Tackle Climate Change – Use Wood

Hurricane Katrina

iStockphoto.com/cpurser

What is causing climate change?

Increasing GHG levels

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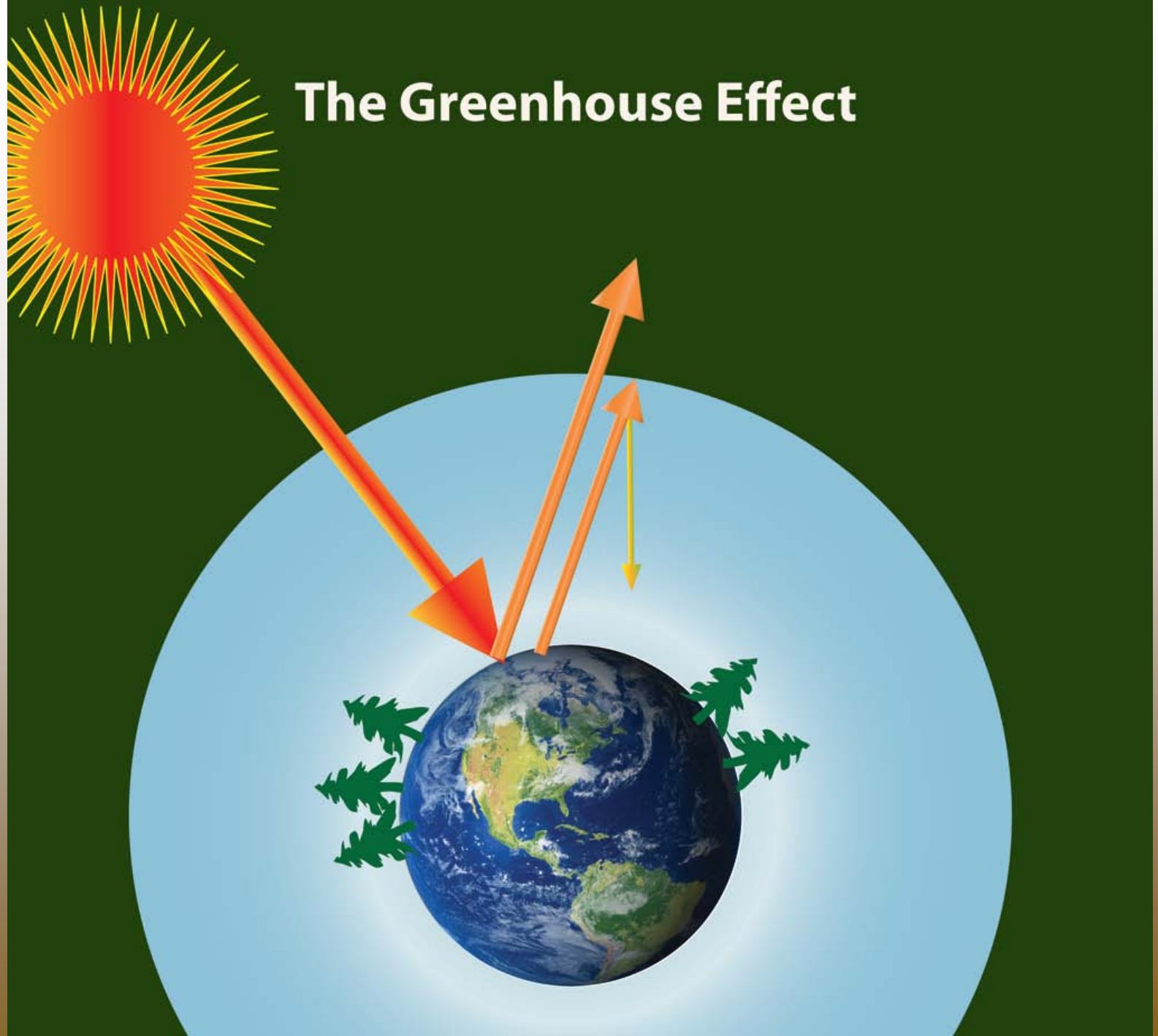
The Greenhouse Effect



How Trees “Absorb” Carbon Dioxide

SUN

+

CO_2

+

water

Photosynthesis

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O_2

sugar

$C_6H_{12}O_6$

What is wood?

