



Stanford University  
**Global Climate & Energy Project**

“It’s *Easy* Being Green”  
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## Six “Easy Steps” Towards Energy Sustainability

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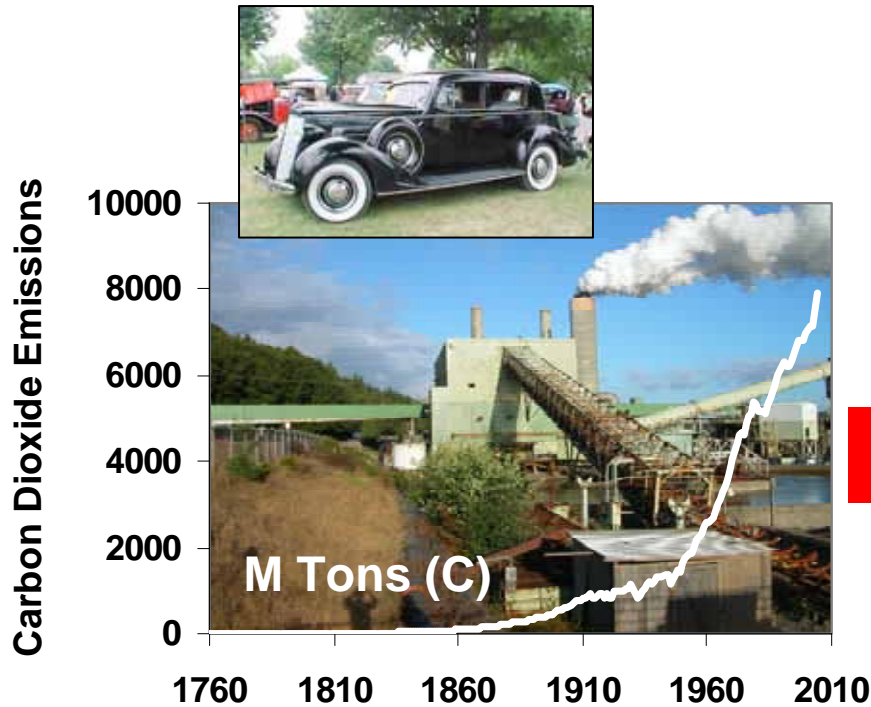
*Science and technology for a low GHG emission world.*



# The Carbon Dioxide Problem



*Carbon dioxide emissions have risen dramatically over the past two hundred years...*



*...leading to the buildup of carbon dioxide in the atmosphere.*

**This causes global warming.**



# Six “Easy Steps”



1. Use the most energy efficient technology
2. Conserve energy where possible
3. Use more renewable sources of energy for electricity
4. Sequester CO<sub>2</sub> emissions when they are avoidable
5. Understand and minimize “life-cycle” environmental impacts
6. Encourage investment in research to develop lower cost clean energy systems



# Energy Efficiency



**LIGHT OUTPUT EQUIVALENCY**

To determine which ENERGY STAR qualified light bulbs will provide the same amount of light as your current incandescent light bulbs, consult the following chart:

INCANDESCENT LIGHT BULBS	MINIMUM LIGHT OUTPUT	CORRESPONDING ENERGY STAR QUALIFIED LIGHT BULBS
WATTS	LUMENS	WATTS
40	450	9-13
60	800	13-15
75	1,100	18-25
100	1,600	23-30
150	2,600	30-52

Learn more at [www.energystar.gov](http://www.energystar.gov)

Lighting

[www.fueleconomy.gov](http://www.fueleconomy.gov)

## Fuel ECONOMY Guide

U.S. Department of Energy  
Office of Energy Efficiency and Renewable Energy  
U.S. Environmental Protection Agency

