Fact Sheet

July 19, 2010

Because the Building Sector is key to addressing energy independence and climate change, the success of an energy or climate bill hinges on setting realistic targets for achieving dramatic energy consumption and greenhouse gas (GHG) reductions in the Building Sector. Set correctly, these targets can provide a reasonable and beneficial pace for change that will achieve the reductions necessary within the timeline called for by the scientific community. The following facts make clear what these targets need to be and show conclusively that they are achievable:

1. In 2008, the Building Sector was responsible for:
    - 50.1% of total annual U.S. energy consumption [1],
    - 49.1% of total annual U.S. GHG emissions [1],
    - 74.5% of total annual U.S. electricity consumption [2], and
    - most of the projected 7.34 QBtu increase in U.S. electricity consumption by 2030 [3].

2. To constrain global warming within 2 °C, the IPCC projects that developed countries must cut their emissions 25% to 40% below 1990 levels by 2020 and 80% to 95% below 1990 levels by 2050, according to the best available scientific analyses.

3. In order to meet the reductions established by the scientific community, President Obama has called for an 83% reduction of U.S. GHG emissions below 2005 levels by 2050, which equates to approximately 80% below 1990 levels.

4. California, with one of the most aggressive and effective building energy codes in the country, Title 24, uses less than half the electricity and, on average, 44% less building energy consumption per capita when compared to states without a statewide building energy code (see Appendix D).

5. Sec. 201 of the American Clean Energy and Security Act of 2009 (H.R. 2454) passed by the House calls for national building code energy reduction targets of:
    - 30% below the baseline energy code in 2010 [4],
    - 50% below the baseline energy code in 2014-2015, and
    - 5% additional reduction every three years to 2029-2030.

6. The targets set in H.R. 2454 are derived from the targets of the '2030 Challenge' [5], a widely adopted, realistically paced strategy for achieving the reductions necessary within the timeline called for by the scientific community.

    The 2030 Challenge, which has been adopted across the nation, including by the American Institute of Architects, U.S. Conference of Mayors, National Association of Counties, professional and industry organizations, design firms, 73% of the top 30 A/E firms and 40% of all architecture firms, and numerous cities, counties, and states (see Appendix A, B, and C), is now in the process of being implemented.

7. Since June 2006, *over 70,000 new homes* have been designed, built, and certified to meet a minimum 50% energy reduction below the baseline energy code for heating and cooling [6].

8. Studies by the Department of Energy's National Renewable Energy Laboratory (NREL) illustrate that meeting a 30% residential energy consumption reduction target below the baseline energy code will save households in every region of the U.S. between $403 and $612 per year *after* the cost of efficiency measures is factored in [7].

9. At current energy prices and mortgage interest rates, NREL estimates that the average cost-neutral point for home efficiency upgrades is a 45% energy reduction below the baseline residential energy code [8].

10. The national building energy code standards in H.R. 2454, Sec. 201 would reduce building sector energy consumption (see Appendix D) by:
    - 18.35 Quadrillion Btus from projected 2030 levels (the equivalent of approximately two hundred and forty 1000 MW power plants), saving consumers an estimated $218 billion in annual energy bills (2007 dollars) [9],
    - 18.7% below 2005 levels by 2030, and
    - 40.4% below 2005 levels by 2050.

11. The national building energy code standards in H.R. 2454, Sec. 201 would reduce building sector CO_2 emissions (see Appendix D) by:
    - 20.3% below 2005 levels by 2030 and
    - 48.8% below 2005 levels by 2050, leaving only 34% of President Obama's 83% Building Sector reduction target to be accomplished with other clean energy sources.

It is clear that building energy codes are critical for achieving the energy consumption and GHG emissions reductions needed. Reductions not achieved through energy codes must necessarily be achieved through other clean energy sources, so lesser targets than those established by H.R. 2454, Sec. 201 will necessarily place a greater burden on these other sources. The 30% and 50% targets of H.R. 2454, Sec. 201 have been shown to be both immediately achievable and cost effective and the remaining targets both necessary and reasonably paced. These targets have widespread and deep Building Sector support, and are currently being implemented by A/E firms across the country.

Architecture 2030 is an independent, non-partisan, non-profit 501(c)(3) organization, and does not advocate for any specific legislation. The purpose of this Fact Sheet is educational, providing guidance for effective and achievable building energy reduction targets.

