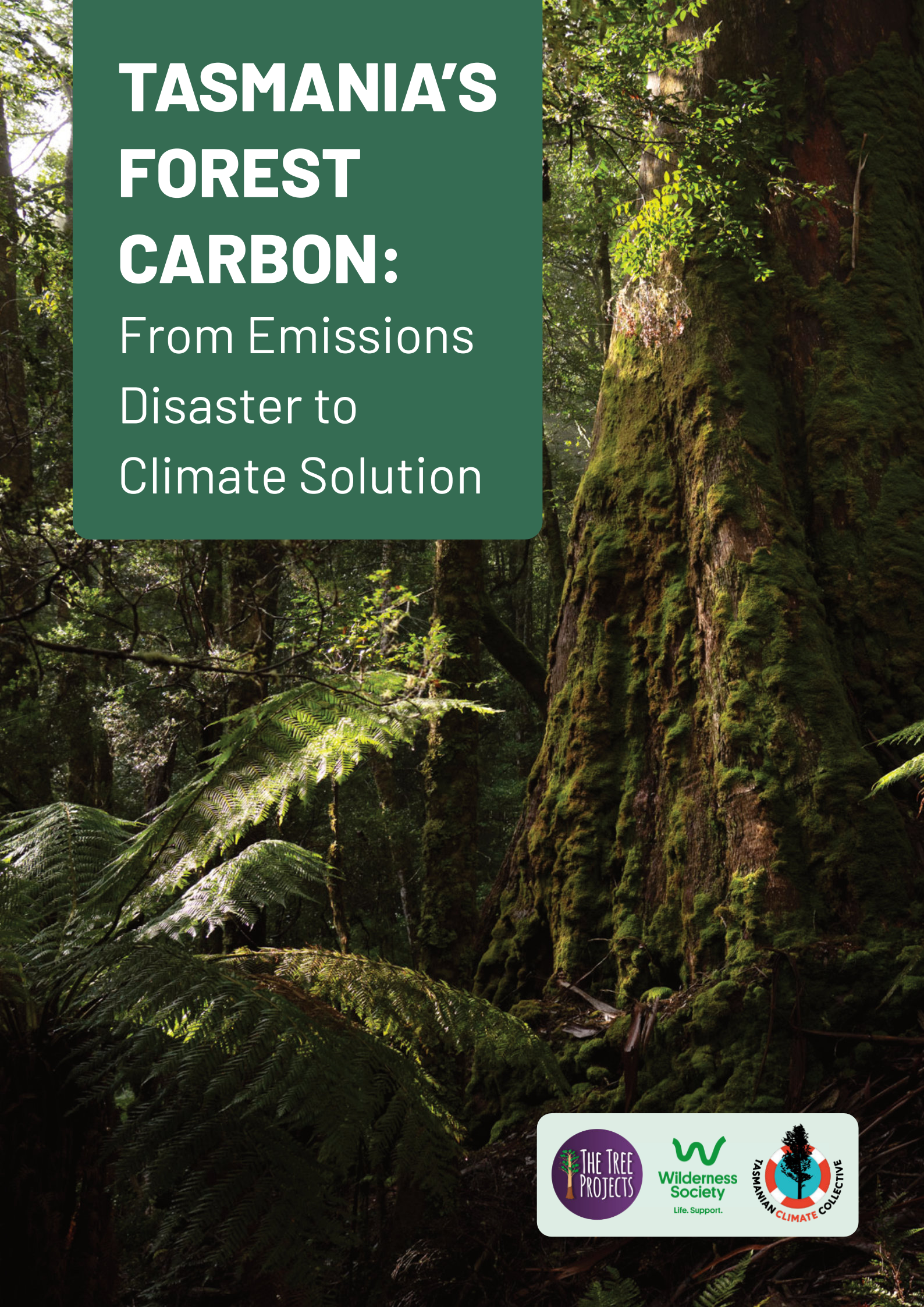


TASMANIA'S FOREST CARBON:

From Emissions Disaster to Climate Solution

THE TREE PROJECTS

Wilderness Society
Life. Support.

TASMANIAN CLIMATE COLLECTIVE

TASMANIA'S FOREST CARBON:

From Emissions Disaster to Climate Solution

WE NEED TO ACT NOW ON CLIMATE CHANGE

Protecting native forests is a low-cost, effective and immediate way to take real action on climate change. Protecting native forests reduces emissions and allows forests to draw down considerable amounts of carbon from the atmosphere.

HIGHEST EMITTING INDUSTRY

Native forest logging has the highest annual emissions out of any industry in Tasmania.

EQUIVALENT TO 1.1 MILLION CARS

Annual emissions from native forest logging are equivalent to the annual emissions of 1.1 million cars.

75 MILLION TONNES OF CARBON

can be absorbed by production forests by 2050 if they are protected rather than logged.

$2.6 BILLION BENEFIT IN CLIMATE MITIGATION

Protecting native forests could provide $2.6 billion worth of carbon sequestration by 2050.

Authored by Dr Jennifer Sanger, The Tree Projects, thetreeprojects@gmail.com

The associated organisations recognise palawa as the Traditional Owners and custodians of Tasmania and we pay our respect to Elders past and present. We acknowledge that land was never ceded.

REPORT SUMMARY

We need to take immediate action on climate change. Protecting Tasmania's carbon dense forests is a low-cost and effective way to reduce emissions. By ending native forest logging, forests can continue to draw down a significant amount of carbon dioxide from the atmosphere and store it long-term. Protecting Tasmania's native forests is real action on climate change.

The logging of Tasmania's native forests releases vast amounts of carbon dioxide into the atmosphere. Due to the way that emissions are reported, the emissions from native forest logging are not separated from the carbon dioxide absorbed by our forests. Only a net figure is reported. This net figure makes it impossible to tell how many greenhouse gas emissions are coming from native forest logging.

Research conducted for this report found that greenhouse gas emissions from native forest logging are approximately 4.65 million tonnes of carbon (CO_2e) per year. This makes native forest logging the highest emitting industry in Tasmania. It has the same annual emissions as 1.1 million cars or close to two and a half times the annual emissions of the Tasmanian transport sector.

