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November 7, 2011

2030 Challenge and Interior Design

What role do you play?

Interior Design

Queens University of Charlotte
College of Arts and Sciences

Working towards carbon-neutral building environments.

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Jim Kirby, AIA, NCARB, LEED AP® BD+C

- Carolinian; South Carolina (Charleston and Orangeburg) and North Carolina (Laurinburg, Wilmington, Charlotte, and Mint Hill)
- Architect, 24 year career
- Vice President, **GREENTHINC.**, PLLC
- Certified SBE Vendor #23186, Charlotte
- Chair, Committee on the Environment (COTE), AIA Charlotte Chapter

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Topics

- **Climate Fact**
- 2030 Challenge
- EPA Target Finder
- Design + Renewables + Offsets
- Roles for Interior Design
- Product Life Cycle
- Third Party Verification

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Glacial Retreat – Muir Glacier

August 13, 1941 **August 31, 2004**

"…between 1941 and 2004 the glacier retreated more than twelve kilometers (seven miles) and thinned by more than 800 meters (875 yards)."

Image Credit: *National Snow and Ice Data Center, W. O. Field, B. F. Molnia*

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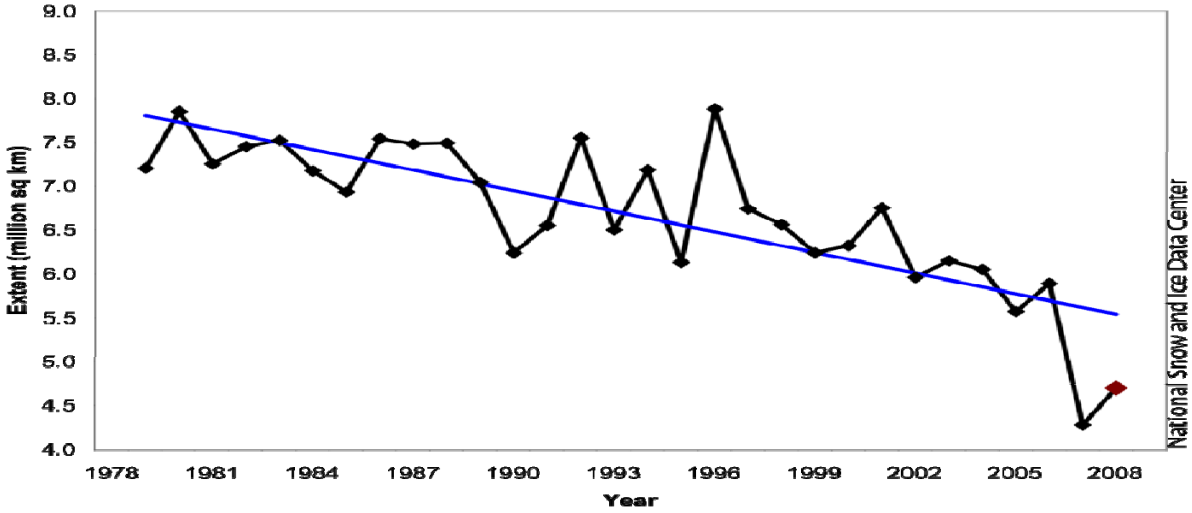
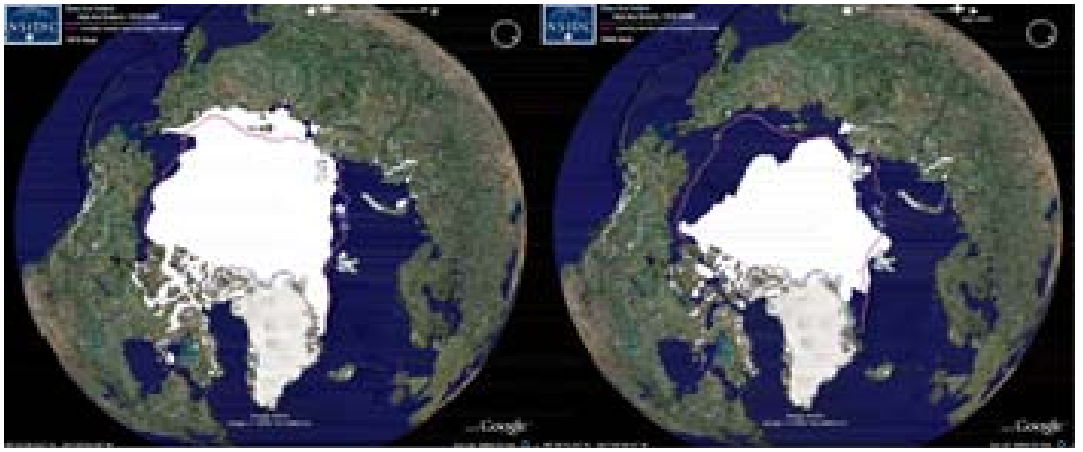
- In the last 30 years the extent of sea ice & snow has shown a consistent reduction in annual refreeze.