APPENDIX A

2030 Challenge Adopters & Supporters [10]

Organizations and Other Entities

Adopters:

U.S. Conference of Mayors

Resolution #50; unanimously passed for all buildings in all cities.
Brought forward by:

- Mayor Daley of Chicago
- Mayor Chavez of Albuquerque
- Mayor Diaz of Miami
- Mayor Nickels of Seattle

The American Institute of Architects (AIA)
U.S. Green Building Council (USGBC)
Leadership in Energy and Environmental Design (LEED)
State of New Mexico (Governor Bill Richardson executive order)
California Energy Commission
California Public Utility Commission
State of Washington (legislation)
State of Illinois (legislation)
State of Minnesota (legislation)
National Governors Association (NGA)
National Association of Counties (NAoC)
County of Sarasota, FL (legislation)
City of Santa Fe, NM
City of Richmond, VA
City of Santa Barbara, CA (legislation)
Rocky Mountain Institute (RMI)
Environment America
International Council for Local Environmental Initiatives (ICLEI)
World Business Council for Sustainable Development (WBCSD)
Society of Building Science Educators (SBSE)
AIA Committee on the Environment (AIA/COTE)
Association of Collegiate Schools of Architecture (ACSA)
Union Internationale des Architectes (UIA)
American Solar Energy Society (ASES)
American Society of Interior Designers (ASID)
Cascadia Region Green Building Council
Ontario Association of Architects (OAA)
Congress for the New Urbanism
Royal Architecture Institute of Canada (RAIC)
National Wildlife Federation (NWF)
U.S. Federal Government – all new and renovated federal buildings

Supporters:

American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
Environmental Protection Agency (EPA/Target Finder)

APPENDIX B

2030 Challenge Adopters [10]

Multi-State & Multi-National Firms

360 Architecture
Architecture • Interior • Planning
NORTH AMERICA – United States: Columbus, OH; Dallas, TX; Kansas City, MO; San Francisco, CA.

ADD, Inc.
Architecture • Design
NORTH AMERICA – United States: Boston, MA; Miami FL.

BNIM
Architecture • Interiors • Planning • Urban Design • Landscape
NORTH AMERICA – United States: Kansas City, MO; Houston, TX; Des Moines, IA; San Diego, CA; Los Angeles, CA

Burt Hill
Architecture • Engineering
NORTH AMERICA – United States: Boston, MA; Butler, PA; Charlotte, NC; Cleveland, OH; Miami, FL; New York, NY; Philadelphia, PA; Pittsburgh, PA; State College, PA; Washington, DC. MIDDLE EAST – UAE: Abu Dhabi; Dubai. ASIA – India: Ahmedabad.

Callison
Architecture • Design
NORTH AMERICA – United States: New York, NY; Los Angeles, CA; Dallas, TX. Mexico: Mexico City. MIDDLE EAST – United Arab Emirates: Dubai. ASIA – Singapore; China: Shanghai. EUROPE – United Kingdom: London.

Cannon Design
Architecture • Engineering
NORTH AMERICA – United States: Baltimore, MD; Boston, MA; Buffalo, NY; Chicago, IL; St. Louis, MO; New York, NY; Houston, TX; Washington DC; Phoenix, AZ; Los Angeles, CA; San Francisco, CA. Canada: Toronto, ON; Vancouver, BC; Victoria, BC. ASIA – China: Shanghai. India: Mumbai.

Cooper Carry, Inc.
Architecture
NORTH AMERICA – United States: Atlanta, GA; Newport Beach, CA; New York, NY; Washington, DC.

Cuningham Group Architecture, P.A.
Architecture • Interiors • Urban Design
NORTH AMERICA – United States: Minneapolis, MN; Marina del Rey, CA; Las Vegas, NV, Biloxi, MS, Bakersfield, CA. EUROPE – Spain: Madrid. ASIA – South Korea: Seoul.

DLR Group
Architecture • Engineering • Planning • Interiors
NORTH AMERICA – United States: Chicago, IL; Colorado Springs, CO; Denver, CO; Des Moines, IA; Honolulu, HI; Kansas City, KS; Lincoln, NE; Minneapolis, MN; Omaha, NE; Orlando, FL; Philadelphia, PA; Phoenix, AZ; Portland, OR; Sacramento, CA; Seattle, WA.