Wood is 50% carbon by weight

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sugar

$C_6H_{12}O_6$

$(C_6H_{10}O_5)_n$

Forest Fires or Decomposition

iStockphoto.com/milehightraveler

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Wood Carbon is Stored Indefinitely

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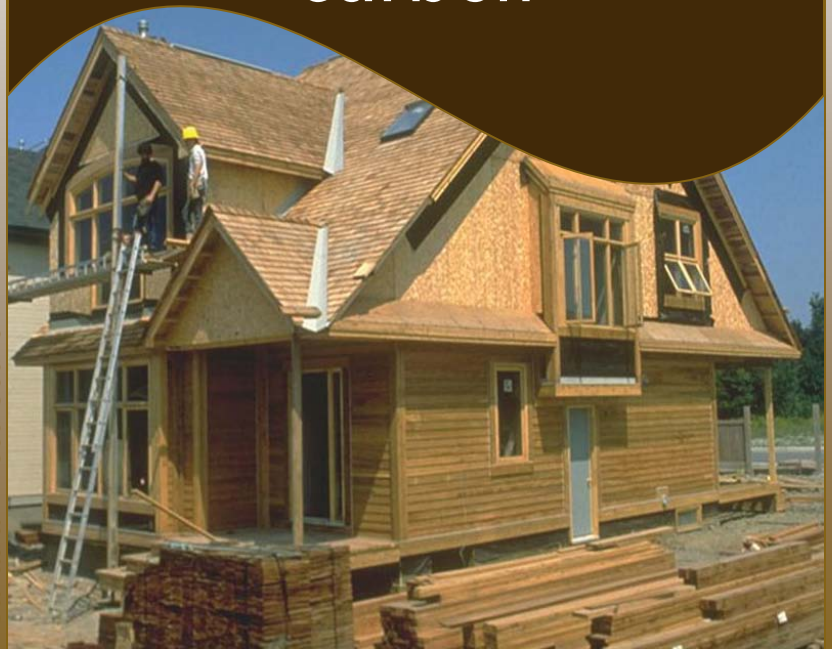
Carbon Storage in Homes

An average wood frame home stores ~ 30 metric tons of carbon



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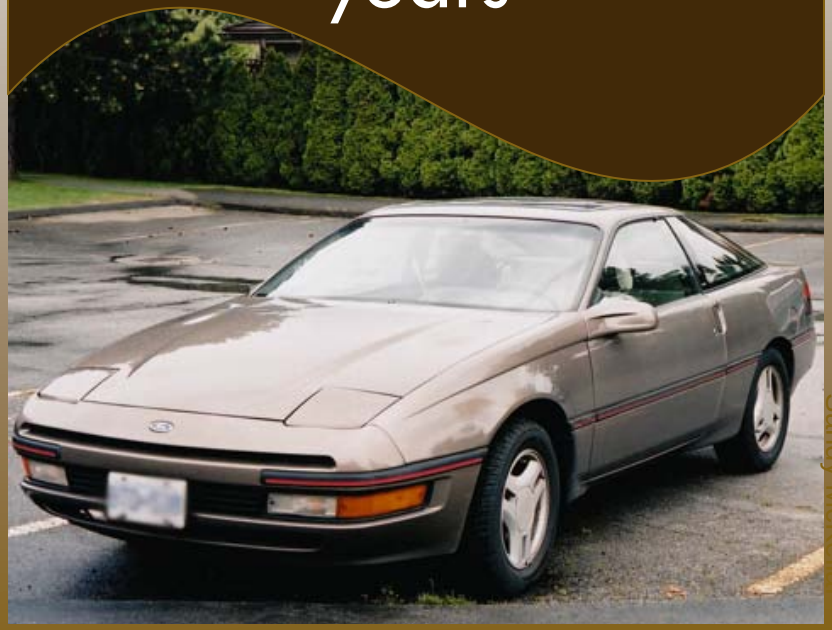
Equals the CO_2 generated from driving a car for 5 years



Canadian Wood Council

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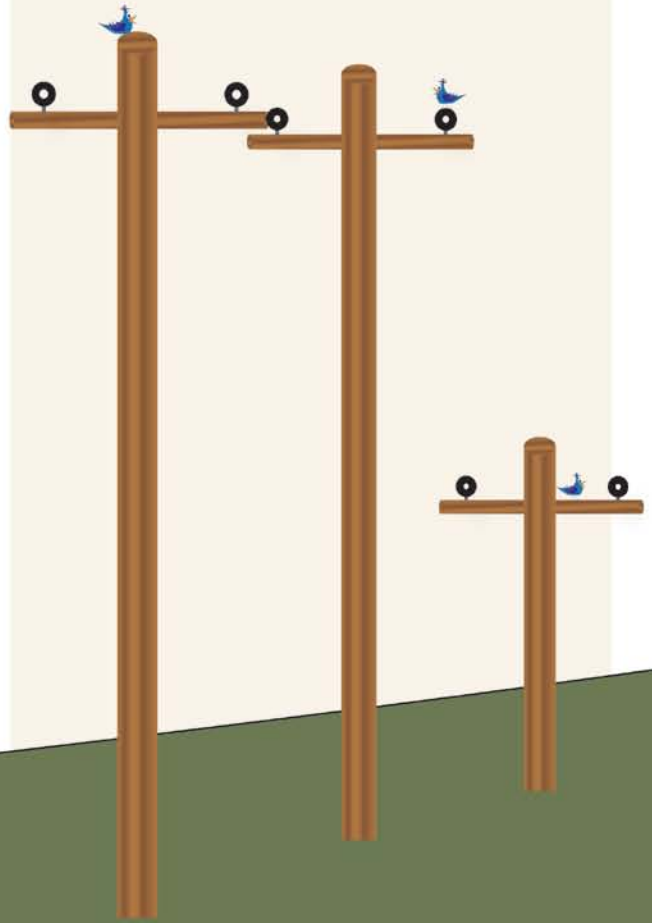
One metric ton of wood

