

Sustainable Transportation Practices

The Calgary Region as a Transportation Hub

Prof. Jim Love

Chair in Sustainable Building Technologies

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ENVIRONMENTAL DESIGN | UNIVERSITY OF CALGARY

U of Calgary Child Development Centre 2007



LEED-Platinum 500 M/m²

Image Source – University of Calgary – Grady Semmens

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Sustainable Transportation Practices

Lawrence Grassi School, Canmore, 2008
Reductions: 70% energy use, 65% GHG
NRCCan: “striking distance of netzero”

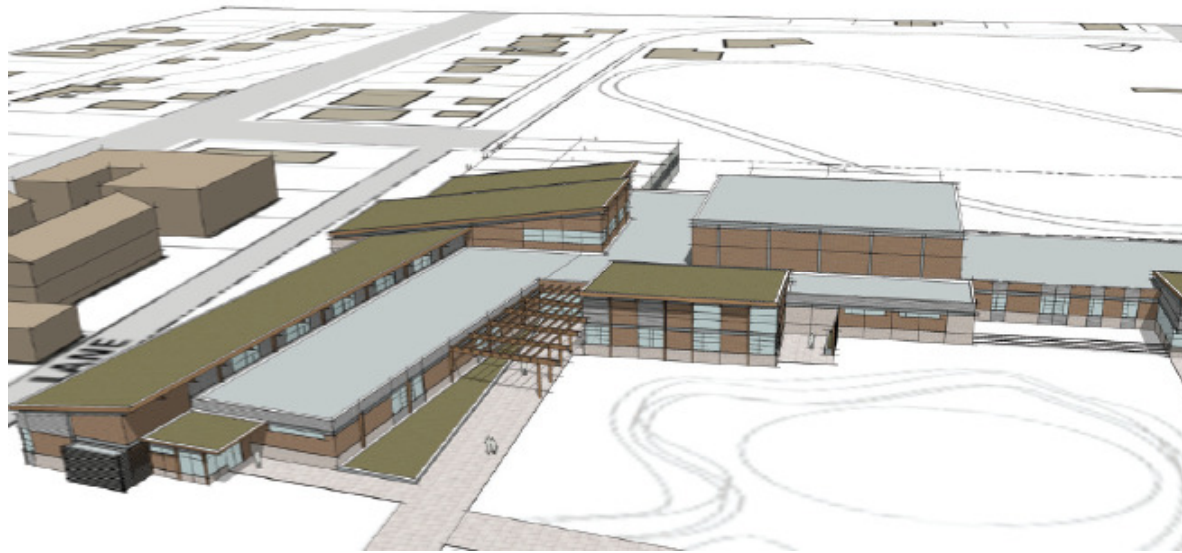


Image Source – GEC Architecture

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Sustainable Transportation Practices



