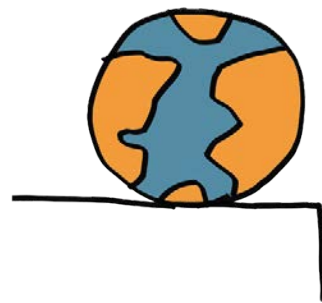


SEIZING AN ALTERNATIVE
Toward an Ecological Civilization
June 4-7, 2015
Section I: The Threatening
Catastrophe:
Responding Now

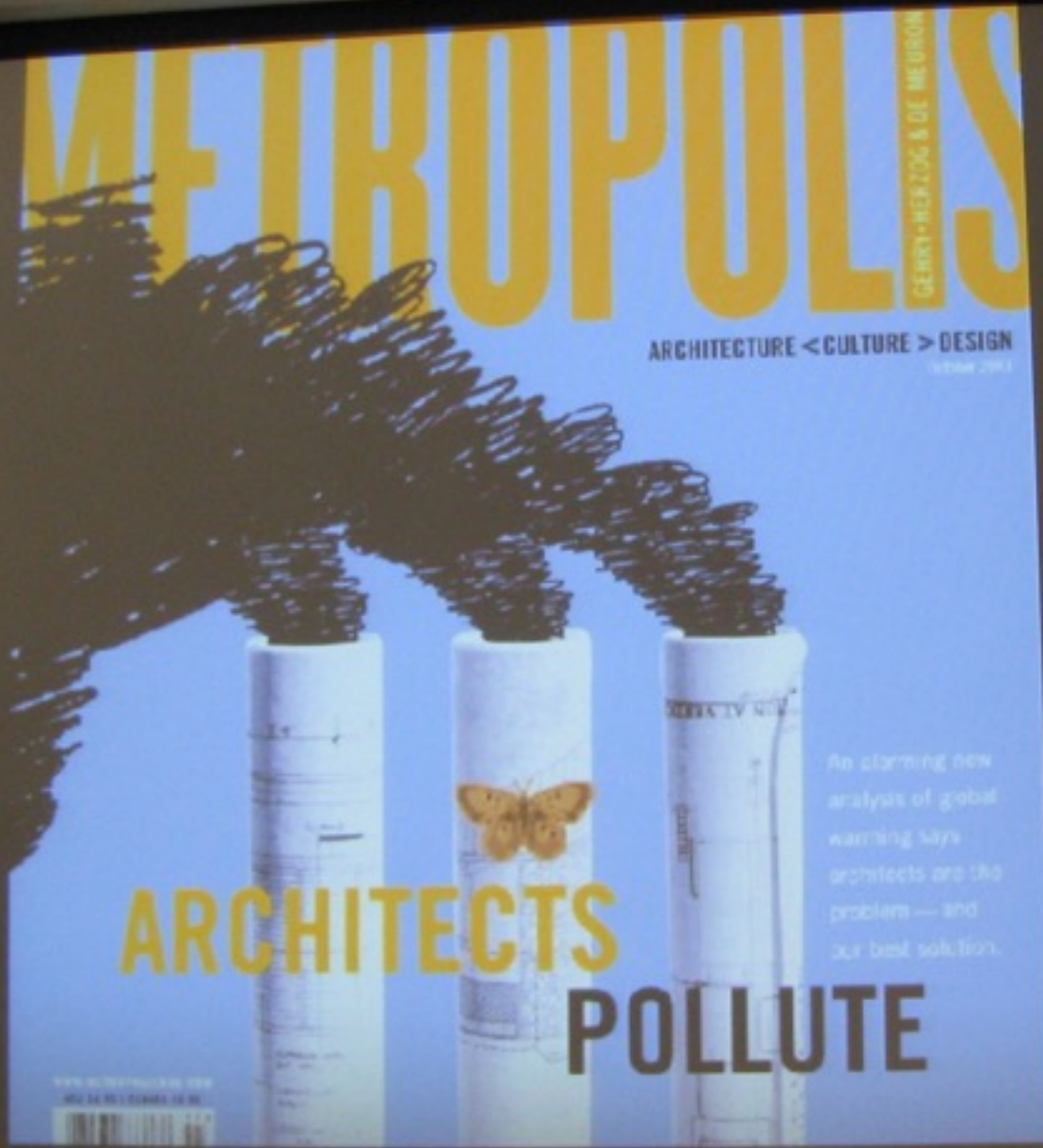


CHERP

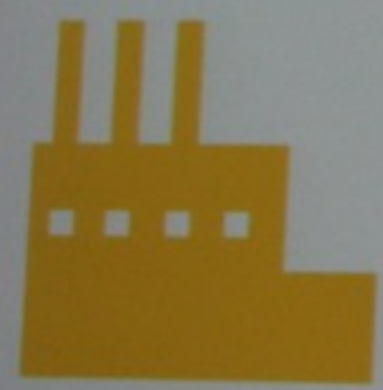


Hyper-Local Solution to a Nasty Global Problem





Buildings in the U.S.
consume more energy
than any other **country**
except the U.S. and China