Durrant Architects and Engineers
Architecture • Engineering
NORTH AMERICA - United States: Atlanta, GA; Denver, CO; Des Moines, IA; Dubuque, IA; Honolulu, HI; Phoenix, AZ; Tucson, AZ; St. Louis, MO; Madison, WI.

Ellerbe Becket
Architecture • Engineering • Construction • Interiors
NORTH AMERICA – United States: Dallas, TX; Kansas City, MO; Minneapolis, MN; San Francisco, CA; Washington DC. MIDDLE EAST – United Arab Emirates: Dubai. Qatar: Doha.

EwingCole
Architecture • Engineering • Interiors • Planning
NORTH AMERICA – United States: Philadelphia PA; Irvine, CA; Washington, DC.

Gensler
Architecture • Design • Planning • Consulting
NORTH AMERICA - United States: Austin, TX; Atlanta, GA; Baltimore, MD; Boston, MA; Charlotte, NC; Chicago, IL: Dallas, TX; Denver, CO; Detroit, MI; Houston, TX; La Crosse, WI; Las Vegas, NV; Los Angeles, CA; Morristown, NJ; New York, NY; Newport Beach CA; Phoenix, AZ; San Diego, CA; San Francisco, CA; San Jose, CA; San Ramon, CA; Seattle, WA; Tampa, FL; Washington, DC; ASIA - China: Beijing, PRC; Shanghai, PRC; Tokyo, Japan; EUROPE - United Kingdom: London; MIDDLE EAST - United Arab Emirates: Dubai; SOUTH AMERICA – Costa Rica: San Jose.

Gould Evans Affiliates
Architecture
NORTH AMERICA – United States: Lawrence, KS; Kansas City, MO; Tampa, FL; Phoenix, AZ; San Francisco, CA.

Gresham Smith and Partners
Architecture • Engineering • Interiors • Planning
NORTH AMERICA – United States: Atlanta, GA; Birmingham, AL; Charlotte, NC; Chipley, NC: Cincinnati, OH; Columbus, OH; Dallas, TX; Ft. Lauderdale, FL; Jackson, MS; Knoxville, TN; Louisville, KY; Memphis, TN; Mobile, AL; Nashville, TN; Richmond, VA. ASIA – China: Shanghai, PRC.

Harley Ellis Devereaux
Architecture • Engineering • Interiors • Landscape • Construction
North America – United States: Chicago, IL: Los Angeles, CA.

HDR Architecture, Inc.
Architecture • Engineering • Construction
NORTH AMERICA – United States: Alexandria, VA; Albuquerque, NM; Atlanta, GA; Austin, TX; Bethesda, MD; Boise, ID; Boston, MA; Charlotte, NC; Charleston, SC; Chicago, IL; Cincinnati, OH; Dallas, TX; Denver, CO; Houston, TX; Lexington, KY; Madison, WI; Milwaukee, WI; New York, NY; Oklahoma City, OK; Omaha, NE; Orlando, FL; Pasadena, CA; Phoenix, AZ; Portland, OR; Port Orchard, WA; Princeton, NJ; Reno, NV; Rochester, MN; Sacramento, CA; San Diego, CA; San Francisco, CA; Seattle, WA; Silver Spring, MD; St. Paul, MN; Sunnyvale, CA ; Tampa, FL; Tucson, AZ; West Palm Beach, FL. Canada: Kingston, Ontario; Ottawa, Ontario. EUROPE – United Kingdom: London. Asia – India: Trivandrum, Kerala. MIDDLE EAST – Abu Dhabi, United Arab Emirates; Dubai, United Arab Emirates.

HKS Inc.
Architecture • Engineering • Interiors
NORTH AMERICA – United States: Atlanta, GA; Dallas, TX; Denver, CO; Detroit, MI; Fort Worth, TX; Las Vegas, NV; Los Angeles, CA; Miami, FL; Nashville, TN; Oklahoma City, OK; Orange County, CA; Orlando, FL; Palo Alto, CA; Phoenix, AZ; Richmond, VA; Salt Lake City, UT; San Francisco, CA; Tampa, FL; Washington DC. Mexico: Mexico City. EUROPE – United Kingdom: London.

