for future transfer to Aboriginal landholding bodies.

Permits are issued by NPWS for the collection of firewood from designated collection points. Permits are \$25 per tonne (\$12.50 for concession-holders). From July 2010 to 30 September 2013, NPWS issued 4,221 permits to local Riverina residents for the collection of 8,845 tonnes of firewood. These permits were issued during the four winter seasons (April to September). A review of the firewood permit database (conducted in July 2013) indicated permits had been issued to approximately 1,800 households over the previous three-year period, approximately 56% in the Murrumbidgee management unit and 44% in the Murray management unit.

In 2012, NPWS completed works on an ecological thinning trial demonstration site in Murray Valley National Park. Residue from the site that was deemed suitable for firewood was transferred to a collection point and made available to firewood permit holders.

NPWS requires firewood collectors' vehicles to remain on management trails. Recent assessments indicate the volume of firewood available for collection significantly increases beyond 200 m from management trails.

### **Ecological management – coarse woody debris (CWD)**

Coarse woody debris (CWD) is dead timber that lies on the forest floor. It is important for nutrient cycling and as a habitat element for a large number of ground-dwelling species (Mac Nally et al, 2001) and woodland birds who use it as perching places or foraging substrate (Antos & Bennett, 2006). CWD has been described as 'one of the two or three greatest resources for animal species in a natural forest' (Kirby, 1992).

Firewood collection reduces levels of CWD and the Natural Resources Commission suggested river red gum forest management should seek to retain CWD at a target load of 40 tonnes per hectare (t/ha) (NRC, 2009). In NSW the 'Biometric benchmark' is used as a basis to measure native vegetation condition and the benchmark is an indication of condition prior to alteration, disturbance or modification by humans since European settlement (OEH, 2013). The biometric benchmark for CWD in river red gum vegetation communities is 45 t/ha. A series of photographs showing various levels of CWD is provided in Appendix B.

Under the NSW *Threatened Species Conservation Act 1995*, the 'removal of dead wood and dead trees' is listed as a key threatening process that is known to affect a number of threatened species. Following the *National Park Estate (Riverina Red Gum Reservations) Act 2010*, NPWS prepared a review of environmental factors (REF) describing the impacts of firewood collection on environmental values of the national parks. The REF identified firewood collection zones and a requirement that CWD be maintained at not less than 45 tonnes per hectare. This review was exhibited for public comment in December 2011.

NPWS currently allows firewood to be collected in areas with coarse woody debris (CWD) on the forest floor at or above 80 tonnes per hectare (t/ha). When coarse woody debris falls to 60t/ha, NPWS uses a precautionary approach and closes the precinct to wood collection. The minimum CWD for habitat requirements is 45 t/ha, based on the NSW benchmark for river red gum vegetation communities.

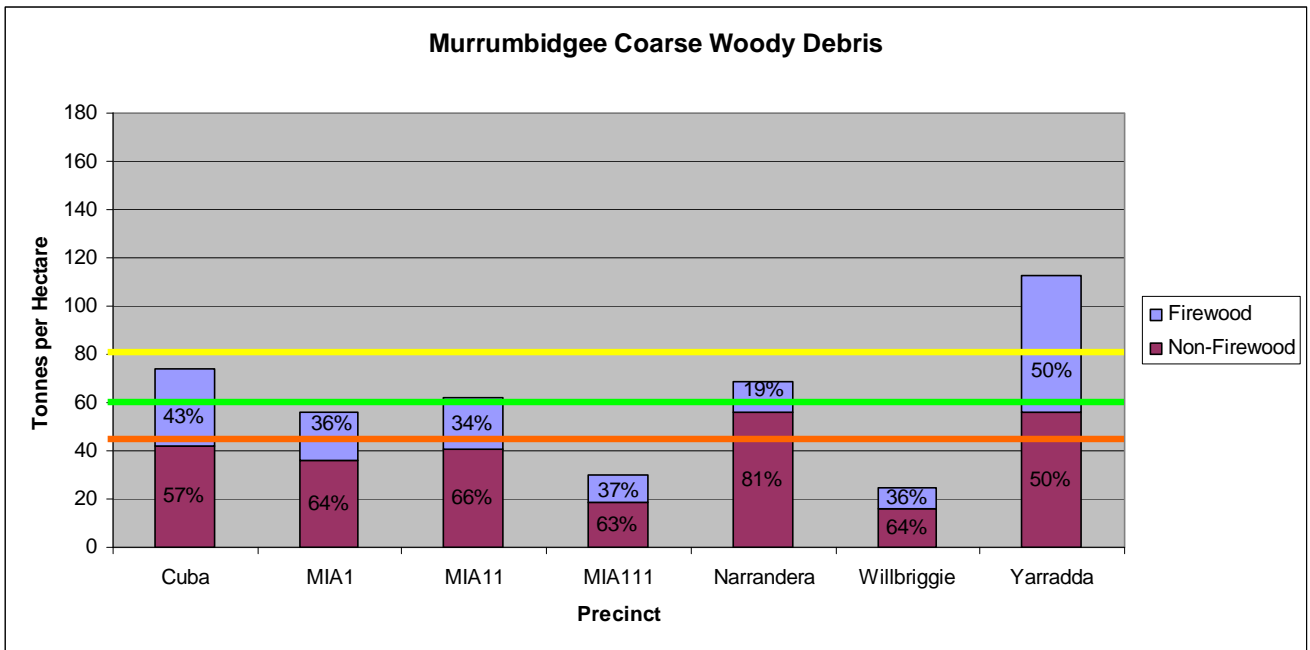
In 2013 NPWS conducted CWD assessments at 495 plots throughout river red gum reserves. The plots were sited in areas where commercial logging had occurred during the previous 10 years (as not all coarse woody debris is suitable for firewood; debris from logging more than 10 years ago is generally decomposed and would not be used for firewood).

### **Murrumbidgee management area**

Five precincts contain CWD above 45 t/ha: three of these are above 60t/ha and one is above 80t/ha (Figure 1).

Under the current 80/60/45 t/ha benchmarks and firewood collection rates, the Cuba precinct would be unlikely to sustain a full year of collection in 2014; the Yarradda precinct is likely to be able to sustain collection in 2014 as the main collection site. Yarradda is a longer drive for Leeton and Narrandera residents (70–80 km one-way compared to Cuba being 40–50 km one-way) (driving distances have been identified as a key stakeholder issue, refer to Section 2.3).