ENVIRONMENTAL DESIGN | UNIVERSITY OF CALGARY

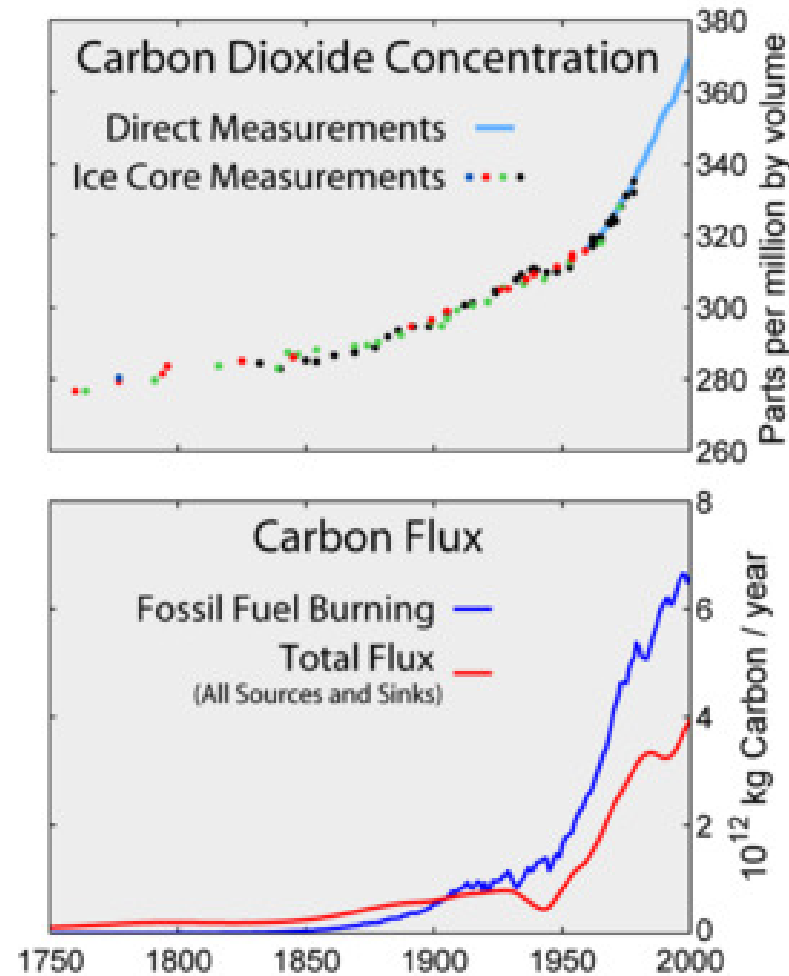


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Sustainable Transportation Practices