This figure is based on 'short-term' and 'long-term' emissions. Around 64% of a forest's carbon is released within a few years of logging. Most of the wood removed from Tasmania's forests goes into single-use products such as paper, which have a short lifespan. As much as 40% of the forest's biomass is incinerated, which immediately emits carbon dioxide, methane and nitrous oxides in to the atmosphere.

Long-lasting wood products such as sawn timber, plywood and engineered wood used in buildings and furniture represent only about 6% of the forest's carbon. Around 30% of the forest's biomass, mainly consisting of woody debris and stumps, gets left behind on-site. This can take up to 50 years to break down and emit the stored carbon.

Currently in Tasmania, forests containing 2.78 million tonnes of carbon (CO_2e) are logged each year. However, annual emissions are estimated to be much higher due to the lag effects of waste breaking down on-site from decades-old logging when the rate of harvest was two to four times higher.

When forests are logged two-thirds of the carbon is released within two years. Some of these carbon dioxide emissions will be recovered as most native forests regrow after logging. However, it takes many decades to centuries for forests to capture lost carbon. We cannot wait decades to centuries. We need to reduce emissions now to prevent catastrophic climate change.

Protecting Tasmania's native forests is a real climate solution. If forests currently managed for logging were protected, we could draw down up to 75 million tonnes of carbon (CO_2e) from the atmosphere by 2050. This could provide close to $2.6 billion in benefit to help mitigate climate change.

Our smartest choice would be to protect our forests - this will prevent significant emissions and allow forests to draw carbon down from the atmosphere.

FORESTS ARE IMPORTANT FOR THE CLIMATE

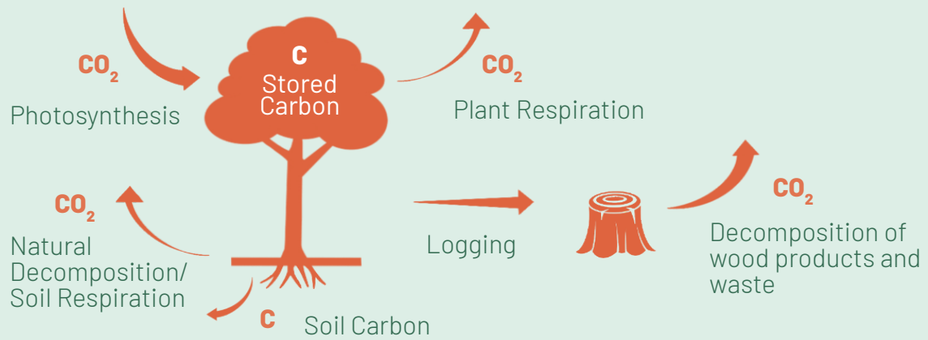
Forests capture carbon from the atmosphere and store it long-term. This carbon is released back into the atmosphere when a forest is logged.

Trees absorb carbon dioxide from the atmosphere and store it long term. If the forest is left undisturbed it will continue to store carbon indefinitely. The world's remaining forests contain 861 billion tonnes of carbon (carbon dioxide equivalent: CO_2e) – that's equivalent to nearly a century's worth of the world's annual fossil fuel emissions at current rates.[1]

When forests are logged or cleared, most of the stored carbon is released into the atmosphere. Around 12% of global greenhouse emissions are caused by deforestation and logging. This makes deforestation the third largest contributor to emissions after the energy and agricultural sectors.[2] Protecting native forests is a simple way to prevent emissions.

Native forests are especially good at absorbing carbon dioxide from the atmosphere. By allowing forests to remain intact and allowing degraded forests to regrow, a significant amount of carbon can be drawn down from the atmosphere and stored long-term. If forest protection and restoration happened at a global scale, it would contribute one-third of the total climate change mitigation that we need by 2030.[2]

CARBON CYCLE OF NATIVE FORESTS



FORESTS STORE CARBON
Forests store carbon in living trees, dead wood, leaf litter and in the soil.

FORESTS ABSORB CARBON
Forests draw down carbon dioxide from the atmosphere.

FORESTS ARE A SOURCE OF CARBON
Logging forests releases stored carbon back into the atmosphere.

TASMANIA'S CARBON DENSE FORESTS

Tasmania is home to the tallest trees in the southern hemisphere. These giant trees, which grow up to 100m in height, can store lots of carbon. The tall eucalypt forests of Tasmania are some of the most carbon-dense forests in the world.[3]

In Tasmania, native forests cover close to half of the island and are estimated to store up to 4.4 billion tonnes of carbon (CO_2e)[4] – that's equivalent to eight years of Australia's emissions based on 2019 levels.

WHY ARE BOTH OLD AND YOUNG FORESTS IMPORTANT FOR CLIMATE?

Mature forests store a considerable amount of carbon, and the logging of these forests releases carbon that has taken centuries to accumulate.[5] Mature forests are still being logged here in Tasmania and it is critical that these forests are protected.

Previously logged forests on average store only half the carbon of natural, undisturbed forests.[6] However, they play an important role in drawing carbon down from the atmosphere. Young, re-growing forest can absorb up to four times as much carbon from the atmosphere as mature forests.[7] If protected, these forests can store carbon long-term.

WHAT HAPPENS TO THE CARBON WHEN FORESTS ARE LOGGED?

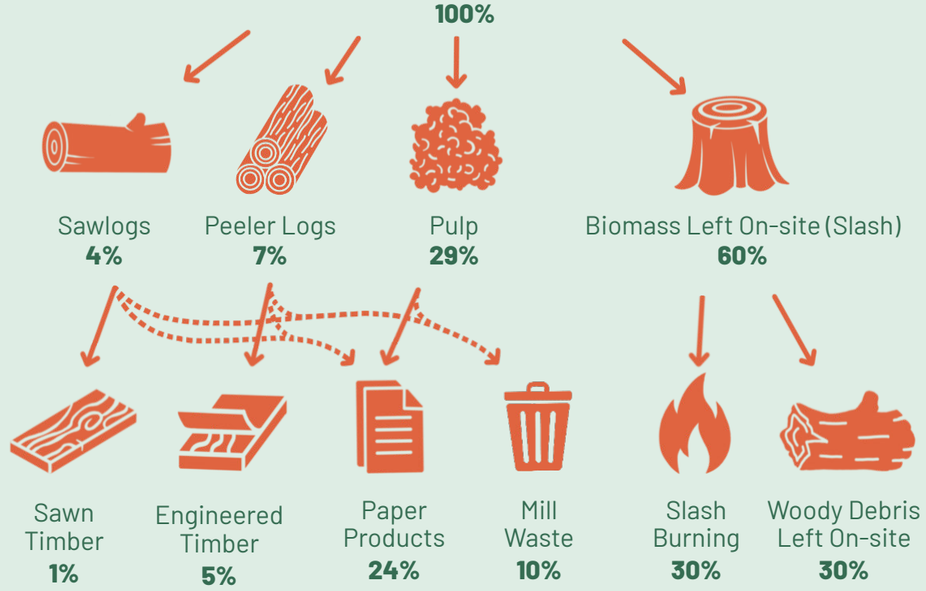
When a forest is logged in Tasmania only 6% of the carbon gets stored in long-term timber products.