INDUSTRY
25%



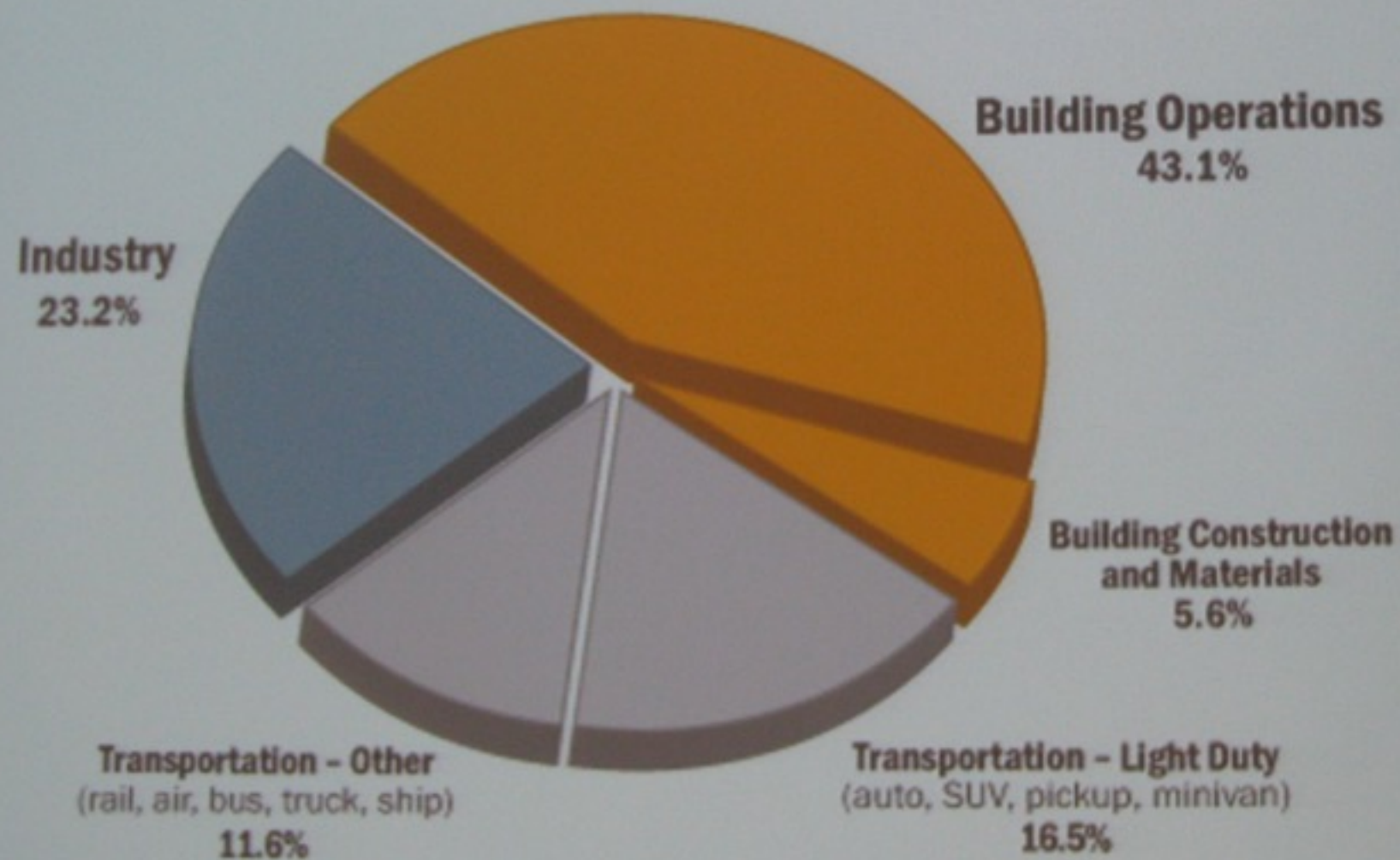
TRANSPORTATION
27%



BUILDINGS
45%

U.S. ENERGY CONSUMPTION

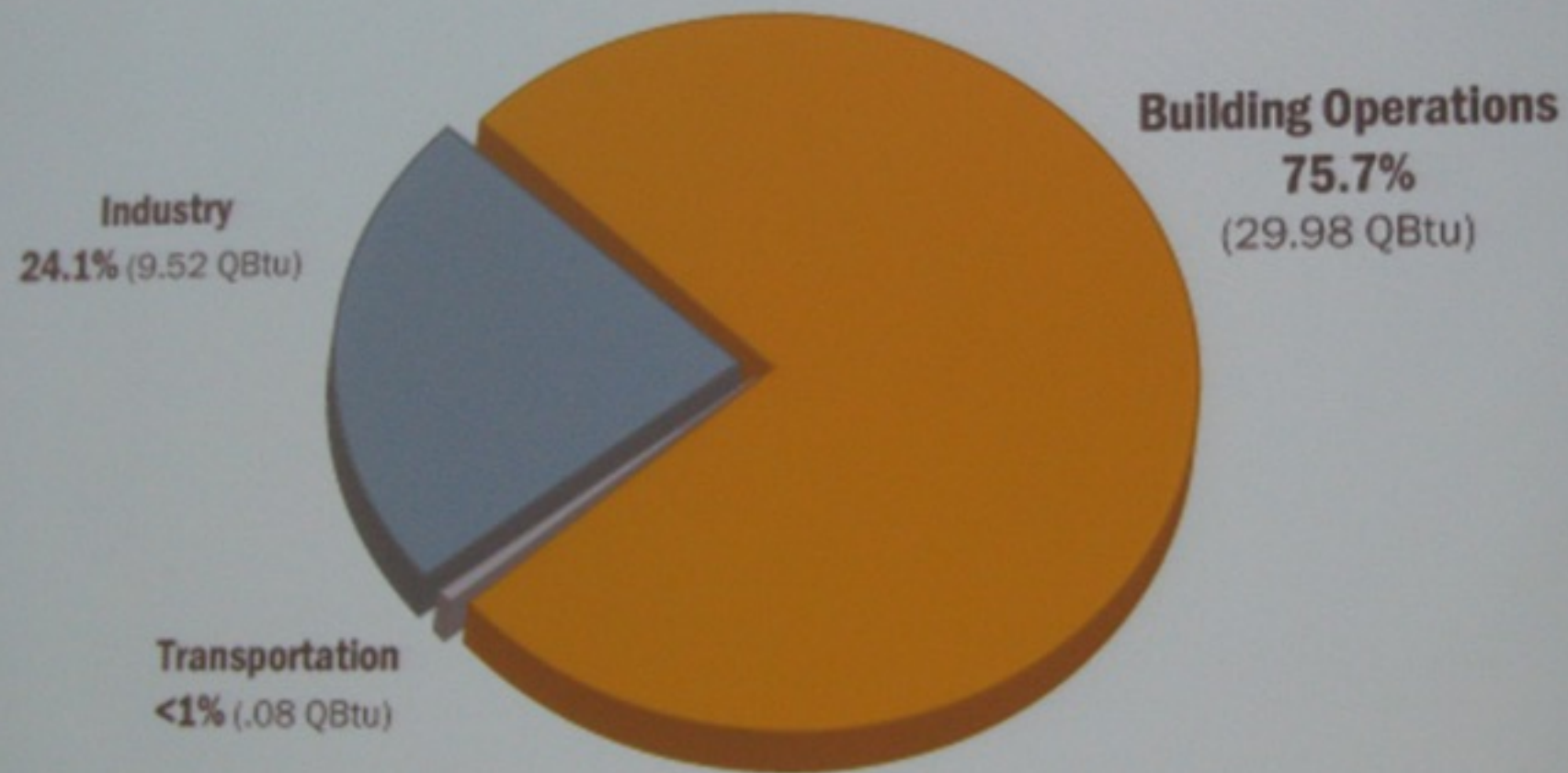
Where is our energy going?



U.S. Energy Consumption by Sector

Source: ©2011 2030, Inc. / Architecture 2030. All Rights Reserved.
Data Source: U.S. Energy Information Administration (2011).

Where is our electricity going?

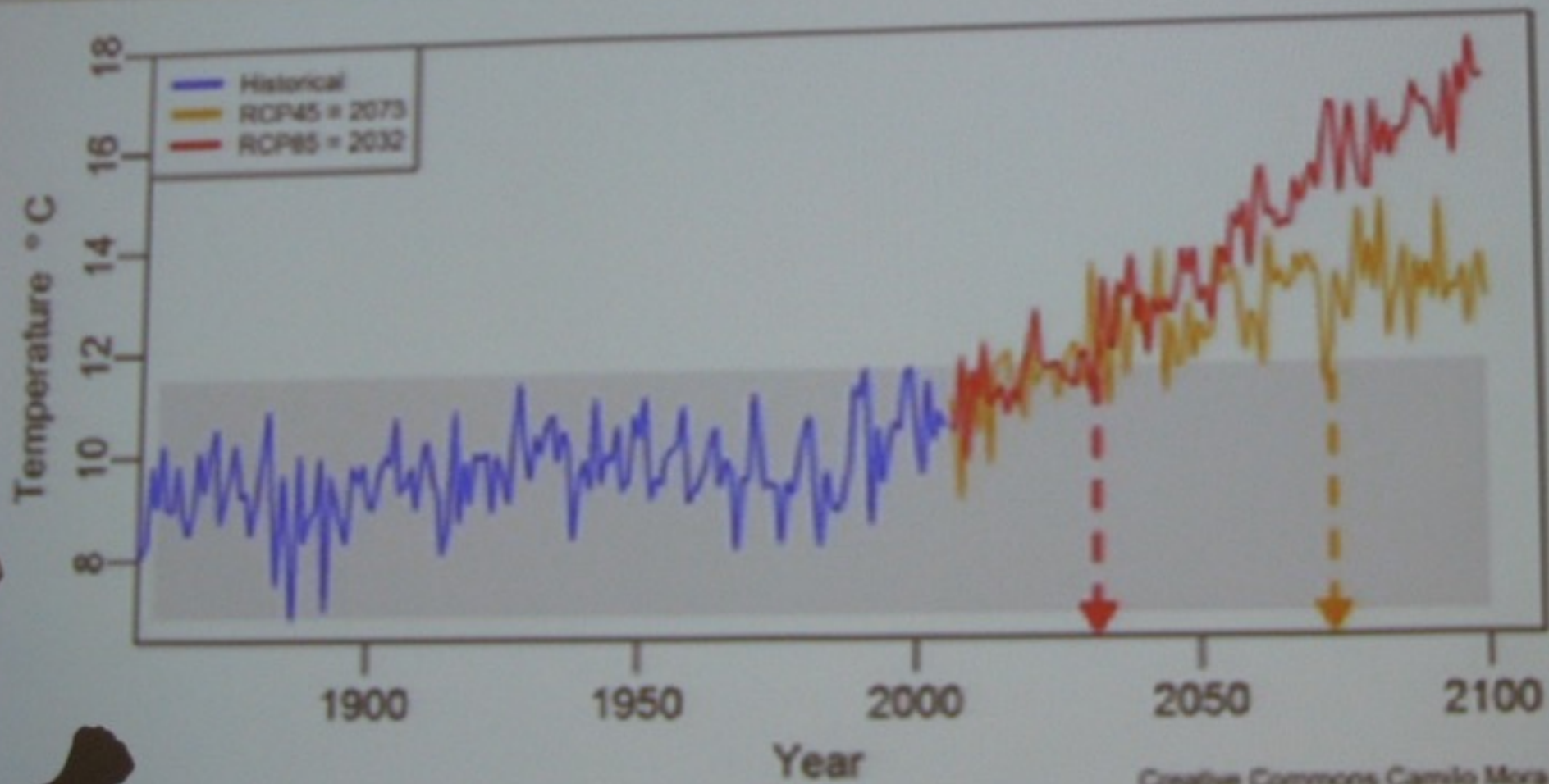


U.S. Electricity Consumption by Sector

Source: ©2011 2030, Inc. / Architecture 2030. All Rights Reserved.

Data Source: U.S. Energy Information Administration (2011).