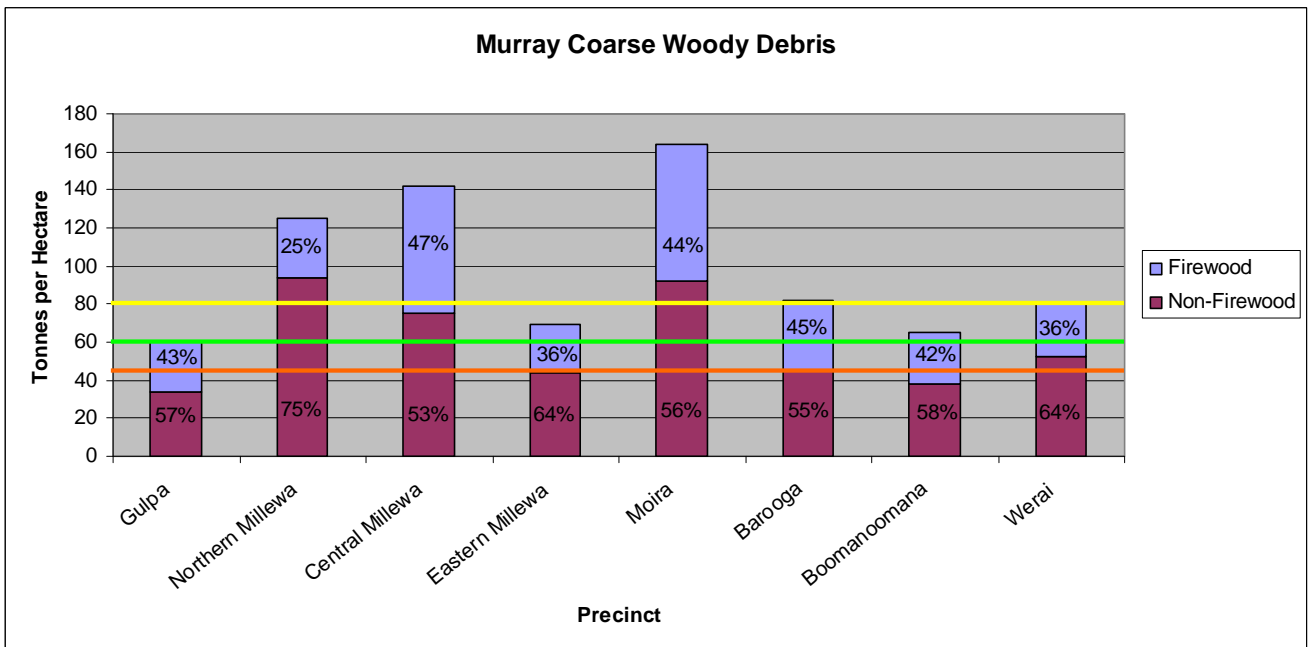
Allowing all firewood precincts to be collected down to a CWD level of 45 t/ha may extend the collection period for up to one year.



**Figure 1: CWD Summary for the Murrumbidgee area reserves:** the yellow line represents 80 t/ha; the green line represents 60 t/ha (the threshold limit where firewood collection areas are closed if CWD levels fall below this limit); and the orange line represents 45 t/ha, which is the OEH Biometric benchmark for CWD levels in a river red gum forest vegetation community.

### Murray management area

Eight precincts within the Murray management area contain CWD above 45 t/ha: seven of these have CWD above 60 t/ha and three above 80 t/ha (Figure 2).



**Figure 2: CWD Summary for the Murray area reserves:** the yellow line represents 80 t/ha; the green line represents 60 t/ha (the threshold limit where firewood collection areas are closed if CWD levels fall below this limit); and the orange line represents 45 t/ha, which is the OEH Biometric benchmark for CWD levels in a river red gum forest vegetation community.

Under the current 80/60/45 t/ha benchmarks and firewood collection rates, the Murray area reserves could provide three years of firewood supply: the Central Millewa and Moira precincts could both be operated for full seasons and the Northern Millewa precinct for half seasons. Allowing all firewood in the precincts to be collected down to a CWD level of 45 t/ha may extend the collection period for up to two additional seasons.

These three precincts within the Murray area reserves are close to Mathoura and Moama residents although the drive for Deniliquin residents will progressively increase over the years. Deniliquin residents will require a 40–50 km one-way drive, while Tocumwal and Finley residents will require a 75–120 km one-way drive (refer to Section 2.3).

The Central Millewa, Moira and Northern Millewa precincts are subject to flooding and historic records indicate a 70% chance that in any one season the firewood collection precincts will be subject to access restrictions due to floodwaters.

Should an ecological thinning trial be approved by the Australian Government, it is estimated to produce approximately 3,000 tonnes of firewood which could provide two years' supply.

#### **Recommendations:**

- NPWS to modify its firewood collection guidelines to maximise the volume of firewood available without compromising environmental measures (i.e. reduce the trigger for collection zone closure from 60 t/ha of coarse woody debris to 45 t/ha).
- NPWS to implement appropriate compliance strategies to address reported illegal collection of firewood or collection of excessive quantities, including publicising successful prosecution of breaches.
- NPWS to ensure debris from the proposed ecological thinning trial is made available for the NPWS Domestic Firewood Collection Program.
- NPWS to ensure debris from any ongoing program of ecological thinning is made available for the NPWS Domestic Firewood Collection Program.
- Riverina councils to communicate to their respective communities the importance of domestic firewood collectors adhering to collection guidelines.
- NPWS to restrict future domestic firewood collection permits to only households that have previously held a firewood collection permit under the NPWS Domestic Firewood Collection Program.

#### **State forests and western lands leases**

The Forestry Corporation of NSW (FCNSW) operates under the *Forestry Act 2012* and related regulations. The Environment Protection Authority (EPA) and the Department of Primary Industries (FCNSW and Fisheries NSW) have jointly developed an Integrated Forestry Operations Approval (IFOA) for the Riverina region. Forestry operations are regulated by the terms of the Riverina Red Gum IFOA which commenced on 1 January 2011 and has effect up to and including 31 December 2030.

An IFOA is granted under the *Forestry Act 2012* and establishes strong, clear and consistent environmental regulation of native forest operations.

FCNSW manages Koondrook, Campbell's Island and Perricoota state forests between Moama and Barham. Timber harvesting also occurs in parts of the western lands leases (WLLs) in accordance with the IFOA.

Commercial timber volumes allocated to state forests (SF) and western lands leases (WLL) under the Integrated Forestry Operations Agreement (IFOA) are shown in Table 1.

**Table 1: Commercial timber volumes under the IFOA for the Riverina region**

Type	Source	Annual volume	Total max volume	Timeframe
High quality large logs*	SF and WLL	5,869 tonnes <sup>#</sup>	120,036 tonnes	20 years
Residue logs and residue	SF	17,533 tonnes	359,428 tonnes <sup>^</sup>	20 years
Early thinnings	SF	35,370 tonnes	212,220 tonnes	6 years
Residue and early thinnings	WLL	18,000 tonnes <sup>^</sup>	54,000 tonnes <sup>^</sup>	3 years <sup>^</sup>

Notes:

\*applying to Riverina state forests and western lands leases for a 20-year period from 1 January 2011

<sup>#</sup>plus an additional 2,650 tonnes unused from 2010

<sup>^</sup>plus an additional 8,768 tonnes unused from 2010

<sup>^</sup>currently in review under the IFOA

The actual annual take is affected by weather and other commercial factors.

The commercial firewood harvest from state forests and WLLs in the Barham/Balranald areas has been:

- FY 2011 = 15,080 tonnes
- FY 2012 = 74,300 tonnes
- FY 2013 = 59,200 tonnes.

Firewood and other timber may be obtained by domestic collectors from state forests through either a forest permit or a timber licence. A forest permit is a short-term permit for domestic use, usually valid for 10 days and for small quantities of timber only. The cost of a permit is between \$8 and \$25 per tonne, depending on location and pensioner card. The timber must be paid for in advance and a map of areas for collection and other basic conditions (including a 'photo standard' to guide retention of coarse woody debris) are attached to the permit.

The domestic firewood permit tonnage for the Campbells Island, Koondrook and Perricoota state forests were:

- FY 2011 = 562 tonnes
- FY 2012 = 328 tonnes
- FY 2013 = 192 tonnes.

FCNSW does not control access to western lands leases but does control the removal of timber from the lease as the timber is the property of the state. Timber removed from western lands leases must comply with the IFOA's planning and monitoring requirements. FCNSW is not the land manager for western lands leases (unlike for state forests) and except for commercial timber harvesting purposes does not grant access to western lands leases for firewood collection. While domestic firewood permits may be issued for western lands leases, it is understood that lessees do not wish to enable public access to their leases due to security concerns and tend to prefer access for domestic firewood collection being restricted to only people they know. FCNSW has advised that it cannot discriminate when issuing permits and so could not issue permits to only those who have connections with lessees. Prior to the river red gum decision, FCNSW did allow permits from western lands leases although residents that did not have access to leases were given a permit for a state forest.