Many people incorrectly assume that when a native forest is logged, most of the carbon gets stored in timber products. This is not the case.

A forest is made up of biomass which includes all the trunks, branches, leaves and roots. This is where the carbon is stored. When a forest is logged, 60% of the above-ground biomass gets left on-site.[6] This waste is either burned or left to rot, releasing carbon into the atmosphere.

In Tasmania, only 1% of the forest's biomass gets turned into sawn timber which is used for building houses and furniture. A further 5% goes into what is referred to as engineered wood products such as laminated veneer and plywood.[8] The rest goes into short-lived products such as paper and cardboard.

WHERE DOES THE CARBON GO WHEN A FOREST IS LOGGED?[6]



The reality of native forest logging in Tasmania is that most of the forest ends up as woodchips and waste. Tasmania's forests mainly get turned into temporary, disposable products like paper and cardboard.

NOT ALL CARBON IS RELEASED IMMEDIATELY

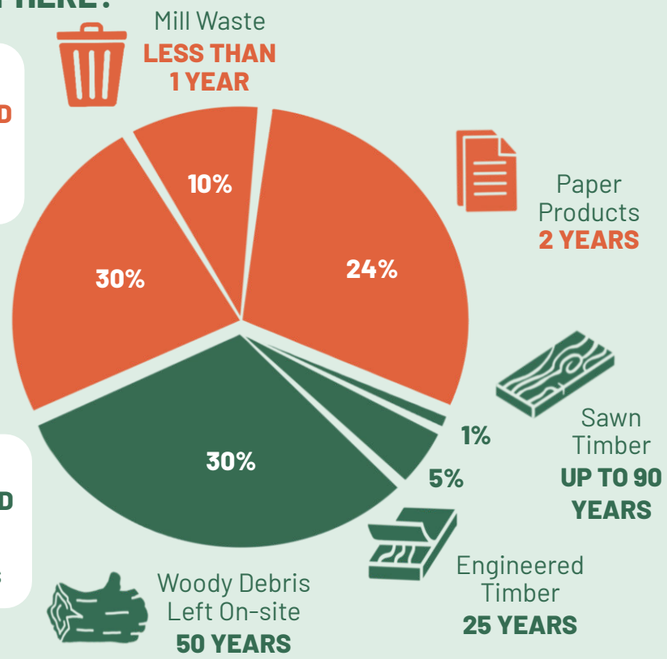
Two-thirds of the forest's carbon is released within a few years, while the remainder can take up to 50 years to be emitted.

When a forest is logged, two-thirds of the carbon is released within two years.[6] This is because most wood removed from the forest is woodchipped and turned into short-lived products like paper and cardboard. The burning of waste on-site also releases greenhouse gases immediately.

Sawn timber has the longest lifespan of up to 90 years, however this only makes up 1% of the forest's carbon.[9] A further 5% goes into engineered timber such as plywood which has an average lifespan of 25 years.[9] Most of the long-term stored carbon of a forest is in the woody debris which is left on site as waste after logging– this can take up to 50 years to break down.

HOW LONG DOES IT TAKE FOR CARBON TO BE RELEASED INTO THE ATMOSPHERE?[6,9]