Atmospheric Carbon Trends

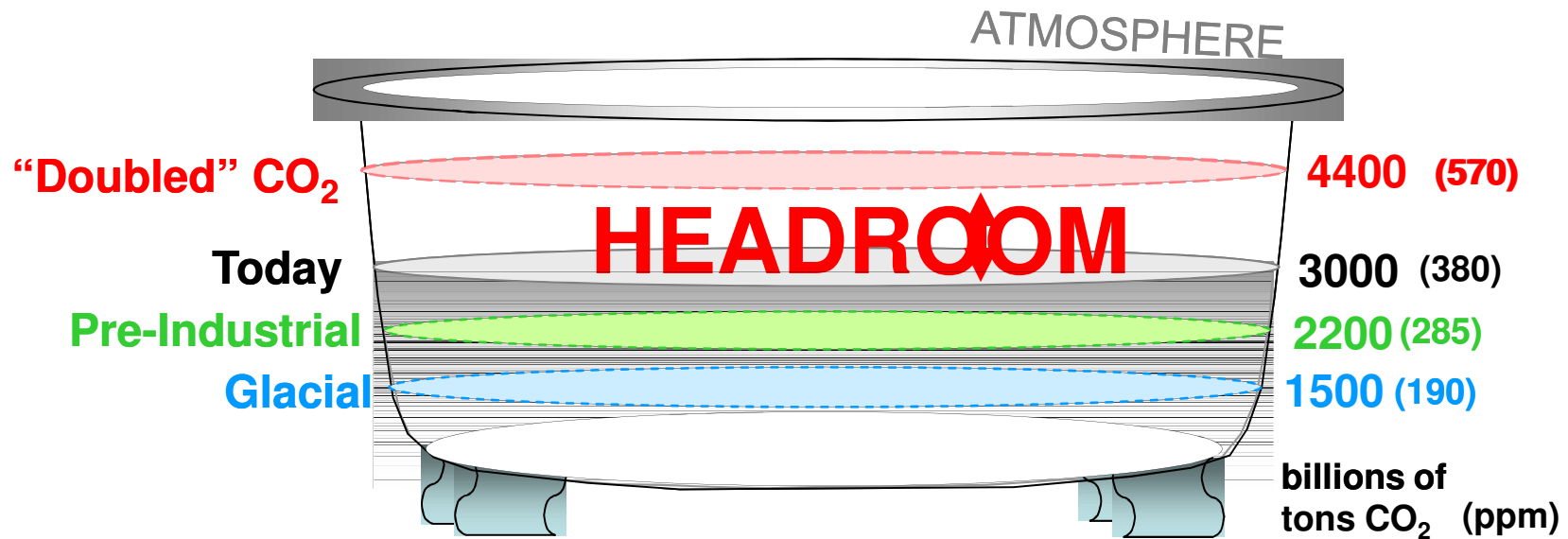


Image Source – Dr. Robert Socolow, Princeton University

About half of the carbon we burn stays in the atmosphere for centuries

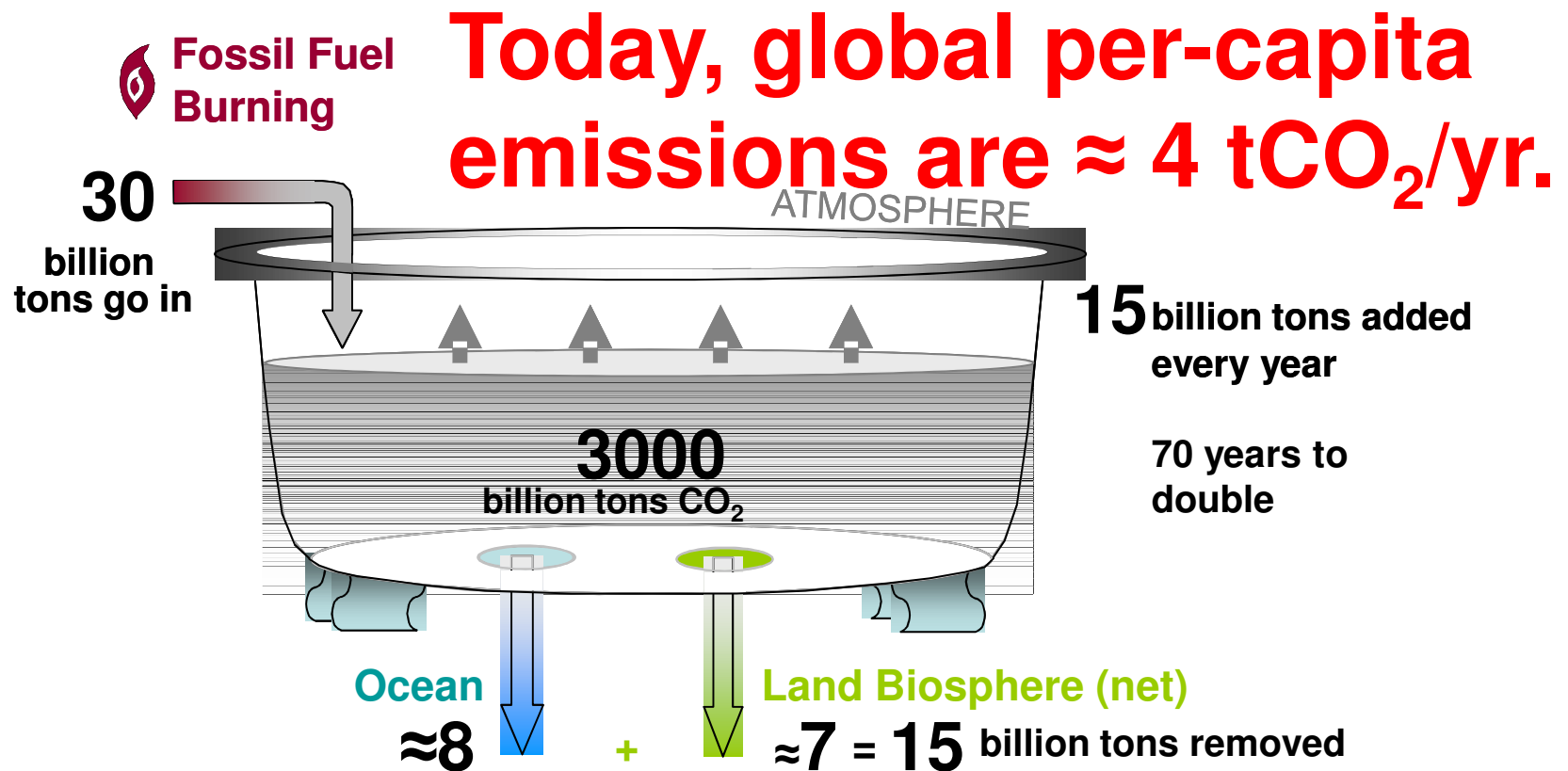


Image Source – Dr. Robert Socolow, Princeton University

At “stabilization,” allowed emissions would be 30% of current

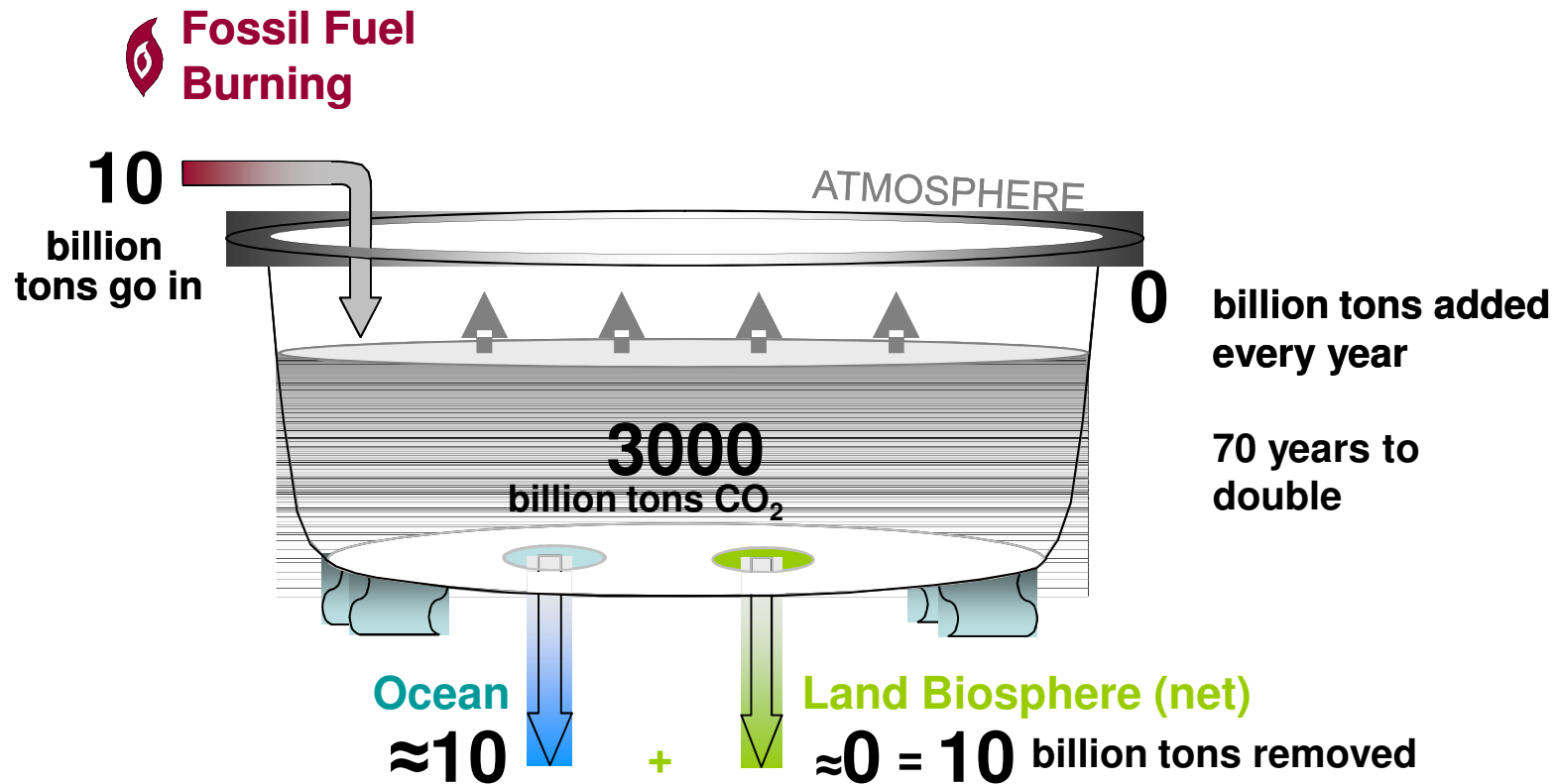


Image Source – Dr. Robert Socolow, Princeton University

Per Capita Emissions 2003 & 2030

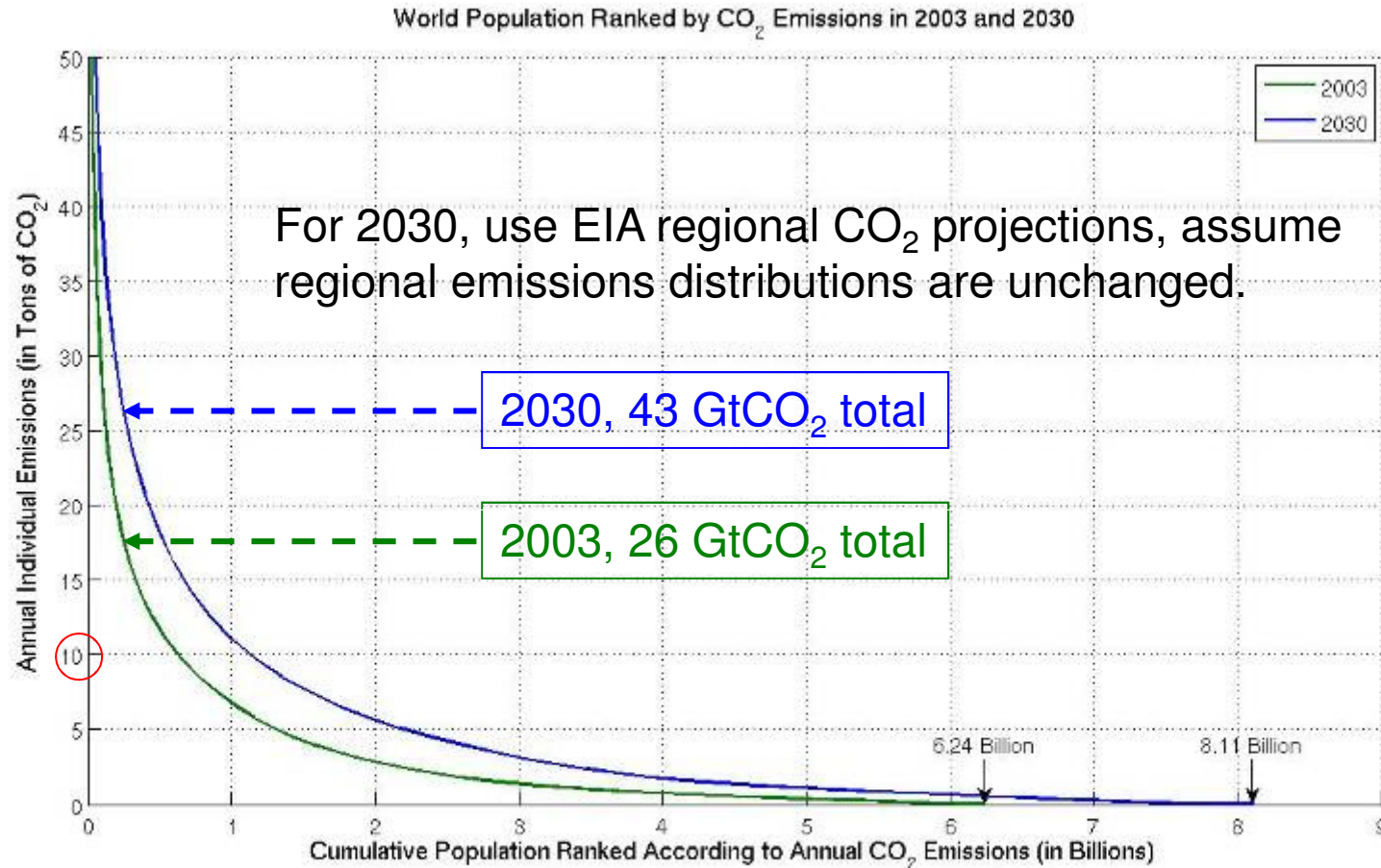