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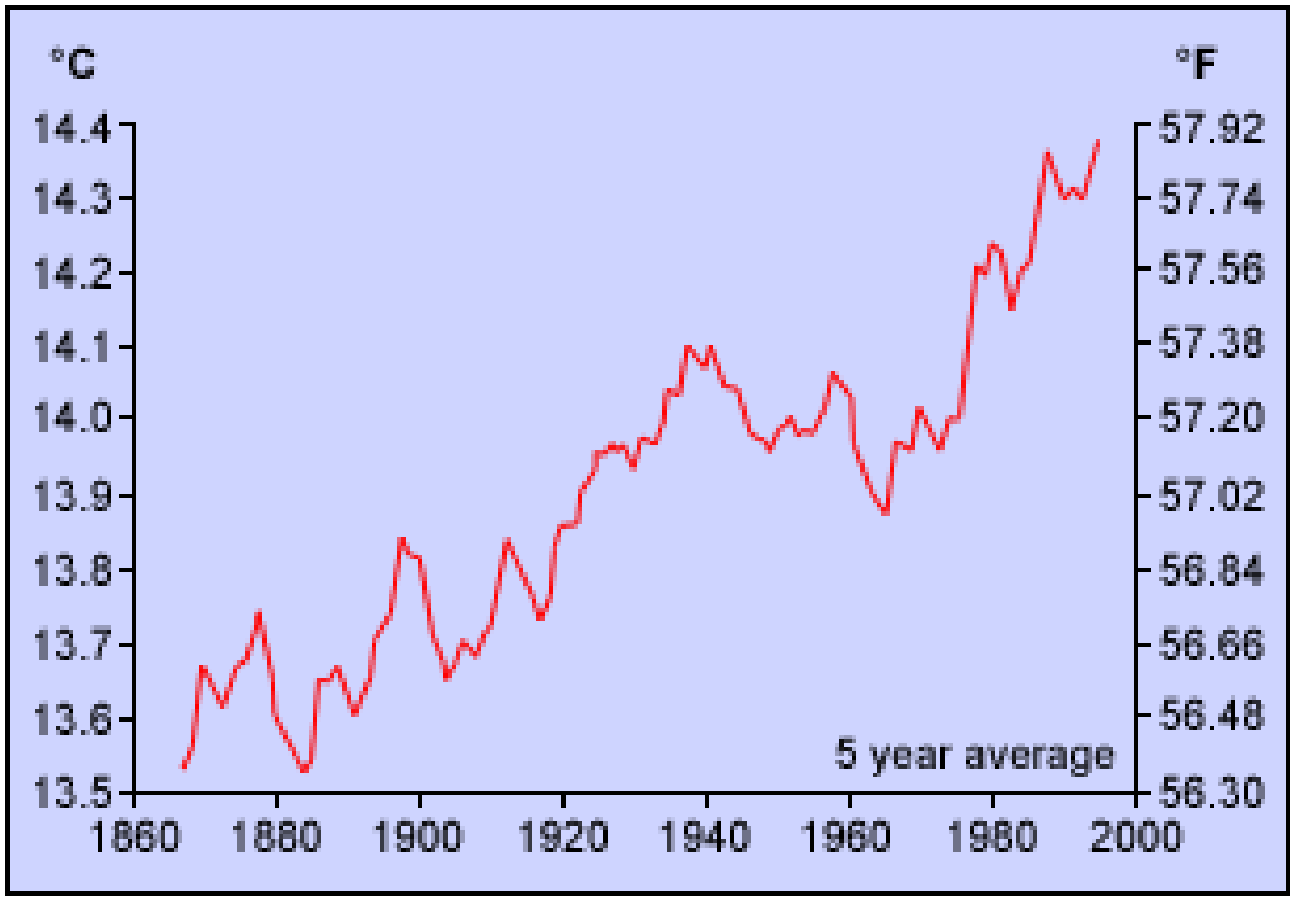
Good weather records extend back only about 130 years.* In that time, the earth's global average temperature has increased by approximately 0.5 degrees centigrade or about 1 degree Fahrenheit**.**