64%
OF CARBON RELEASED IN THE SHORT-TERM
Less than 2 years



Mill Waste
LESS THAN 1 YEAR

Paper Products
2 YEARS

Slash Burning
LESS THAN 1 YEAR

Sawn Timber
UP TO 90 YEARS

36%
OF CARBON RELEASED IN THE LONG-TERM
Around 25 to 50 years

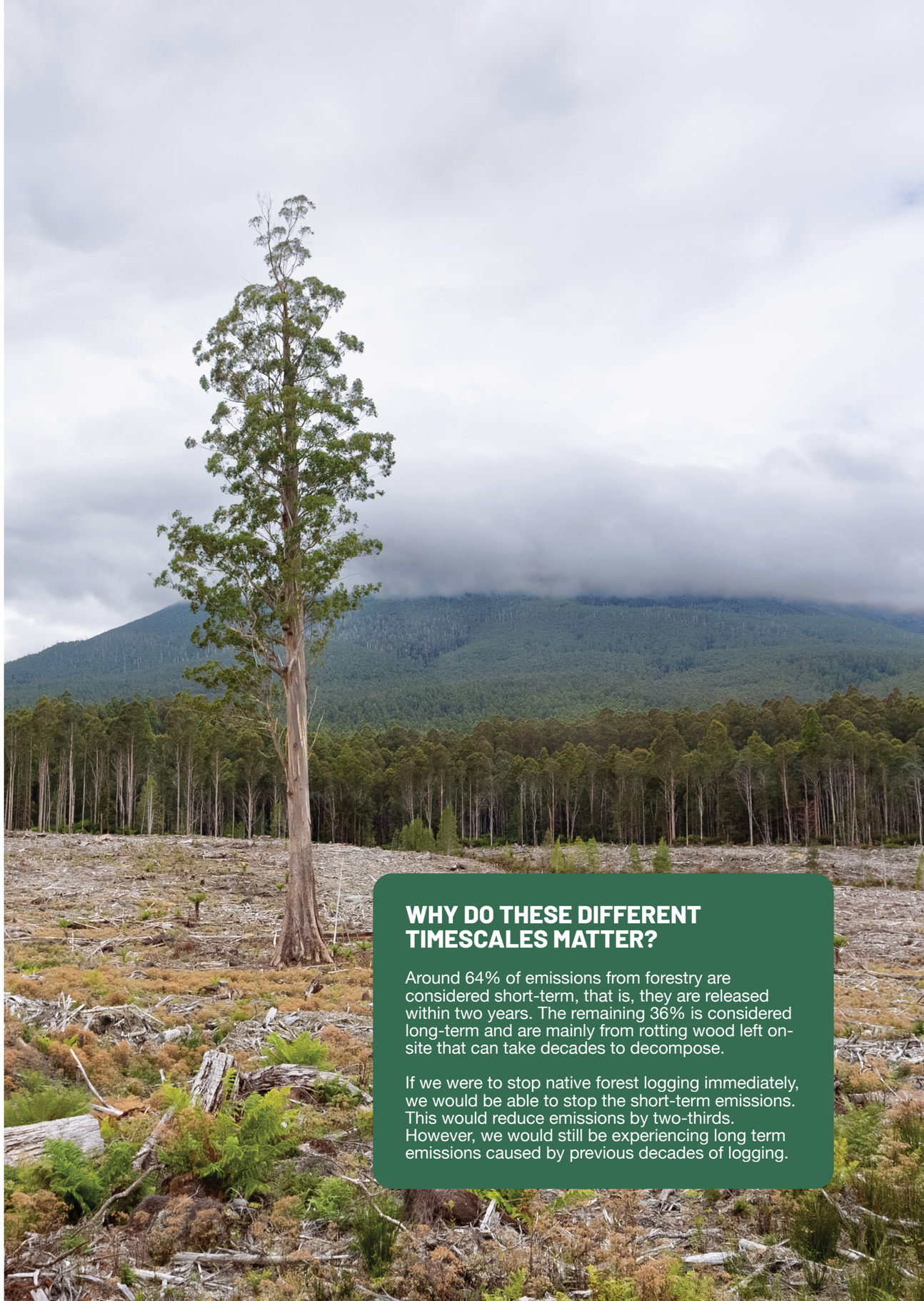
Engineered Timber
25 YEARS

Woody Debris Left On-site
50 YEARS

WHAT ABOUT SOIL CARBON?

Soil carbon is carbon that is stored underground as organic matter. It can make up to 27% of the overall carbon in a forest.[10] Logging old-growth forests gradually releases a substantial proportion of the soil carbon.

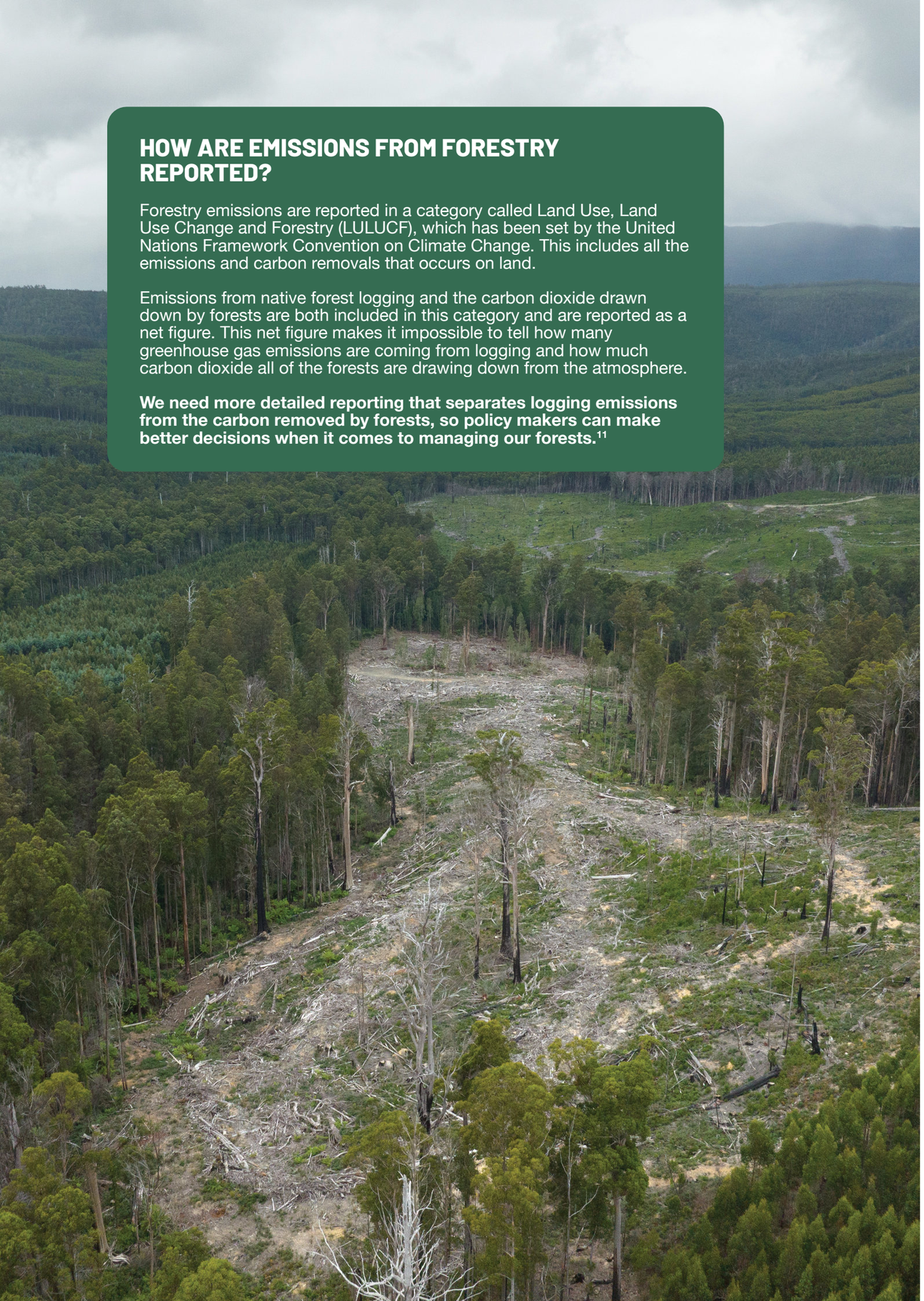
When a forest is logged, soil carbon can take longer to be released into the atmosphere than the above ground carbon. More research is needed on this topic, and due to lack of data we have not added this to our calculations. However, it still makes up a significant part of the emissions of native forest logging.