**Recommendations:**

- Forestry Corporation to communicate, particularly within the Murray area, the ongoing availability of firewood for domestic collection from Central Murray state forests.
- Review of the coarse woody debris 'photo standard' in the IFOA for river red gum state forests.

**Travelling stock reserves (TSRs)**

FCNSW has given authority for the Riverina Livestock Health and Pest Authority (LHPA) to issue firewood permits for travelling stock reserves (TSRs). Approximately 8,600 hectares (2.1 percent) of the Riverina falls under the TSR tenure.

Permits can only be obtained in person and are not issued online or by mail or fax. LHPA office staff will speak to the relevant ranger to determine whether the TSR has sufficient woody debris for firewood collection. The permittee may be directed to collect firewood from an alternate TSR. Permits are \$25 per tonne (\$15 for concession-holders) and there is a 3-tonne limit. An application form must be signed, including a declaration that the permit holder has been adequately instructed and appropriately trained in the use of a chainsaw. The permit contains 19 conditions of reserve use.

The number of permits issued to collect firewood from TSRs appears to be low (for example, three permits were issued from the Deniliquin office in 12 months).

FCNSW, NPWS and Riverina LHPA collaborated to issue a cross-agency document in 2012 that outlines how firewood may be obtained for personal use from the various public land managers in the Riverina, including timing and quantity restrictions and how to obtain a permit (Appendix C).

**Recommendation:**

- NPWS to work with other public land managers to review, update and circulate the collaborative document that provides public information on firewood collection across all Crown land.

**Private native forestry**

The EPA manages NSW's private native forestry (PNF) operations. The EPA regulates the harvesting of timber from live trees but does not regulate dead wood collection.

Before any harvesting of live trees commences on private land, a property vegetation plan (PVP) under the *Native Vegetation Act 2003* must be approved by the Minister for the Environment. Forest operations under an approved PVP must be conducted in accordance with all provisions of the Private Native Forestry Code of Practice for the River Red Gum Forests. The Code requires landholders to report to the EPA if they have carried out PNF operations in the previous calendar year, or if they plan to undertake PNF operations in the coming year. There is no data on the quantity of harvested timber from PNF that is used for firewood.

The PNF PVP process does not enable the volume of timber on private property (for the future) to be predicted as not all landholders propose to harvest their timber commercially or even harvest at all.

PNF PVP holders submit an annual forestry report only when they have undertaken a forestry operation. This does not necessarily include the processing of dead wood. The EPA does not collect information on whether any timber from PNF is used for firewood, although commercial firewood suppliers in Deniliquin have reported sourcing wood from PNF for firewood.



## 2.2 Firewood demand

**TOR2: Determine the nature of firewood demand, generally in the Riverina, and specifically in relation to the NPWS Domestic Firewood Collection Program.**

**TOR7: Recommend options for sustainable environmental, social and financial outcomes.**

### Riverina demographics

The local government areas (LGAs) in the Riverina with proximity to the NPWS Domestic Firewood Collection Program are:

- **Murray area:** Berrigan, Conargo, Deniliquin, Murray and Wakool
- **Murrumbidgee area:** Griffith, Leeton, Murrumbidgee, Narrandera and Urana.

The taskforce also notes that Balranald LGA has domestic firewood access issues. The area is not in close enough proximity for residents to collect firewood from state forests or national parks. Council representatives have petitioned the taskforce to assist with improving access to western lands leases.

The 2011 ABS Census counted the population of the Murray and Murrumbidgee LGAs to be 69,701 in total. Of the population, 60% resided in the Murrumbidgee area (42,100) and 40% in the Murray area (27,601). Similarly, 58% (14,948) of occupied dwellings were in the Murrumbidgee area in 2011 and 42% (10,926) in the Murray area.

Unemployment across the relevant LGAs was 4.5% in 2011, although the median weekly household income was also low relative to the NSW median (\$858 for the Riverina LGAs versus \$1,237 for NSW) (ABS Census 2011).

The Riverina population was slightly older than the NSW average: 23.3% of the Murray area population and 15.3% of Murrumbidgee area residents were over 65. NSW had 14.7% of its population aged over 65 (ABS Census, 2011).

### Firewood usage

Firewood is used by domestic consumers for home heating in the Riverina. Over 40% of households report low heating costs (including installation and ongoing use) as the primary reason for selecting a wood heater (National Environment Protection Council Service Corporation, 2013).

As described in Section 2.1, firewood consumers in the Riverina can purchase a firewood collection permit from NPWS, FCNSW or the LHPA. The conversion of river red gum state forests to national parks enabled Riverina residents to continue to access domestic firewood collection permits and permits continue to be issued for firewood collection in areas that remain as state forest. Recent flooding has, however, affected access to firewood collection sites.

### NPWS Domestic Firewood Collection Program

At the commencement of the NPWS program, it was anticipated that approximately 700 permits would be issued per year, consistent with the demand for permits when the lands were state forests. Demand for permits, however, has been approximately 60% higher with the NPWS issuing significantly more firewood collection permits to residents than were previously issued by the Forestry Corporation of NSW (averaging 1,328 permits per year over 2011–2013), despite weather conditions restricting access to the national park collection zones.

The statistics on firewood permits issued (from 1 July 2010 to 15 July 2013) are:

- 3879 permits were issued to 1862 households
- of these permits, 57% were issued to the Murrumbidgee area and 43% to the Murray area
- 65% of the total tonnage applied for was in the Murrumbidgee area
- 54% of permits were issued to concession-holders
- the largest number of firewood permits issued in any single year was in 2013 when a total of 1581 permits were issued between 1 April and 30 September: 905 in the Murrumbidgee area and 676 in the Murray area
- the highest number of permits have been issued to residents of Deniliquin and Leeton (785 and 742, respectively), followed by Mathoura (534), Moama (240), Darlington Point (240) and Narrandera (233)
- 19% of households in Leeton LGA have used the NPWS program, followed by 17% of households in Murrumbidgee LGA, 14% of households in Murray LGA and 13% of households in Deniliquin LGA.

Overall, 7.1% of households in the relevant LGAs have collected firewood under the NPWS Domestic Firewood Collection Program. Local real estate agents suggest the proportion of dwellings in Deniliquin with a wood heater is between 75–80% (Arche, 2013), indicating a large proportion of households is either sourcing wood from outside the NPWS program or using alternative heating sources (e.g. electricity).

An independent consultant was engaged by the taskforce to survey a sample of permit holders from the NPWS Domestic Firewood Collection Program. Thirty-one of the 1,862 householders who have obtained a permit were interviewed. The sample group was stratified to ensure the surveys included appropriate representation from the Murray and Murrumbidgee areas, the various Riverina towns, high-volume and low-volume collectors and concession-holders. Key findings are below and the full results are provided in Appendix D.

Of the 31 households surveyed:

- the average number of years firewood was collected from national parks and state forests was 14 (median 7 years)
- 65% of people surveyed used wood as their main heating source, although most people surveyed had an alternative heating source (65% had electric heating, 13% had gas and 13% had liquefied petroleum gas)
- 68% reported the wood from national parks was sufficient to meet their full firewood needs and 32% required firewood from elsewhere
- an average of 4.1 tonnes of firewood was collected each year
- 90% used collected firewood for home heating purposes
- 87% had slow combustion heaters
- 65% ran their wood heaters all day and all night
- 71% rated wood heating as 'very important' and the majority reported this was because wood heating is cheaper, followed by because wood gives a better heat
- one-third had investigated alternative heating options; two thirds were not currently motivated to change – when asked how they would react to a change in access to firewood from national parks, the majority responded that they would continue to use a wood heater and source wood elsewhere: 60% said they would suffer little or no impact, almost 30% would suffer moderate impact as they would need to spend money to access heating and close to 10% responded that they did not have the means to change to an alternative heating option or to purchase sufficient volumes of wood from commercial suppliers.

