



# Climate change and carbon storage

## Position:

Sustainably harvested wood is The Ultimate Renewable.™ It is natural and regrows to support biodiversity.

## Key Points:

It is important to understand the whole picture when assessing the carbon emissions impact of native timber harvesting in Victoria.

This includes:

- Carbon sequestered in harvested Victorian native timber is used for floors and wood products.
- Substitute fibre or products are needed to compensate for native hardwood.
- The amount of carbon used in transporting imported hardwood.
- The Intergovernmental Panel on Climate Change report on forestry stated the net effect of native harvesting produces less carbon emissions than would be released if all native harvesting were stopped and substituted by imports or other materials.<sup>6</sup>
- A “no harvest” model would also sequester carbon in forests, but not as much as sustainable native timber harvesting with imported hardwood or other substitute materials.<sup>7</sup>

## Background:

### Carbon storage and sustainable native timber harvesting:

- Victoria’s native timber industry is sustainable. Harvested areas are regenerated with the same type of trees as were there before.
- Put simply, VicForests regrows what it harvests.
- Forests act as a carbon sink – absorbing CO<sup>2</sup> from the environment, storing it as carbon and releasing oxygen in return.
- Forests have the potential to store large amounts of carbon from the environment and contribute to carbon emissions abatement.
- To produce 1 kilogram of timber, a tree consumes 1.47 kilograms of CO<sup>2</sup> and returns a kilogram of oxygen to the atmosphere.<sup>8</sup>
- Sustainably managed forests create a higher capacity to absorb carbon.<sup>9</sup>

## QUICK FIGURES:

- Victoria’s native timber industry has a positive net impact on emissions, conserving **835 tC per hectare**.<sup>1</sup>
- This exceeds carbon conserved under a “no harvest” model, which would conserve **522 tC per hectare**.<sup>2</sup>
- **1 kilogram of timber** has consumed **1.47 kilograms of CO<sup>2</sup>** and returned a **kilogram of O<sup>2</sup>** to the atmosphere.<sup>3</sup>
- It takes **8 times** more energy to produce a tonne of steel as it does to produce equivalent amounts of timber.<sup>4</sup>
- It takes **46 times** the amount of energy to produce a tonne of aluminium compared to equal amounts of timber.<sup>5</sup>

- This is because trees are harvested and sequester carbon in the wood products created from harvested timber. New trees are then planted as part of the regeneration process which grow and absorb more CO<sup>2</sup> from the atmosphere.
- While emissions are generated, and carbon is released during the harvesting process through slash burning and decomposition of wood debris, Victoria’s native timber industry has a positive net impact on carbon conserving around 835 tC per hectare in the State’s Ash forests.<sup>10</sup>
- This compares to a “no harvesting” model, which conserves 522 tC per hectare.<sup>11</sup>
- This accounts for substituted other materials that have a higher emissions profile, including fibres, which would have to be imported.



### Carbon sequestration in wood products:

- Wood products act as a carbon sink storing CO<sup>2</sup> absorbed from the atmosphere and locking it away for many years.
- Around 50 per cent of wood's dry-weight is carbon.<sup>12</sup>
- Carbon sequestration and storage does change depending on the end purpose of the harvested wood.<sup>13</sup>
- There are international standards for carbon accounting methodologies that calculate the carbon storage of different wood products which is represented in a service life.
- Timber harvested for pulp to make paper is considered to store carbon for a shorter period than timber used to make furniture or building and construction products.<sup>14</sup>
- The service life of paper products is considered three years while for furniture and construction materials it is considered to be 30 and 50 years, respectively.<sup>15</sup>
- At the end of a product service life, it can be assumed that the carbon in the product has returned to the atmosphere.
- Victorian native hardwood used for furniture, building and construction has the potential to have a positive impact on climate change and carbon abatement.
- In addition, wood and paper are increasingly being substituted for plastics.
- Australians used around four billion plastic bags every year with many ending up in waterways or the ocean.
- Renewable and recyclable paper products are a viable alternative for plastic waste in our economy.

### Benefits of wood products for use in the building and construction industry:

- Wood is the only renewable building resource.
- A "no-harvest" strategy would have significant impacts on carbon emissions in the broader economy as other products fill the void left by sustainably-harvested Victorian native timber.<sup>16</sup>
- The Intergovernmental Panel on Climate Change (IPCC) has noted that "stopping all forest harvesting would increase forest carbon stocks but would reduce the amount of timber and fibre available to meet societal needs."

- The substitution of wood with other products in the building and construction industry would lead to higher greenhouse gas emissions.<sup>17</sup>
- Not only do wood products store carbon, they are far less emissions intensive to produce than substitutes.
- In Australia, the construction industry accounts for over 18 percent of Australia's carbon footprint.<sup>18</sup>
- Wood as a building product uses vastly less fossil fuel energy per unit when compared to other common substitutions.<sup>19</sup>
- Wood products also acts as a carbon sink – storing carbon for up to 50 years.
- Timber stores up to 10 times the amount of CO<sup>2</sup> compared to that which is released during its manufacturing.<sup>20</sup>
- While the amount of embodied energy in building obviously varies with its design and location, a steel beam requires more than 10 times the production energy of an equivalent timber beam.<sup>21</sup>
- And aluminium window frames use over 50 times the energy of comparable wooden frames.<sup>22</sup>
- Steel and aluminium store negligible amounts of carbon over their service life.

### Carbon storage in forests:

- Some groups and organisations highlight the fact that older forests have a larger carbon storage amount than young forests.
- While this is true, it fails to consider that the loss of Victorian native hardwood from the market would require substitute fibre to be imported from other places.
- This substituted fibre would likely have a higher emissions profile and, therefore, be counterproductive to the arguments being made.
- If Victoria's Ash forests were not harvested they would only conserve 522 tC per hectare.<sup>23</sup>
- VicForests current sustainable harvest model conserves 835 tC per hectare<sup>19</sup> when taking into account the impact of using substitute fibre.<sup>24</sup>



- 1 Deloitte, VicForests: The economic impact of VicForests on the Victorian community, p40
- 2 Deloitte, VicForests: The economic impact of VicForests on the Victorian community, p40
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- 4 Federal Government 2006 CRC Greenhouse Accounting
- 5 Federal Government 2006 CRC Greenhouse Accounting
- 6 (Intergovernmental Panel on Climate Change (IPCC) report on forestry in 'Climate Change 2007: Mitigation. Contribution of Working Group III to the 4th Assessment Report of the IPCC' (Nabuurs, et al. 2007)
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