WHY DO THESE DIFFERENT TIMESCALES MATTER?

Around 64% of emissions from forestry are considered short-term, that is, they are released within two years. The remaining 36% is considered long-term and are mainly from rotting wood left on-site that can take decades to decompose.

If we were to stop native forest logging immediately, we would be able to stop the short-term emissions. This would reduce emissions by two-thirds. However, we would still be experiencing long term emissions caused by previous decades of logging.



HOW ARE EMISSIONS FROM FORESTRY REPORTED?

Forestry emissions are reported in a category called Land Use, Land Use Change and Forestry (LULUCF), which has been set by the United Nations Framework Convention on Climate Change. This includes all the emissions and carbon removals that occurs on land.

Emissions from native forest logging and the carbon dioxide drawn down by forests are both included in this category and are reported as a net figure. This net figure makes it impossible to tell how many greenhouse gas emissions are coming from logging and how much carbon dioxide all of the forests are drawing down from the atmosphere.

We need more detailed reporting that separates logging emissions from the carbon removed by forests, so policy makers can make better decisions when it comes to managing our forests.[11]

NATIVE FOREST LOGGING IS THE LARGEST EMITTER IN TASMANIA

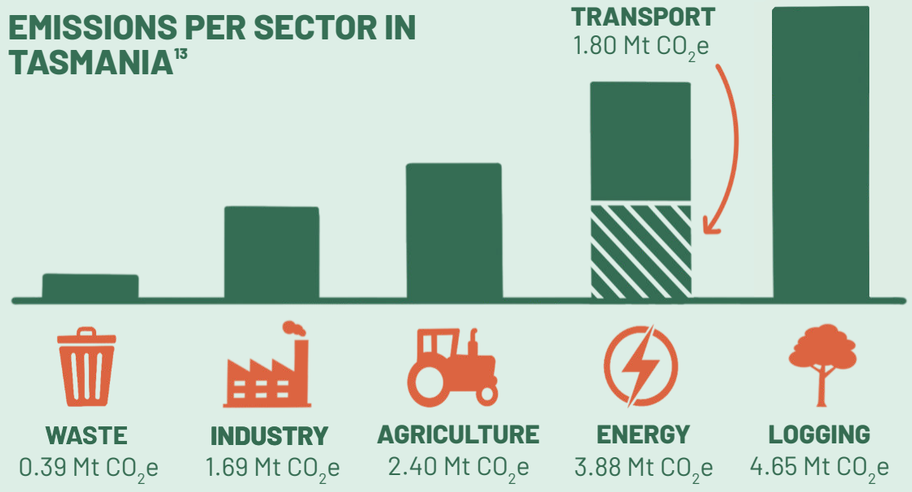
Native forest logging emits 4.65 million tonnes of carbon (CO_2e) per year.

Research conducted for this report estimates that the logging of Tasmania's native forests emits 4.65 million tonnes of carbon (CO_2e) per year.* This figure is made up of both short-term and long-term emission estimates.

Each year, forests containing 2.78 million tonnes of carbon (CO_2e) are logged.* Two-thirds of this carbon is emitted within two years. However, Tasmania is still experiencing long-term emissions from decaying waste from the past few decades when the rate of logging was two to four times higher. This increases the estimates of current emissions. Furthermore, additional greenhouse gas emissions are caused from the burning of waste, which produces methane and nitrous oxide emissions.[12]

The 4.65 million tonnes of carbon (CO_2e) emitted by native forest logging each year makes the forestry industry the highest emitting sector in Tasmania. Emissions from forestry are close to two and a half times those emitted by the transport sector, which includes all of Tasmania's cars, trucks, domestic aviation and shipping.

EMISSIONS PER SECTOR IN TASMANIA[13]



THE 4.65 MILLION TONNES OF CARBON EMITTED BY FORESTRY IS EQUIVALENT TO:

- The annual emissions of 1.1 million cars
- The annual emissions of 258,000 Australian homes
- Over six times the emissions of the Tasmanian tourism industry
- 422,000 return flights to London

*See appendix for methodology on how these figures were calculated

NATIVE FOREST LOGGING IS NOT CARBON NEUTRAL

Forests are regrown after logging, however it can take centuries to re-capture the emitted carbon.

After native forests are logged, the sites are often burned by high intensity fires. The site is then reseeded, often with a single species of eucalypt, and a modified forest slowly starts to re-grow. However, it would take centuries for the original amount of stored carbon to be absorbed by the re-growing forest.

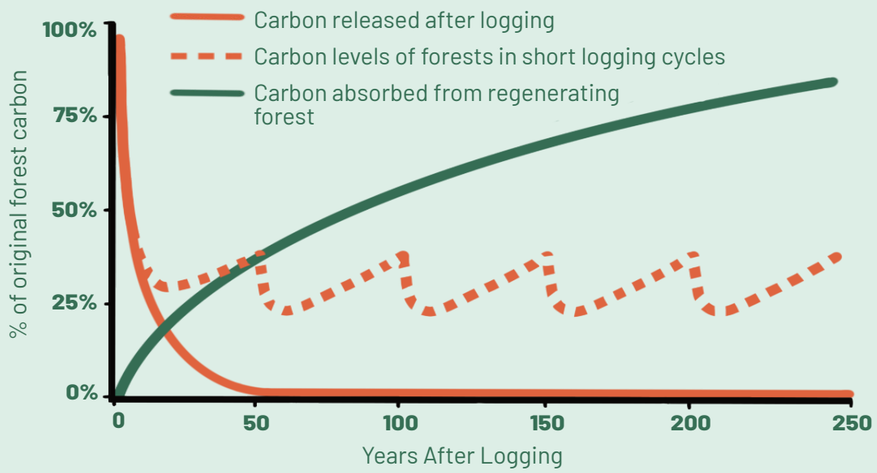
What matters most are the short-term emissions from native forest logging. Around 64% of the forest's carbon is released within a few years. At current logging rates, this is around 2.21 million tonnes of carbon (CO_2e) per year. Over these few years, when the short-term emissions have been released, the regrowing forests have not been able to draw down much carbon. This creates a huge carbon deficit.[14]

Furthermore, once logged, forests are often put into logging cycles of 40-80 years and the original amount of carbon is never recovered. These forests will only ever store a fraction of their potential carbon if they are continually logged.[6]

Native forest logging is not carbon neutral. The best use for our native forests is to protect them and to allow young forests to keep growing. This will allow significant amounts of carbon to be drawn down from the atmosphere.