## FCNSW Firewood Collection Program

FCNSW has issued an average of 313 permits for 425 tonnes each year from Campbells Island, Koondrook and Perricoota State Forests (2009/10 to 2012/13) (Table 2). The average volume per permit was 1.4 tonnes. Fewer than half of these permits were issued to NSW residents.

**Table 2: Firewood collection permits issued by FCNSW**

<b>Year</b>	<b>Total permits issued</b>	<b>Total volume (tonnes)</b>	<b>Proportion to concession holders</b>	<b>Proportion to NSW addresses</b>
<b>2009–10</b>	259	311.5	31%	25%
<b>2010–11</b>	481	613	40%	32%
<b>2011–12</b>	207	307	40%	40%
<b>2012–13</b>	305	470	39%	38%

As firewood from national parks is the issue concerning stakeholders, an analysis of the FCNSW permit holder database was not included in this review.

## 2.3 Key stakeholder issues

**TOR4: Identify key stakeholder issues.**

### **Natural gas connectivity not available to all Riverina households**

Natural gas via pipeline is not available in all towns in the Riverina. Residents in major towns including Deniliquin, Mathoura, Darlington Point, Coleambally and Balranald do not currently have access to natural gas. In other cases, natural gas is available within the town boundary but does not extend to rural residences.

A natural gas network in the Murrumbidgee supplies the towns of Narrandera, Leeton and Griffith. Pipelines currently extend to Finley and Moama, but it remains unclear whether any expansion of supply to Deniliquin would come from one of these, as considerations include demand and the capacity of the pipes. Natural gas suppliers consider the commercial viability of installing a pipeline and industrial use of natural gas as an energy source would improve the viability.

#### **Recommendation:**

- Government to support Riverina councils in their pursuit of connectivity to natural gas, in particular the extension of the existing line from Finley through to Deniliquin, and further south to the Murray.

### **Driving distances to collect firewood have increased**

Under the NPWS Domestic Firewood Collection Program, permits are issued to enable residents to collect firewood from designated collection zones. NPWS locates the collection zones in areas where there has been relatively recent timber harvesting activity when the areas were state forest. Quality firewood in volumes sufficient to support a community firewood collection program is available only where the firewood resource has been generated as a by-product of commercial timber harvesting. While a river red gum forest will naturally produce some coarse woody debris, the levels of natural production would not sustain a community firewood collection program at current collection rates.

NPWS monitors coarse woody debris (CWD) at firewood collection zones and closes the precinct when CWD drops below 60 tonnes per hectare. When this occurs, NPWS opens an alternative collection zone. Permit holders are advised which is their closest collection zone when they purchase a permit.

Concerns have been raised that permit holders need to drive increasing distances to collect firewood from national parks. In 2013, for example, firewood permit holders living in Deniliquin would need to drive a 66-kilometre return trip to collect firewood from the Tin Hut collection zone in Murray Valley National Park. A return trip to Deniliquin of 130 kilometres would be required to access firewood from Perricoota State Forest.

### **Difficulties accessing firewood a long way from access roads**

The bulk of firewood in national parks is collected within 200 metres of access roads. This is largely due to the difficulties permit holders have in carting heavy logs to trailers or vehicles that must remain on management trails.

Snig tracks were created when the forests were harvested, prior to their conversion to national parks, so felled logs could be aggregated for removal. NPWS has generally left snig tracks to revegetate, although consideration could be given to reopening some of the former forestry snig tracks to improve access to firewood.

**Recommendation:**

- NPWS to open former forestry snig tracks to improve access by firewood collectors to the firewood within the collection zones.

**Collected firewood is the cheapest form of home heating**

At \$25 per tonne, firewood collected from public land (national parks, state forests and TSRs) is the cheapest form of home-heating available to Riverina residents. By contrast, firewood can be purchased from commercial suppliers for \$120 to \$160 per tonne (although this is cut and delivered).

Analysis by Arche Consulting (full report in Appendix D) shows the relative costs of various home heating options (assuming 600 hours of operation each year) to be between \$509 and \$1,636 (Table 3). Were a householder to adjust their heating behaviour to compensate for the increased costs (i.e. operating heaters for 400 hours each year), the costs of various alternatives drops markedly to between \$313 and \$707 per year (Table 4).

**Table 3: Indicative cost of heating a 105m<sup>2</sup> home for 600 hours per year**

Fuel source	Connection and installation costs	Cost for new heater(s)	Annual running costs	Annualised costs (10 years)	Annualised difference
Firewood					
NPWS permit	\$0		\$132		-
Retail	\$0		\$640	\$509	+\$509
Electricity					
Reverse-cycle	\$0	\$3,000	\$719	\$1,019	+\$887
Panel/fan	\$0	\$1,200	\$2,156	\$2,276	+\$1,636
LPG	\$600	\$2,300	\$1,234	\$1,524	+\$1,393
Natural gas	\$820	\$2,300	\$571	\$883	+\$752

Notes: Permit firewood costs based on permit costs of \$25/tonne and travel cost of mileage of 50 km – cost \$31.50.  
 Retail firewood price \$160 per tonne.  
 Gas price assumed to be 2.28 cents per MJ.  
 Electricity price is 0.34 c per Kwh.  
 Assumes 17 LPG cylinders (45kg or 88L) @ \$120 each are used.

**Table 4: Indicative cost of heating a 105 m<sup>2</sup> home for 400 hours per year**

Fuel source	Connection and installation costs	Cost for new heater(s)	Annual running costs	Annualised costs (10 years)	Annualised difference
Firewood					
NPWS Permit	\$0		\$132		-
Retail	\$0		\$445	\$445	\$313
Electricity					
Reverse cycle	\$0	\$2,800	\$319	\$599	\$468
Panel/fan	\$0	\$800	\$958	\$1,038	\$593
LPG	\$600	\$2,300	\$549	\$839	\$707
Natural Gas	\$820	\$2,300	\$254	\$566	\$434

Notes: Permit firewood cost based on permit costs of \$25/tonne and travel cost of mileage of 50 km – cost \$31.50.  
Retail firewood price \$160 per tonne.  
Gas price assumed to be 2.28 cents per MJ.  
Electricity price is 0.34 c per Kwh.  
Assumes 17 LPG cylinders (45kg or 88L) @ \$120 each are used.

### Firewood use and firewood collection as cultural activities

Many Riverina residents reportedly enjoy the experience of having a wood fire and argue the use of wood for heating has deep cultural roots, both in Aboriginal and European societies. The taskforce also understands the act of collecting firewood is considered a cultural activity, with family groups, friends and neighbours gathering together for a day in the park, collecting loads of firewood, picnicking and enjoying the environment.

### Vulnerable households

There are a number of sections of the community that utilise firewood and would be vulnerable to rising costs associated with a transition to alternative heating (be it commercially-sourced firewood or a switch to electric or gas heating). These include households for whom government allowances (such as aged or disability pensions) are the sole source of income. Fifty-four percent of permits to collect firewood under the NPWS Domestic Firewood Collection Program were issued to holders of a concession card.

Commercially-sourced firewood retails at \$120 to \$160 per tonne in the Riverina (compared to \$12.50 to \$25 per tonne for firewood collected under permit from national parks or state forests). As described in section 2.4, the costs of replacing a wood heater with a new gas or electric heater is in the vicinity of \$3,000, which is often prohibitively high for these vulnerable households.

