



IPART Independent
Pricing and Regulatory
Tribunal | NSW

Review of Forestry Corporation of
NSW's native timber harvesting and
haulage costs from 2019-20 to 2021-22

Final Report

November 2024

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present.

We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

Tribunal Members

The Tribunal members for this review are:

Carmel Donnelly PSM, Chair

Jonathan Coppel

Sharon Henrick

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The Independent Pricing and Regulatory Tribunal

IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from [IPART's website](#).

Erratum

Following submission of the report on this review to the Treasurer in September 2024, we became aware that our usual fact check process had not been completed. We requested the Treasurer delay publication of this report, and we engaged with FCNSW and Treasury as part of this fact check process.

The Tribunal considered minor amendments to the report following this fact check process. This amended final report that supersedes the previous report was provided to the Treasurer on 6 November 2024.

A list of the minor amendments is set out in Appendix F.

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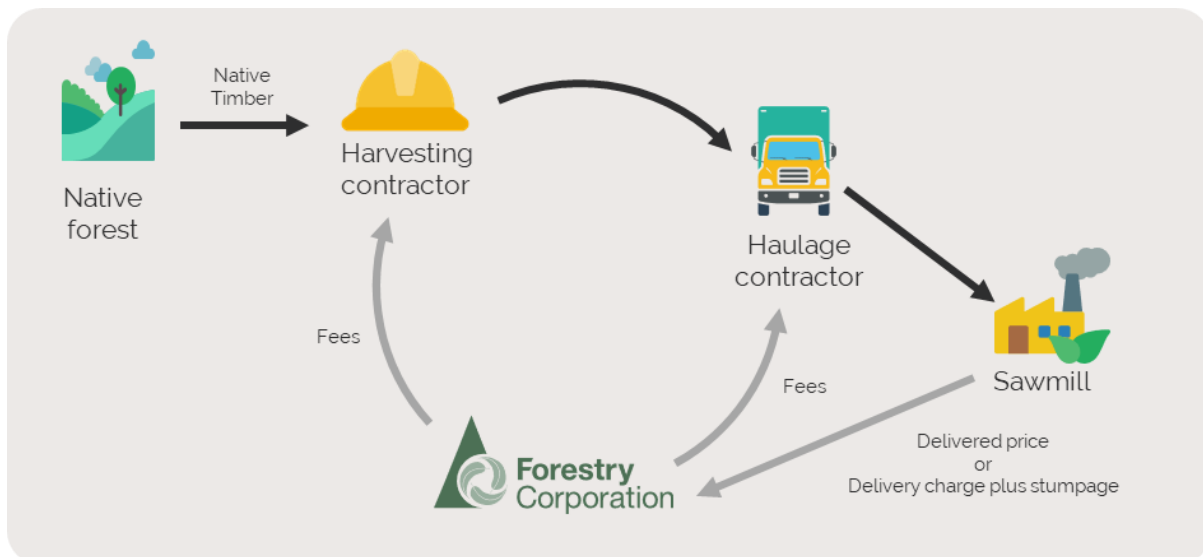
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1 Executive Summary

We are required by the NSW Forestry Act 2012 (Forestry Act) to make recommendations to Forestry Corporation NSW (FCNSW) to improve its management of native timber harvesting and haulage to reduce its costs. Every 3 years, FCNSW is required to review these costs against the costs of similar organisations and provide its report on the results of the review to IPART.

FCNSW supplies native timber to sawmills in long-term contracts called Wood Supply Agreements (WSAs). Under the majority of WSAs, FCNSW pays for the harvesting (felling of trees) and haulage (transportation to the sawmill) of native timbers through third-party contractors. This process is summarised in **Figure 1.1**.

Figure 1.1 Forestry Corporation NSW's Mill Door Arrangements



Source: IPART

This is our third review of FCNSW's native timber harvesting and haulage costs. It covers the 3 years from 1 July 2019 to 30 June 2022. During this period the 2019-20 black summer bushfires and 2021-22 major flooding events occurred. These weather events had a significant impact on FCNSW's operations and resulted in a 50% reduction in harvest volume.

To meet its contractual obligations to supply native timber, FCNSW undertook direct negotiations with its native timber harvest and haulage contractors. For the review period, FCNSW received \$4.67 less per gross metric tonne (gmt) from the sawmills than it paid to harvesting and haulage contractors and in contract and administration expenses. This is higher than the losses of \$3.96 per gmt in the 2016-19 previous review period.

FCNSW has consistently made a loss, excluding stumpage, on contracts where it has provided harvesting and haulage services of native timber to sawmills. This means that FCNSW is selling native timber to sawmills for a *delivery charge* which is below the cost of harvesting and hauling that timber alone.

As they have done for the previous 2 reviews, FCNSW engaged Indufor to benchmark its native timber harvesting and haulage costs with other operators within Australia. Indufor found that changes to the harvesting costs were reasonable and that haulage costs adjusted for distance declined over the review period. However, due to the significant disruption to activities from natural disasters in the review period, we were not able to determine if the decline in harvesting and haulage costs will be permanent or sustainable in the long term.

Following our recommendation in our 2017 report, we note that FCNSW intended to recover contract and administrative costs from wood supply agreement (WSA) customers. However to provide greater certainty for the industry, the WSAs were extended by the then State Government with limited changes to contract terms and conditions, and prices.

We have also identified improvements that FCNSW could make in managing its native timber harvesting and haulage operations to reduce these costs and improve its efficiency in the future.

Key Observations

We found that:

- FCNSW's delivery charge does not fully recover its native timber harvesting and haulage costs, including contract and administration costs, and has not done so for at least the last 10 years
- The majority of wood supply agreements are due for renewal in 2028, potentially providing opportunities to improve the recovery of costs
- Western Australia and Victoria have exited the native timber harvesting market which has reduced the ability to benchmark against comparable organisations
- The NSW Government's NSW Forestry Industry Action Plan is under review

Recommendations



We recommend that:

1. FCNSW reviews our 2017 recommendations when negotiating the renewal of Wood Supply Agreements. These recommendations may increase the efficiency of supply of native timber across all sawmills and allow FCNSW to more effectively recover its costs.
2. In light of our key observations, we recommend that the NSW Government reviews the long-term feasibility of native timber harvesting in its NSW Forestry Industry Action Plan. We note that the NSW Government has appointed an expert panel to lead consultation on this plan.

3. For the next review period, FCNSW should use different comparators for native timber harvesting and haulage costs. Comparators that share similar cost drivers will allow FCNSW to more easily identify areas for cost savings.
4. For the next review, it would be consistent with good governance principles for FCNSW to diversify its sources of external advice. This may entail using a different consultant to review its native timber harvesting and haulage operations.
5. FCNSW should ensure that there is long-term competition in the Production North haulage market. We note that FCNSW has taken action to achieve this post the review period.
6. FCNSW should provide more information about ground conditions as part of the tender process to improve the quality of bids by contractors.
7. FCNSW ensures that its contract and administrative resource cost per gross metric tonne of native timber is efficient by benchmarking it against its historical average.
8. FCNSW unbundles the price paid by sawmills for native timber, especially the contract and administrative costs for harvest and haulage contractors. This will improve FCNSW's cost transparency and recovery.
9. FCNSW investigates whether central dispatching for haulage services should be provided across all markets
10. FCNSW investigates ways to increase the number of market participants for harvesting and haulage services.

2 Forestry Corporation NSW (FCNSW)

The Forestry Act 2012 prescribes FCNSW as the land manager of Crown-timber land. It is a State Owned Corporation and the largest producer of commercial native and hardwood plantation timber in NSW. It manages native forest timber production on state forest public land across 2 broad geographical zones: the North Coast (Production North) and South Coast (Production South) regions of NSW.

FCNSW is authorised to harvest timber from native forests and other Crown-timber lands and incurs costs from native timber harvesting and haulage activities. This does not include native timber on private forests which is managed by local land managers. More information is provided in **Appendix A** on the changing nature of native forest harvesting in Australia and **Appendix B** on FCNSW's legislative functions.

2.1 NSW has a number of regulators for native forests

The regulatory framework for native forestry in NSW has many parts, involving different levels of government and government agencies and including agreements, approvals and legislation. This is shown in **Figure 2.1**. IPART plays a specific role in the regulation of native timber forestry, to review the report in which FCNSW benchmarks its native timber harvesting and haulage costs and to make recommendations about improvements that FCNSW might make to reduce these costs. For more detail, see **Appendix C**.

Figure 2.1 Regulatory framework for NSW native timber



Note: Our review will focus on NSW native timber on Crown land. It does not include native timber on private forests which is managed by local land managers. NSW Department of Climate Change, Energy, the Environment and Water has a range of responsibilities that extend to the management of NSW National Park estate, including leading wildlife, biodiversity, ecosystem and conservation policy, research and programs and protecting threatened species and communities.