We cannot wait centuries for regrowing forests to re-capture carbon lost during logging. We need to stop emissions now. We can prevent significant emissions by protecting our native forests.

HOW DOES LOGGING AFFECT THE AMOUNT OF CARBON STORED IN A FOREST OVER TIME?[6]



Once a mature forest is logged, it can take centuries for the carbon to be re-captured. We cannot wait that long - we need short-term solutions to the climate crisis.

BUSHFIRES AND FOREST CARBON

When a forest is burned in a bushfire, only the small branches, pieces of bark and leaves are incinerated. This releases a flush of carbon, but most of the forest's carbon remains in the trunks and large branches of the trees.

In most cases, eucalypt trees will survive and keep growing, and can capture lost carbon relatively quickly.

When a fire is very severe, the trees may be killed by the fire. However, large dead trees will retain their carbon for several decades in cold environments like Tasmania, while the regenerating forest grows up around them.[15]

FORESTS: THE BEST CARBON CAPTURE TECHNOLOGY

The impacts of climate change are increasing, and the world is searching for ways to draw carbon dioxide down from the atmosphere. While carbon capture technologies exist, they use huge amounts of energy and there is no secure way to store the carbon. Trees are currently the most efficient and cheapest form of carbon capture.

Forests are the best solution to the problem: they draw significant quantities of carbon from the atmosphere and store it long-term.

Protecting our forests is a cost-effective and practical solution to absorbing the large amount of carbon that we need to mitigate climate change.

CARBON POTENTIAL OF TASMANIA'S FORESTS

Tasmania's forests absorb lots of carbon. If protected, they can make a real impact on climate change.

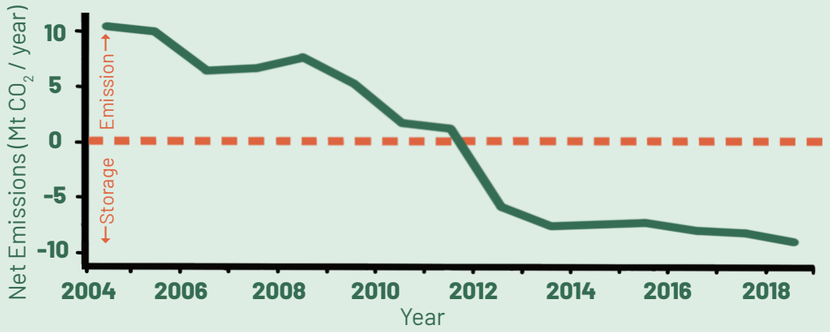
Tasmania is one of the few jurisdictions in the world to become carbon neutral. In six out of the last seven years the State has reported negative net emissions. This is all due to Tasmania's forests, which draw down around 22 million tonnes of carbon (CO_2e) each year.[11] That's enough to offset the state's entire emissions.

This wasn't always the case. In previous decades when the rate of logging was much higher, Tasmania had higher emissions. A downturn in the forestry industry and changes in legislation in 2012 saw a substantial drop in the amount of native forest logged, and large areas of forest were reserved. This drastically reduced the emissions from forestry, and allowed protected forests to capture and store carbon long-term.

The reason that Tasmania can claim its carbon neutral status is because logging was reduced and large areas of forest were protected. By ending native forest logging completely, we could do even better.

By allowing logged forests to regrow, a significant amount of carbon dioxide could be drawn down from the atmosphere and stored long-term. If native forest logging ended in Tasmania, public forests currently managed for logging, or potentially available for future production, could absorb up to 75 million tonnes of carbon (CO_2e) by 2050.[16]

THE REDUCTION OF LOGGING IN 2012 DRASTICALLY REDUCED EMISSIONS[11]



IF NATIVE FOREST LOGGING ENDED IN TASMANIA, 75 MILLION TONNES OF CARBON COULD BE ABSORBED BY PRODUCTION FORESTS BY 2050. WHAT'S THAT EQUIVALENT TO?

- Taking every single car off the road in Australia for an entire year.
- Converting 236,000 Australian homes to solar
- Shutting down Australia's dirtiest power plant, Yallourn, eight years early
- Shutting down an average Hunter Valley mine four and a half years early

PROTECTING TASMANIA'S FORESTS MAKES ECONOMIC SENSE

Protecting Tasmania's forests could provide carbon sequestration services worth $2.6 billion.

Protecting native forests is the best choice for climate change, however it also makes economic sense. Tasmania's state-owned logging agency Sustainable Timber Tasmania loses tens of millions of dollars each year. In fact, the agency has lost a total of $1.3 billion over a 20-year period from 1997-2017.[17] Federal and State Governments have provided substantial subsidies to the forestry industry to ensure its ongoing survival, with almost $1 billion of grants over the last few decades.

If native forests were protected, it could provide a huge financial benefit to the community. If all of Tasmania's public forests currently available for logging were protected, the carbon sequestration services that it would provide would be equivalent to close to $2.6 billion over 30 years (assuming a carbon price of $35 a tonne).