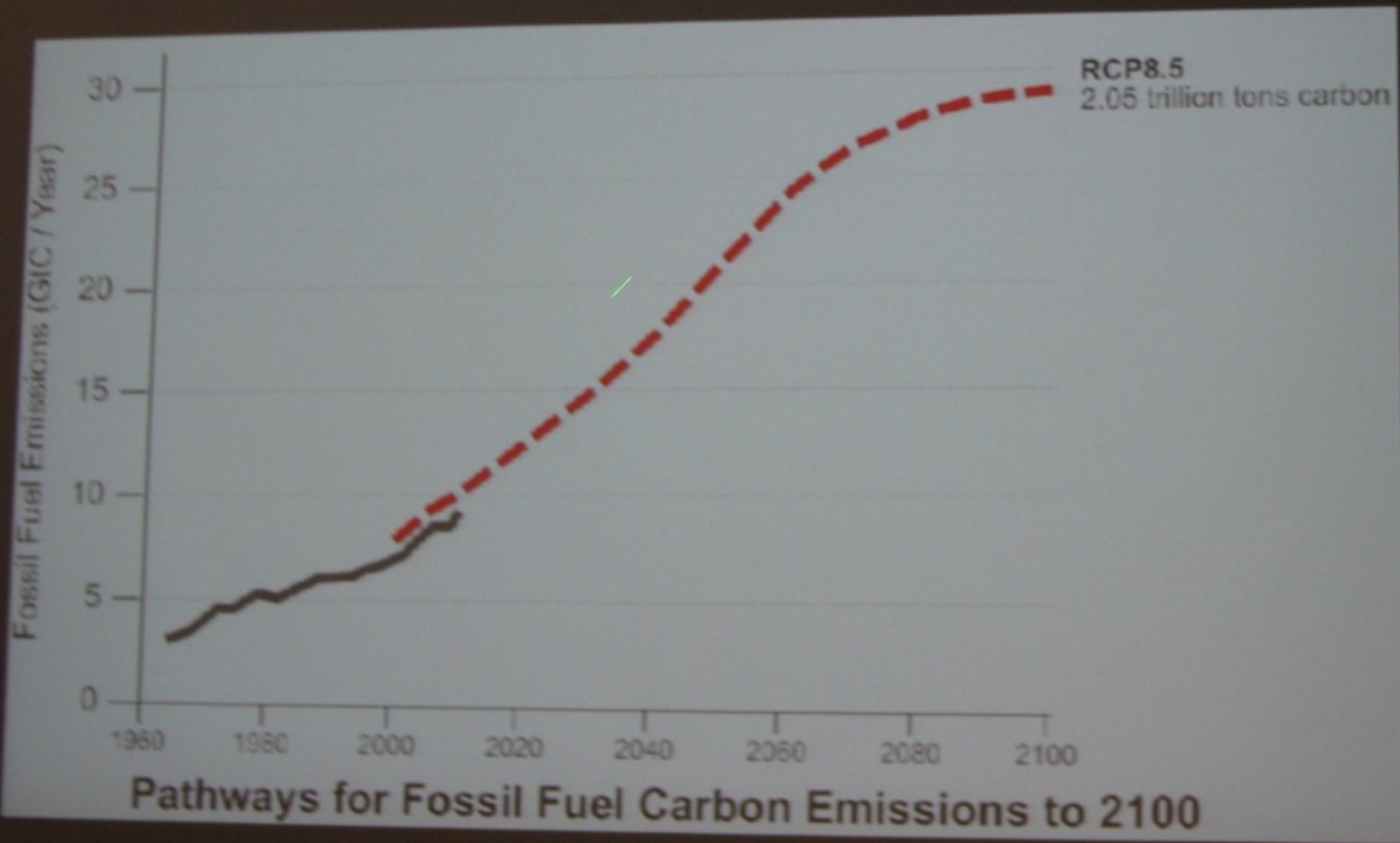
Business As Usual

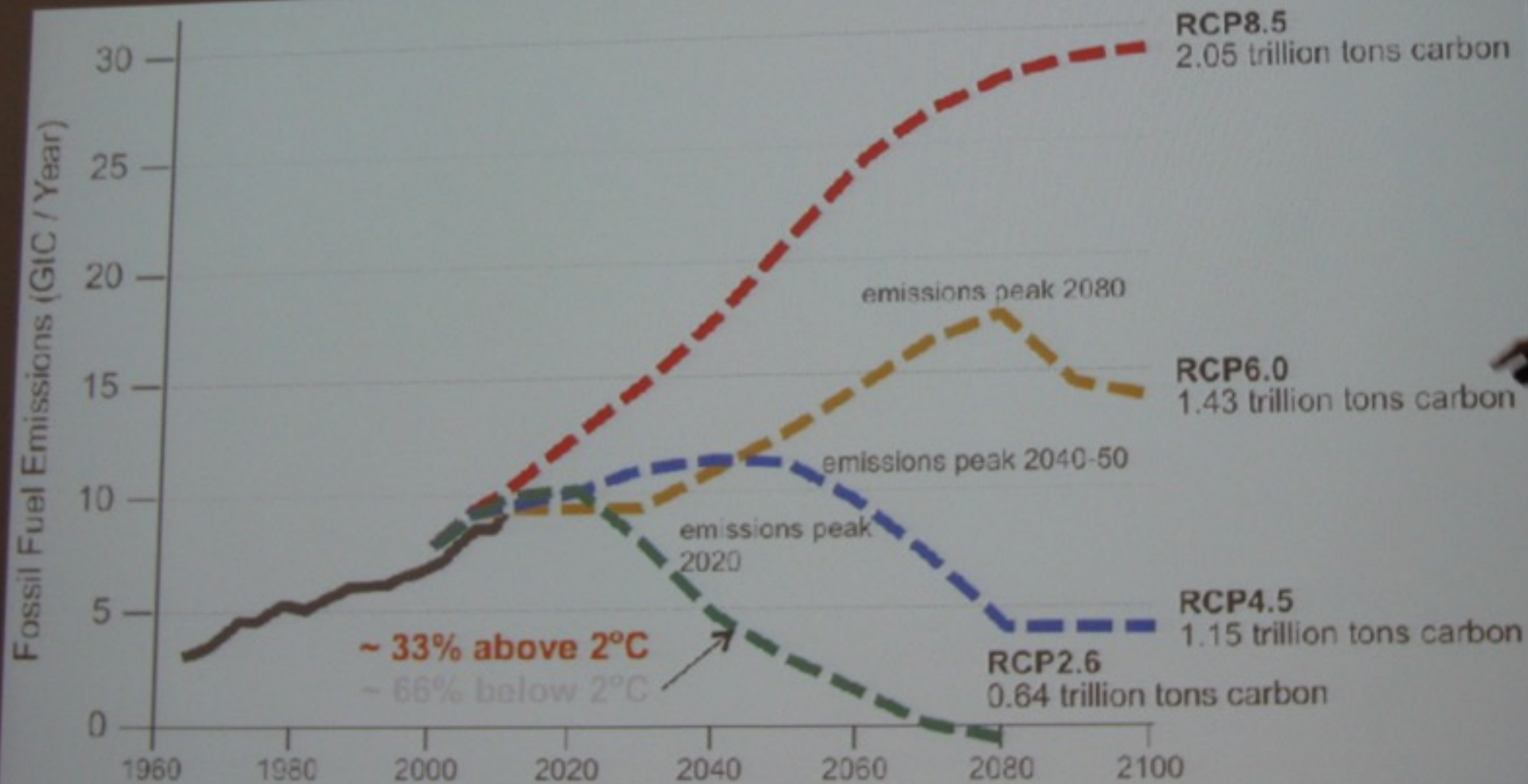


Creative Commons Camilo Mora

Detroit

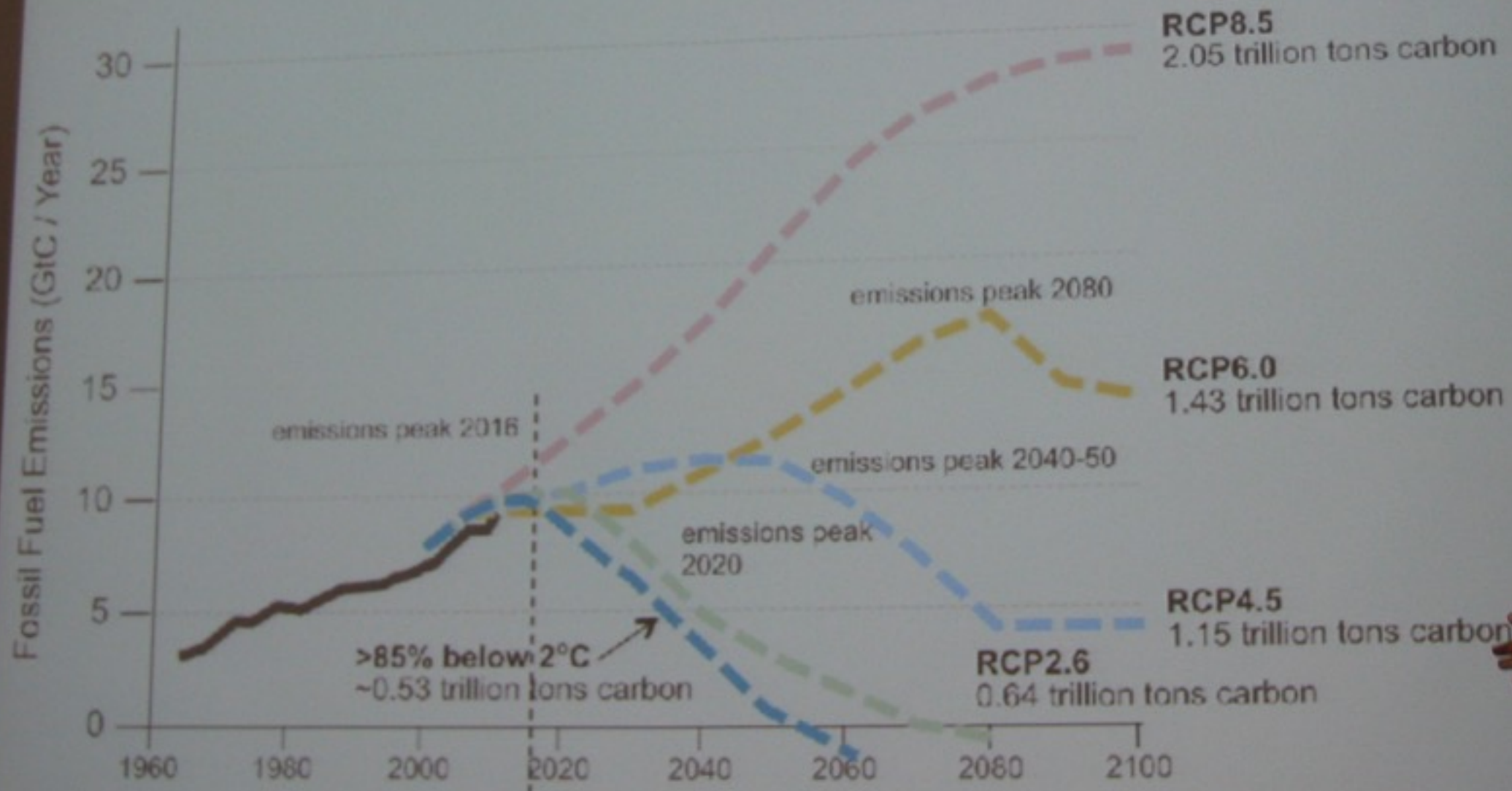
Business As Usual





Pathways for Fossil Fuel Carbon Emissions to 2100

Source: IPCC 2013, Representative Concentration Pathways (RCP); Stockholm Environment Institute (SEI), 2013; Climate Analytics and ECOFYS, 2014.