Six of the last ten years were the hottest years on record.



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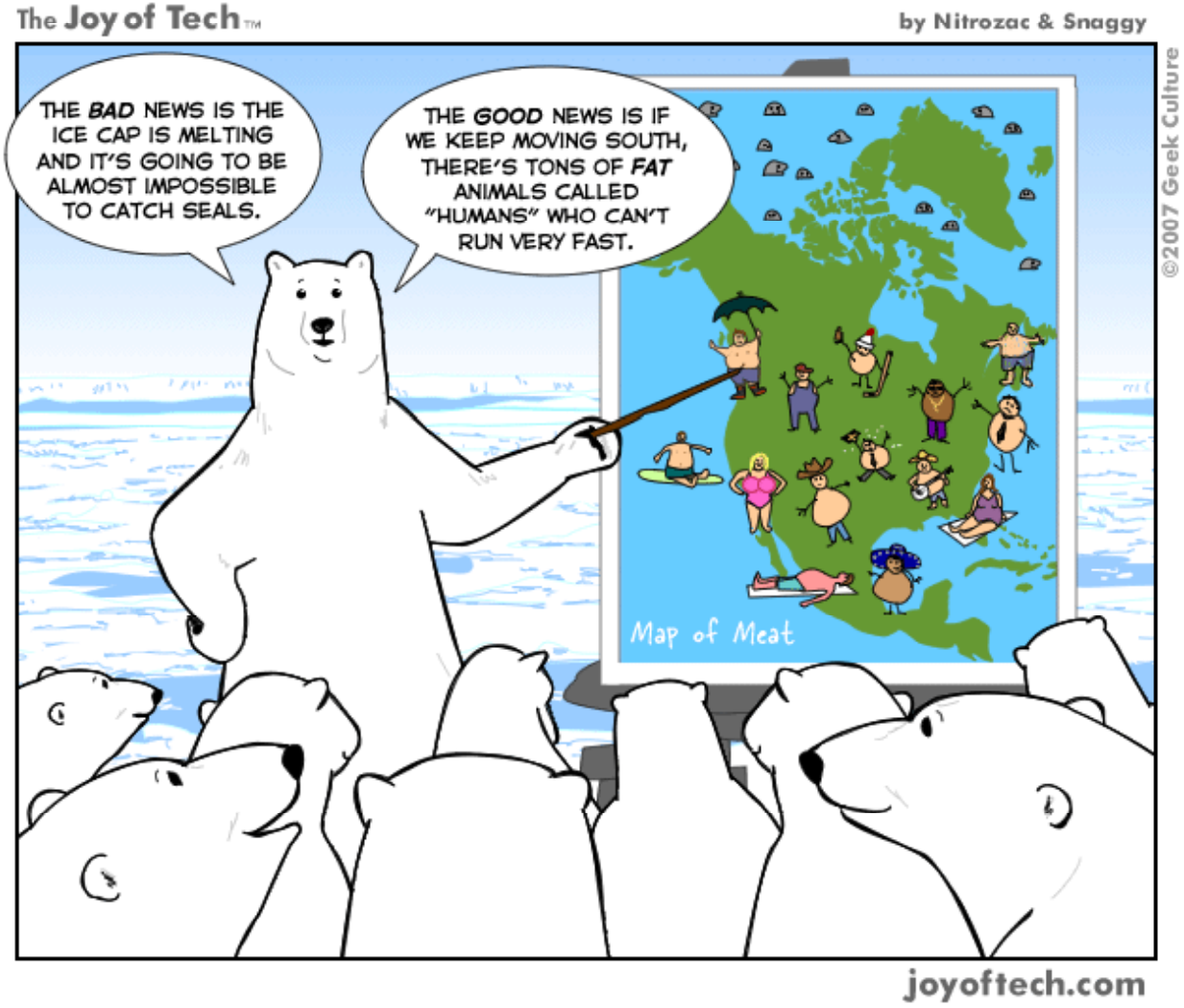
Yes, the climate is changing…. but WHODUNIT?