2.2 FCNSW Native Timber operations

FCNSW has two main timber operations, softwood plantations and hardwood forests which conduct harvest operations within native forests and hardwood plantations. Over the review period, Table 2.1 shows hardwood forests timber and extractive resources contributed 22% of FCNSW’s total revenue. Additionally, it contributed \$17 million towards FCNSW’s \$153 of total normalised earnings.^{1a}

Table 2.1 FCNSW Revenue from Timber and Extractive Resources (\$ millions)

	2019–20	2020–21	2021–22
Softwood Plantations	301	300	264
Hardwood Forests	91	73	84
Total	392	373	348

Source: Annual Report 2022-23 FCNSW

^a NSW Budget 2024-25 notes that FCNSW has project a decrease of \$102.3 million in dividends and income tax equivalents over the 4 years to 2027-28. (2024-25 Budget Statement 7-7)

FCNSW does not provide a breakdown showing the individual financial performance of native timber and hardwood plantations operations. However, Table 2.2 shows that 70% of the hardwood forest operations by volume is native timber.

Table 2.2 Volume of hardwood forests harvested ('000 m³)

	2019-20	2020-21	2021-22
Native	526	334	555
Plantation	184	240	176
Total	710	574	731

Source: FCNSW Sustainability Report 2023-24

2.3 Wood Supply Agreements

Wood supply agreements (WSAs) are long-term contracts between FCNSW and sawmills and other timber processors. WSAs are usually in place for 20 years^b, however, some timber is sold on short term parcel sale agreements. Most WSAs were signed between the late 1990s and early-mid 2000s. FCNSW currently has 20 WSAs which are all due to expire between 2026 and 2030 (with 85% expiring in 2028).² The annual volume of hardwood timber from native forests and hardwood plantations that FCNSW must supply is set under WSAs.

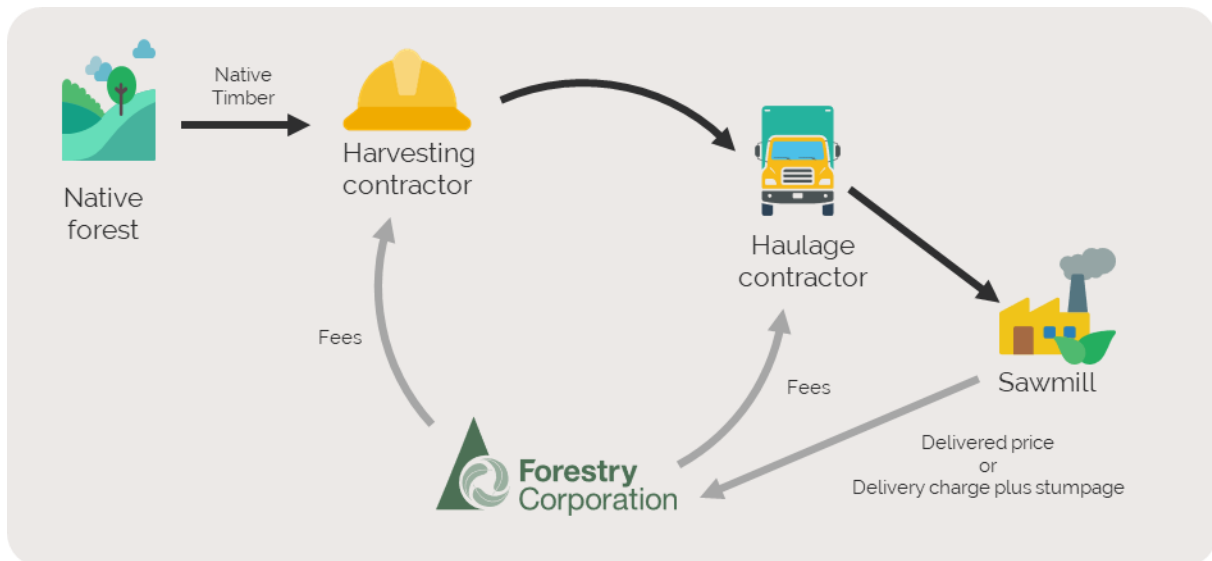
The prices that FCNSW receives for native timber is determined by two methods: stumpage or mill-door (see **Appendix C** for more information). Under stumpage arrangements, sawmills pay FCNSW a fee for the timber and arrange their own harvesting and haulage.

For mill-door arrangements as shown in **Figure 2.2**, FCNSW undertakes the harvesting and haulage of the native timber and receives a fee which is determined as either a:

- **Delivered Price** which is where FCNSW receives a fixed price for the timber. This is used for low quality products and is the predominant form of sales in NSW, or
- **Delivery Charge plus Stumpage**, where FCNSW may charge separate fees for stumpage, harvesting, haulage and administration. This is used for the majority high quality logs outside of Eden.

^b The 20-year period for WSAs was intended to provide resource and investment certainty for customers.

Figure 2.2 Forestry Corporation NSW's Mill Door Arrangements



Source: IPART

Contract and administration costs are incurred by FCNSW to manage harvesting and haulage contractors and these costs are not clearly recovered through WSAs.

All WSA's on the Production North were due to expire in 2023 but were extended to 2028 by the then State Government in 2022, with the main terms unchanged.^c The then State Government indicated that this was to provide greater certainty for the industry. Indufor has advised that there are 3 WSAs in the South Coast expiring in 2026, 2029 and 2030.^d Over the 3 years from 1 July 2019 to 30 June 2022 (the review period), at least 3 WSAs (1 in the Production North and 2 in the Production South) expired and have not been renewed.^e

In our 2017 review³, we made recommendations regarding the structure of Wood Supply Agreements (**Appendix D**). We recommend that FCNSW review our previous recommendations in any negotiation of new WSAs or extensions of WSAs.

Recommendation

1. FCNSW reviews our 2017 recommendations when negotiating the renewal of Wood Supply Agreements. These recommendations may increase the efficiency of supply of native timber across all sawmills and allow FCNSW to more effectively recover its costs.

^c ABC News, 'Native forest logging to continue as NSW North Coast Wood Supply Agreements extended', 9 June 2022.

^d We note that 2 of these WSAs belong to Allied Natural Wood Exports and are stumpage arrangements, and hence outside the scope of this review.

^e This is based on a comparison of supply agreement lists provided by Indufor in its benchmarking reports from the last review period and current period

2.3.1 FCNSW does not recover its costs

Over the review period, FCNSW incurred a loss \$4.67 per gross metric tonne (gmt) of native timber delivered. This is higher than the losses of \$3.96 per gmt in the previous review period.⁴

Through the current period FCNSW's revenue increased by an annual compound growth rate of 2.7% and harvesting and haulage contract rates declined (discussed in section 3.4 and 3.5). However, FCNSW's revenue (excluding stumpage) that it received from its customers did not meet harvesting, haulage, contractor and administrative costs. Stumpage is for the economic value of the timber received by FCNSW and our review is focused on harvesting and haulage costs.

Indufor reported that the increase in losses were driven by largely fixed administrative costs spread over a reduced quantity of native timber harvested following the 2019-20 bushfires.⁵ From our first review in 2017, we have consistently found that the delivery charges that FCNSW receives for its native timber do not cover its harvesting and haulage costs, and contract and administrative costs.⁶

With the majority of WSAs due to expire in 2028, there will be an opportunity for FCNSW to review its commercial terms to enable a transition to an economically viable native timber industry. If this is not possible, we recommend that the NSW Government reviews the long-term feasibility of native timber harvesting in its NSW Forestry Industry Action Plan. We note that the NSW Government has appointed an expert panel to lead consultation on this plan.⁷

Recommendation



2. In light of our key observations, we recommend that the NSW Government reviews the long-term feasibility of native timber harvesting in its NSW Forestry Industry Action Plan. We note that the NSW Government has appointed an expert panel to lead consultation on this plan.

2.4 2024 Harvest and Haulage Costs Review

FCNSW engages contractors for native harvesting and haulage to meet its obligations under WSAs. Every 3 years, FCNSW is required to review its native timber harvesting and haulage costs and benchmark these costs against the cost of similar organisations. IPART is provided with this report so it may make recommendations to improve FCNSW's management of native timber harvesting and haulage to reduce its costs. In making its recommendations, IPART is not limited to matters included in the report and may take into consideration any information it considers relevant.

For the 2019-2022 review period, FCNSW engaged Indufor to prepare *the 2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report*. The remainder of this report is our assessment of FCNSW's native timber harvesting and haulage costs and our recommendations.

2.4.1 Alternative to interjurisdictional benchmarking will be required

For this review period, we placed less emphasis on Indufor's benchmark assessment of FCNSW's native timber harvesting and haulage costs for the following reasons:⁸

- Indufor indexed previous data sets from comparison organisations in WA, Victoria and Tasmania because actual costs for the period weren't available.
- WA and Victoria announced cessation of native timber harvesting and, rather than undertake competitive tenders, cancelled some existing contracts and extend some contracts by applying indexation methods.
- Significant weather events, i.e. bushfires and floods, that resulted in a substantial decrease in the quantity and difficulty of the timber harvested.

For these reasons, the indexed changes to the comparator costs do not reflect FCNSW's operating environment. They provide limited insight to how FCNSW could reduce its costs, or how reasonable these costs are when compared to 'competitors'.

Section 91 of the Forestry Act 2012 requires FCNSW to produce a report that benchmarks its harvesting and haulage native forest costs with similar organisations undertaking similar native timber harvesting and haulage operations. With both Victoria and Western Australia having ceased harvesting from native forests on 1 January 2024, there will be no comparative data from comparable state-owned corporations^f.