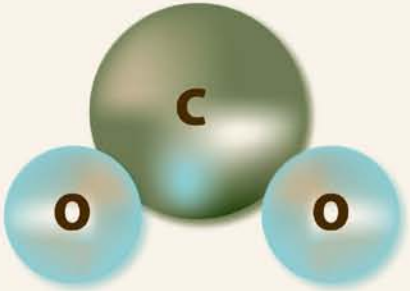
=

2.5 telephone poles

=

1.9 metric tons CO_2e





=

CO_2 emitted by a car in one year

=

CO_2 emitted by a typical home in half a year

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BC 2010 Olympic Speed Skating Oval

About 98% of the Log is Used

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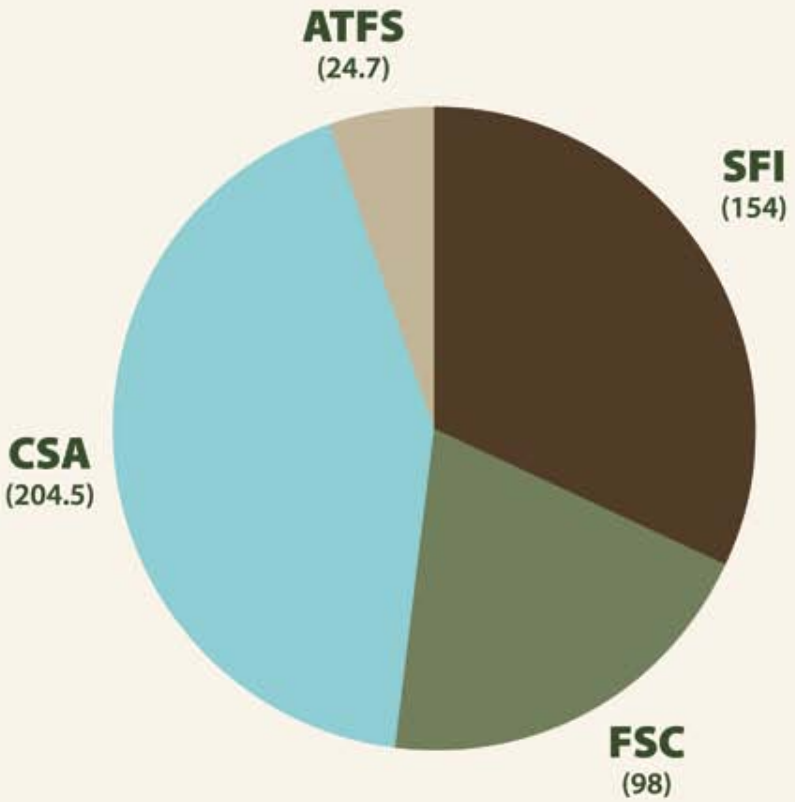
Growth, harvest and renewal