NATIVE FOREST LOGGING
Operational losses over 20 years

$1.3 BILLON LOSS

$2.6 BILLON GAIN

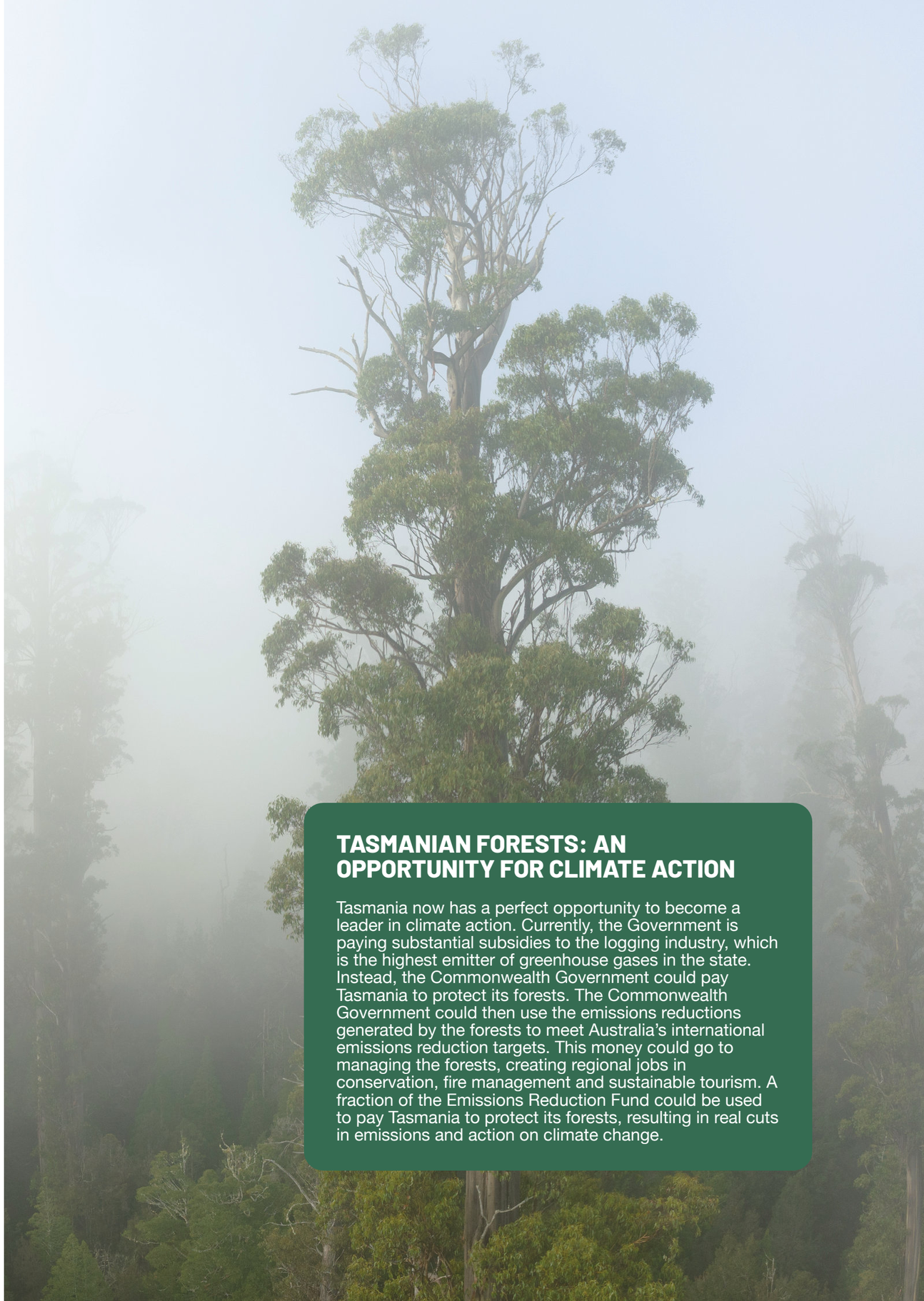
PROTECTING NATIVE FORESTS
Value of carbon sequestration over 30 years

PROTECTING FORESTS HELPS AUSTRALIA MEET ITS NET ZERO TARGET

The Australian Government has committed $4.5 billion to climate mitigation through the Emissions Reduction Fund. This scheme received criticism in early 2022 when it was revealed that it has failed to reduce greenhouse gas emissions. This is because 80% of the carbon credits approved under the scheme do not represent real or new cuts in greenhouse gas emissions.[18]

If native forests were protected in Tasmania, we would see real cuts to emissions and a considerable amount of carbon could be drawn down from the atmosphere and stored long-term. This would be a significant step in helping Australia meet its emissions reduction commitments. In comparison to the Emissions Reduction Fund, protecting Tasmania's forests is a cost-effective alternative which would mean real cuts to emissions.

Protecting Tasmania's forests would be a low-cost, effective and immediate way to reduce emissions and draw carbon down from the atmosphere – a much better alternative to the Emissions Reduction Fund, a deeply flawed scheme costing tax-payers $4.5 billion.



TASMANIAN FORESTS: AN OPPORTUNITY FOR CLIMATE ACTION

Tasmania now has a perfect opportunity to become a leader in climate action. Currently, the Government is paying substantial subsidies to the logging industry, which is the highest emitter of greenhouse gases in the state. Instead, the Commonwealth Government could pay Tasmania to protect its forests. The Commonwealth Government could then use the emissions reductions generated by the forests to meet Australia's international emissions reduction targets. This money could go to managing the forests, creating regional jobs in conservation, fire management and sustainable tourism. A fraction of the Emissions Reduction Fund could be used to pay Tasmania to protect its forests, resulting in real cuts in emissions and action on climate change.

PLANTATIONS COULD PROVIDE ENOUGH HARDWOOD TIMBER UNDER BETTER MANAGEMENT

Around 85% of eucalypt plantations are used for paper and cardboard and are harvested on short 10 to 20-year rotations. If these plantations were grown for 25 years or longer and managed appropriately, they could produce sawn timber suitable for building. Allowing eucalypt plantations to grow longer would not only allow them to absorb more carbon, but would yield a more valuable product that would store carbon long-term.[19]

PLANTATIONS CAN MEET OUR TIMBER NEEDS

Plantations are a more climate friendly choice than native forest logging.

Tasmania's native forests store large amounts of carbon that has been accumulated over centuries. When these forests are logged, large amounts of carbon is released into the atmosphere. Even if native forests are regrown after logging, it would take centuries for the forest to recover the amount of carbon that has been emitted. Regrowing forests on average only ever hold up to 50% of the carbon of the original forests before they are logged again.[7]

When plantations are planted on already cleared land, they draw carbon down from the atmosphere before harvesting.

Not only do plantations produce 14 times more usable wood per hectare than native forests,[20] they also produce fewer emissions when logged. The harvesting of plantations produces 60% less carbon dioxide emissions than the logging of native forests.[21] This is due to the large amount of waste biomass that is discarded on-site when a native forest is logged.

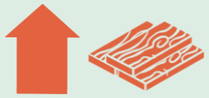
Close to 90% of Australia's wood now comes from plantations and with the proper investment plantations could meet all of Australia's wood needs.[22] It is therefore possible to quickly transition out of native forest logging.