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- New buildings reduce fossil fuel, greenhouse gas and energy consumption **by 60% TODAY.**
- An **equal amount of existing building area** be renovated annually to reduce fossil fuel, greenhouse gas and energy consumption by 50%.

The fossil fuel reduction standard for all new buildings be increased to:

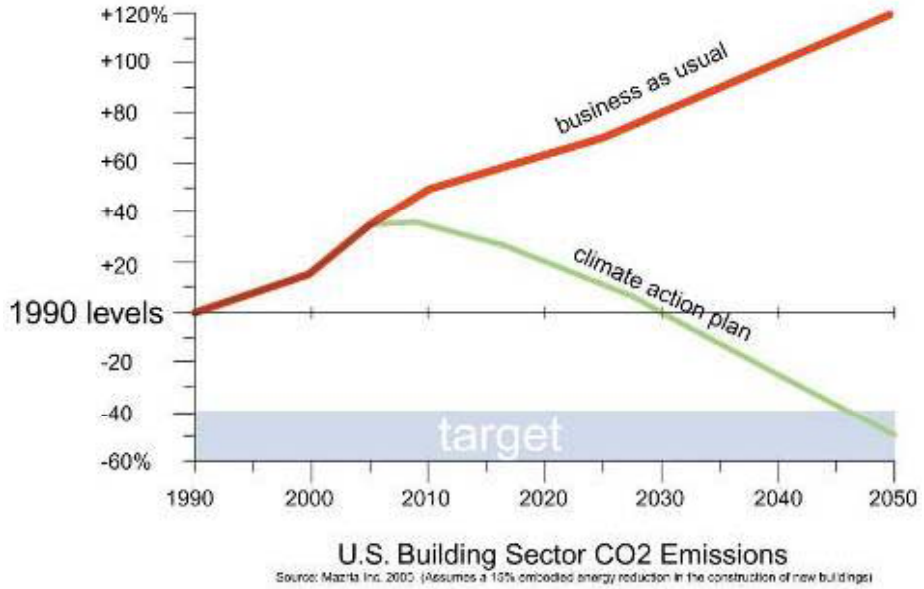
60% in 2010

70% in 2015

80% in 2020

90% in 2025

Carbon-neutral by 2030



U.S. Building Sector CO2 Emissions

Source: Mazria Inc. 2003 (Assumes a 10% embodied energy reduction in the construction of new buildings)

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+ **Building Efficiency (PRIORITY!)**

+ **On-Site Renewable Energy**

+ **Renewable Energy Offsetting (maximum 20%)**

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ENERGY STAR

+ Target Finder

www.energystar.gov

EPA's Target Finder tool helps architects and building owners set aggressive, realistic energy targets and rate a building design's estimated energy use.