Homes Out West (HOW) is a not-for-profit community housing provider which assists in the provision of affordable rental accommodation for people experiencing difficulty with their housing needs. HOW operates an office in Deniliquin and has approximately 450 properties under management and 750 residents across the Riverina. Approximately 50% of HOW properties had wood heaters (as at 2012) and housing stock was poorly insulated.

Heaters form part of HOW's planned maintenance schedule, as they have a life expectancy of 10 years. This maintenance program replaces heaters (wood or electric) with electric wall panel heaters unless natural gas is connected and a gas heater is installed. Should a tenant have a preference for a different form of heating (i.e. wood) this is offered, provided the tenant pays the difference between the HOW standard heater installation cost and the installation of their preferred heater. It is estimated that there are around 35 houses used for Aboriginal housing and, for cultural reasons, Aboriginal tenants can elect to retain wood heaters.

A 'Sustainability and Aesthetics Project' was undertaken by HOW to research how to make the housing portfolio more sustainable and aesthetically pleasing. Outcomes included a recommendation to install improved ceiling insulation and roof vents (whirly birds) in HOW properties, both of which would create greater comfort for householders and lower energy costs.

Such improvements would assist low income households with managing the increased running costs associated with the transition from wood heating to electric heating. Government funding would assist HOW to carry out the improvements.

In the Murrumbidgee area, public housing properties are owned by the NSW Land and Housing Corporation. Of the 3,600 properties managed by Housing NSW in the Murrumbidgee area, the number with wood fires is estimated to be fewer than 10%. Housing NSW reports the majority of properties with wood heaters would be owned by the Aboriginal Housing Office (AHO). Housing NSW currently manages 317 properties on behalf of the AHO.

Current Housing NSW policy is that a heater is not replaced unless it is unserviceable. Unserviceable heaters are replaced with a similar heater. In the case of wood heaters, it may be replaced with gas if that service is available in the locality. However, if no gas supply is available, then a replacement wood heater would be installed due to the cost to tenants of running electric heating. It is estimated that there are still approximately 120 heaters (wood or old electric) to be replaced in the Housing NSW planned maintenance schedule.

All Housing NSW properties have ceiling insulation following an installation program about five to eight years ago. Houses constructed in the past five years would have insulation material in the walls, although the number of newly-constructed Housing NSW properties in the Murrumbidgee area is negligible.

#### **Recommendations:**

- Provide information to the public about the potential for consumers to achieve energy savings by comparing the prices of alternative energy suppliers.
- Family and Community Services to conduct a review of policy relating to social housing to encourage the replacement of wood heaters with non-wood forms of heating in the Riverina.
- NPWS Domestic Firewood Collection Program permit holders to be provided with assistance measures, namely:
  - an in-home power assessment by a Home Power Savings Program energy expert, who will:
    - provide advice on steps the household can take to reduce energy use
    - install a package of energy saving devices
    - provide advice on purchasing an alternative home heater, including heating capacity and relative costs, as part of OEH's Smarter Choice Program
    - provide advice on the EPA's Stay Warm; Breathe Easy Program on the health implications of wood heaters and how to reduce heating bills
    - provide information and assist eligible households who want to apply for a no interest loan to purchase a new heater under the No Interest Loans Scheme
    - provide information and assist eligible households who want to apply for rebates or payments to offset the cost of purchasing non-wood-burning home heaters
  - a follow up in-home visit by a Home Power Savings Program energy expert after a new heater has been purchased and installed, to provide the household with advice on the use of the new heater.
- OEH to establish a payment or rebate scheme to support NPWS Domestic Firewood Collection Program permit holders who wish to change from wood heaters to an alternative source of home heating. The support would be provided to all permit holders irrespective of whether they are additionally eligible for rebates or payments under the No Interest Loans Scheme or the EPA's Wood Smoke Reduction Program.
- Riverina councils to be encouraged to apply for up to \$60,000 in funding and offer these funds to community members as rebates for replacing old polluting wood heaters and fireplaces with cleaner alternatives (as part of the EPA's Wood Smoke Reduction Program).
- Government funding to be provided to assist social housing providers to carry out 'sustainable' improvements to housing stock to improve thermal efficiency.

## **Lack of access to public land for firewood collection near Balranald**

Representatives from the Balranald Shire Council approached the taskforce to seek assistance for residents to access firewood on public land. Euston Regional Park has not been open for firewood collection due to low levels of CWD. The only other national park or state forest that is near Balranald is Yanga National Park; however, Yanga did not have a domestic firewood program before becoming a national park. The river red gum legislation established in 2010 to provide for firewood collection in the new river red gum parks does not apply to Yanga.

### **Recommendations:**

- NPWS to open a firewood collection zone in Yanga National Park.
- NPWS to review whether there is sufficient coarse woody debris above 45 t/ha in Euston Regional Park to support the opening of a firewood collection zone.
- Collection of domestic firewood on Balranald Permanent Common to be considered through appropriate trustee provisions.

## **Residents cannot obtain permits to collect firewood from western lands leases**

As described in Section 2.1, FCNSW controls the removal of timber from western lands leases (WLLs) and, prior to the conversion of state forests to national parks, had issued permits for domestic firewood to be collected from WLLs. FCNSW suspended this permit system following the river red gum conversions. In part, this program was suspended due to requirements in the IFOA that timber removed from WLLs must comply with stringent planning and monitoring requirements. Although the IFOA has exclusions for domestic firewood collection and does not require the same conditions of planning on WLLs, there are concerns around management of risks to cultural and natural values.

The taskforce understands that many leaseholders would give permission to locals who are known to them to collect firewood from their lands. However, many do not wish to open access to the public due to security concerns. Subject to resolving the above issues about planning requirements, FCNSW may be able to re-establish a permit system for community members to collect firewood from WLLs where leaseholder consent has been obtained.

### **Recommendation:**

- Forestry Corporation to re-establish a permit system for community members to collect firewood from western lands leases, subject to lessee consent.



## 2.4 Alternative home heating options

**TOR5: Determine alternate home heating options and their relative costs.**

**TOR6: Recommend options to address the home heating energy supply needs for those community members most reliant on firewood.**

The energy sources for home heating that are variously available in the Riverina are:

- electricity
- natural gas
- liquefied petroleum gas (LPG)
- firewood.

Home heating makes up 22% of Sydney residents' energy bills (Ausgrid cited in Arche, 2013) and this proportion is likely to be higher in the Riverina given the region's longer winter and lower winter temperatures.

### Electricity

The cost of electricity has risen in recent years but is expected to flatten out. In the five years to June 2012, the ABS Consumer Price Index (CPI) rose by 15% and Australia's retail electricity prices rose by 72% (ABS, 2013, cited in Arche, 2013). IPART expects regulated electricity prices to increase by less than CPI in 2014–15, and to fall in 2015–16 (IPART, 2013, cited in Arche, 2013).

The 'regulated' supplier for the Riverina is Origin Energy (Country Energy is now a retail subsidiary of Origin Energy). A regulated supplier is the company that has historically supplied electricity (or gas) in an area and has the obligation to supply a customer with electricity (or gas) at regulated prices. All customers are able to choose their electricity retailer in NSW and have the option to enter into a market contract with a licensed retailer.

Currently in NSW, the Independent Pricing and Regulatory Tribunal (IPART) sets retail electricity prices for small business and residential customers on regulated offer contracts until at least 2013. These regulated prices are charged by Origin Energy in the Riverina for residential and small business customers who have not signed a market contract with either them or another retailer.

Approximately 66% of customers with Origin Energy (Essential) are on the regulated prices. It therefore appears many customers are not aware that they may be able to negotiate cheaper prices with energy suppliers simply by asking.