Image Source – Dr. Robert Socolow, Princeton University

Intergovernmental Panel on Climate Change

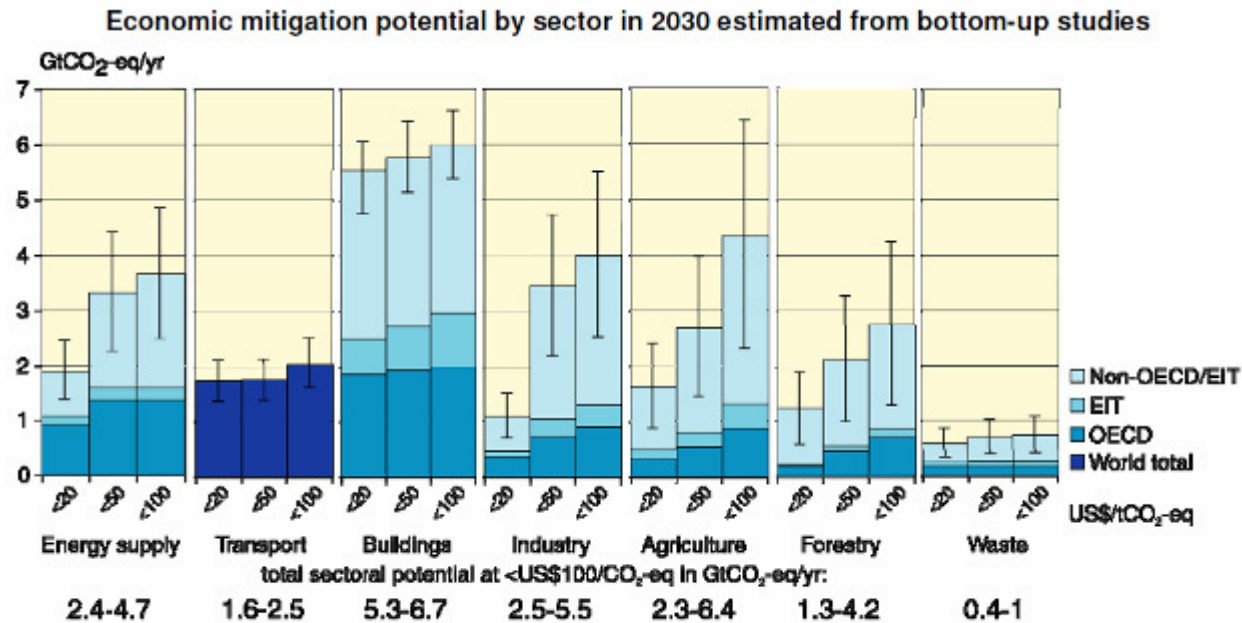


Figure SPM.10. Estimated economic mitigation potential by sector in 2030 from bottom-up studies, compared to the respective baselines assumed in the sector assessments. The potentials do not include non-technical options such as lifestyle changes. (Figure 4.2)

CO₂-generating Activities

Activity	Amount producing 4 tonnes CO ₂ /yr
a) drive	24,000 km/yr, 5 L per 100 km
b) fly	24,000 km/yr (Calgary-London return is 16,000 km)
c) heat home	Natural gas, Calgary (very high efficiency furnace)
d) home electric	7,000 kWh/yr – Alberta generating mix

Image Source – Dr. Robert Socolow, Princeton University

architecture 2030

The 2030 Challenge The 2010 Imperative Research Centre Regional Solutions News/Resources

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FACE IT
THERE IS A SOLUTION TO GLOBAL WARMING

GLOBAL WARMING, CLIMATE CHANGE, AND THE BUILT ENVIRONMENT

Rapidly accelerating climate change (global warming), which is caused by greenhouse gas (GHG) emissions, is now fueling dangerous regional and global environmental events. Data from the U.S. Energy Information Administration illustrates that buildings are responsible for almost half (46%) of all GHG emissions annually. Seventy-six percent of all electricity generated by US power plants goes to supply the Building Sector. Therefore, immediate action in the Building Sector is essential if we are to avoid hazardous climate change.