The energy use intensity (EUI) generated by Target Finder reflects the distribution of energy performance in commercial buildings derived from 2003 CBECS.

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Location -

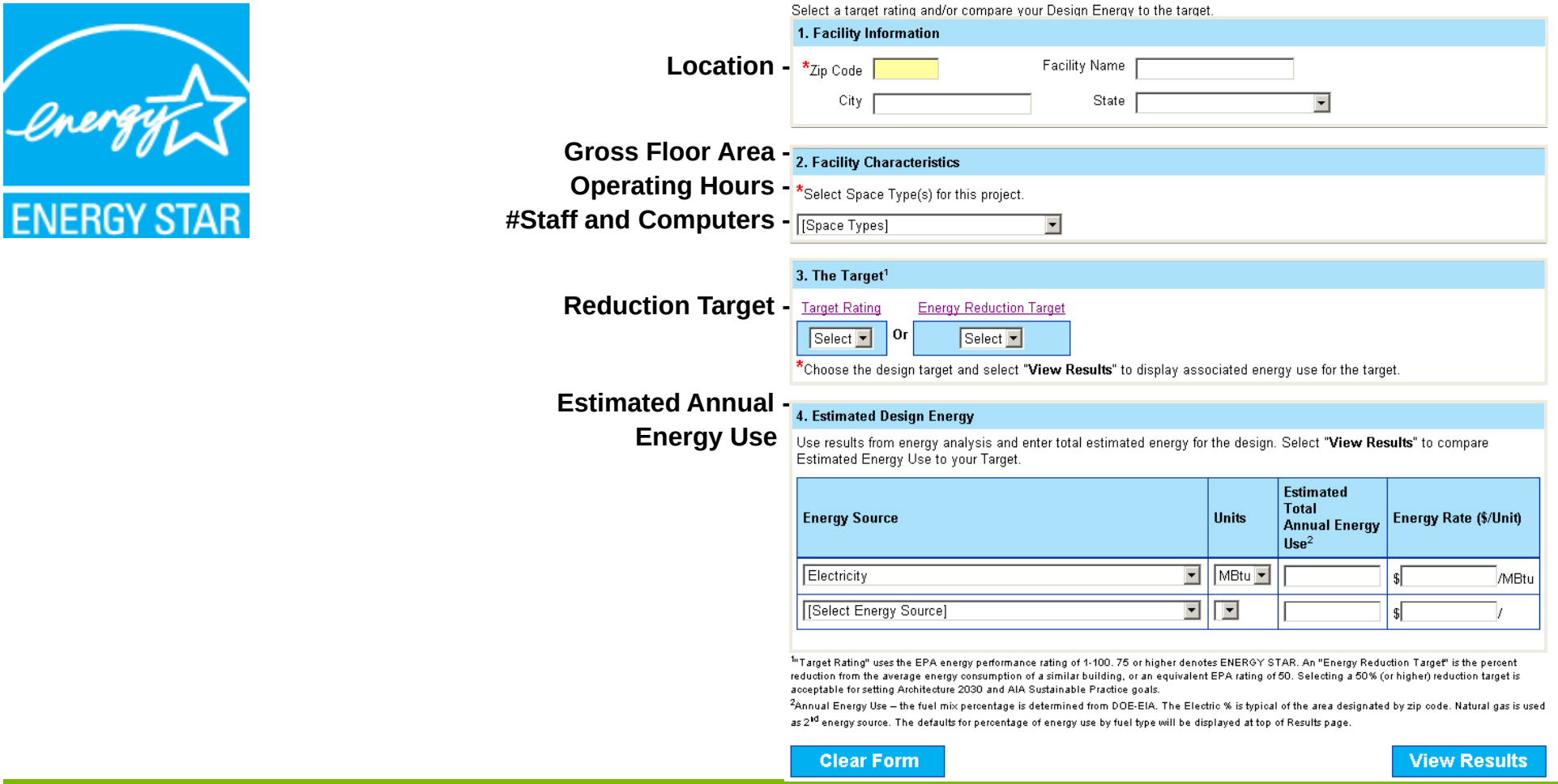
Gross Floor Area -

Operating Hours -

#Staff and Computers -

Reduction Target -

Estimated Annual Energy Use



Select a target rating and/or compare your Design Energy to the target.