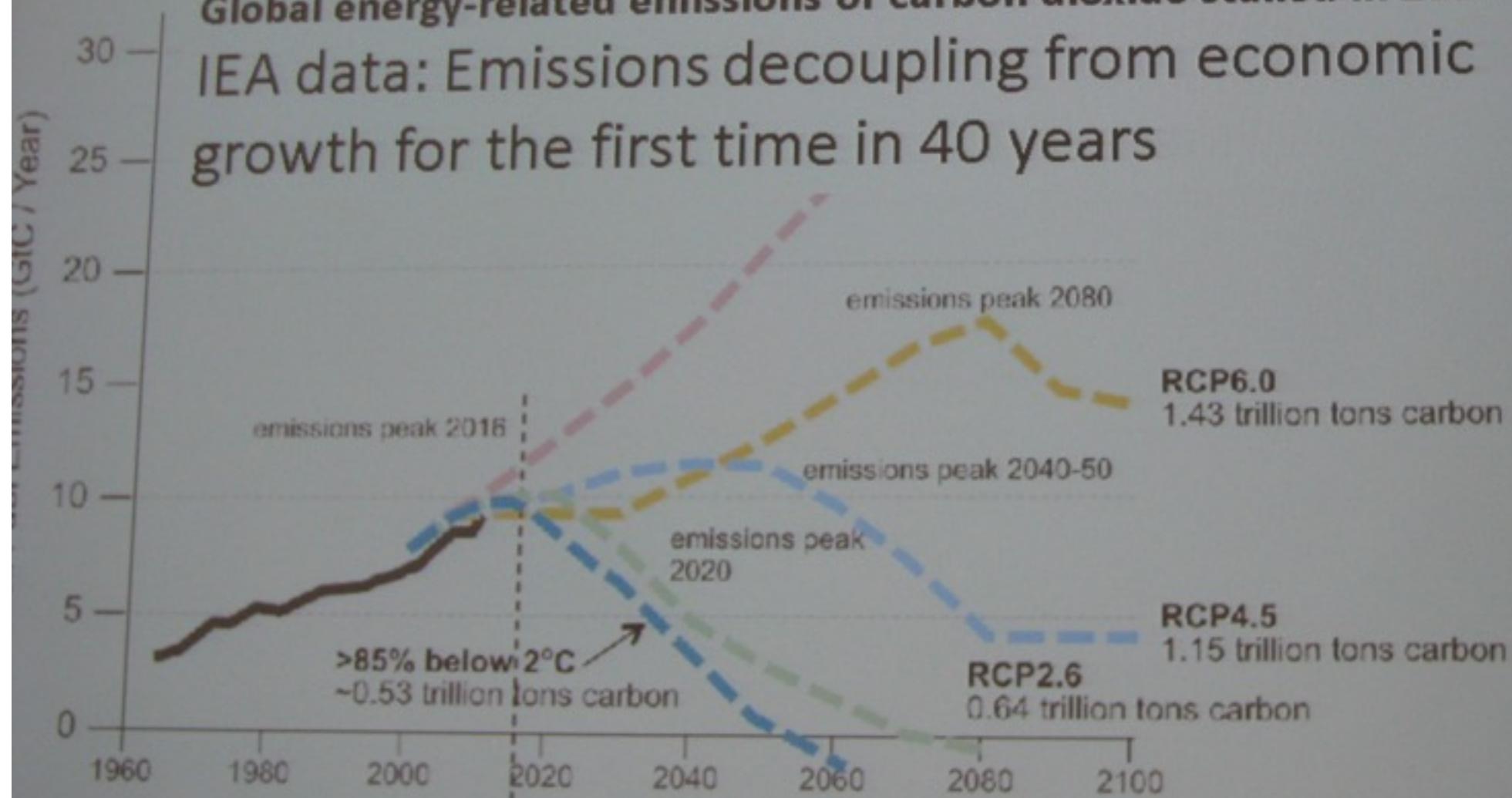


Pathways for Fossil Fuel Carbon Emissions to 2100

Source: IPCC 2013. Representative Concentration Pathways (RCP); Stockholm Environment Institute (SEI), 2013; Climate Analytics and ECOFYS, 2014.

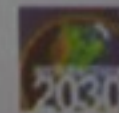
Global energy-related emissions of carbon dioxide stalled in 2014

IEA data: Emissions decoupling from economic growth for the first time in 40 years




Pathways for Fossil Fuel Carbon Emissions to 2100

Source: IPCC 2013, Representative Concentration Pathways (RCP); Stockholm Environment Institute (SEI), 2013; Climate Analytics and ECOFYS, 2014.



**“When things aren’t
working the way they
should be, you have
the makings of a great
design project.”**

—Bruce Mau



60%

An area equal to 60% of the
entire building stock of the world,

By 2030, over

80 billion m² (900 billion ft²)

If we don't get it right, we lock in
Emissions patterns for 80 - 120 years

Sources:

UN Habitat, Adapted from *State of the World's Cities 2010/2011*, McKinsey Global Institute





architecture[®]
2030

QBtu
Quadrillion Btu



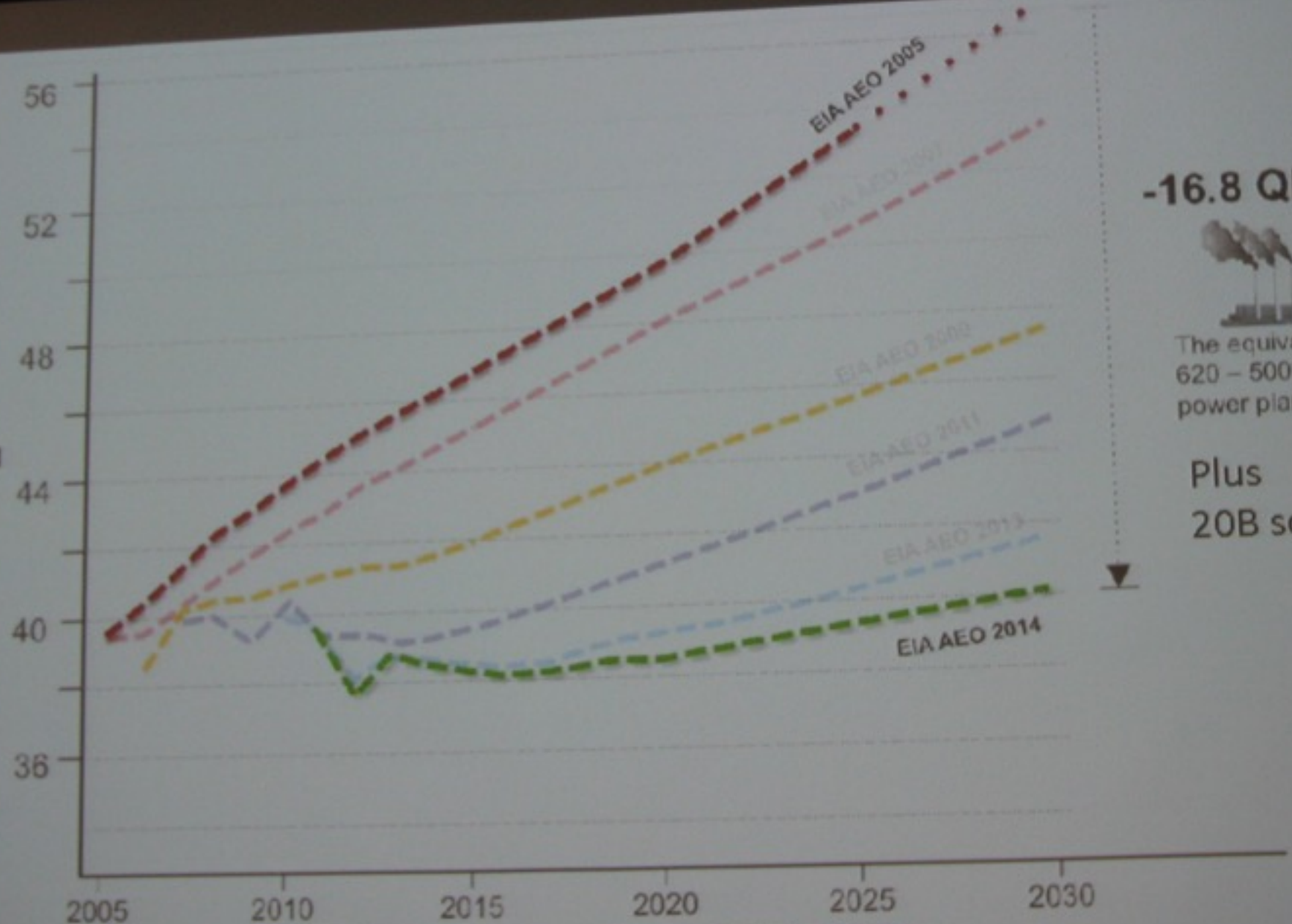
1 Q = 37 Plants

U.S. Building Operations 2005 - 2030

Source: Architecture 2030, U.S. Energy Information Administration Annual Energy Outlook (EIA AEO)