HMC Architects
Architecture
NORTH AMERICA – United States: Ontario, CA; Los Angeles, CA; San Diego, CA; San Jose, CA; Irvine, CA; Reno, NV; Sacramento, CA; Las Vegas, NV; Fresno, CA; Calexico, CA.

HOK
Architecture • Engineering • Construction
NORTH AMERICA – United States: Atlanta, GA; Chicago, IL; Dallas, TX; Houston, TX; Los Angeles, CA; Miami, FL; New York, NY; San Francisco, CA; St. Louis, MO; Tampa, FL; Washington, DC. Canada: Ottawa, ON; Toronto, ON. Mexico: Mexico City. ASIA – China: Beijing; Hong Kong; Shanghai. Singapore. EUROPE – United Kingdom: London. MIDDLE EAST – UAE: Dubai.

Human Factor Research and Consulting
Design
NORTH AMERICA – United States: all states; Canada – all provinces.

Jerde Partnership
Architecture • Planning • Landscape
NORTH AMERICA – United States: Venice, CA. ASIA – China: Hong Kong; Shanghai. EUROPE – Netherlands: Amsterdam. MIDDLE EAST – UAE: Dubai.

Jim Curran
Architecture • Engineering • Planning • Interiors
NORTH AMERICA – USA: San Francisco, CA; Minneapolis, MN; Kansas City, KS; Dallas, TX. MIDDLE EAST – United Arab Emirates: Dubai.

KlingStubbins
Architecture • Engineering • Planning • Interiors
NORTH AMERICA – United States: Cambridge, MA; Philadelphia, PA; Raleigh, NC; San Francisco, CA; Washington, DC. ASIA – China: Beijing.

Leo A. Daly
Planning • Architecture • Engineering • Interiors
NORTH AMERICA – United States: Austin, TX; Atlanta, GA; Bryan, TX; Chicago, IL: Dallas, TX; Denver, CO; Fort Worth, TX; Honolulu, HI; Houston, TX; Las Vegas, NV; Los Angeles, CA; Miami, FL; Minneapolis, MN; Omaha, NE; Phoenix, AZ; Sacramento, CA; San Antonio, TX; San Maros, TX; Tampa, FL; Waco, TX; Washington, DC; West Palm Beach, FL. ASIA – China: Beijing, PRC; Hong Kong, PRC; Tianjin, PRC. EUROPE – Russia: Moscow; Turkey: Istanbul. MIDDLE EAST – UAE: Abu Dhabi.

Lionakis
Architecture • Structural • Planning • Interiors
NORTH AMERICA – United States: Sacramento, CA; San Francisco, CA; Modesto, CA; Orange, CA; San Diego, CA; Reno, NV; Seattle, WA.

Little
Architecture • Engineering • Interiors
NORTH AMERICA – United States: Charlotte, NC; Orlando, FL; Durham, NC; Washington DC; Dallas, TX; Los Angeles, CA.

Lord, Aeck & Sargent
Architecture • Interiors • Planning
NORTH AMERICA – United States: Atlanta, GA; Ann Arbor, MI; Chapel Hill, NC.

Mancini Duffy, Inc.
Architecture • Interiors
NORTH AMERICA – United States: New York, NY; Washington, DC.

NBBJ
Architecture • Design
NORTH AMERICA – United States: Columbus, OH; Los Angeles, CA; New York, NY; San Francisco, CA; Seattle, WA. ASIA – China: Beijing; Shanghai. Russia: Moscow. EUROPE – United Kingdom: London. MIDDLE EAST – UAE: Dubai.

OWP/P
Architecture • Engineering • Consulting
NORTH AMERICA – United States: Chicago, IL; Phoenix, AZ.

Perkins+Will
Architecture • Interiors • Planning
NORTH AMERICA – United States: Atlanta, GA; Boston, MA; Charlotte, NC; Chicago, IL; Dallas, TX; Hartford, CT; Houston, TX; Los Angeles, CA; Miami, FL; Minneapolis, MN; New York, NY; Research Triangle Park, NC; San Diego, CA; San Francisco, CA; Seattle, WA; Washington DC. Canada: Vancouver, BC; Victoria, BC. Asia – China: Shanghai. Europe – United Kingdom: London.

PSA-Dewberry
Planning • Engineering • Architecture • Program Management • Surveying and Mapping
NORTH AMERICAN – United States: Chicago, Elgin, Peoria, IL; Baltimore, MD; Tulsa, OK; Dallas, TX; Arlington, Fairfax, VA.