PLANTATIONS ARE A CLIMATE FRIENDLY ALTERNATIVE TO NATIVE FOREST LOGGING:

60% less

The harvesting of plantations produces 60% less CO_2 emissions than native forest logging

14x more



Plantations produce 14 times more wood products per hectare than native forests.

NATIVE FOREST TIMBER IS NOT A CLIMATE-FRIENDLY SOLUTION FOR CONSTRUCTION

The majority of wood from native forests goes into woodchips, with very little going into sawn timber used for housing.[6] Native forest logging is not essential for the construction industry. Proper investment into plantations can provide climate friendly wood products.

The construction industry produces massive emissions, responsible for 36% of Australia's annual emissions.[23] The production of concrete and steel requires huge amounts of energy to produce. However, the alternative of using wood products from native forests is not a climate-friendly solution.

Research from Australia has shown mid-rise buildings made from concrete generate just 9% more greenhouse gas emissions than buildings made from plantation softwood.[23] Considering that emissions from native forest logging are close to three times that of softwood plantations, using timber from native forests is not a good climate-friendly solution.

PROTECTING NATIVE FORESTS IS CLIMATE ACTION

We cannot wait for decades or centuries for forests to regrow after logging to reabsorb lost carbon. We need to make immediate cuts to emissions now.

Climate change is upon us and we must do everything that we can to reduce our emissions. In Tasmania, native forest logging is the highest emitting industry, with emissions of 4.65 million tonnes of carbon (CO_2e) each year. Ending native forest logging immediately would prevent short-term emissions of 2.21 million tonnes of carbon (CO_2e) per year. It will also prevent long-term emissions in decades to come. This would make a real difference.

What's more, by protecting our forests, a significant amount of carbon could be drawn down from the atmosphere. If the area of state forests currently managed for logging was protected, 75 million tonnes of carbon (CO_2e) could be captured and stored by 2050.[15] This would provide a huge benefit to the community by providing $2.6 billion worth of carbon sequestration services.

The reality of native forest logging in Tasmania is that most of the forest ends up as woodchips and waste. A better use of our forests is to protect and value them for the climate mitigation they provide. Protecting native forests is also important for many other reasons, including biodiversity, aboriginal culture and our own well-being.

We have an opportunity to become a world leader in climate action. Let's not miss out on our chance to make a real contribution to addressing the most pressing issue of this century. Ending native forest logging is the biggest contribution Tasmania can make to acting on climate change.

BY PROTECTING NATIVE FORESTS, WE CAN:

CO_2

Prevent
2.21 MILLION TONNES OF CO_2
Emissions each year

Draw down
75 MILLION TONNES OF CO_2
By 2050

$2.6 BILLON

Provide
$2.6B IN CARBON MITIGATION
By 2050

We need to take immediate action on climate change. Not only do we need to reduce emissions but we need to draw down carbon from the atmosphere. Protecting forests is a low-cost, effective and immediate way to achieve both emissions reduction and to absorb carbon from the atmosphere.

ENDING NATIVE FOREST LOGGING IS REAL ACTION ON CLIMATE CHANGE.

APPENDIX:

Methodology For Calculating Annual Emissions From Native Forest Logging

Calculations for emissions from forestry: 4.65 million tonnes of CO_2e per year (averaged over the last 5 years; 2016-2020)

Emissions from native forest logging in Tasmania were estimated using reported wood volume removed from native forests. This method was selected as wood volume is used by the Australian Department of Industry, Science, Energy and Resources in the compilation of the National Inventory Report 2019.[25] The methods used to calculate emissions from native forests are aligned with the 2006 Guidelines for National Greenhouse Inventories and subsequent amendments.

The volume of native forest timber logged each year in Tasmania from 1970 to 2020 was recorded from ABARES,[22] State of the Forest Reports[26] and the Forest and Timber Inquiry Report 1991[26]. The volume of all logs (saw log, peeler log, pulp etc.) was recorded then converted to dry weight using 500kg/m^3 density.

For each year from 1970 to 2020, the amount of carbon in the total above ground ecosystem biomass was calculated by halving the total tonnes of dry weight of timber products to represent the amount of carbon. Since the amount of wood removed from the forest represents on average 40% of the total above ground ecosystem biomass,[5] the value was multiplied by 2.5 to account for the remaining 60% biomass left on-site after logging.

When a forest is logged, not all the carbon from the forest is emitted straight away. Different wood products and types of waste have different lifespans which impact how quickly carbon is emitted. Annual emissions for 2016-2020 were calculated by adding short-term emissions and long-term emissions. A mean value over the last five years was used to give a better indication of the average emissions in recent years, however there has been a slight trend upwards over the last five years (2016: 4.51 Mt CO_2e; 2017: 4.62Mt CO_2e; 2018: 4.71Mt CO_2e; 2019: 4.70Mt CO_2e; and 2020: 4.67Mt CO_2e).

Short-term emissions were 64% of the total forest carbon of logged forests over the two previous years. This includes additional emissions from methane and nitrous oxides when 40% of biomass (slash and mill waste) which is burned. A value of 2,500kg CO_2e per tonne of dry weight biomass was assumed to account for additional biomass.[12,28]

Long-term emissions include biomass left on-site (30%), engineered wood products (5%) and sawn timber (1%). Emissions from these sources were calculated by assuming that the biomass left on-site has a linear decomposition rate which was calculated over the last 50 years. The 5% of carbon from engineered wood products was assumed to have a life span of 25 years and 1% of carbon representing sawn-timber was estimated to have a lifespan of 90 years.

Soil carbon has not been considered, and often contributes a significant part of a forest's carbon. It has not been considered in this report as there is insufficient data to accurately account for soil carbon. Therefore the value of 4.65 million tonnes CO_2e is considered an underestimate.

These calculations are for the emissions from the logging of native forest logging of the above ground biomass, and do not account for the carbon that may be absorbed as the forest regrows. This carbon can take decades or centuries to be recovered.

The annual emissions from native forest logging given in this report is considered an estimate. Some assumptions have been made given the lack of Tasmanian-based data, or data not being available. For instance, the rate of woody debris decay has been derived from Victorian studies, however, the rate of decay may be lower in Tasmania. Additional emissions from biomass burning have been estimated from overseas studies and wood-fire heating. Data was requested from Forestry Tasmania but not response was given. Therefore assumptions have been made about the amount of slash burning, assuming it is at a rate of 50%.

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