ARCHITECTURE 2030 MISSION

Architecture 2030, a non-profit, non-partisan and independent organization, was established in response to the global-warming crisis by architect Edward Mazria in 2002. 2030's mission is to rapidly transform the US and global Building Sector from the major contributor of greenhouse gas emissions to a central part of the solution to the global-warming crisis. Our goal is straightforward: to achieve a dramatic reduction in the global-warming-causing greenhouse gas (GHG) emissions of the Building Sector by changing the way buildings and developments are planned, designed and constructed.

BREAKING NEWS:

For more breaking news, click here.

Face It Webcast / Reverberate Competitions!

Learn more - Register now

Play Green The Building!

Give global warming a whack!

Image Source – Architecture 2030

Press release



All new buildings to be zero energy from 2019

Energy - 31-03-2009 - 17:09

All buildings built after 31 December 2018 will have to produce their own energy on-site, said the Industry Committee, amending the 2002 Energy Performance of Buildings Directive. MEPs also called for more public investments in energy-efficient buildings.

By 31 December 2018 at the latest EU Member States must ensure that all newly-constructed buildings produce as much energy as they consume on-site - e.g. via solar panels or heat pumps, says a report drawn up by Silvia-Adriana Țicău (PES, RO). The Commission proposal did not include any specific target dates for zero-energy buildings.

Image Source – <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+IM-PRESS+20090330IPR52892+0+DOC+XML+V0//EN>