River Architects
Architecture
NORTH AMERICA – United States: Cold Spring, NY; CENTRAL AMERICA – Honduras, Utila; ASIA – South Korea: Seoul.

RTKL
Architecture • Design • Planning • Engineering
NORTH AMERICA – United States: Baltimore, MD; Chicago, IL: Dallas, TX; Los Angeles, CA; Miami, FL; Washington, DC. ASIA – China: Shanghai, PRC; EUROPE – United Kingdom: London; Spain: Madrid. MIDDLE EAST – United Arab Emirates: Dubai.

RNL
Architecture • Interiors • Planning • Landscape • Engineering
NORTH AMERICA – United States: Denver, CO; Los Angeles, CA; Phoenix, AZ. MIDDLE EAST – UAE: Abu Dhabi.

SAK arquitetura-design
Architecture • Interiors
SOUTH AMERICA – Brazil: Porto Alegre-RS.

APPENDIX B (continued)

SHW Group
Architecture
NORTH AMERICA – United States: Plano, TX; Austin, TX; Houston, TX; San Antonio, TX; Reston, VA; Charlottesville, VA; Berkley, MI.

SmithGroup
Architecture • Engineering • Interiors • Planning
NORTH AMERICA – United States: Ann Arbor, MI; Chicago, IL; Detroit, MI; Los Angeles, CA; Madison, WI; Minneapolis, MN; Phoenix, AZ; Raleigh–Durham, NC; San Francisco, CA; Washington, DC.

Swanke Hayden Connell Architects
Architecture • Interiors • Planning • Historic Preservation
NORTH AMERICA – United States: Miami, FL; New York, NY; Washington, DC. EUROPE – United Kingdom: London; Sheffield. France: Paris. Russia: Moscow.

TLC Engineering for Architecture
Engineering
NORTH AMERICA - United States: Brentwood, TN; Dallas, TX; Orlando, FL; Tallahassee, FL; Jacksonville, FL; Cocoa, FL; Tampa, FL; Ft. Myers, FL; Deerfield Beach, FL; Miami, FL.

TRO Jung | Brannen Architects
Architecture • Interiors • Engineering • Planning
NORTH AMERICA – United States: Boston, MA; Sarasota, FL; Memphis, TN; Birmingham, AL. ASIA –China: Beijing. MIDDLE EAST – United Arab Emirates: Dubai.

TMAD TAYLOR & GAINES
MEP • Structural • Civil Engineers
NORTH AMERICA – United States: Pasadena, CA; Anaheim, CA; Inland Empire, CA; Thousand Oaks, CA; San Diego, CA; San Francisco, CA; Phoenix, AZ.

TVSDESIGN Architects
Architecture • Planning • Interiors
NORTH AMERICA – United States: Atlanta, GA; Chicago, IL. MIDDLE EAST – United Arab Emirates: Dubai.

Vanderweil Engineers
Mechanical, Electrical, and Plumbing (MEP) Engineers
NORTH AMERICA – United States: Boston, MA; Las Vegas, NV; New York, NY; Philadelphia, PA; Princeton, NJ; Washington, DC.

WATG Design
Architecture • Interiors • Planning • Landscape
NORTH AMERICA – United States: Irvine, CA; Orlando, FL; Seattle, WA; Honolulu, HI. ASIA –Singapore.

WRT Design
Architecture • Design • Planning • Landscape
NORTH AMERICA – United States: Coral Gables, FL; San Diego, CA; San Francisco, CA; Dallas, TX; Philadelphia, PA; New York, NY; Lake Placid, NY.

Zimmer Gunsul Frasca Architects
Architecture • Planning • Interiors • Urban Design
NORTH AMERICA – United States: Portland, OR; Los Angeles, CA; Seattle, WA; New York, NY; Washington, DC.