Sustainable Forest Management

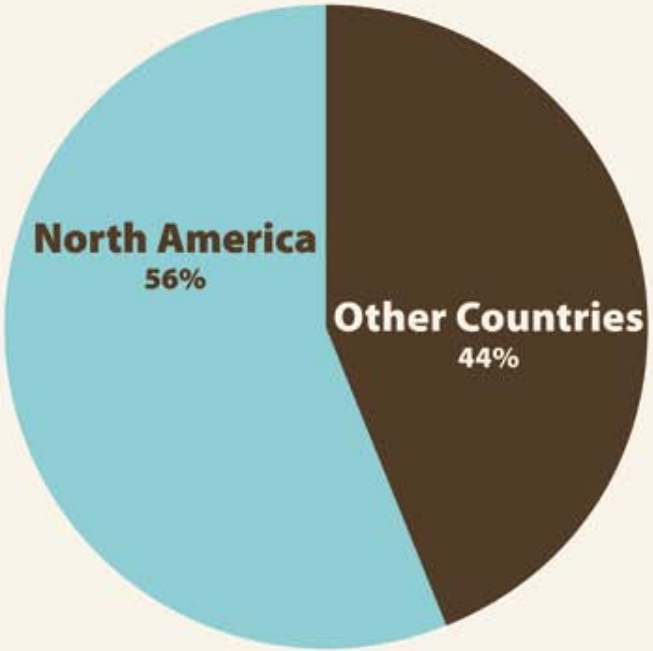
Area Certified in North America

Numbers in Millions of Acres



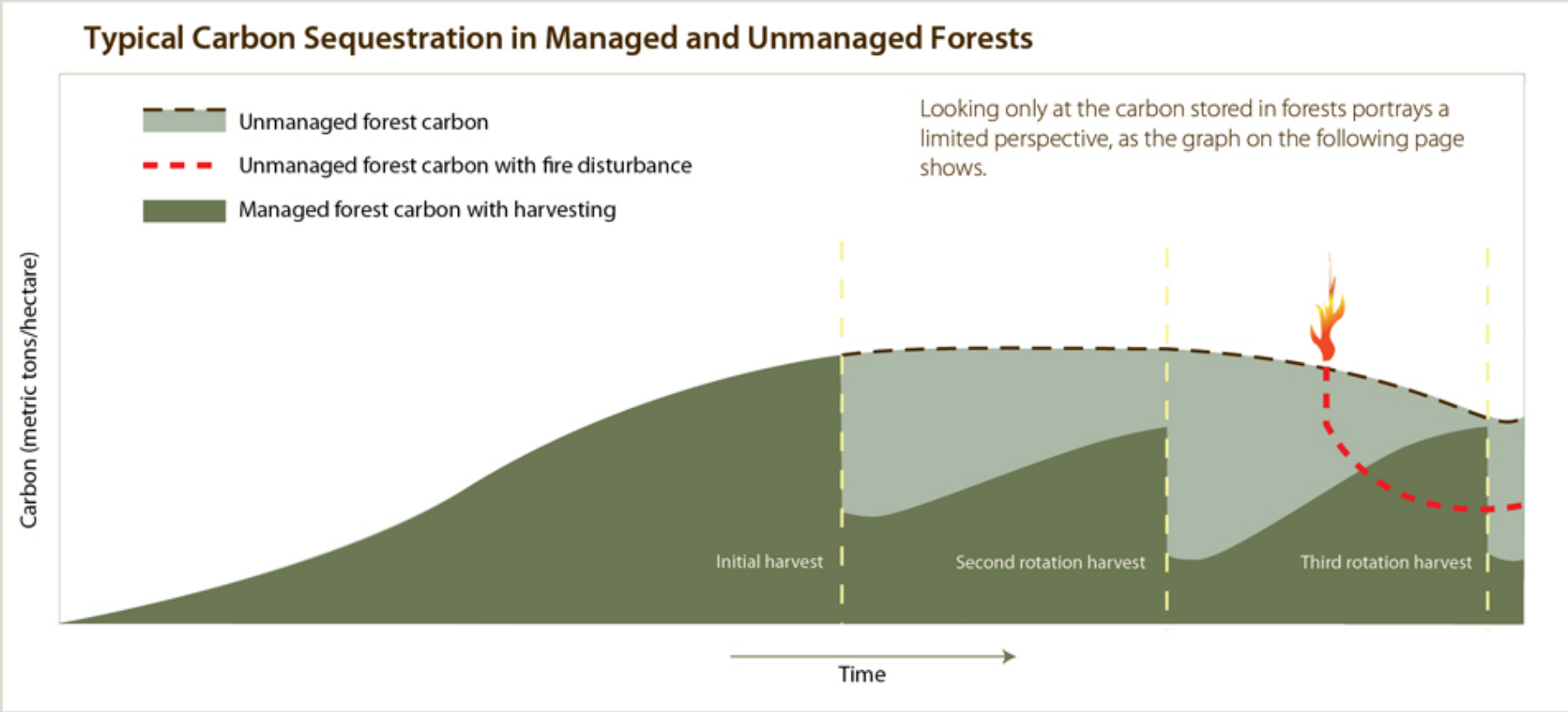
2008 year-end data from www.pefc.org, www.fscus.org, www.fsccanada.org, www.fsc.org, www.certificationcanada.org, www.mtc.com.my