**Model Year 2007**

Transportation

## APPLIANCE Efficiency Regulations

U.S. Department of Energy  
U.S. Environmental Protection Agency

Appliances



# Conservation



## Lighting



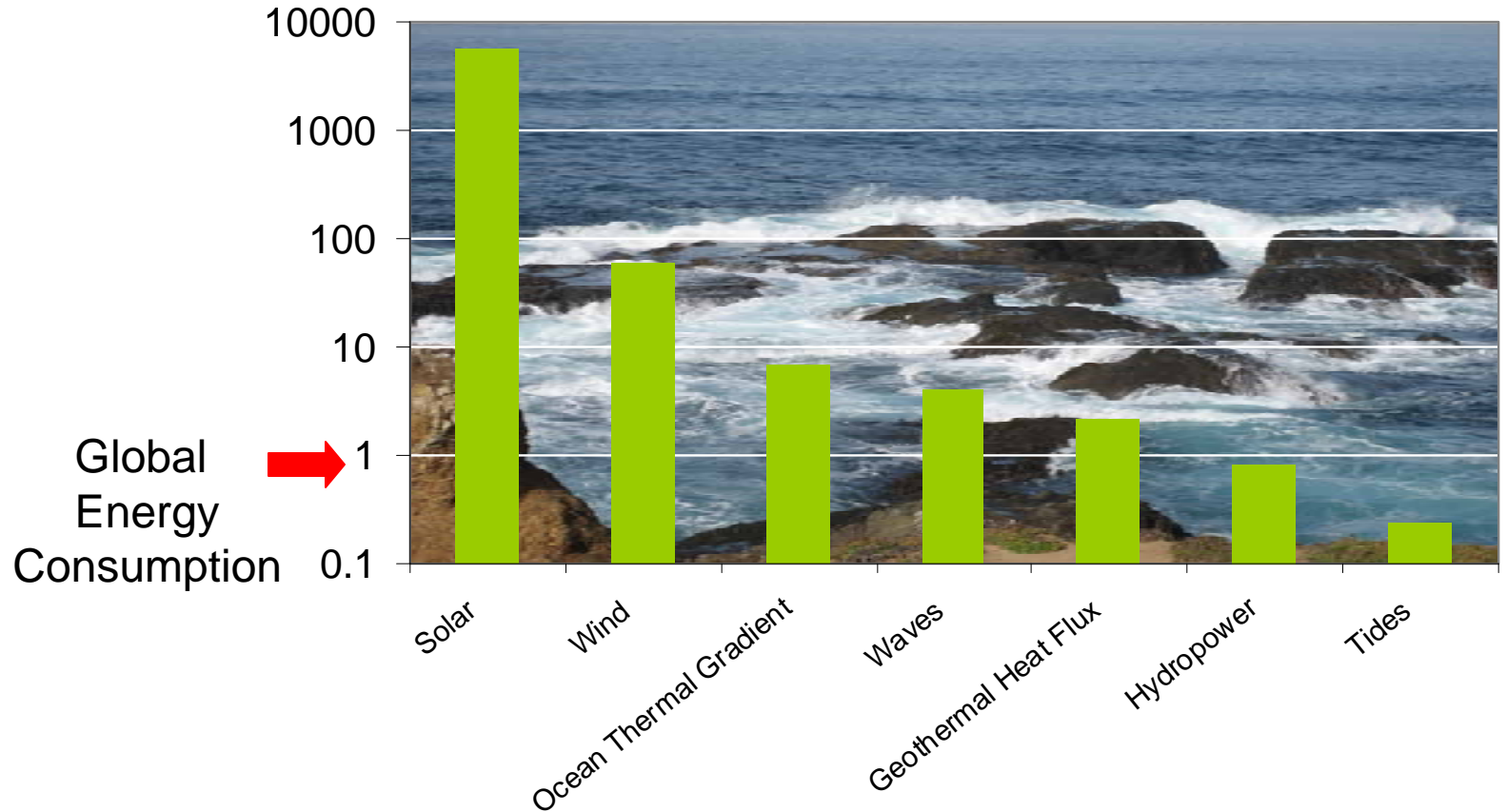
## Transportation



## Heating and Cooling



# Renewable Carbon Free Energy Resources

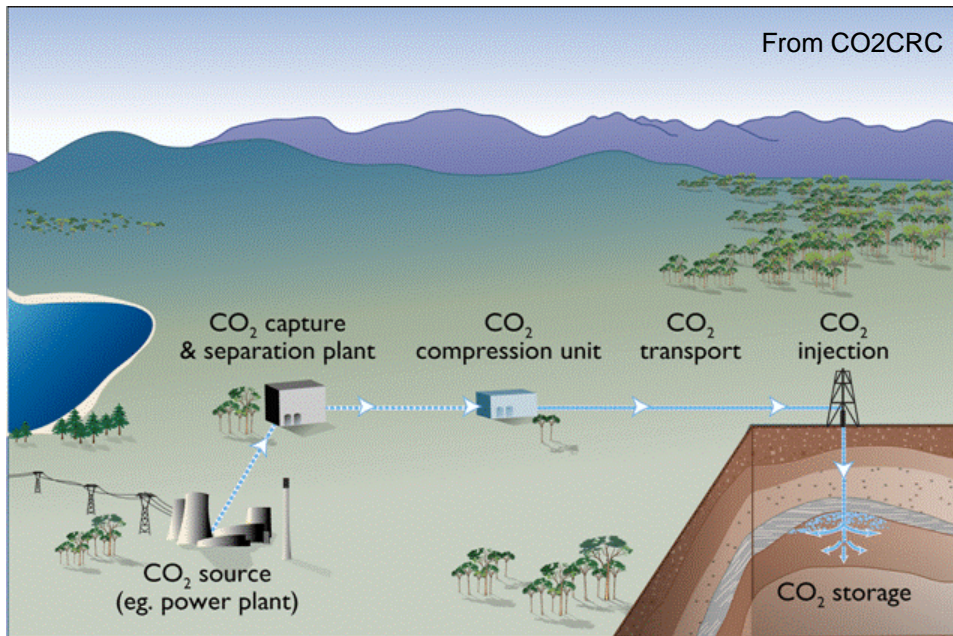


Exergy sources scaled to average consumption in 2004 (15 TW)

From Hermann, 2006: Quantifying Global Exergy Resources, Energy 31 (2006) 1349–1366



# Sequester Emissions When they are Unavoidable



Carbon dioxide can be scrubbed from power plant emissions and pumped underground.