APPENDIX C

2030 Challenge Adopters [10]

In-State Firms

NORTHEAST

Connecticut • Maine • Massachusetts • New Hampshire • New Jersey • New York • Pennsylvania • Rhode Island • Vermont

adaptdesign Architecture
Advancing Concepts in Architecture, PC
Allied Engineering Inc.
American Society of Landscape Architects Pennsylvania – Delaware Chapter
Archia Architectural Design & Construction
Architecture Involution, LLC
Artichoke Design Architecture
Ashley McGraw Architects, PC
Audubon International
Baer Architecture Group, Inc.
Bale on Bale Construction
Benson Woodworking Company
Brian J. Billings, Architects
BriggsKnowles A+D
Buffalo Municipal Housing Authority
Build It Green Philly
Byggmeister Residential Reodeling
CBT Architects
Consilience Real Estate Development
Consulting Engineering Services, Inc.
Cool Thinking, Inc.
Cooper Green Design Architecture
Culpen & Woods Architects, LLC
Design Works Architecture, P.C.
ecoCharette Consulting
EDA Architecture
Edward Ozols, Architect
ENA Architecture
Energy Solutions Consulting
Fifth Season Studios Landscape Architecture
Garland Mill Timberframes
Good Earth Sales
Green Campus Building Services – EB, Harvard Green Campus Initiative
Green Friends Development Company
Green Village Philadelphia – Ecocity Developers
GreenBridge Architects
Gregory Larson Architect
Helpern Architects
High Point Regional High School
Holzman Moss Architecture
IES Building Performance Modeling
In. Site: Architecture
Instrumentation Industries, Inc.
Integrata Architecture
Integrated Holistic Design, LLC
Israel D. Smith, Architect
Italian Design Lighting
Kinetix [Business Ecology]
Lake Architectural
Loci Architecture, PC
M2 Architecture
Mad River Solar Group
Mancusi Builders, LLC
Mattergy Solar, Inc.
Morris Switzer Architects
Northeast Natural Homes, Inc.
NRG Insulated Concrete Block
Peter Sweeny Architects, LLC
Placetailor Urban Design
Postgreen Real Estate Development
Quality Building & Remodeling
RD Graphic Designs
Realms Architectural
Renaissance 3 Architects, P.C.
Renewable Energy Long Island
Richard Renner Architects
RSA Renewable Energy Consulting
Salamander: Ecological Landscape Planning and Design
Shepley Bulfinch Architects
Sowinski Sullivan Architects
Spector Associates Architects
Sticks & Stones Design Architecture
Studio Design Architecture
Studio G Architects
Suffolk Construction Company
Sunbuilders – Residential Building Design & Construction
Sustainable Design and Construction Solutions
Symmes Maini & McKee Architects
T. Dawson Architecture / IDEAS Collaborative
The Affordable Homes Group, Inc.
The Green Engineer, LLP
The HL Turner Group – Architects & Engineers
The Jordan Institute
Turner Building Science & Design, LLC
Turner Group Design – CT, LLC
Westmount Fine Homes
Whole Systems Design, LLC
William Maclay Architects & Planners
William Taylor Architects, PLLC
WSP Flack + Kurtz – Architects & Engineers
ZeroEnergy Design Architecture
Zung Design Architecture

SOUTHEAST

Delaware • District of Columbia • Florida • Georgia • Maryland • North Carolina • South Carolina • Virginia • West Virginia

4Site Press
Abrams Design Build
AIA Treasure Coast
Alicia Ravetto Architect, PA
Alliance for Ecocentric Engineering
AppleBlossom Insulators, Inc.
Artezanos Roofing Manufacturers
Ayers Saint Gross Architecture & Planning
B&F Consulting, Inc.
BBH Design
BCWH Architects
Big Munk Consulting
Brennan + Company Architects
Brown Architecture
Building Green Generations
Bushman Dreyfus Architects
Cadmus Construction, LLC
Capitol Greenroofs
Carlton Architecture
Carter + Burton Architecture, PLC
CFH Residential Design Studio
CGE Solutions – Energy Auditors
Chesapeake Bay Foundation
Concourse E Design/Build
Construction Resources
Construction Specifications Institute
Crozier Architecture
Day Hall Project
DBI Architects, Inc.
Design Atlantic – Architecture, Planning & Management
Direct Connect Solar & Electric
Drawing Conclusions Architecture
e*virons incorporated Architecture
Ecologics Design Development
Ecotekt Architecture
Ecoworks Studio Design
Elan Architect
Elm Engineering, Inc.
EnGreen Construction
EnviroHomeDesign
Full Scale Architecture
Georgia Trane – HVAC & Controls
Glave&Holmes Associates Architects
Green World Promotions
GreenMan Studios Residential Design
HEG, Charleston – Engineers
Home Energy Team – Energy Auditors
Innovative Design
Insight Homes Builder
Institute of Green Professionals
International Institute for Bau – Biologie & Ecology
Interior Architecture & Design, PLLC
Jaime Correa and Associates Architects
Jay DeChesere, Architect, PC
Johnston Design Group
Jones Architecture, PLLC
JSK Architectural Group
Julia F. Martin Architect, LLC
Ken Gaylord Architects
Kenseal Construction Products
KTA Group Engineering
Landis, Inc. – Landscape Architecture
Legerton Architecture, P.A.
Liollio Architecture
Little Diversified Architectural Consulting
Lominack Kolman Smith Architects
LumenSource
mArch1 Design
Marilys R. Nepomechie, Architect
Mark Allison, Architect
Melaver Real Estate Development
MS&R – Architecture & Interior Design
Naomi Mann Interiors and Eco Lifestyle
Neighboring Concepts Architecture
Ocampo & Associates Architects
PBC+L Architecture
Peabody Architects
Pearce Brinkley Cease + Lee Architects
Qwest Home Design
Raines Residential, Inc.
Refresco Energy Engineering
Rick Thompson, Architect
Rust|Orling Architecture, Inc.
s+d Architecture, Inc.