Indufor's report also notes that the Tasmanian native forest corporation faces substantively different cost pressures than FCNSW and therefore is not a useful comparator.⁹ They directly negotiate with harvesting and haulage contractors and prices are adjusted via indexation mechanisms.¹⁰

FCNSW will need to update how it reviews its native timber harvesting and haulage costs and considers relevant comparisons. It will not be sufficient to simply index costs of other organisations that have ceased harvesting native timbers. Indufor's report states that attempts to obtain comparative data from other private Queensland, NSW and Tasmanian companies have been unsuccessful in the past.¹¹

We recommend that for the next review FCNSW use comparators with similar cost drivers for native timber harvesting and haulage costs, these may include comparing:


- costs incurred by sawmill operators for the same service (such as Eden Forest Management Area and Western Region where FCNSW only charges a stumpage fee)
- haulage costs for plantation timbers (noting that harvest costs will not be comparable between plantation and native forest operations).

^f Section 91 of Forestry Act 2012

For contract and administration costs related to harvesting and haulage, FCNSW should consider benchmarking these overheads:

- internally between native and plantation timbers
- with other organisations that provide similar functions (such as centralised dispatching).

Recommendation

-  3. For the next review period, FCNSW should use different comparators for native timber harvesting and haulage costs. Comparators that share similar cost drivers will allow FCNSW to more easily identify areas for cost savings.

3 We have reviewed FCNSW's native timber harvesting and haulage costs

Our role is to identify opportunities for FCNSW to reduce its native timber harvesting and haulage costs. This includes improvements that FCNSW might make to its management of native timber harvesting and haulage. We have focused on:

- what has caused the change in average costs since the last review
- whether there is competition for harvesting and haulage services
- opportunities for efficiencies.

This report does not make detailed findings regarding the profitability of FCNSW's native timber business.

All costs used in this report are in nominal terms unless otherwise stated.

3.1 2024 Native Forest Harvest and Haulage Review and Benchmarking Report

FCNSW engaged Indufor, for the third successive time, to review and prepare a benchmarking report on its native timber harvesting and haulage costs during the review period. For this review, Indufor included in its analysis hardwood plantation harvesting and haulage costs.⁹ This was due to harvest and haulage contractors increasing production in hardwood plantations to meet FCNSW supply requirements.

Overall, Indufor found that:¹²

- FCNSW's costs were reasonable relative to other jurisdictions and indexation benchmarks
- the harvesting and haulage markets were contestable and not exhibiting signs of market power being leveraged in local or regional markets to increase costs
- FCNSW did not appear to fully recover its contract and administration costs during the review period.

Indufor's findings are similar to the findings in its previous (2017 and 2021) benchmarking reports.

We have reviewed the benchmarking report and compared Indufor's findings with our understanding of costs in the review period. Indufor's assessment is that FCNSW's native timber harvesting and haulage costs have decreased. In general, Indufor's findings are consistent with our own. However, due to the significant disruption from natural disasters during the review period, we were not able to determine if these decreases are permanent or sustainable in the long-term. We have made recommendations to enable FCNSW to improve efficiency, specifically to improve cost transparency and recovery.

⁹ Section 91 of the Forestry Act 2012 only requires FCNSW to report on native timber harvesting and haulage costs. Historically, hardwood plantation harvesting and haulage costs have been excluded from the reports.

We note that this is the third time that FCNSW has engaged Indufor to prepare the harvesting and haulage benchmarking report. In accordance with good governance principles, we recommend that FCNSW to diversify its sources of external advice and engages a different consultant to complete the next native timber harvesting and haulage review. This could provide new perspectives and insights on FCNSW's native timber operations.

Recommendation

4. For the next review, it would be consistent with good governance principles for FCNSW to diversify its sources of external advice. This may entail using a different consultant to review its native timber harvesting and haulage operations.

3.2 How FCNSW manages harvesting and haulage contractor costs

FCNSW is responsible for planning harvesting and haulage to meet its obligations to supply native timber under some WSAs. Historically, FCNSW has undertaken market tenders to engage third-party contractors to complete this work.¹³ Contracts are commonly 5-year in duration to allow contractors certainty to access financing for equipment. Short-term agreements are also used to meet capacity shortfalls or uncertainty around supply requirements.¹⁴

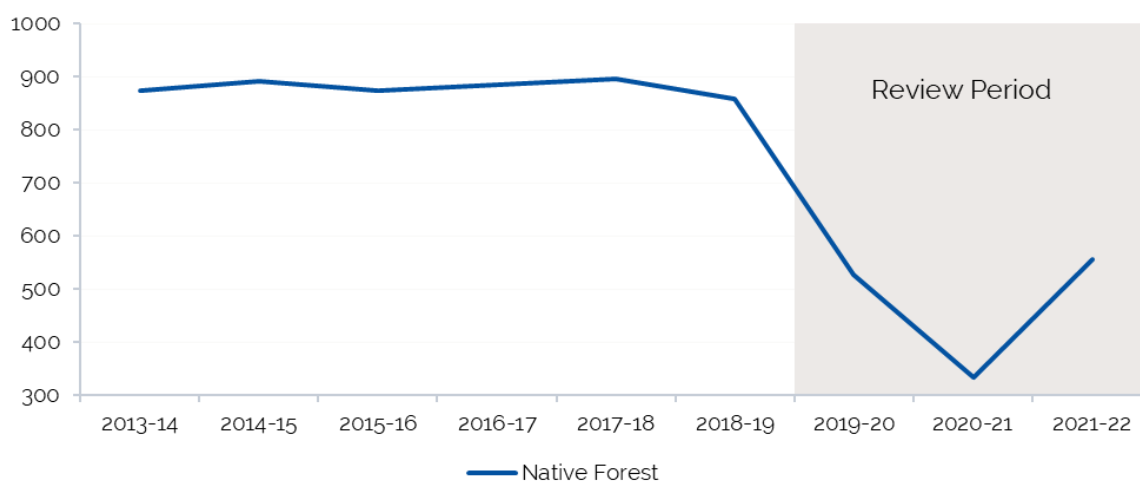
Previously, FCNSW has also negotiated directly with contractors to achieve lower costs. For example, FCNSW helped set up the North Haul Consortium in 2016 after it received tender submissions with proposed costs that were significantly higher than historical proposals.¹⁵

For the review period, FCNSW directly negotiated with harvesting and haulage contractors due to a significant reduction in harvest yields.

3.3 FCNSW reduced harvesting yield of native hardwood timbers by approximately 50% compared to the previous review period

During the review period FCNSW operations were constrained by the 2019 bushfires and 2021 flooding events. Native forestry operations cannot take place during wet weather due to environmental restrictions.¹⁶ To respond to these events, FCNSW reduced harvesting yield of native hardwood timbers by approximately 50% compared to the previous review period (**Figure 3.1**).

Figure 3.1 Native Hardwood Logs Harvested (2013/14^h – 2021/22)



Source: FCNSW Sustainability Report 2023

3.4 Average harvesting costs declined over the review period

Due to the reduced harvesting yield, FCNSW directly engaged a number of harvesting and haulage contractors rather than undertaking an open tender. This meant that over the review period, the prices paid by FCNSW were a combination of open tender results and direct negotiations.

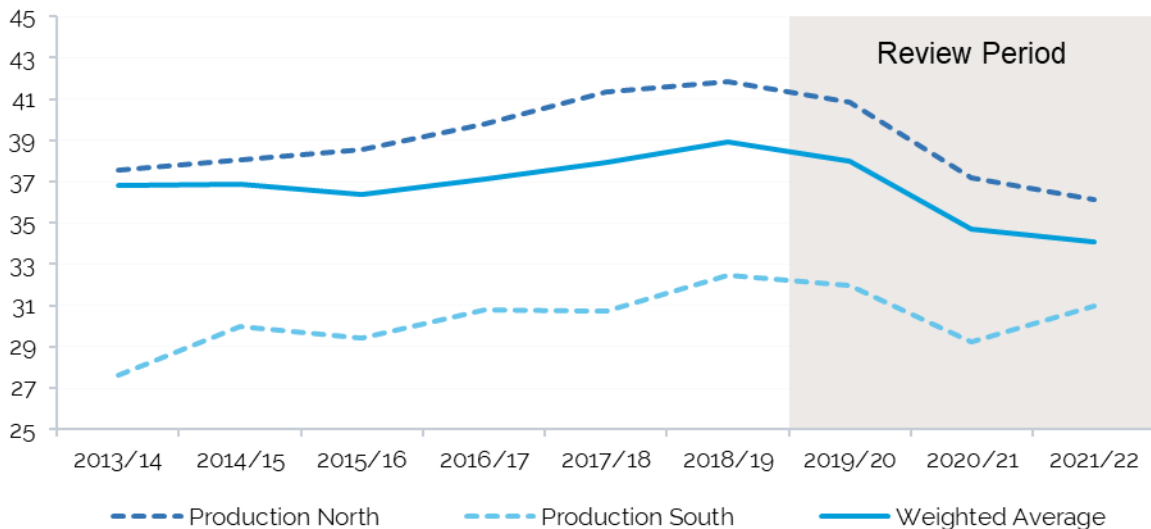
As a result of the bushfires, FCNSW concentrated its harvesting operations in areas with easier terrain and higher yields to meet its commitments under its wood supply agreements (WSAs)ⁱ. This led to lower harvest unit costs paid by FCNSW. While unit costs increased from 2020-21, FCNSW's average harvest unit costs^j decreased in real terms over the 3-year review period compared to 2018-19 (**Figure 3.2**).