QBtu
Quadrillion Btu



-16.8 QBtu



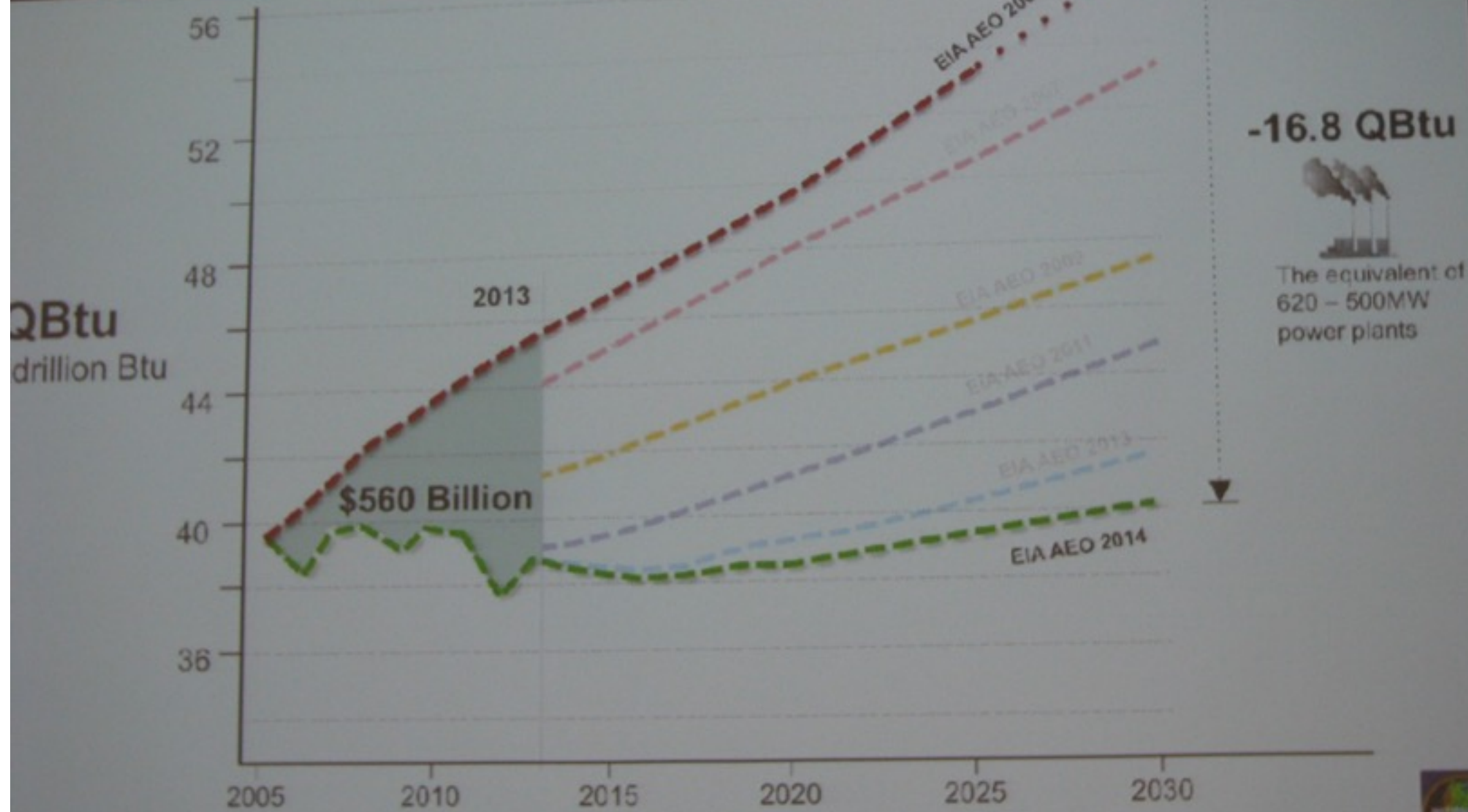
The equivalent of
620 - 500MW
power plants

Plus
20B sq. ft.

U.S. Building Operations 2005 - 2030

Source: Architecture 2030, U.S. Energy Information Administration, Annual Energy Outlook (EIA AEO)

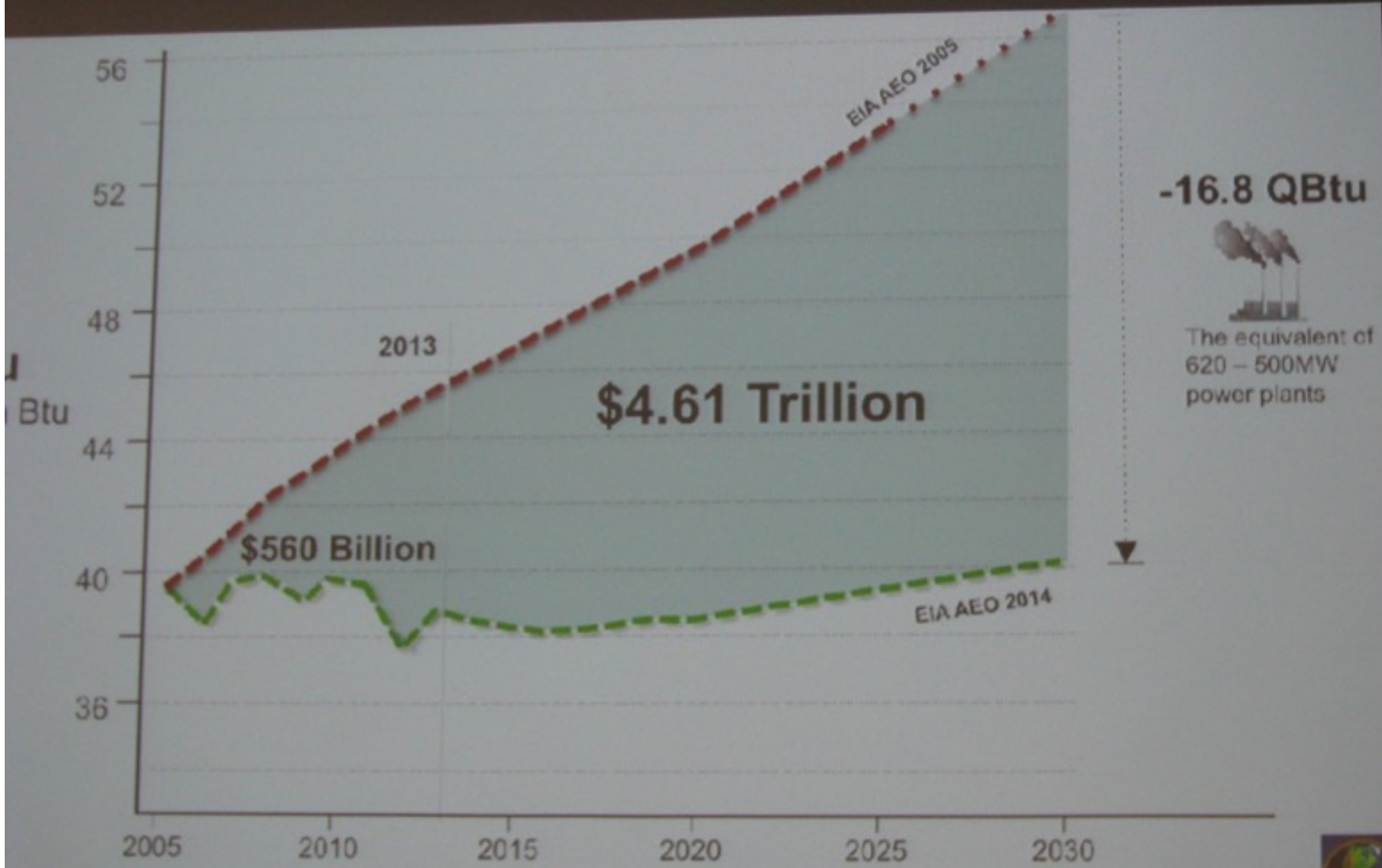




U.S. Building Operations 2005 - 2030

Source: Architecture 2030, U.S. Energy Information Administration, Annual Energy Outlook (EIA AEO)