Area Certified Worldwide



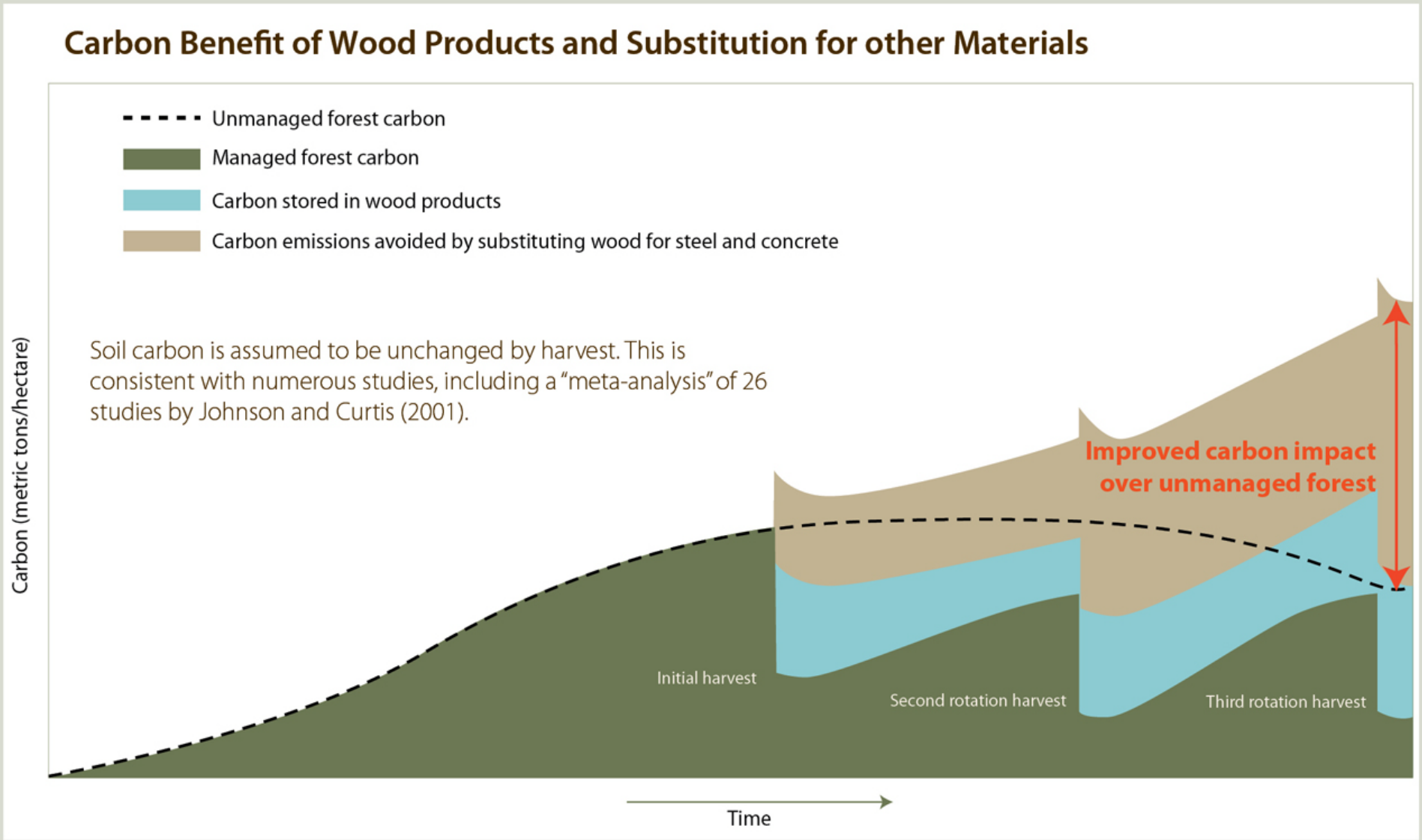
2008 year-end data from www.pefc.org, www.fscus.org, www.fsccanada.org, www.fsc.org, www.certificationcanada.org, www.mtc.com.my

Typical Carbon Sequestration in Forests



Adapted from: Kashian DM, WH Romme, DB Tinker, MG Turner, and MG Ryan. 2006, & Perez-Garcia, J., B. Lippke, J. Comnick, and C. Manriquez (2005); J. Wilson (2006); E. Oneil and B. Lippke, (2009).