Carbon dioxide emissions from air travel can be offset by growing or preserving well managed forests.



# Understanding and Minimizing Lifecycle Emissions



*Education*

*Informed Decisions*

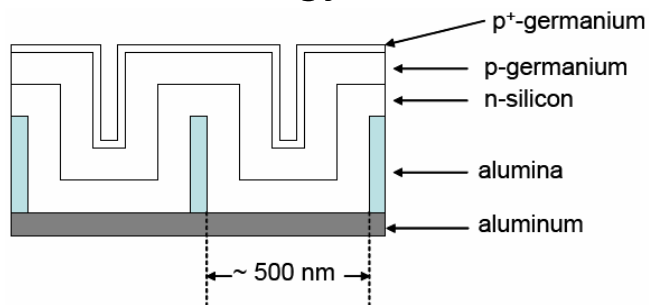
*Conscious Choices*



# Research will Provide More Choices and Lower Costs

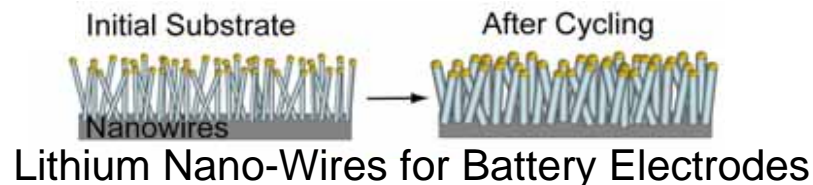


## Solar Energy

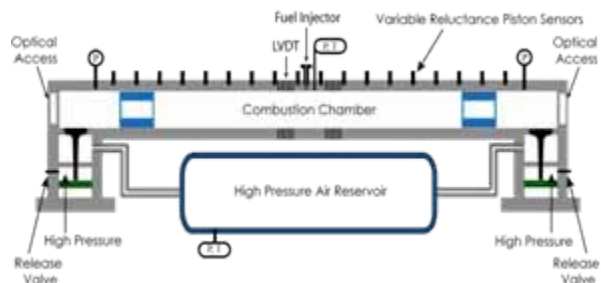


High-efficiency thin-film concepts

## Batteries

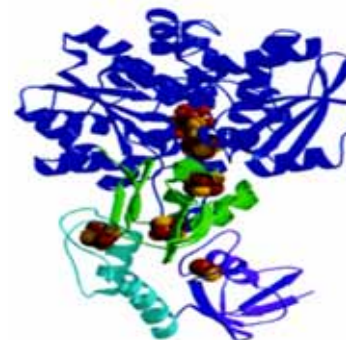


## Advanced Combustion



High-efficiency internal combustion engines

## Hydrogen



Bio-hydrogen



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