Electric heating options can be broadly categorised as portable heaters (radiant, fan, convection and/or oil-filled column heaters); underfloor heating; and/or air conditioners (window/wall, split system and ducted (central)).

### Natural gas

The gas distribution industry in NSW is made up of authorised reticulators of natural gas and to a considerably lesser extent, licensed distributors of liquefied petroleum gas (LPG) which is sold in bottles (see 'Liquefied petroleum gas', below).

Not all towns in the Riverina have access to natural gas. A natural gas pipeline runs from Junee to Griffith via Narrandera and Leeton. The project was completed in late 1993. The Envestra (Albury Gas) network supplies Albury, Thurgoona, Lavington, Jindera, Howlong, Moama, Tocumwal, Finley, Barooga, Mulwala and Corowa.

Similar to electricity in NSW, all household natural gas customers can choose their retail supplier or can choose to remain on regulated retail gas prices with the standard retailer in their

area. The nominal price for natural gas in Australia has fluctuated over recent years and, when adjusted for CPI, has decreased by 17% since 2007–08.

Natural gas is generally seen as a cheaper option than electricity, although increased demand and constrained supply is likely to lead to a significant rise in price for gas over the next five years. IPART have recently approved a regulated retail gas price increase for a typical residential customer of 9.2% for AGL (covering Murrumbidgee) and 5.2% for Origin Energy (covering some towns in Murray LGA) from 1 July 2013 (IPART, 2013 cited in Arche, 2013). IPART consider it likely that regulated retail prices will rise further over the following two years, partly driven by sustained increases in gas network costs and structural changes that are likely to emerge in the wholesale gas market. These structural changes, which mean that Australia's domestic gas markets will be increasingly influenced by the international market, are likely to put upward pressure on wholesale gas costs, which currently make up around 30% of regulated retail gas prices.

Gas heating options can be broadly categorised as either unflued (radiant or convection heaters) or flued (convection or ducted heating). Both options require connection and installation costs. Unflued options will generally cost less to install but emit combustion products directly into the room (Commonwealth of Australia, 2007). Purchasing a heater will incur a cost of approximately \$1,000 to \$1,300 and additional costs include connection to the gas network (estimated at \$250), which includes installation of a meter. There is also a fixed connection fee incurred each quarter and costs involved with installing connection points within the house.

### **Liquefied petroleum gas (LPG)**

Liquefied petroleum gas (LPG) is a mixture of hydrocarbon gases which liquefy under pressure and can be stored in bottles. A typical LPG bottle is 45 kg.

LPG is used as a fuel source for commerce/industry and domestic use, in particular in the Riverina for areas without natural gas.

There are two LPG wholesale suppliers in the Riverina: Wesfarmers Kleenheat Ltd and Elgas.

World prices of LPG in general move in line with crude oil prices, although as with most commodities LPG does have its own supply and demand parameters. The price of LPG is expected to remain flat over the next 12–18 months (Neilsen, 2013 cited in Arche, 2013). Local prices for LPG gas bottles range from \$110–\$120 for a 45 kg bottle, in addition to a yearly rental cost of around \$35 per bottle (Arche, 2013).

A typical gas heater will cost \$1,000 to 1,300 to buy and installation costs will range from \$400 to \$600, depending on the layout and number of connections required (Arche, 2013). Heating with an LPG gas bottle is considered expensive if continuous heat is required and it is likely that LPG gas would be used more conservatively than a wood heater. Heating a house with LPG would require a replacement bottle every two to three weeks during winter, implying costs of heating in the order of \$600 per year (Arche, 2013).

LPG and natural gas appliances are different, and can be hazardous when operated on the incorrect gas. LPG heating options can be flued or unflued radiant and convection heaters. All heating options will incur connection and installation costs. Unflued options will generally cost less to install.

### **Firewood**

The use of wood heaters has reportedly declined over the past two decades, with a plateau in recent years: national sales were estimated at 120,000 nationally in 1988 and were only 25,000 in recent years, predominantly in south-eastern Australia (National Environment Protection Council Service Corporation, 2013, cited in Arche, 2013).

Retailers and installers of wood heaters in Deniliquin have indicated wood heater sales increased in 2011 and 2012 but dropped off in 2013. Wood heater sales in the Griffith area have

reportedly been strong recently, possibly attributable to a large volume of wood heaters installed in the 1980s reaching the end of their lifetime (Arche, 2013).

The types of wood heaters are:

- open fireplaces, with an average efficiency of 5–10%
- non-airtight heaters (e.g. pot belly stoves), with an efficiency range of 25–40%
- airtight slow combustion heaters, with efficiencies of 55–70%
- central heating boilers and furnaces with efficiencies of 55–70% (Victorian Sustainable Energy Authority cited in Arche, 2013).

The average lifespan of a wood heater is 15-20 years. The efficiency of wood heaters has continued to improve over the past two decades for modern slow combustion heaters, though this is in part dependent on their operation. The proportion of households with wood heaters is higher in regional/rural areas than in Sydney.

In the survey commissioned by the taskforce, over 40% of households report low heating costs (including installation and ongoing use) as the primary reason for selecting a wood heater.

The estimated annual cost of wood heating per household (based on firewood sourced from commercial suppliers) is provided in Table 5.

**Table 5: Estimated annual cost of wood heating per household**

	<b>Firewood/tonne (commercial rates)</b>	<b>Wood use (tonnes)</b>	<b>Annual heating cost</b>
Melbourne <sup>1</sup>	\$300	3.75	\$1,130
Wagga <sup>1</sup>	\$180	4.08	\$730
Deniliquin <sup>2</sup>	\$160	5	\$800
Griffith <sup>2</sup>	\$130	5	\$650

<sup>1</sup> National Environment Protection Council Service Corporation (2013) cited in Arche, 2013

<sup>2</sup> Estimates reported to Arche Consulting 2013.

Anecdotal prices for wood have been higher in the Murray than in the Murrumbidgee, probably in part due to competition with the Victorian market (Arche, 2013).

Output from a wood heater of 1–1.5 kilowatts (kW) for each 10 m<sup>2</sup> of floor space is required to adequately heat a space. The Victorian Sustainable Energy Authority estimates that, to heat 50m<sup>2</sup> of living space, the heater should have a maximum output of 5–8 kW. The cost of wood heaters can vary greatly depending on features and in particular the thickness of the firebox wall. Prices range from \$1,000 to \$3,500 and there are also installation costs involved with adding a flue in the order of \$500.

IPART found that a household's ability to reduce its energy usage in response to higher prices depends largely on the extent to which the drivers of usage are in the household's control. For example, it may be difficult for a low-income household to reduce its usage if the usage is high for one or more of the following reasons:

- there are many people in the household
- the household has few occupants but lives in a 'family sized' detached house
- the dwelling and appliances are not energy efficient, but the household has insufficient income to make improvements
- the dwelling is rented and the landlord is unwilling to make it more energy efficient
- the household lives in an area with more extreme temperatures.

## **Wood smoke and public health concerns**

Wood smoke pollution is an emerging public health issue. Smoke from wood heaters contains noxious gases (including carbon monoxide, oxides of nitrogen and a range of organic compounds, some of which are toxic or carcinogenic), and fine particles which go deep into the lungs (EPA, 2013). Particles with a diameter of less than 2.5 micrometres have the largest health impact (Hibberd et al, 2013). These pollutants can cause breathing difficulties even at relatively low levels, especially for people suffering existing respiratory conditions such as asthmatics and for very young children and frail older people (EPA, 2013).

A study of the composition of airborne fine particles in NSW's Upper Hunter found wood smoke dominates fine particle composition in winter (Hibberd et al, 2013).