Add Wood Products and Substitution

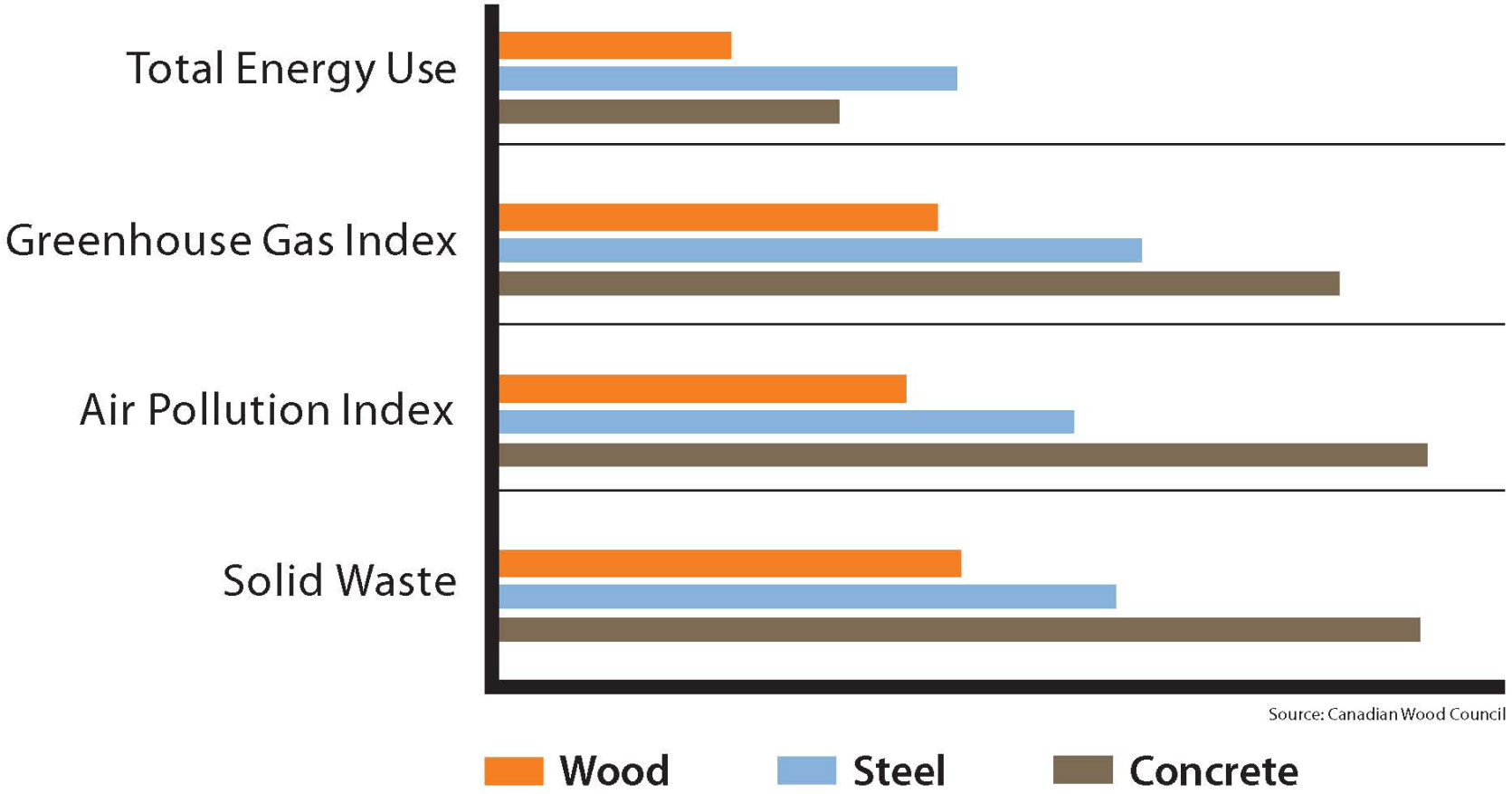


Adapted from: Perez-Garcia, J., B. Lippke, J. Comnick, and C. Manriquez (2005); J. Wilson (2006); E. Oneil and B. Lippke, (2009).

Life Cycle Assessment

A Comparison of Wood, Steel and Concrete

In this graph, life cycle assessment results are given for three versions of the same typical office building, each designed with a different structural system.