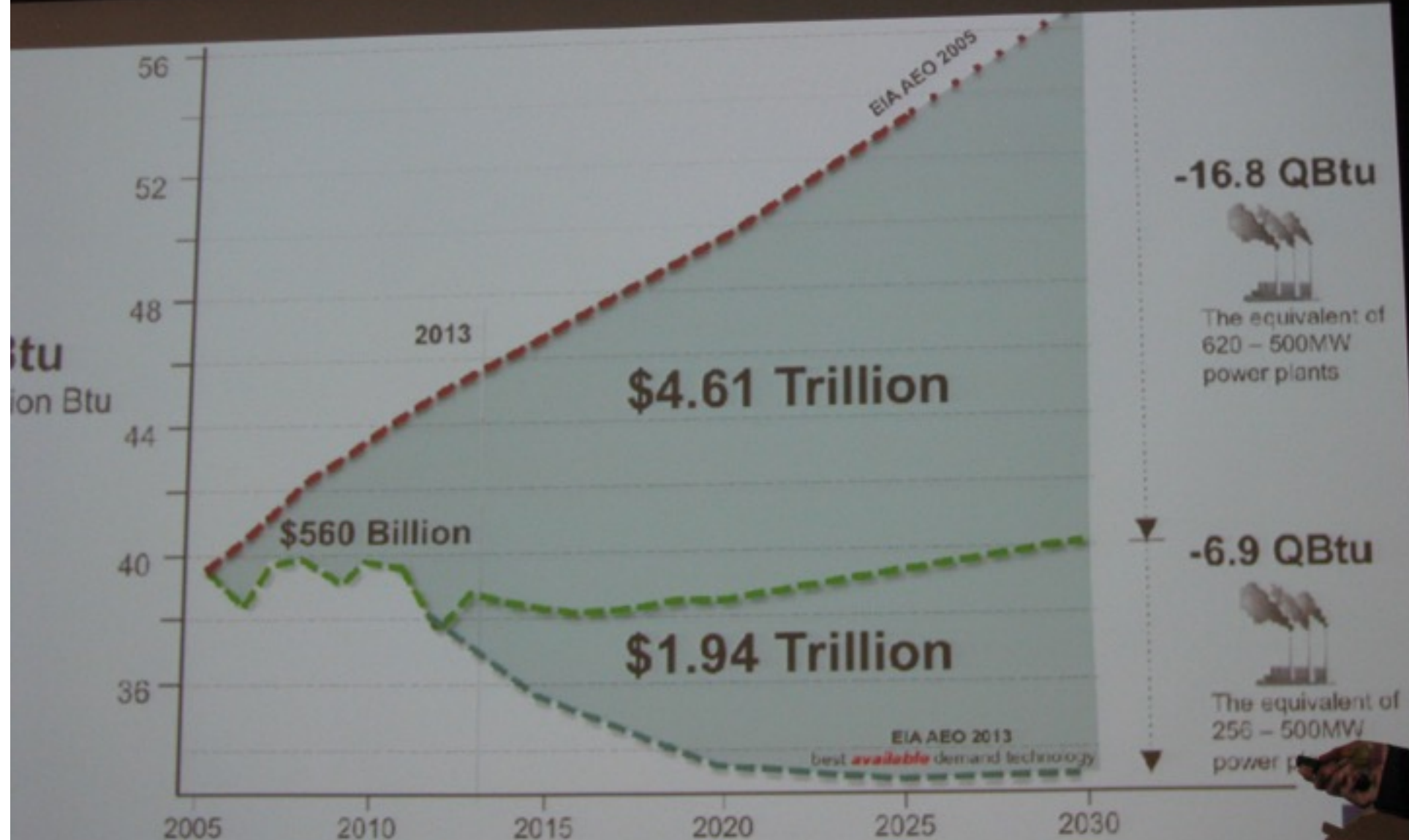




U.S. Building Operations 2005 - 2030

Source: Architecture 2030, U.S. Energy Information Administration, Annual Energy Outlook (EIA AEO)

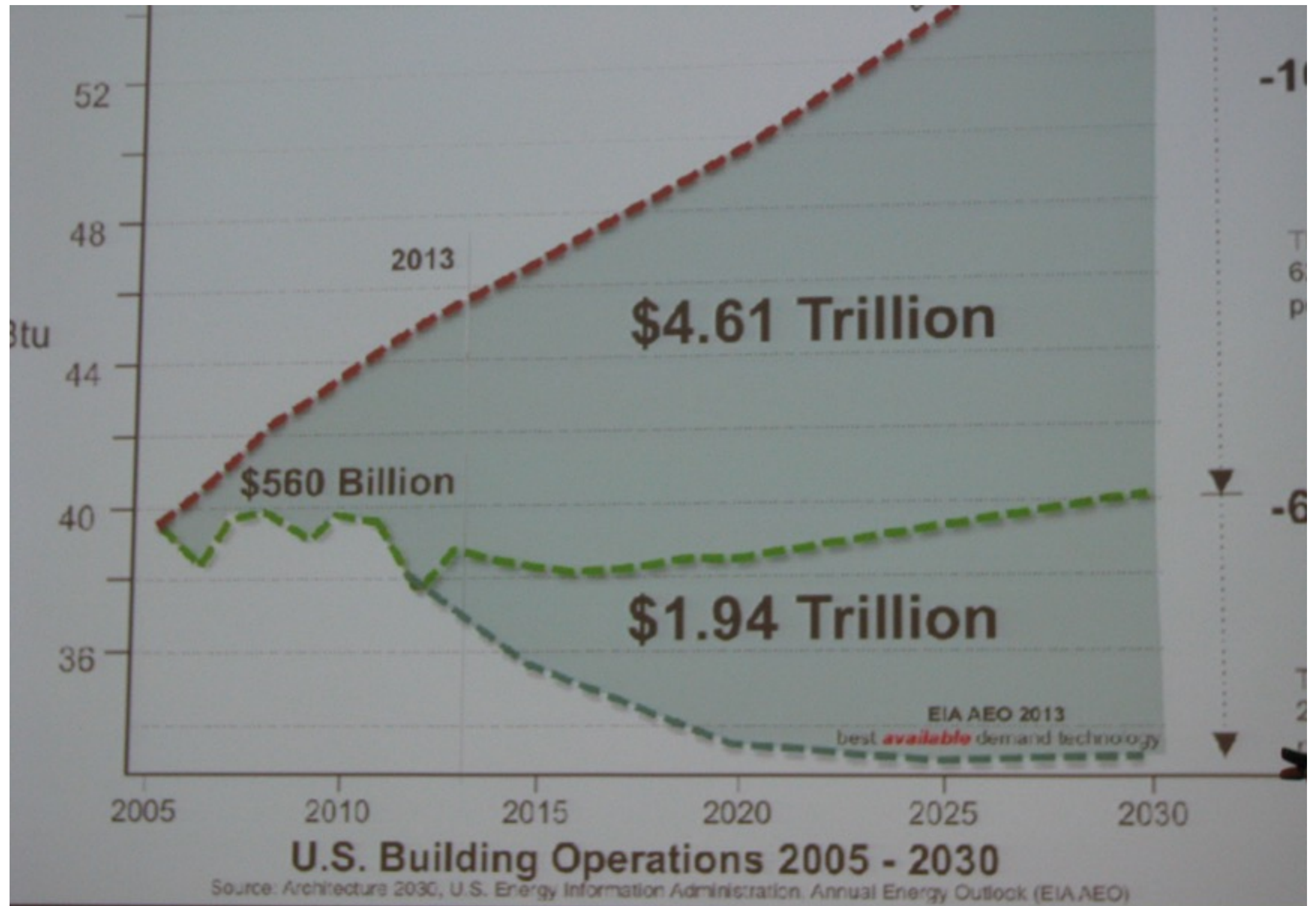




U.S. Building Operations 2005 - 2030

Source: Architecture 2030, U.S. Energy Information Administration, Annual Energy Outlook (EIA AEO)