SOUTHEAST *(continued)*

Samsel Architects, P.A.
Schick Goldstein Architects, PC
Sebastian Eilert Architecture
SEQUIL Systems – Building Commissioning
SESCO Lighting, Inc.
Sloan Building & Design, Inc.
Soenso Energy, Inc.
SOLARtecture Design
Solvolysis, P.C. Architecture & Building Science Consulting
South Face Design
Spacecoast Architects, P.A.
Spillis Candela, DMJM – Architects & Engineers
StreamLine Architects
Sustainability by Design
TaC studios
Tackenberg Architecture
Teracity/Space Design
The Construction Specifications Institute
The Hoots Group – Builders
The Oak Hill Fund
The Powell Group
The Realization Group
The Sign Center
Thermablok
Think Green Building, LLC
Trust for Architectural Easements
Van Bryce + Associates – Architects & Engineers
VMDO Architects
Watershed Architecture
Wekiva Island
Zyscovich Architects

MIDWEST

Illinois • Indiana • Iowa • Kansas • Michigan • Minnesota • Missouri • Nebraska • North Dakota • Ohio • South Dakota • Wisconsin

360GREEN Consulting
A3C – Collaborative Architecture
ach50 – The Standard in Building Performance
Albertsson Hansen Architecture
ALM Design Studio
Archigenesis Corporation Architecture
Architectural Woodwork Institute
Arnold Imaging
Bailey Edward Architecture
Bay Area Home Performance
Boomgaarden Architects
Building Knowledge
BWBR Architects, Inc.
Cashman Stahler Group – Architects & Engineers
CTI – Conservation Technology International
Dunham Associates
Echo Studio
Eco Smart Building
Ecological Construction Laboratory
Edward Heinen Architectural Consulting
Energy Center of Wisconsin
Engineering, Energy, and the Envirionment, LLC
Environmental Systems Design
Epona Construction
Factory Direct Remodeling
Fanning Howey Associates Architects
Farr Associates – Urban Design
Frewen Architects, Inc.
Gastinger Walker Harden Architects
Green City EcoStruction
Green Institute
Green Mechanical Council
Greenstreet Real Estate Development
Hale Technologies – Engineering & Design
Health Facilities Group
HJKessler Associates, Inc
HKLB Architecture
Home Energy Inspections
Home Energy Team
House Green, LLC
idX Corporation Manufacturing
Image Design, LLC
Indigenous Environmental Network
INVISION architecture
Jim van Eman, Architect
JJR – Landscape Architecture, Planning, Urban Design, Civil Engineering, Environmental Science
LehnerFindlan Architects LLC
LHB – Architecture, Engineering & Interiors
Liska Architects
MBJ Consulting Structural Engineers
mcPhilosophy Ecological Design
Minnesota Resource Conservation, Inc.
MS&R – Architecture & Interior Design
Myszak+Palmer Inc. Architects
Natural Profit, LLC
Neumann Monson Architects
Passive House Institute U.S.
Patterns for Abundance Design
Peckham & Wright Architects
RCM Architects
Sage Homebuilders
Sala Architects, Inc.
Scarmack Architecture
SFS Architecture
SHP Leading Design
Silent Rivers Design + Build
Steen Engineering, Inc.
Studio 2030 Interior Design
Studio 5 Architects, Inc.
Sustainable Building Solutions
Syska Hennessy Group – MEP/FP Engineering & Construction
Tanalyn & Friends Interactive
TE Studio, Ltd.
The Alter Group – Real Estate Development
The School of the Art Institute of Chicago
The Weidt Group
Trout & Company Real Estate Development
Valerio Dewalt Train Associates Architects
Vertical Green USA
Virge Temme Architecture, Inc.
VOA Associates Architects
Vode, Inc. Architecture
Wagner Zaun Architecture
Walsh Bishop Associates – Architecture & Interiors
Xtreme Exteriors, Inc.
Zimmerman Architectural Studios