Bioenergy

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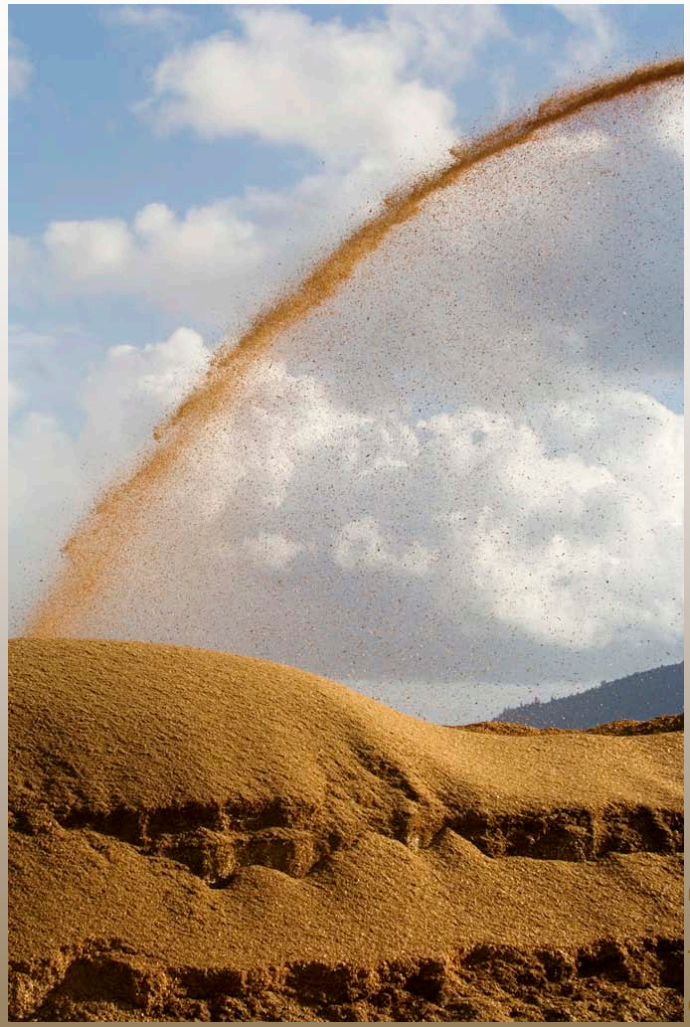
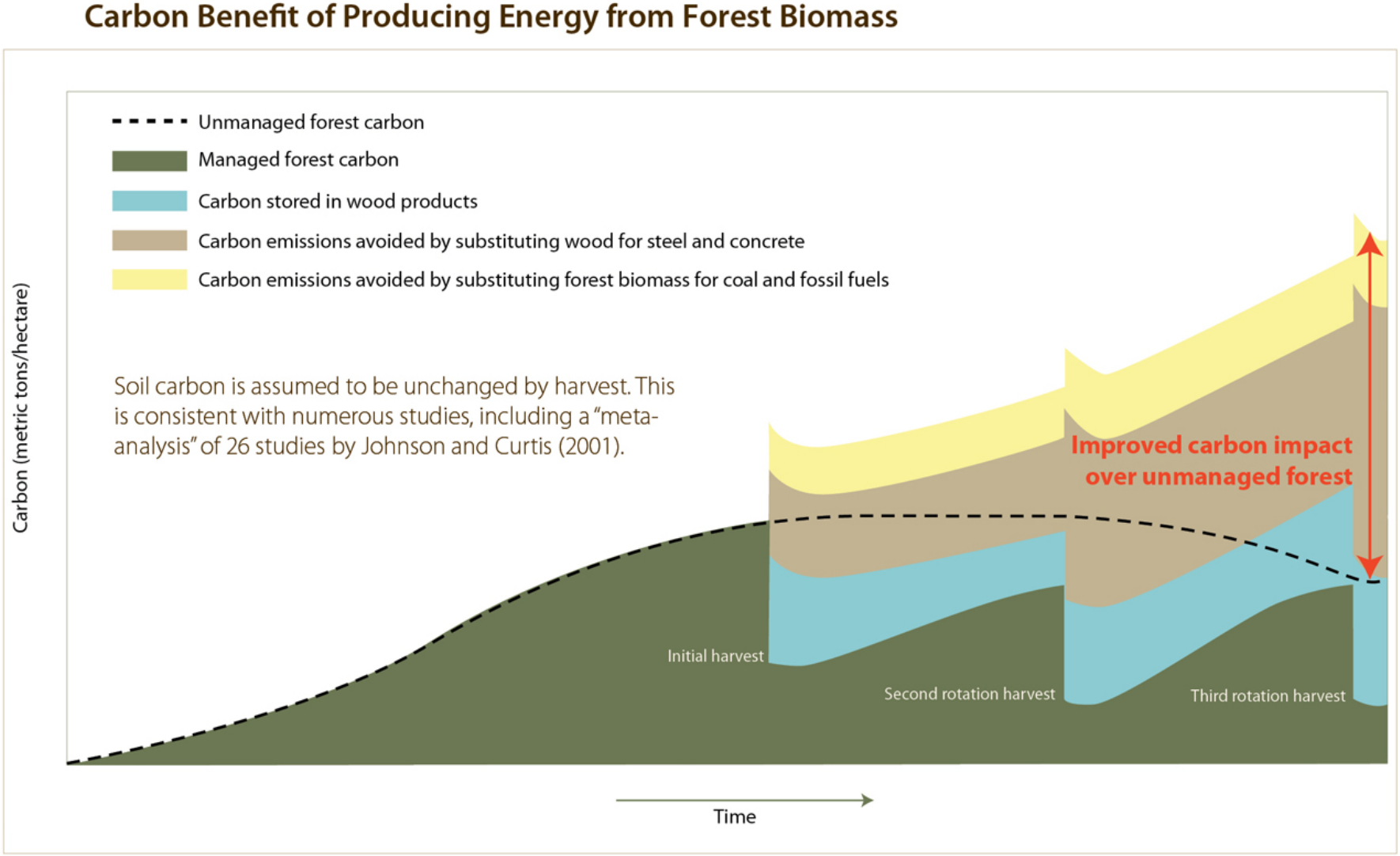