DPI: **Locally Grown Money** Disposable Personal Income



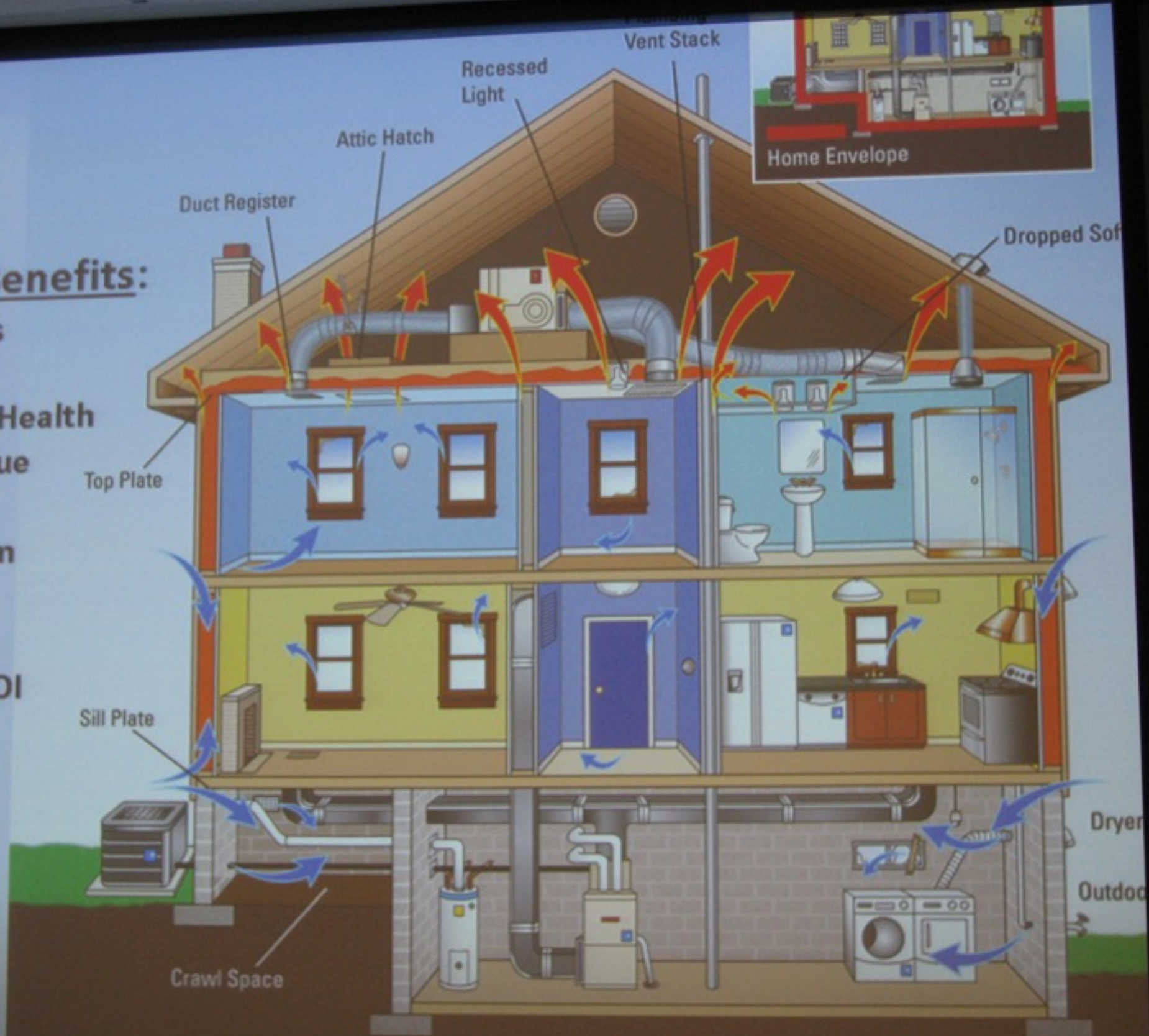
U.S. Building Operations 2005 - 2030

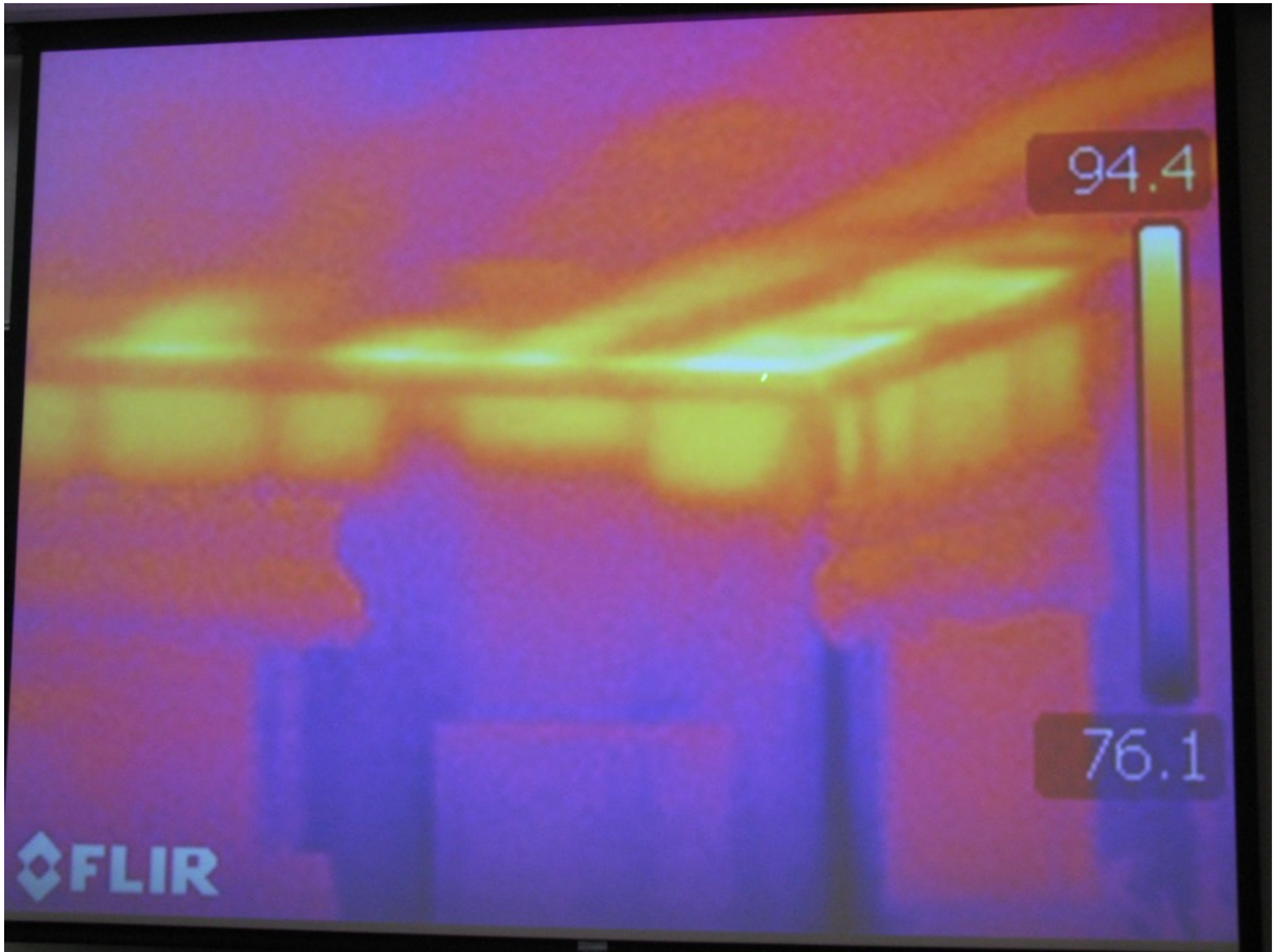
Source: Architecture 2030, U.S. Energy Information Administration, Annual Energy Outlook (EIA AEO)



Multiple Benefits:

- Utility Savings
- Comfort
- Air Quality & Health
- Increased Value
- Resilience
- CO2 Mitigation
- Rebates!**
- Preservation
- Community ROI