In response to substantial air quality problems, the Tasmanian city of Launceston intervened to reduce wood smoke pollution by buying back wood heaters and implementing a public education campaign. These steps resulted in a substantial drop in winter deaths from heart and lung diseases (by 20% and 28% respectively) (Johnston et al, 2012).

Wood smoke pollution is most concerning in built up areas due to the close proximity of numerous chimneys. Deniliquin Shire Council has recognised the risks of wood smoke pollution and received EPA funding in 2012 for a public education program around wood smoke reduction.

## **Providing assistance to affected households**

### **A: Existing support**

#### **Assistance programs offered by the Office of Environment and Heritage (OEH)**

The Office of Environment and Heritage (OEH) currently manages programs to assist low-income households to reduce their energy consumption (and energy bills) and choose a heater that best meets their home heating needs and budget. OEH has existing relationships with providers of further support for these households.

#### ***Home Power Savings Program***

OEH provides a Home Power Savings Program for eligible low-income households. Households who join the program receive:

- a free one-hour in-home power assessment from an energy expert who will discuss how and where the householder is using power and ways in which they can reduce their energy use
- a free power savings kit of energy efficient products, fully installed by the energy expert
- a free personalised power savings action plan with tips on ways to save power.

The Home Power Savings Program is currently operating until June 2014.

#### ***Smarter Choice Program***

OEH has prepared advice to assist householdsto choose low-energy heating. This information provides recommended heater types depending on room sizes, energy star rating guides and an annual cost estimation (see Appendix E).

The Smarter Choice Program allows households to check the running cost of heating and cooling devices using its Air Conditioner Running Cost Calculator at:

[www.smarterchoicecalculator.com.au/AirConditionerDetail.aspx](http://www.smarterchoicecalculator.com.au/AirConditionerDetail.aspx)

#### ***Relationship with No Interest Loans Scheme***

OEH has an existing relationship with the providers of the No Interest Loans Scheme (NILS NSW), which provides interest-free loans for individuals or families on low incomes. It provides access to fair, safe and affordable credit for the purchase of household goods and services. Items that can be purchased are household items such as a heater.

The maximum amount for a loan is \$1,000 and it is to be used on one item only. The repayments are deducted from the recipient's Centrelink benefit through the Centrepay system over a period of six to eighteen months.

Loans are interest free with repayment plans to suit the individual's financial circumstances. There are no application fees or interest charges on these loans.

[Intereach](#) offers the loans to people living in the Deniliquin, Conargo, Murray, Jerilderie, Berrigan, Hay and Wakool local government areas.

The scheme is also available for other Riverina LGAs, such as through Anglicare Regional Alliance. More information is available at [www.nilsnsw.org.au/](http://www.nilsnsw.org.au/).

### **Assistance programs offered by the Environment Protection Authority (EPA)**

#### ***Stay Warm; Breathe Easy***

The Environment Protection Authority (EPA) provides information on the effects of wood smoke on the health and environment of the local community. This information assists households with understanding the harmful effects of wood smoke on health and the environment, and gives advice on steps that can be taken to minimise these effects (see Appendix F).

#### ***Wood Smoke Reduction Program***

The EPA is operating a Wood Smoke Reduction Program for the 2013 and 2014 winters. Under this program, councils can apply for up to \$60,000 in funding. This funding can be used for community education programs, smoky chimney surveys and targeted cash incentives to replace old, polluting wood heaters and fireplaces with cleaner forms of heating.

Councils that are successful in applying for funding for the program's cash incentives option can provide eligible households with a cash rebate of up to \$500 (\$1,000 for low-income households) for replacing old polluting wood heaters and fireplaces with cleaner alternatives. Typically, councils have offered this incentive to households on a first come, first serve basis. Rebates would only be available for households in areas zoned as residential, business or industrial, so this scheme would not be applicable to rural households.

The application process requires councils to establish that they have a wood smoke problem and are keen to, and capable of, addressing that health related, local air quality issue.

For the 2014 round of funding, the EPA will write to all council General Managers encouraging them to apply for the program, which will be open for applications until 11 November 2013. The EPA provides training to councils in all aspects of the program.

### **B: New support**

#### **OEH to offer additional assistance to affected households**

In order to assist households to transfer to an alternative form of heating, the taskforce has recommended that OEH establish a rebate or payment program. This program would apply to households that have purchased a permit under the NPWS Domestic Firewood Collection Program to assist them in purchasing and installing a non-wood-burning heater.

Households would ideally be able to access this incentive scheme in addition to the EPA's Wood Smoke Reduction Program (should their local council be successful in its application to provide cash incentives for replacement of wood heaters).

### **C: Ease of access to support**

In order to ensure ease of access to support for eligible households who have purchased permits from the NPWS Domestic Firewood Collection Program, OEH could:

- provide one point of contact for eligible households in relation to the suite of measures currently or to be managed by OEH and the EPA, including:
  - the Home Power Savings Program
  - the Smarter Choice Program

- the EPA's Stay Warm, Breathe Easy Program
- the EPA's Wood Smoke Reduction Program
- any future OEH-managed rebate or payment program specifically designed for households who have purchased a permit under the NPWS Domestic Firewood Collection Program
- facilitate the application process for eligible households to apply for assistance under the No Interest Loans Scheme in relation to the purchase of new heating appliances.

## 2.5 Summary of recommendations

**TOR6: Recommend options to address the home heating energy supply needs for those community members most reliant on firewood.**

**TOR7: Recommend options for sustainable environmental, social and financial outcomes.**

This report contains the taskforce's recommendations to the Minister for the Environment. For those actions that sit outside the Minister's portfolio, it is recommended that the Minister request input, advice and assistance from the relevant portfolio Minister.

### Maximising the firewood resource available for collection under the NPWS Domestic Firewood Collection Program

Recommendation	Anticipated benefit or outcome	Comments
1. NPWS to modify its firewood collection guidelines to maximise the volume of firewood available without compromising environmental measures (i.e. reduce the trigger for collection zone closure from 60 t/ha of coarse woody debris to 45 t/ha).	Would increase firewood availability in the Murrumbidgee collection zone by up to one year and up to two years in the Murray collection zone.	This will require NPWS to obtain a new environmental approval.
2. NPWS to implement appropriate compliance strategies to address reported illegal collection of firewood or collection of excessive quantities.	Appropriate compliance would help address reported community concerns that some domestic firewood collection is breaching collection guidelines.	
3. NPWS to open former forestry snig tracks to improve access by firewood collectors to the firewood within the collection zones.	Would provide collectors with easier access to firewood.	
4. NPWS to open a firewood collection zone in Yanga National Park.	Would provide access to a new firewood resource for Balranald residents.	Yanga did not have a domestic firewood program before becoming a national park. The river red gum legislation established in 2010 to provide for firewood collection in the new river red gum parks does not apply to Yanga.
5. NPWS to review whether there is sufficient coarse woody debris above 45 t/ha in Euston Regional Park to support the opening of a firewood collection zone.	Would provide access to firewood for the local community.	NPWS will invite a representative from Balranald Shire Council and an appropriate community representative to inspect coarse woody debris levels at Euston Regional Park.

### Extending the firewood available from national parks by providing access to debris arising from any ecological thinning trial or program

Recommendation	Anticipated benefit or outcome	Comments
6. NPWS to ensure debris from the proposed ecological thinning trial is made available for the NPWS Domestic Firewood Collection Program.	Would increase firewood availability in the Murray zone by up to two years.	An ecological thinning trial remains subject to a Commonwealth approval.
7. NPWS to ensure debris from any ongoing program of ecological thinning is made available for the NPWS Domestic Firewood Collection Program.	Would increase firewood availability in Riverina national parks.	If the ecological thinning trial receives Commonwealth approval, it is expected that early trial results will require a 3–5 year period.