^h 2013/14 was the first year IPART was required to review FCNSW's native timber harvesting and haulage costs

ⁱ WSA are long-term native timber supply agreements between FCNSW and sawmills

^j \$ per gross metric tonne (gmt) of timber harvested.

Figure 3.2 Harvesting cost per gross metric tonne (\$2013-14^k)



Source: Indufor's Report

However, it is not possible to determine if these reductions in harvesting costs are permanent and sustainable. Through the review period FCNSW prioritised the harvesting of native hardwood in lower difficulty terrain which resulted in lower costs. In the future FCNSW will need to return to higher difficulty terrain with lower yields which will lead to higher harvesting costs.¹⁷ This is especially true for Production South where FCNSW estimates that 80% of harvestable forest areas were affected by fire resulting in a long-term decline in sustainable timber of 30%.¹⁸

3.5 Haulage costs decreased slightly over the review period

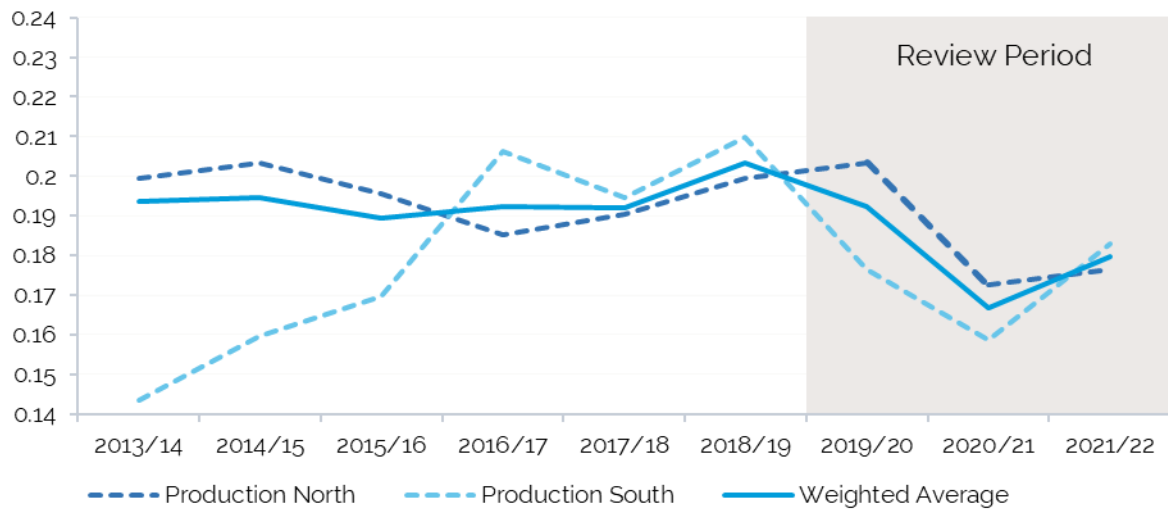
FCNSW's average haulage unit costs^l increased at an average rate of 5.2% per annum which includes increased fuel costs of over 8.42% per annum during the same period.¹⁹ While the areas FCNSW concentrated its harvesting operations in were easier and therefore cheaper to harvest, they were further away from contracted customers. This meant the logs had to be transported over longer distances, on average 145km compared to 130km in the previous review period, resulting in higher overall haulage costs.

When haulage unit costs are converted to \$ per tonne km (to remove distance as a variable), the average cost decreased in real terms from 2018-19 levels (**Figure 3.3**). However, there was a significant increase in haulage costs for Production South between 2020-21 and 2021-22. This may have been driven by the 45% increase in diesel costs during that period.²⁰

^k 2013/14 was the first year IPART was required to review FCNSW's native timber harvesting and haulage costs

^l \$ per gmt of timber hauled.

Figure 3.3 Haulage Costs per tonne per km (\$2013-14^m)



Source: Indufor's Report

Indufor's report concluded that reduced haulage costs were reasonable given the circumstances.²¹ However, it is not possible to determine if this reduction in haulage costs is permanent or sustainable in the long term.

3.6 Evidence of competition in the harvesting and haulage markets

In reviewing the competitiveness of the harvesting and haulage market we have considered whether the market operates differently across different parts of the State. In 2021, we found that there was market concentration in the Production North haulage market, but this was balanced by FCNSW's countervailing market power to keep prices reasonable.²²

We note that FCNSW has identified 2 broad markets and 4 geographical submarkets with different access to haulage and harvesting equipment, labour supply and management oversight:

- Production North with annual production of 460,000 m³
 - Upper North
 - Lower North/Central
- Production South with annual production of 150,000 m³ on a mill door basis plus 260,000 m³ stumpage
 - South
 - South West

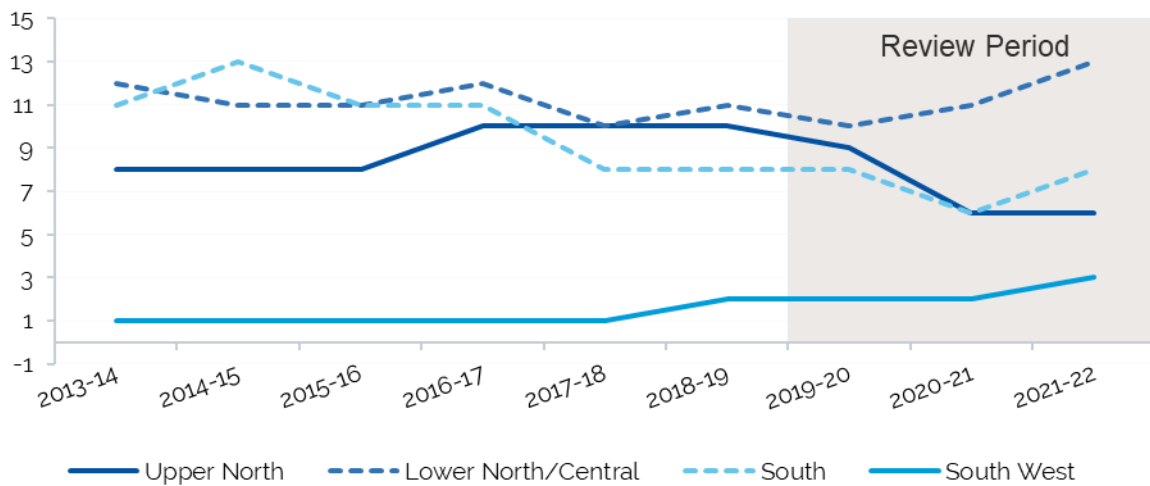
^m 2013/14 was the first year IPART was required to review FCNSW's native timber harvesting and haulage costs

Disruptions from the 2019-20 bushfires and 2021-22 floods had a substantial influence on the availability of timber harvesting and management resources, forest access and road infrastructure. This impacted FCNSW's capacity to continue to offer certainty in the form of new 5 year contracts for contractors. Nonetheless, during the review period there appeared to be some level of entry and exit in harvesting and haulage markets.

Indufor describes the profile of harvest operators across the 4 geographic markets for the 3 years comprising one large, 5 medium and 27 smaller businesses. A total of 8 businesses provided both haulage and harvesting services. Over the review period, 2 new contractors, one harvest contractor and one vertically integrated contractor, entered the markets.

Figure 3.4 shows that the number of harvest contractors has fluctuated over the review period.

Figure 3.4 Number of harvest contractors (2013/14ⁿ – 2021/22)



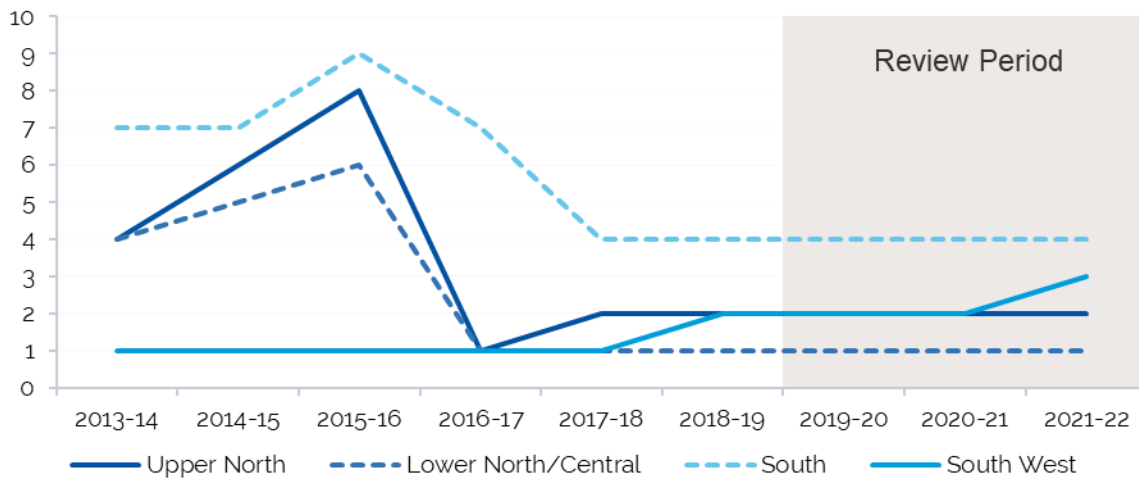
Source: IPART analysis based on Indufor's report

The harvest services market is predominantly characterised by a number of smaller geographically based operators.²³ Native timber harvesting equipment and expertise is quite specialised and not readily interchangeable. There is only limited evidence that service providers operate in both native forests and plantation forests.²⁴

Figure 3.5 shows that the number of haulage contractors has remained stable or increased slightly over the review period.