94.4

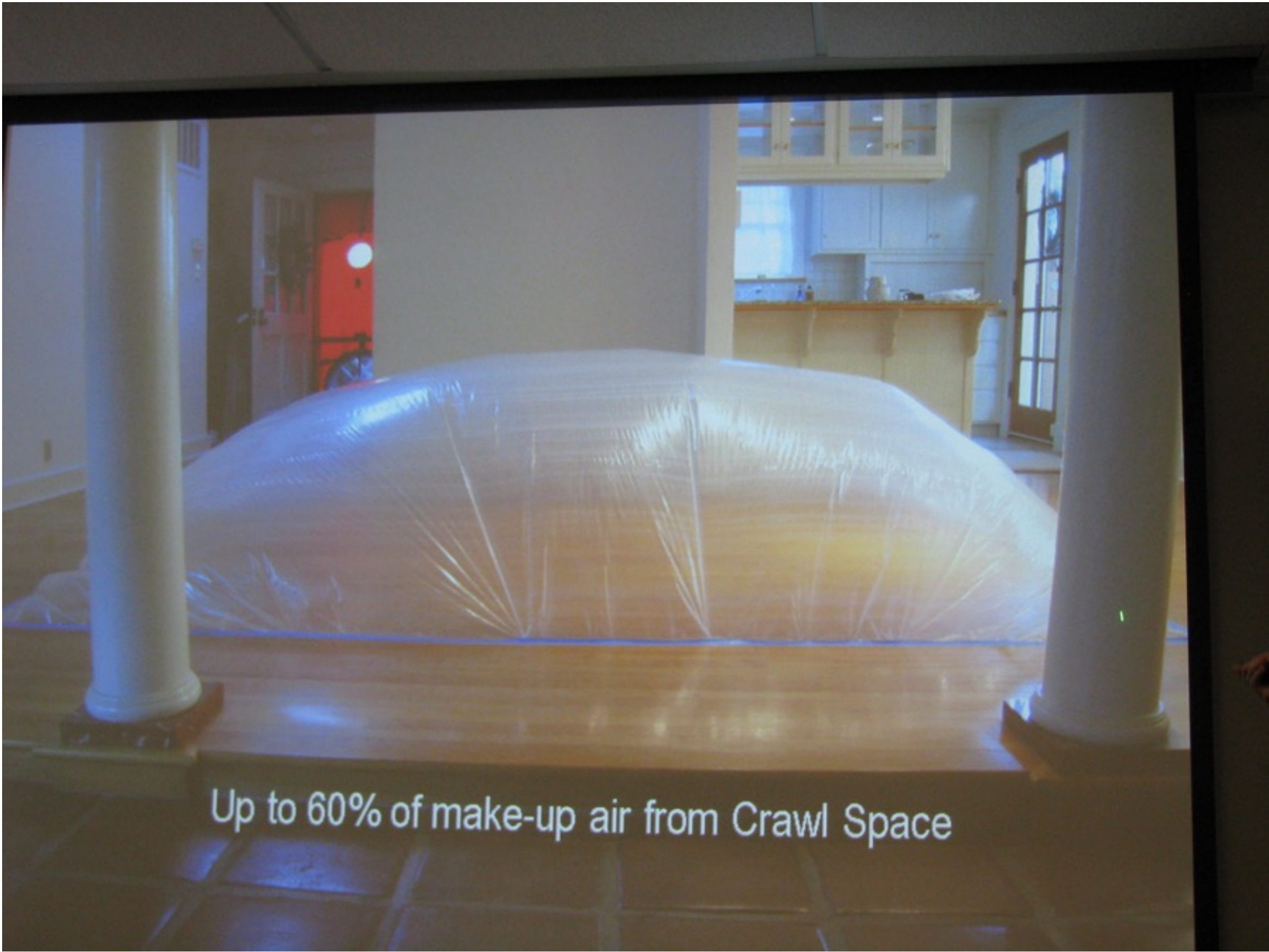


76.1


 FLIR



Smoke Stick



Up to 60% of make-up air from Crawl Space



Crawl Space:
sealed with moisture and air barrier





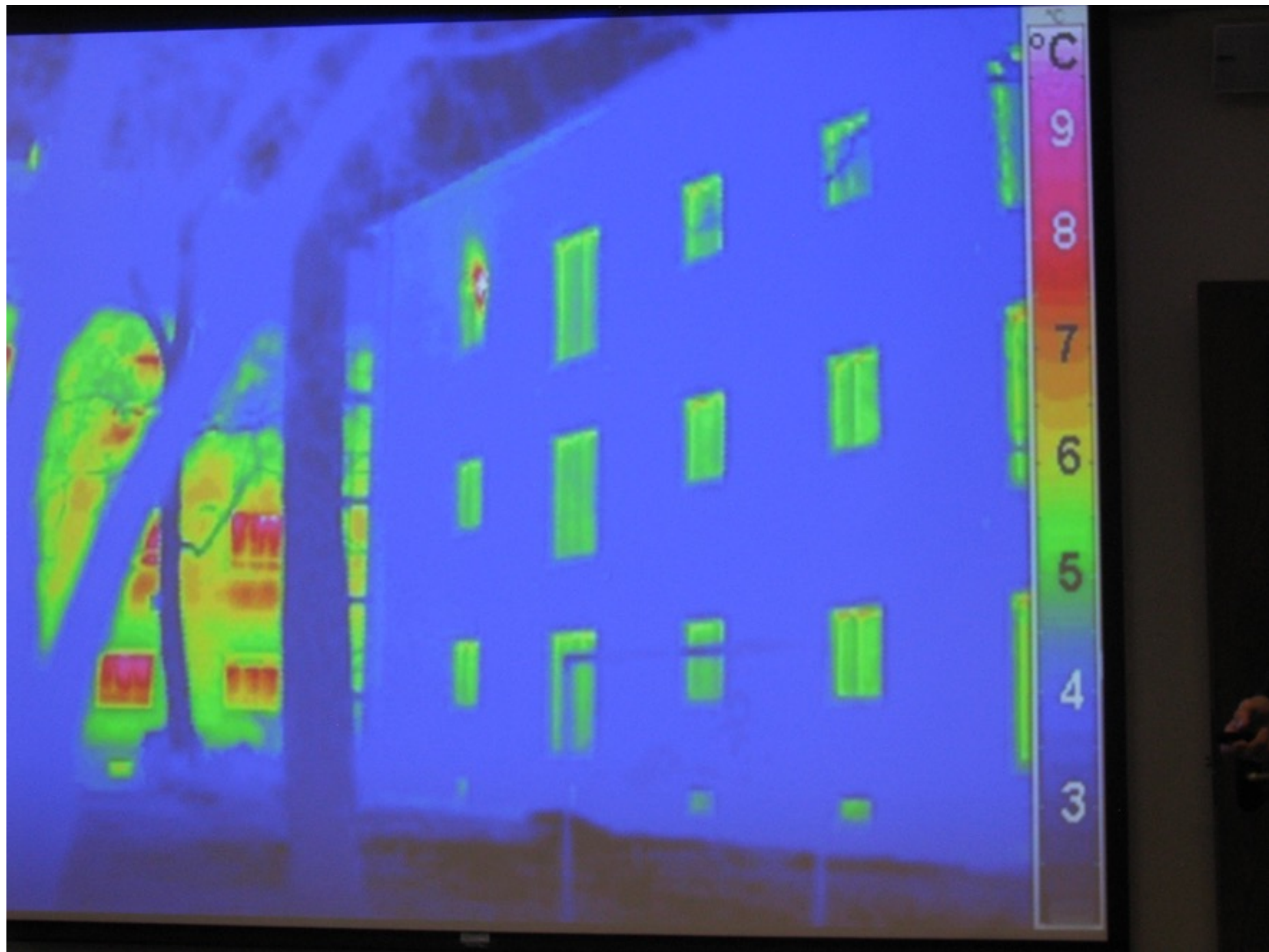
“His lungs are beautiful Jennifer. You are doing wonderfully.

- Ethan's Doctor

After Retrofit



Impacts due to Asthma	Ethan age 4	
	Pre	Post
Number of Emergency Room visits	1X Year	0
Number of hospitalizations	1X Year	0
Number of Unplanned Doctor's Visits	Weekly	0
Use of inhalers	2X Daily	1X Week
Days absent from school or work	2X Week	0
Night time awakenings	Frequent	Rare



ROI

DPI for Community (250 Homes)

C
O
M
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N
I
T
Y

	To Date	Goal
# of Retrofits	250 homes	1,300 homes
Utility Costs saved over next 25 years	\$4,800,000	\$27,000,000
Aggregate Economic Growth over next 25 years	\$13,400,000	\$75,600,000
Job-Years Created over next 25 years	308	1,739
Job-Years per \$M invested (4 years)	14	20
Rebates received in Claremont	\$875,000	\$3,437,000
Dollars invested in local Real Estate (Not including Solar)	\$3,400,000	\$19,000,000
Increase in Property Values	\$7,250,000	\$37,700,000
Homes Green Point Rated	160	500
# of Homes with Solar Panels	400	1,300
Increased comfort, durability, air quality in their homes	500 people	2,600
Help Claremont reach AB32 mandates	Yes	For sure

CHERP



CHERP Return on Investment

We're from the Government and we're here to help you



President Obama - DOE/EPA, U.S. Navy

Schwarzenegger - AB32



Jerry Brown



CEC & CPUC

Utilities & Counties

Rebates, Loans, Incentives, Programs





President Obama

Schwarzenegger - AB32



Jerry Brown

CEC & CPUC



Utilities & Counties

Rebates, Loans, Incentives, Programs

Efficiency offers a vast, untapped energy resource worth \$Trillion

Barriers to Market Transformation



Communities and Building Owners

GEORGETOWN UNIVERSITY
ENERGY PRIZE

LEADING THE WAY IN ENERGY EFFICIENCY

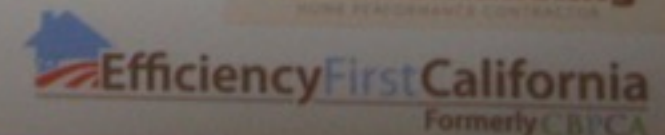
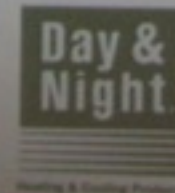
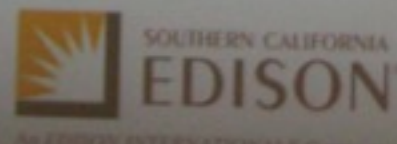
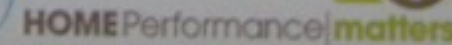
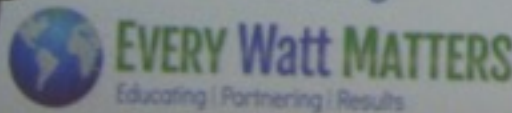
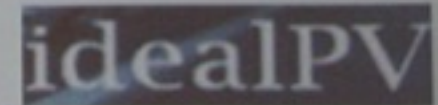
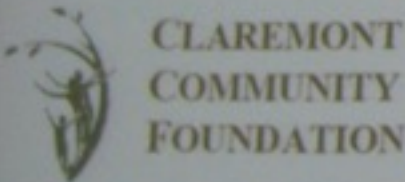
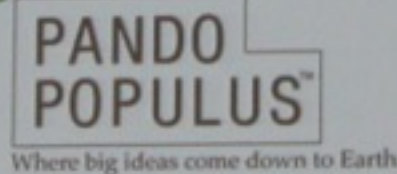
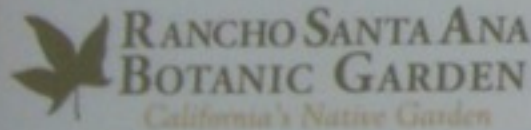
Communities Competing in the Semifinal Round of the Georgetown University Energy Prize

\$5 MILLION Prize for the community that leads the way



CLAREMONT ENERGY CHALLENGE





Directors

Devon Hartman
Joe Lyons
Ginny Routhe
Freeman Allen
Chris Veirs
Steven Llanusa
Paul Minus
John Jurewitz
Scott Sternberg
Randy Lopez
Hal Nelson
Kent Kernahan
Hovig Tchalian

Advisors

Maureen Aldridge
Rael Wolder
George Blackstone
Howard Choy
John Cobb
Eugene Shirley
Jonathan Cohen
Chip Conway
Betty Crocker
Bob Cruz
Bill Cunitz
Andrew Durben
Jim Elsasser
John Forney

Nancy Mintie
Kristin Miller
Char Miller
Bruce Mast
Ron Mittino
David Oxtoby
Joel Pareda
Carlos and Pat Samuelson
David Shearer
John Shipman
Sorrell Stielstra
Blaine Sullivan
Maureen Beith
Tajna Srebotnjak

Randall Lewis
Susan Frank
Jack Frost
Eric Garton
Dick Haskell
Tom Helliwell
Carl Welty
Nazanin Zarkesh
Sam Pedroza
Angela Bailey
Kathryn Dunn
Sally Seven
Marilee Scaff
William Ascher

HUNDREDS OF VOLUNTEERS

Pilgrim Place Student Interns K-12 students and teachers 260 CHERPers
50 Community Organizations

CLAREMONT ENERGY CHALLENGE





JUST THE FUN!

CHERP







This house is **CHERP** ing
House Number: 53
Claremont Home Energy Outreach Project
ClaremontEnergy.org