1. Facility Information

*Zip Code | Facility Name

City | State

2. Facility Characteristics

*Select Space Type(s) for this project.

[Space Types]

3. The Target[1]

Target Rating | Energy Reduction Target

Select | Or | Select

*Choose the design target and select "**View Results**" to display associated energy use for the target.

4. Estimated Design Energy

Use results from energy analysis and enter total estimated energy for the design. Select "**View Results**" to compare Estimated Energy Use to your Target.

Energy Source	Units	Estimated Total Annual Energy Use[2]	Energy Rate ($/Unit)
Electricity	MBtu		$ /MBtu
[Select Energy Source]			$ /

[1]"Target Rating" uses the EPA energy performance rating of 1-100. 75 or higher denotes ENERGY STAR. An "Energy Reduction Target" is the percent reduction from the average energy consumption of a similar building, or an equivalent EPA rating of 50. Selecting a 50% (or higher) reduction target is acceptable for setting Architecture 2030 and AIA Sustainable Practice goals.

[2]Annual Energy Use – the fuel mix percentage is determined from DOE-EIA. The Electric % is typical of the area designated by zip code. Natural gas is used as 2nd energy source. The defaults for percentage of energy use by fuel type will be displayed at top of Results page.

Clear Form | View Results

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Building Efficiency

+ Site Selection
    - choose site well suited for building function and size
    - naturally drained site
+ Passive Solar
    - proper orientation to the south
    - effective glazing-to-thermal mass ratios
    - appropriate overhangs allow for energy-efficient passive solar design

+ Daylighting - use natural light to substitute or reduce the use of artificial lighting
+ Natural Ventilation - take advantage of natural wind currents to cool spaces
+ Landscaping - use vegetation as wind breaks or seasonal shading devices
+ Material Selection - use materials with low embodied energy

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Renewable Energy/Energy Offset

+ Solar Hot Water (on-site) - uses the sunlight to heat potable water

+ Solar (on/off-site) - converts sunlight into electrical energy
    - works well in unobstructed areas with abundant, reliable sunlight
+ Wind (on/off-site) - converts wind power into electrical energy
    - works well along coast, flat plains, and mountain peaks
+ Hydroelectric (on/off-site) - converts natural water currents into electrical energy
    - works best along oceans or rivers

+ Geothermal (on-site) - Uses the relatively steady temperature of the earth for heating and cooling (depending on the season)

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The 2030 Challenge for Interior Design

3 June 2010
Neo Con 2010 Conference Paper
Submitted by: David Loehr, AIA, AICP, LEED® AP BD+C, Studio 2030
Rachelle Schoessler Lynn, FASID, CID, LEED AP® BD+C, Studio 2030

What role can you play?

- Interior Designers can become leaders and advocates…
- Interior Designers can work in multi-disciplined teams…
- Interior Designers can reinforce their instrumental role in…
- Interior Designers can assert their role as knowledge leaders…
- Interior Designers can create a design process that seamlessly integrates…

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LIFE CYCLE OF A JEAN

At Levi Strauss & Co, we're focused on building sustainability into everything we do. So we commissioned a scientific life cycle assessment (LCA) to find out the facts about the climate change, water and energy impact of a pair of Levi's® 501® and Dockers® Original Khaki from cotton seed to the landfill.