ⁿ 2013/14 was the first year IPART was required to review FCNSW's native timber harvesting and haulage costs

Figure 3.5 Number of haulage contractors (2013/14^o – 2021/22)



Source: IPART analysis based on Indufor's report

It is important for FCNSW to continue to manage the risks posed by market concentration and market power. As the major purchaser of these services, it can ensure value for money and cost efficiency in the harvesting and haulage markets. We consider that the barriers to entry in the harvesting and haulage markets are moderate, and do not appear to have hindered market entry and exit during the review period.^p

3.6.1 Market concentration

Indufor found that there is a degree of competition across the harvesting and haulage markets apart from the Production North Haulage market. We agree with Indufor's analysis that there is no evidence that harvest contractors with higher market shares were using their market power to charge higher prices.²⁵

3.6.2 North Haul Consortium market power in Production North

We consider that the North Haul Consortium continued to hold market power during the review period with 93% of Upper North and 100% of Lower North/Central haulage market.

Over the review period, haulage costs for the Production North increased slower when compared to Production South (**Table 3.1**) and were on par when on a per unit basis (**Table 3.2**).

^o 2013/14 was the first year IPART was required to review FCNSW's native timber harvesting and haulage costs

^p Indufor describes the following barriers to entry to include:

- Equipment – specialised plant for felling, snagging and processing logs (harvest) and prime movers and log trailers (haulage)
- Labour – machine operators, chainsaw operators, and truck drivers and ancillary staff
- Expertise – knowledge of environmental regulations, log and market specifications, and safety requirements
- Location – accessibility to forests for transport of equipment, labour and management oversight

Table 3.1 Haulage (\$ per gmt)

	2018/19	2019/20	2020/21	2021/22	CAGR
Production North	26.03	24.78	24.18	28.95	3.6%
Production South	35.30	35.42	34.95	40.89	5.0%

Source: Indufor's report p.23

Table 3.2 Haulage Unit Costs (per tonne km)

	2018/19	2019/20	2020/21	2021/22	CAGR
Production North	0.2161	0.2197	0.1936	0.2102	-0.9%
Production South	0.2276	0.1906	0.1781	0.2179	-1.4%

Source: Indufor's report p.24

Our assessment is that there is no evidence that the North Haul Consortium exerted its market power to increase haulage rates over the review period.

Through a tender process after this review period, FCNSW advised that it has allocated haulage services across multiple haulage contractors in Production North.²⁶ FCNSW has also implemented centralised dispatching for haulage services which was one of the main drivers of efficiency leading to the establishment of the North Haul consortium in 2016.⁹ This may have reduced the market power of the North Haul Consortium in Production North. However, we recommend that FCNSW should closely monitor the market share of Production North haulage contractors to ensure sufficient competition exists.

Recommendation



5. FCNSW should ensure that there is long-term competition in the Production North haulage market. We note that FCNSW has taken action to achieve this post the review period.

3.7 Opportunities to reduce native timber harvesting and haulage costs

We have identified the following opportunities for FCNSW to reduce its costs for native timber harvesting and haulage.

⁹ In response to high tender prices in 2015, FCNSW directly negotiated with the 3 existing haulage contractors in Production North to set up the North Haul Consortium. A review in 2018 indicated that savings made, mainly due to the implementation of central dispatching, would be shared between FCNSW and its customers.

3.7.1 Opportunities for improvements in contractor efficiency

Indufor has suggested opportunities to contain costs, and we agree with the following proposals:

- Provide tactical planning information as part of the tendering process to ensure higher utilisation of equipment.
- Provide better information about the harvesting prescriptions and types of forest, including threatened species, to be harvested over a given period. This informs decision making regarding operational impacts such as timber yield and harvesting productivity.

These proposals will reduce the uncertainty faced by contractors and may increase the utilisation of their equipment and allow better placement of skilled labour. This will likely reduce costs incurred by FCNSW in the long run.

Recommendation

- 6. FCNSW should provide more information about ground conditions as part of the tender process to improve the quality of bids by contractors.

3.7.2 FCNSW's administration costs increased over the period

The average estimated administration cost was approximately \$5.11 per gross metric tonne (gmt), based on an average annual volume of 570,000 gmt. This reflects an increase from the previous period's administration costs which were \$3.73 per gmt. This increase is attributed to the large reduction in annual harvest volume.²⁷

FCNSW may have had limited capacity to reduce administration costs during periods of disruption given these costs are largely fixed via salaries and overheads. It is likely that FCNSW expected that the harvesting volume would have returned to the longer-term average after each individual natural disaster.

In the next review period, FCNSW should monitor closely to ensure its contract and administrative resource costs per gmt of native timber harvested is in line with the lower historical average seen in previous review periods.

Recommendation

- 7. FCNSW ensures that its contract and administrative resource costs per gross metric tonne of native timber is efficient by benchmarking it against its historical average.

3.7.3 Improving cost transparency and recovery

In our 2017 review²⁸, we recommended that FCNSW unbundle the price for any native timber delivered to a sawmill. This included that contract and administration costs should be clearly identified in the delivery charge. Indufor's analysis shows that contract and administration costs are not being recovered by FCNSW from the delivery charge.²⁹ FCNSW does not identify where the administration charge is applied, and this is problematic when assessing cost recovery.

WSAs for high quality sawlogs on the Production North, and most grades on the Production South, allow for an administration charge. FCNSW has advised that, resulting from our recommendation in our 2017 review, it made changes to its delivery charge to fully recover contract administration costs from July 2019 onwards.

We acknowledge that due to the current WSA framework, there is a limited ability for parties to re-set delivered prices and negotiate higher prices. WSAs feature price adjustment mechanisms negotiated at the establishment of the WSAs.³⁰ However, over the period, the impacts of bushfires and Force Majeure provisions meant pricing reviews were deferred. We understand that these price reviews are yet to be conducted.

We recommend that in future reviews and negotiation of new WSAs (with the majority due to expire in 2028), that the price for all native timber be unbundled with contract and administrative costs clearly identified. This will allow FCNSW to determine a reliable operating margin for the native timber harvested.

Recommendation

- 8. FCNSW unbundles the price paid by sawmills for native timber, especially the contract and administrative costs for harvest and haulage contractors. This will improve FCNSW's cost transparency and recovery.

3.7.4 FCNSW investigates central dispatching across all markets

FCNSW should investigate whether central dispatching for haulage services across all markets could be implemented. We note that many contractors engaged by FCNSW provide both harvesting and haulage services. There may be efficiencies to be gained by balancing the haulage load between contractors to reduce idle time and better match equipment to requirements.

Recommendation

- 9. FCNSW investigates whether central dispatching for haulage services should be provided across all markets

3.7.5 FCNSW increase market participation for harvesting and haulage services

We also recommend that FCNSW investigate changes to its tendering framework to increase the number of harvest and haulage contractors in all markets. To overcome barriers to entry faced by new entrants, FCNSW may:

- Offer a variety of contracts that vary in terms of length, scope, and quantum.
- Review tendering processes to reduce application and administrative costs.
- Expand centralised services, such as dispatching, to reduce administrative burden on contractors.