Energy Use in a Few Sectors

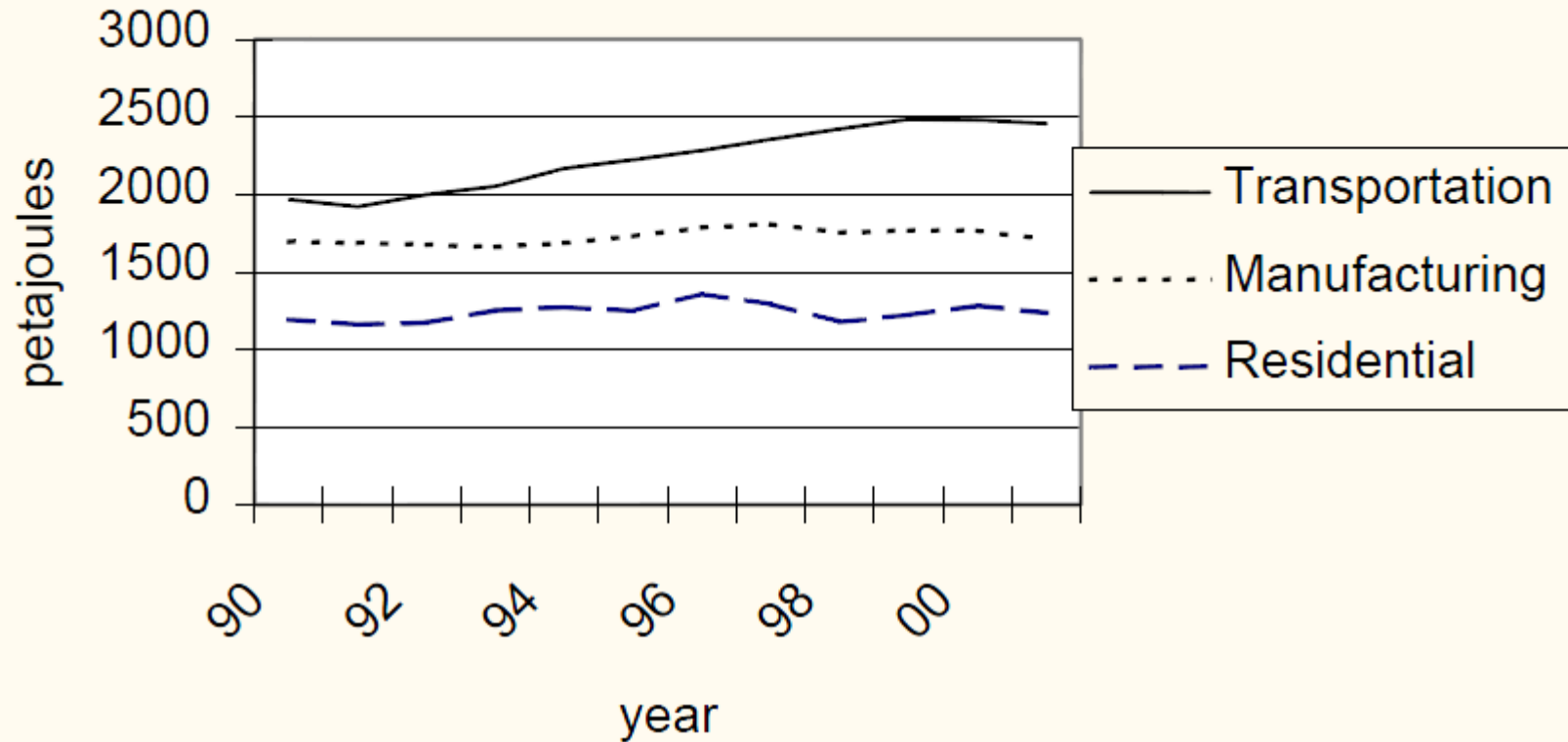


Image Source – Dr. Y. Yevdokimov, University of New Brunswick

Life Cycle Assessment

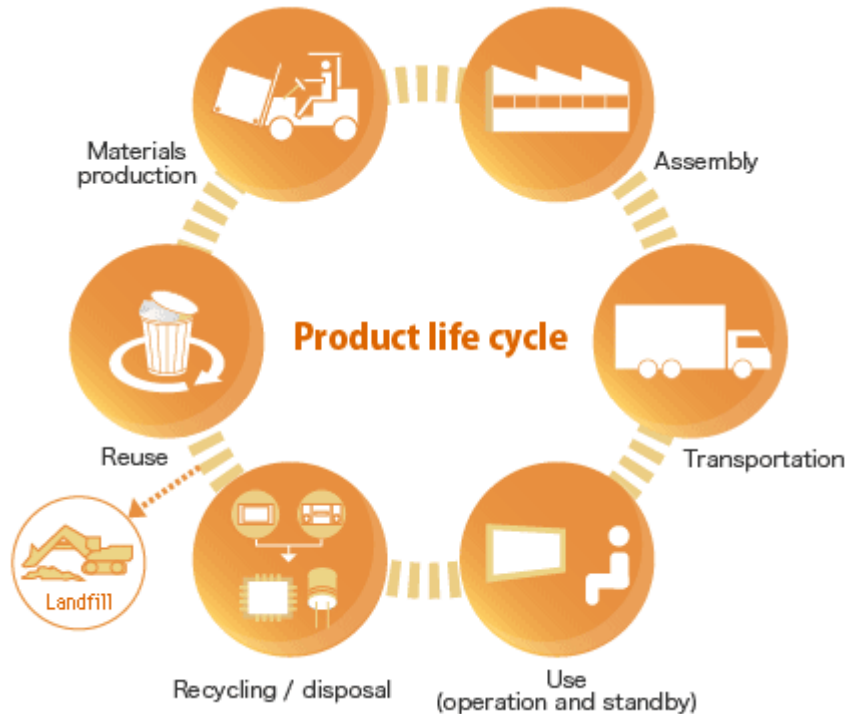


Image Source – imrebuildiq.com

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Effect of High Oil Prices on Supply Chain

- fewer shipments
- shorter distance
- higher load factor
- change mode
- change product mix