Find Out More:

Read Our Life Cycle Research

What Goes Into Our Products

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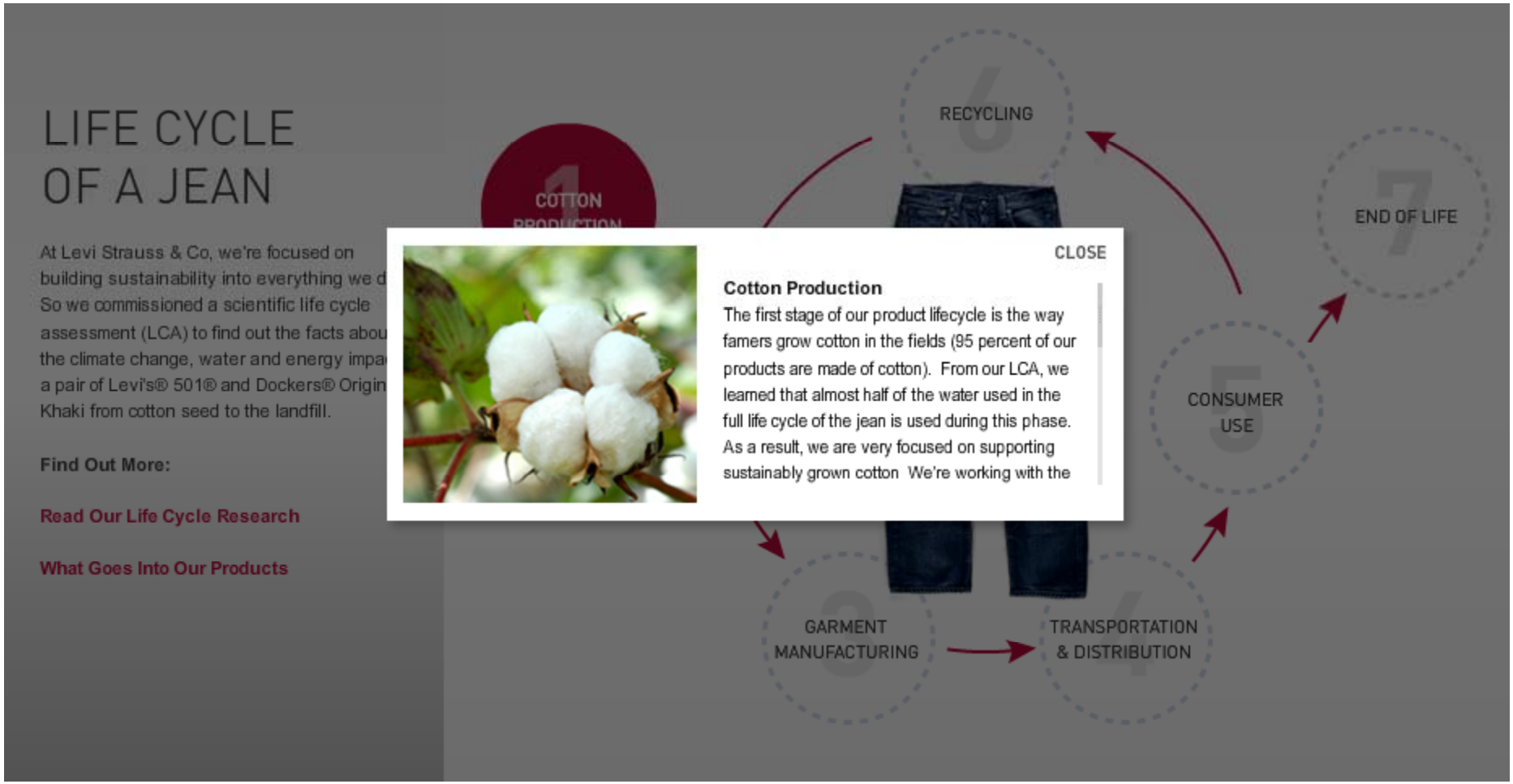