Recommendation



10. FCNSW investigates ways to increase the number of market participants for harvesting and haulage services.

Appendices

A The native timber forestry landscape is changing

A.1 The role of timber and forestry

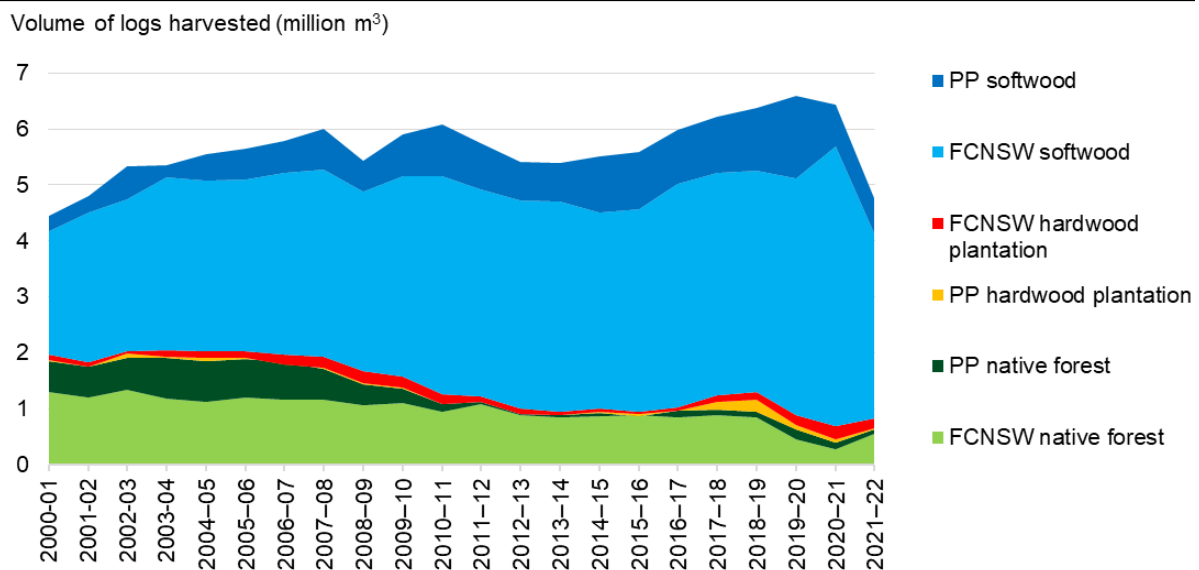
The demand for timber and forest products in Australia has consistently increased over the past 40 years. In NSW, population growth is contributing to this demand through the rising need for housing. However, there are concerns around the supply of timber to meet this demand. A recent NSW Parliamentary Inquiry into the *Long-term sustainability and future of the timber and forest products industry* has indicated there is a current timber crisis, finding that demand cannot be met with existing supply. Some of the pressures on the forestry sector and timber production contributing to this have included: reduction of native forests for harvesting, lack of planning and investment, 2019-20 bushfires, reliance on the import and exports market, and the COVID-19 pandemic.³¹

Data from 2021-22, shows that timber production was at its lowest in 20 years due to wet weather, flooding and bushfires.³² In 2022-23, the forestry sector accounted for 2% of the gross value product of commodities in NSW and total employment in forestry and related industries was 14,900.³³ Australia imports 30% of its timber needs³⁴ and is a net importer of timber, highlighting growing demand and the importance of the industry.

Timber is sourced from native forests and plantations which provide 2 types of wood: softwood and hardwood. Most timber harvested in Australia and in NSW is from softwood.³⁵ Almost all native timber, the focus of this review, is hardwood. Native timber comprises the majority, more than two-thirds, of NSW hardwood timber. The NSW hardwood timber industry was estimated to contribute \$2.9 billion in gross revenue.³⁶

In 2022-23, around 9% of all timber in Australia was harvested from native hardwood.³⁷ Of that, 28% of native timber harvested came from NSW. In the same year, NSW was the 2nd highest producer of native timber logs after Tasmania. Figure A.1 shows the timber harvested in NSW, broken down into contributions from Forestry Corporation of NSW (FCNSW) and private property. According to Indufor, of the total plantation and native forest log harvest in NSW, approximately 16% arises from harvesting of native forests. Of that 90% is supplied from public forests managed by FCNSW.³⁸

Figure A.1 Total log harvest NSW from 2000-01 to 2022-23.



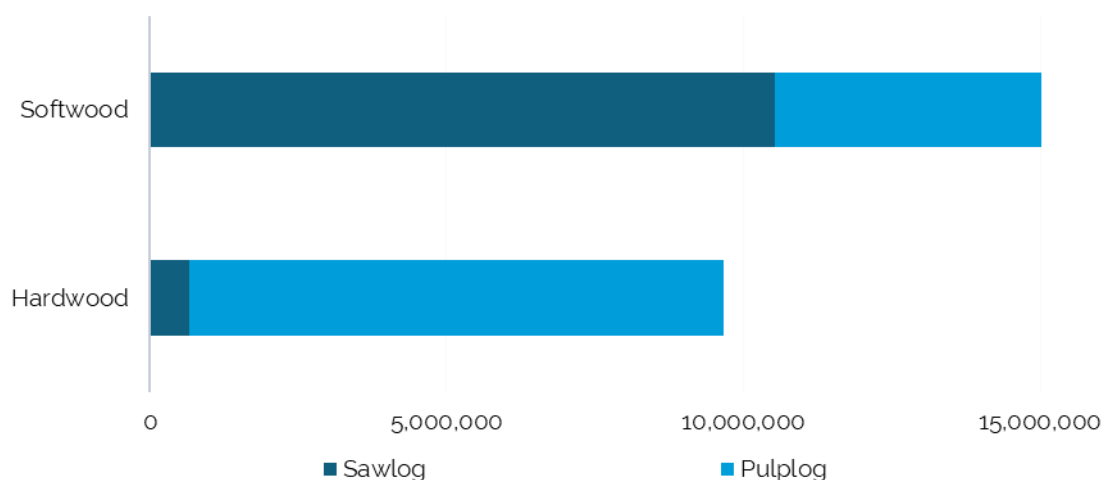
Source: Indufor' Benchmarking Report. p.4.

A.1.1 Uses of native timber

In NSW, native timber is made into a range of finished products including timber for construction, flooring, furniture, framing, cladding, medium density fibre board, paper and packaging (Indufor), with flooring and decking, the most common products.³⁹ Hardwood timber species such as Blackbutt, Spotted Gum, Sydney Blue Gum, Tallowwood, Brushbox, Ironbark, White Cypress and River Red Gum are known for their durability and strength and so are suited to a wide variety of applications including flooring, decking, panelling, joinery, utility poles, marine piles, bridge girders, and many other industrial and domestic uses.⁴⁰

Timber is an important renewable resource particularly for the domestic construction industry.⁴¹ However, there are substitutes for timber from native forests for construction. Softwood contributes the majority of timber used in housing construction and the majority of sawn logs in NSW are from softwood, most of which is grown in plantations.⁴² In Australia, over 50% of native hardwood logs are pulplogs to produce paper. Data from 2022-23, shows that in NSW, 35% of native hardwood logs are pulplogs and 61% are saw and veneer logs.⁴³ Figure A.2 shows that the majority of timber grown in hardwood plantations is forecast for pulplog.

Figure A.2 Most plantation hardwood is produced for paper



a. The figures shows forecast hardwood and softwood plantation log availability for 2020-24 from 2021.

Source: ABARES

Table A.1 shows that native timber harvested for pulpwood has increased substantially over the last 5 years.

Table A.1 Native forest harvested products between 2018-19 and 2022-23

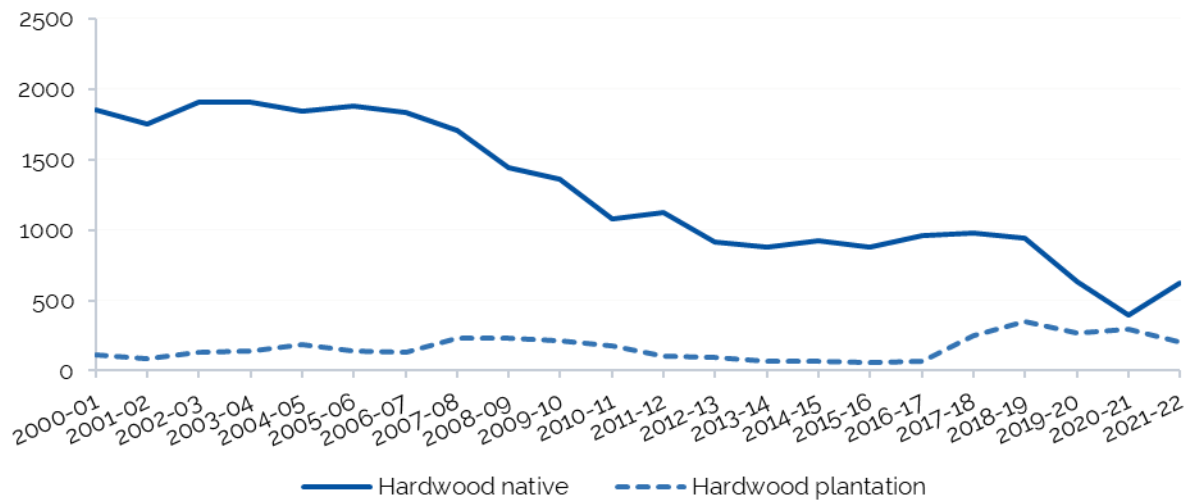
Product	Volume unit	2018-19	2019-20	2020-21	2021-22	2022-23
High quality large sawlog and large veneer	m ³	307,319	144,386	78,888	124,029	256,174
High quality small sawlog + small veneer	m ³	<i>(included above)</i>	38,643	26,291	30,890	66,222
Poles, piles & girders	m ³	<i>(included above)</i>	19,408	15,645	21,359	44,827
Low quality saw log	Tonnes	171,140	105,758	65,710	97,803	365,574
Pulpwood	Tonnes	234,499	115,999	60,372	167,561	663,902
Other timber products (firewood, fencing, woodchop, etc)	Tonnes	53,382	44,973	25,593	35,818	143,069
Heads and offcuts	Tonnes	0	0	0	0	0
Biomass	Tonnes	0	0	0	0	0

Source: FCNSW Sustainability Report 2022-23

A.2 NSW native hardwood timber production has declined

Over the last 2 decades there has been a reduction in native forests available for harvesting in NSW due to the conversion of native forests into national parks and reserves and environmental regulation of the harvesting from native forests.⁴⁴ Figure A.3 shows a decline in NSW native timber production from native forests. Over the last 20 years, production has fallen by 64%.