### Improving access to firewood resource available on western lands leases

Recommendation	Anticipated benefit or outcome	Comments
8. Forestry Corporation to re-establish a permit system for community members to collect firewood from western lands leases, subject to lessee consent.	May increase firewood availability and location options.	The relevant IFOA requirements to be jointly reviewed by EPA and the Forestry Corporation so there is a consistent interpretation of whether planning approvals are required prior to collection of firewood, or whether standard conditions (such as staying away from creeks, etc) would be sufficient.

### Access to the significant firewood resource available from state forests

Recommendation	Anticipated benefit or outcome	Comments
9. Forestry Corporation to communicate, particularly within the Murray area, the ongoing availability of firewood for domestic collection from Central Murray state forests.	May be an alternative source of firewood for some NPWS Murray area domestic firewood collectors.	This measure is unlikely to benefit NPWS Murrumbidgee domestic firewood collectors due to travel distances.
10. Review of the coarse woody debris 'photo standard' in the IFOA for river red gum state forests.	Would increase quantities of available firewood in state forests.	This will require an amendment to the IFOA (due for review in two years, could be brought forward if deemed necessary). This measure is unlikely to benefit domestic firewood collectors as almost all firewood collection in state forests is commercial.



## Improving access to firewood on other public lands

Recommendation	Anticipated benefit or outcome	Comments
11. Collection of domestic firewood on Balranald Permanent Common to be considered through appropriate trustee provisions.	May be an alternate source of firewood for some Balranald residents.	Approximately three years ago, Forestry Corporation proposed logging operations on the Balranald Temporary Common, which is Crown-timber land under the Forestry Act. It is understood that Balranald Shire Council would not have had any direct control over or benefit from these logging operations and did not support the proposal at that time. However, the council is likely to be the appointed trustee of the Balranald Permanent Common, in which case it may be more supportive of logging operations in this area as it would have greater control of operations and receive royalties from timber sales.

## Improved domestic firewood collection communications

Recommendation	Anticipated benefit or outcome	Comments
12. Riverina councils to communicate to their respective communities the importance of domestic firewood collectors adhering to collection guidelines.	This would assist in maintaining the integrity of the firewood collection program.	Communications can include that collection zones are monitored by surveillance cameras and unauthorised collectors may be prosecuted.
13. NPWS to work with other public land managers to review, update and circulate the collaborative document that provides public information on firewood collection across all Crown land.	Would keep the community informed about options for accessing firewood and permit requirements	
14. Provide information to the public about the potential for consumers to achieve energy savings by comparing the prices of alternative energy suppliers.	'Shopping around' may help consumers obtain their energy supply at a cheaper rate.	Could be included in advice provided to permit holders (see recommendation 17).

### Improving natural gas connectivity in the Riverina

Recommendation	Anticipated benefit or outcome	Comments
15. Government to support Riverina councils in their pursuit of connectivity to natural gas, in particular the extension of the existing line from Finley through to Deniliquin, and further south to the Murray.	Many community and industry benefits.	This initiative is already being actively pursued by Deniliquin Shire Council.

### Wood heaters in social housing

Recommendation	Anticipated benefit or outcome	Comments
16. Family and Community Services to conduct a review of policy relating to social housing to encourage the replacement of wood heaters with non-wood forms of heating in the Riverina.	A change to non-wood home heating would reduce demand for firewood and could lead to wood smoke and community health improvements.	Cost implications are likely to be a significant issue in relation to policy development.

### Supporting local community members to transition to an alternative form of home heating, particularly vulnerable households

Recommendation	Anticipated benefit or outcome	Comments
17. NPWS Domestic Firewood Collection Program permit holders to be provided with assistance measures, namely: <ul style="list-style-type: none"> <li>• an in-home power assessment by a Home Power Savings Program energy expert, who will: <ul style="list-style-type: none"> <li>– provide advice on steps the household can take to reduce energy use</li> <li>– install a package of energy savings devices</li> <li>– provide advice on purchasing an alternative home heater, including heating capacity and relative costs, as part of OEH's Smarter Choice Program</li> <li>– provide advice on the EPA's Stay Warm; Breathe Easy Program on the health implications of wood heaters and how to reduce heating bills</li> <li>– provide information and assist eligible households who want to apply for a no interest loan to purchase a new heater under the No Interest Loans Scheme</li> </ul> </li> </ul>	Permit holders would have support in taking steps to reduce their overall energy usage, gaining access to no-interest loans and rebates for alternatives to wood heaters, and gaining advice on choosing an energy-efficient heater.	The Home Power Savings Program (HPSP) will end in June 2014. Additional funding will be required to train energy experts in the suite of assistance programs on offer and to enable the HPSP to be extended beyond 2014 for NPWS Domestic Firewood Collection Program permit holders. Additional funding is also required for a rebate scheme (see recommendation 18).

Recommendation	Anticipated benefit or outcome	Comments
<p>–provide information and assist eligible households who want to apply for rebates or payments to offset the cost of purchasing non-wood-burning home heaters (see recommendations 18 and 19)</p> <ul style="list-style-type: none"> <li>• a follow up in-home visit by a Home Power Savings Program energy expert after a new heater has been purchased and installed, to provide the household with advice on the use of the new heater.</li> </ul>		
<p>18. OEH to establish a payment or rebate scheme to support NPWS Domestic Firewood Collection Program permit holders who wish to change from wood heaters to an alternative source of home heating. The support would be provided to all permit holders irrespective of whether they are additionally eligible for rebates or payments under the No Interest Loans Scheme or the EPA’s Wood Smoke Reduction Program.</p>	<p>This would reduce the financial impact of transitioning to an alternative form of home heating.</p> <p>A change to non-wood home heating would reduce demand for firewood and could lead to wood smoke and community health improvements.</p>	
<p>19. Riverina councils to be encouraged to apply for up to \$60,000 in funding and offer these funds to community members as rebates for replacing old polluting wood heaters and fireplaces with cleaner alternatives (as part of the EPA’s Wood Smoke Reduction Program).</p>	<p>Households in townships would have financial support to transfer to a cleaner form of home heating.</p> <p>A change to non-wood home heating would reduce demand for firewood and could lead to wood smoke and community health improvements.</p>	<p>Training by EPA officers in the administration of a wood heater replacement rebate scheme is available for council staff.</p> <p>The EPA’s Wood Smoke Reduction Program only applies to households in townships (i.e. residential, business or industrial zonings) due to wood smoke pollution in built-up areas. Households in rural zonings are ineligible to apply.</p>
<p>20. NPWS to restrict future domestic firewood collection permits to only households that have previously held a firewood collection permit under the NPWS Domestic Firewood Collection Program.</p>	<p>Would maximise the firewood resource available to current domestic firewood collectors by preventing new entrants into the program.</p>	<p>The NPWS Domestic Firewood Collection Program commenced on 1 July 2010 (1862 households obtained a firewood collection permit between 1 July 2010 and 15 July 2013).</p>
<p>21. Government funding to be provided to assist social housing providers to carry out ‘sustainable’ improvements to housing stock to improve thermal efficiency.</p>	<p>Would create greater comfort for householders and lower energy costs.</p>	

### 3 Acknowledgements

The Riverina Community Firewood and Home Heating Taskforce submits this report to the Minister for the Environment for consideration. In doing so the taskforce would like to acknowledge the staff of the National Parks and Wildlife Service, the staff of Forestry Corporation of NSW, the staff of the Environment Protection Authority, taskforce members and their alternative representatives.

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# 5 Appendices