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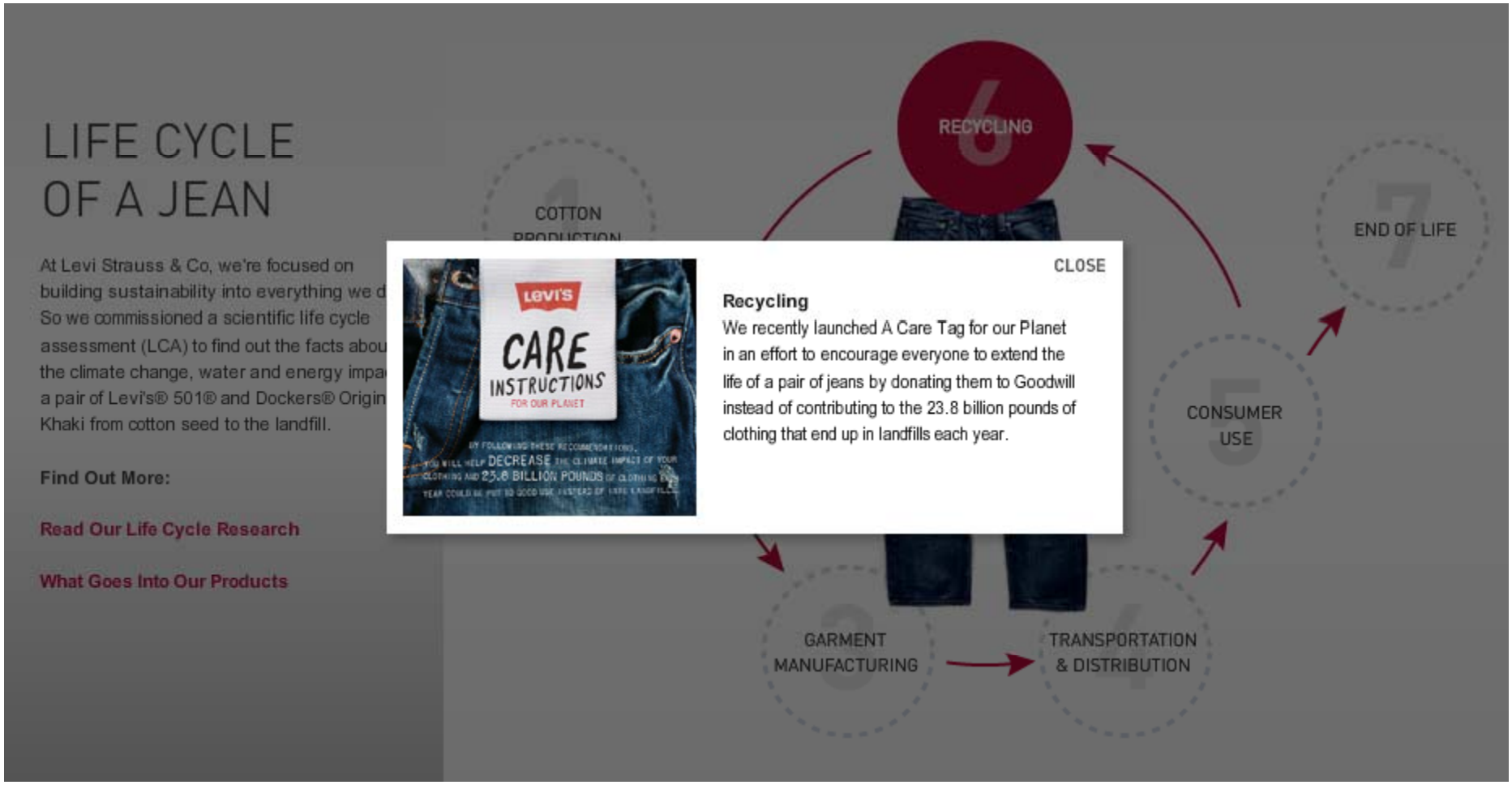

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www.greenseal.org

Pharos

www.pharosproject.net

GREENGUARD Environmental Institute

www.greenguard.org

BuildingGreen.com

GreenSpec®

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Thank You.

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