Figure A.3 NSW native hardwood timber production has declined.



Source: ABARES, 2023

Falling native timber production has put pressure on the supply of hardwood, particularly as production from hardwood plantations has remained low. In addition to supply constraints, there have been concerns about native forestry in NSW due to impacts on the environment and threatened species, climate change impacts and questions about whether it is economically viable. From 1 January 2024, Victoria and Western Australia have now ended native forestry.

In Victoria, the government ended native forestry as part of a transition for the state's timber industry. It ended native forestry earlier than it had previously decided (2030), when the government found that native forestry was economically and environmentally unviable due to severe bushfires and legal campaigns.⁴⁵ In Western Australia, the government ended native forestry to protect around 2 million hectares of forest.⁴⁶

In addition to timber products, native forests provide habitat for wildlife including threatened species. Additionally, they provide water, environmental benefits, and opportunities for recreational and tourism activities. Forests also store carbon which help to reduce carbon dioxide in the atmosphere to mitigate climate change. More than 4 million tonnes of carbon are stored (sequestered) in FCNSW's plantations and native forests.⁴⁷

Alternatives to native timber, such as hardwood from plantations and engineered timber products, would allow for greater conservation of native forests. These products could also further support increasing housing supply and housing affordability in NSW.

Several recent studies have raised concerns about native timber forestry going forward, including ending native timber forestry in NSW. Some studies have argued that this could deliver net economic benefits given the historical financial performance of FCNSW's hardwood division and the growing costs to taxpayers when compared to alternative uses for native forests such as for tourism and carbon sequestration.⁴⁸ Such net benefits have been estimated to be \$45 to \$60m.⁴⁹

NSW Natural Resources Commission has also found that NSW forests are showing signs of stress and degradation and that forests face a challenging future under climate change. Another study, looking at the relationship between climate and native forests, found that native forest logging increases the severity at which forests burn.⁵⁰ This raises concerns about the continued impacts on native forests and on the state's resilience to climate change.

Furthermore, protection of endangered species from extinction such as koalas and greater gliders, is a growing concern. The NSW Government has committed to the establishment of the Great National Koala Park which is expected to impact the extent of native forestry in NSW.⁵¹ In late 2023, the government implemented a halt to timber harvesting in koala hubs covering more than 8400 hectares of state forest, to assess areas of the park.

Managing the native forests sustainability amidst environmental concerns and a declining industry, to ensure positive economic, environmental and social outcomes is therefore essential.

B FCNSW Legislative Role

The objectives of FCNSW are set out in the Forestry Act 2012. See **Box B.1**.

Box B.1 Principal functions of FCNSW under the Forestry Act 2012

The principal functions of FCNSW are contained in section 11 of the Act as set out below:

1. The principal functions of the Corporation are as follows—
 - a. to carry out or authorise the carrying out of forestry operations in accordance with good forestry practice on Crown-timber land or land owned by the Corporation,
 - b. to take or authorise the taking of forest materials from State forests or land owned by the Corporation,
 - c. to sell, supply or process timber, forest products or forest materials taken or harvested under paragraph (a) or (b),
 - d. to establish and maintain plantations,
 - e. to control and manage, subject to Part 5, forestry areas,
 - f. subject to the Rural Fires Act 1997, to carry out measures on Crown-timber land for the protection from fire of timber and forest products on that land,
 - g. to grant forestry rights in respect of State forests, timber reserves or land owned by it, including any such right that is for the benefit of the Corporation,
 - h. to acquire, hold, sell or otherwise deal with or trade in carbon sequestration rights (including for the benefit of other persons).

Source: Forestry Act 2012.

C WSA Arrangements

FCNSW's role in managing native forests includes preparing and implementing Forest Management Plans, supplying native timber through Wood Supply Agreements (WSA) and managing harvesting and haulage operations.

FCNSW sells native timber to customers in three ways

WSAs reflect one of three types of sales arrangements:

- **Stumpage arrangement** – FCNSW sells the right to harvest timber from a specific forest area to the customer. The price paid to FCNSW reflects only the value of the timber to the customer, as the customer is responsible for arranging the harvesting and haulage of the timber. Stumpage arrangements are considered relatively straightforward arrangements, and are used where there is a single product, a small number of customers, and where the necessity of FCNSW's oversight of harvesting and haulage operations is lower. Stumpage arrangements are primarily used in the Western Region and Eden Forest Management Area.
- **Delivered price arrangement** – a type of 'mill door' arrangement where FCNSW arranges for the harvesting and haulage of the timber. The customer is charged a bundled price, where FCNSW sets a total combined price for harvesting, haulage, and stumpage, with no disaggregation of the components. Delivered price arrangements are primarily used for low-quality sawlogs, representing over 50% of the log volume sold by FCNSW annually.
- **Delivery charge plus stumpage arrangement** – another type of 'mill door' arrangement where FCNSW arranges for the timber to be harvested and hauled to the customer. The customer is charged an unbundled price, where Forestry Corporation sets prices for the individual harvesting, haulage and stumpage components.

Delivery charge plus stumpage arrangements are primarily used for high-quality sawlogs. Under a delivery charge plus stumpage arrangement, harvesting and haulage costs are directly passed on to customers, who bear the risk of increased harvesting and haulage costs. Conversely, the bundled price in a delivered price arrangement means that the customer is charged a set estimated price, which provides an incentive for FCNSW to minimise these costs.

FCNSW notes that the combination of both types of arrangements, for varying products in an integrated harvesting operation, provides the incentive for it to minimise harvesting and haulage costs for all native timber products.

D IPART's 2017 recommendations

Box D.1 IPART's 2017 recommendations

1. FCNSW facilitates sawmills to trade their Wood Supply Agreement allocations by:
 - a. Sharing information between sawmills on what native timber FCNSW expects to deliver to the sawmills. Sawmills would allow FCNSW to share this information on an opt-in basis.
 - b. Agreeing with sawmills to amend their Wood Supply Agreement contracts to specify that FCNSW deliver some or all of their allocation to other sawmills at the sawmill's request.
 - c. Communicating to sawmills that it will not use information on their trading activities under the current Wood Supply Agreements as a basis for negotiating their allocation under future agreements.
- That FCNSW allow sawmills to reject supply under the current Wood Supply Agreements without jeopardising their future supply by:
 - d. offering each sawmill a set of quantities and associated prices
 - e. asking each sawmill to select, from this set, the total quantity it wants to take
 - f. agreeing with each sawmill that it will not enforce the take-or-pay or use-or-lose clauses in the Wood Supply Agreement.
- FCNSW measure the direct costs of managing each forest area for harvesting. If these costs exceed the expected stumpage revenue for a particular activity, FCNSW should adjust production and transition stumpage prices to recover the direct costs of managing the forest for harvesting over the long-term.
- As current WSAs expire, FCNSW allocate future wood supply competitively and negotiate shorter periods for contracts such as five to 10 years.
- FCNSW unbundle the price for any native timber delivered to a sawmill, where FCNSW arranges the harvest and haulage, with the price disaggregated into:
 - g. a stumpage royalty
 - h. a charge for harvesting costs
 - i. a charge for haulage costs, and
 - j. a charge for the costs of administering harvesting and haulage services.

The charges for harvesting, haulage and administration should recover the costs of these activities. Recommendation 3 outlines how we recommend FCNSW should charge for stumpage.

Box D.1 IPART's 2017 recommendations

- FCNSW publish forecasts of long-term sustainable production on an annual basis. To the extent possible, it should disaggregate the forecasts by supply zone and species.

Source: IPART's [Review of Forestry Corporation of NSW's native timber harvesting and haulage costs - December 2017](#)

E NSW native forest regulatory framework is complex

Principles of ecologically sustainably forest management (ESFM) are embedded in the regulatory framework for forest management. There are 3 guiding principles to: 1) maintain the ecological process within forests, 2) preserve their biological diversity and 3) obtain for the community the full range of environmental, economic and social benefits from all forest uses within ecological limits.⁵² This is reflected in key regulatory documents which include:

- **National Forest Policy Statement 1992 (NFPS)** – This guides the management of Australia's forests.⁵³ All state and territory governments, including NSW are signatories to the statement reflecting a commitment to the sustainable management of all Australian forests, whether the forest is on public or private land, reserved or available for production.
- **Regional Forest Agreements (RFA's)** – An outcome of the NFPS, these are long-term plans for the sustainable management and conservation of Australia's native forests. RFAs are bilateral agreements between the Commonwealth and 4 state governments that provide a streamlined approach to satisfying Commonwealth legislative requirements for environmental planning and assessment, and for conducting forestry operations. They provide for ecologically sustainable forest management, certainty of resource access and supply to industry and comprehensive conservation reserve network.⁵⁴
- **Integrated Forestry Operations Approvals (IFOAS)** – These outline the rules and requirements for how forestry operations can be carried out on native state forests and Crown-timber lands in NSW and achieve ESFM. They include rules to protect native plants, animals, important habitat and ecosystems, soils and water in native forestry operations on public land. Native timber forestry operations are licensed through these IFOAs which are regulated for environmental compliance by the NSW Environment Protection Authority (EPA).⁵⁵ IFOAs are reviewed by the NSW Government every five years.
- **NSW Forest Management Framework (Framework)**⁵⁶ - The Framework is a comprehensive system for delivering ESFM within the NSW forested estate. It includes overarching policy and legislation, institutional and administrative arrangements, and associated planning and operational systems. Key NSW laws that underpin the framework related to forestry or plantation operations include:
 - **Forestry Act 2012** which provides for regulation of forestry operations on State forests and other Crown-timber lands including requirements to provide for the protection, restoration and enhancement of the quality of the environment in NSW and the conservation of threatened species, populations and ecological communities of fish and marine vegetation, having regard to the need to maintain ecologically sustainable development, including the conservation of biological diversity. The Act also establishes the regulatory framework for native forestry on State forests and other Crown-timber lands, providing for NSW IFOAs.
 - **Plantations and Reafforestation Act 1999 and Plantations and Reafforestation (Code) Regulation 2001 (PR Code)** which provide for the authorisation and regulation of plantations and plantation operations on public or private land

- **Local Land Services Act 2013** which provides for the regulation of native vegetation management on private land and the authorisation and regulation of private native forestry operations.