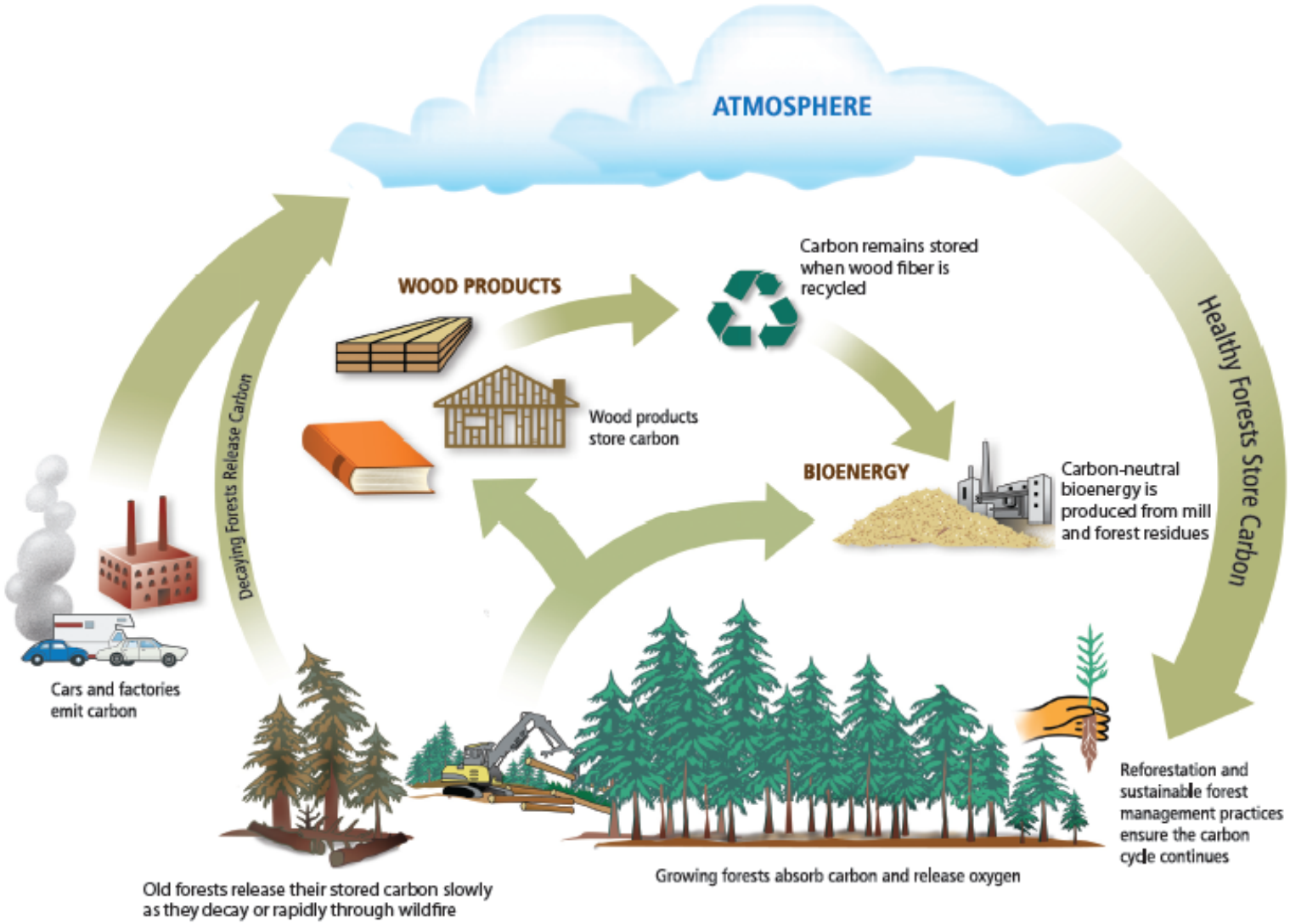
Catalyst Paper

Add Bioenergy Substitution



Adapted from: Perez-Garcia, J., B. Lippke, J. Comnick, and C. Manriquez (2005); J. Wilson (2006); E. Oneil and B. Lippke, (2009).

Sustainable Forestry Carbon Cycle



Adapted from California Forest Products Association materials

Making the Case

V Volume of wood used: 3,820 cubic meters

C Carbon sequestered and stored: 2,940 metric tons of CO_2

Avoided greenhouse gases: 5,880 metric tons of CO_2*

Total potential carbon benefit: 8,820 metric tons of CO_2

1,615 passenger vehicles off the road for a year

Energy to operate a home for 803 years

V Volume of wood used: 950 cubic meters

C Carbon sequestered and stored: 760 metric tons of CO_2

Avoided greenhouse gases: 320 metric tons CO_2*

Total potential carbon benefit: 1,080 metric tons of CO_2

179 passenger vehicle off the road for a year

Energy to operate a home for 89 years

Owner:
Telford Homes PLC / Metropolitan Housing Trust

Architect:
Andrew Waugh, Waugh Thistleton Architects

Structural Engineer:
Techniker Ltd. / Jenkins & Potter Consulting Engineers

Timber Supplier:
KLH UK Ltd.

Mechanical Engineer:
Michael Popper & Associates / AJD Design Partnership

V Volume of wood used: 655 cubic meters

C Carbon sequestered and stored: 490 metric tons of CO_2

Avoided greenhouse gases: 990 metric tons of CO_2*

Total potential carbon benefit: 1,480 metric tons of CO_2

270 passenger vehicles off the road for a year

Energy for a home for 135 years

Owner:
Corona-Norco Unified School District

Architect of Record:
HMC Architects

Contractor:
Neff Construction (CM)

Framing Contractor:
West-Helm Construction Inc.

Opportunities to Grow & Store More Carbon

- Intensive forest management (to increase CO_2 absorption)
- Increased wood use
- Increased production of bioenergy

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Tackle Climate Change – Use Wood

BE A PART OF THE SOLUTION