There are currently 10 RFAs covering commercial native forestry regions – 5 in Victoria, 3 in NSW, one each in Tasmania and Western Australia. Table E.1 lists all regional forest agreements. In November 2018 the NSW and Commonwealth governments renewed the 3 NSW RFAs by 20 years. The NSW RFAs now have a 20-year rolling life, so at any point in time the NSW RFAs will be between 15 and 20 years from expiring, depending on the satisfactory completion of the five-yearly reviews.

Table E.1 Current regional forest agreements

State	Regional Forest Agreements	Signed
New South Wales	Eden	1999
	North East	2000
	Southern	2001
Tasmania	Tasmania	1997
Western Australia	South West	1999
Victoria ^a	Central Highlands	1998
	East Gippsland	1997
	Gippsland	2000
	North East	1999
	West	2000

a. Victoria's 5 RFAs will end in December 2024 (Victoria Government).

All forestry regions in NSW are covered by an IFOA. There are currently 4 IFOAs in NSW: Coastal, Brigalow Nandewar, Riverina Red Gum and South Western Cypress.⁵

E.1 FCNSW Forest Management Plans

The Forestry Act 2012 and Forestry Regulation 2022 require FCNSW to prepare and implement Forest Management Plans, for all State forests. This requirement is also outlined the NSW Forest Management Framework.

The management plans establish how FCNSW delivers ESFM outcomes and maintain certification to the Australian Standard for Sustainable Forest Management (AS4708:2013) and ISO 14001:2015 Environmental Management System. Each plan covers the management requirements of the Forestry Act, including the native forests estate and the hardwood plantations, within the State forests and associated lands within each region.

⁵ The other 3 IFOAs are the Brigalow Nandewar, South-Western Cypress and Riverina Red Gum IFOAs. FCNSW identifies these areas as their 'western region' of operations. These areas and their operations are outside the scope of our review as FCNSW does not have any oversight of these harvesting and haulage operations. Forestry operations are mostly conducted on a stumpage arrangement, i.e. sawmills pay a stumpage royalty for trees and arrange for their own harvesting and haulage.

Forest Management Plans describes the key activities undertaken and facilitated as part of FCNSW's forest management. This includes timber harvesting, native forest regeneration, plantation establishment, weed and pest control, fire management, road maintenance, and community partnerships, recreation and public access.

F Erratum: Changes from an unpublished, superseded version of this report sent to the Treasurer in September 2024

Reference	Changes made
Pg 1, Para. 4	Replace ". This does not include FCNSW's" with "and in"
Pg 1, Para. 5	Insert "excluding stumpage". Replace "at a delivered price" with "for a delivery charge."
Pg. 2, Para. 2	Amended text to "However, to provide greater certainty for the industry, the WSAs were extended by the then State Government with limited changes to contract terms and conditions and prices." and deleted "due to the recent bushfires and the floods" and deleted "to provide certainty to WSA customers".
Page 2 Key Observation 1	Insert "'s delivery charge." Insert "fully" Insert ", including contract and administration costs,"
Pg. 6, Para. 2	Replace "native timber" with "hardwood timber from native forests and hardwood plantations"
Pg.8, Para. 1	Inserted endnote 4
Pg.8, Para. 2	Inserted "(excluding stumpage)" Removed "its" Inserted "Stumpage is for the economic value of the timber received by FCNSW and our review is focused on harvesting and haulage costs."
Pg. 8, Para. 3	Replace "delivered price" to "delivery charge." Replace "or" with "and"

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- 1 [Annual Report 2022-23, FCNSW, p.27](#)
 - 2 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.9](#)
 - 3 [Review of Forestry Corporation of NSW's native timber harvesting and haulage costs | IPART](#)
 - 4 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.64](#)
 - 5 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.62](#)
 - 6 [Review of Forestry Corporation of NSW's native timber harvesting and haulage costs | IPART, p.91](#)
 - 7 [NSW to consult on Forestry Industry Action Plan | NSW Government](#)
 - 8 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.16](#)
 - 9 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.16](#)
 - 10 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.17](#)
 - 11 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.16 and p.40](#)
 - 12 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.x](#)
 - 13 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.58](#)
 - 14 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.xiii](#)
 - 15 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.53](#)
 - 16 [Annual Report 2022-23, FCNSW, p.25](#)
 - 17 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.35](#)
 - 18 [Native forest logging review – research summary, Frontier Economics, p.22](#)
 - 19 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.18](#)
 - 20 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.18](#)
 - 21 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.67](#)
 - 22 [2021 Review of Forestry Corporation's Native Timber Harvesting And Haulage Costs 1 July 2016 – 30 June 2019, IPART, p.2](#)
 - 23 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.45](#)
 - 24 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.46](#)
 - 25 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.50](#)
 - 26 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.53](#)
 - 27 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.ix](#)
 - 28 [Final Report - Review of Forestry Corporation of NSW's native timber harvesting and haulage costs - December 2017](#)
 - 29 [Final Report - Review of Forestry Corporation of NSW's native timber harvesting and haulage costs - December 2017, p.viii](#)
 - 30 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.65](#)
 - 31 [Legislative Council, Parliamentary Inquiry into the Long-term sustainability and future of the timber and forest products industry](#)
 - 32 [NSW Department of Primary Industries and Regional Development, Performance, Data & Insights 2023, Forestry, accessed 23 August 2024.](#)
 - 33 [NSW Department of Primary Industries and Regional Development, Performance, Data & Insights 2023, Statistics Tables, Gross Value of Production and Performance, Data & Insights 2023, Forestry, accessed 23 August 2024.](#)
 - 34 [Legislative Council, Parliamentary Inquiry into the Long-term sustainability and future of the timber and forest products industry p 26](#)
 - 35 [IPART analysis, Australian Bureau of Agricultural and Resource Economics and Sciences \(ABARES\), Australian Forest and wood products statistics, Production to 2022-23, Dashboard data tables - Plantation area and log production: AFWPS: Production to 2022-23, 4 July 2024, accessed 25 July 2024.](#)
 - 36 [EY North East NSW Forestry Hub. Economic Contribution Study of the NSW hardwood timber industry, 14 February 2023, p 4, accessed 23 August 2024.](#)
 - 37 [Australian forest and wood products statistics - September and December quarters 2023, ABS, Source: 5 Dashboard data tables - Plantation area and log production_AFWPS_Mar-Jun 2023_v1.0.0, Sheet, Volume of production](#)
 - 38 [2024 Native Forest Harvest and Haulage Review and Benchmarking Part A Final Report Indufor, p.4](#)
 - 39 [North East NSW Forestry Hub](#)
 - 40 [Economic Contribution Study of the NSW hardwood timber industry North East NSW Forestry Hub 14 February 2023, EY, p.8](#)
 - 41 [Cross et al., Branching Out: Exploring alternate land use options for the native forests of New South Wales, Blueprint Institute, 2023 p 10](#)
 - 42 [Legislative Council, Parliamentary Inquiry into the Long-term sustainability and future of the timber and forest products industry and IPART analysis](#)
 - 43 [Australian Government ABARES, Australian forest and wood products statistics - September and December quarters 2023, Dashboard data tables – Plantation area and log production, accessed 203 August 2024 and IPART analysis.](#)
 - 44 [NSW Legislative Council, Parliamentary Inquiry into the Long-term sustainability and future of the timber and forest products industry, Report 54, September 2022, p 20.](#)
 - 45 [The Guardian, End of native logging in Victoria a monumental win for forests say conservationists, 23 May 2023 accessed 15 August 2024; Premier of Victoria, Securing the future for forestry industry workers, 7 November 2019, accessed 15 August 2024 ; The Guardian, Native forest logging to be phased out by 2030 as Victoria plans timber transition, 7 November 2019, accessed 15 August 2024](#)

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- ⁴⁶ ABC, [Native logging is banned in Western Australia from January 1 – here's what it could mean for you](#), 1 Jan 2024 accessed 15 August 2024
- ⁴⁷ Forestry Corporation, [Carbon and Forests](#), accessed 15 August 2024
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