SOUTH CENTRAL

Alabama • Arkansas • Kentucky • Louisiana •Mississippi • Oklahoma • Tennessee • Texas

Abel Design Group, Ltd.
Antbrother Farms Landscape Design
Architecture Discipline
Award Solutions
Balance Wheel Consulting
BOX Design
CAF Energy, Inc.
Centric Architecture
Clark and Associates Architects, Inc.
Construction Consulting International
Context3 – Architecture & Planning
dsgn Associates Architects
Environment Associates, Architects & Consultants
Eskew+Dumez+Ripple Architecture
Ethic Living Development
Green Building Services
Harris Welker Architects & Planners
HFW Sustainable Designs
I. A. Naman + Associates, Inc.
Jackson Hilliard Consulting
K.A. Gorski, AIA Architects
Kevin Harris Architect, LLC
Kirksey Architecture
Lake|Flato Architects, Inc.
Loudon County Schools
MacDonald Systems, Inc.
Marek & Company Consultants
Millennium Community Builders
Morning Star Construction, L.P.
O'Brien & Associates Architecture
PageSoutherlandPage Architects
Pollen Architecture & Design
Reihl Engineering, LLC
Routh & Company Sustainable Design Solutions
Routh & Company Architects
Schmidt and Stacy Consulting Engineers
Sizeler Thompson Brown Architects
Speer Architects
Sustainable Architecture
Sustainable Places, Sustainable Organizations
T Howard & Associates Architects
TBG Partners – Landscape Architecture
The Right Environment Consulting
Three Forks Construction, LLC
Victoria, Texas
Westcrete Building Systems
WHR Architects, Inc.
Wings of Eagles Healthy Living

NORTHWEST / PACIFIC

Idaho • Montana • Oregon • Washington • Wyoming / Alaska • Hawaii

3EStrategies – Sustainability Solutions
Aiki Homes
Air 2 Water of Idaho
Akros AEC Building Design
Alliance for Cooperative Innovation
Ankrom Moisan Associated Architects
Atelier Z – Architecture and Design
Barry Sulam Architectural Consulting
BLIP Architecture & Design
BNBuilders, Inc.
Bozeman Green Build
Bruce Millard, Architect
Camelot Gatherings Interiors
Cascade Built Developers
Common Practice Building Design
Construct Design Collaborative
Cooper Roberts Simonsen Architects
Cripe Montgomery Architecture
Desaachi Building
Ecobuilding Collaborative of Oregon, LLC
Eleek Building Materials
Energetechs Building Performance
Enovative Energy Solutions
FHG Architects, LLC
WSP Flack + Kurtz – Architects & Engineers
Flux Architectural Lighting
Geosolair Renewable Energy
GeoSonic – Geothermal Well Drilling
Gnomon Daylighting Consulting
Green Build Technology, LLC
Green Building Services, Inc.
Green Hammer, Inc.
Green Heart Construction
Green Remodeling
HaydenTanner Constulting
HF Designs – Architecture & Interiors
High Plains Architects
Hoopes Design Architects
Inbox Interior Design
Integrated Design Lab – University of Idaho
Jean Steinbrecher Architects
Johnson Braund Design Group, Inc. – Architecture, Landscapes & Interiors
LiveModern
Living Shelter Design Architects
Lyons Hunter Williams Architects
Mahlum Architecture
Marin Development
Michael Willis Architects
Midnight Press Printers
The Miller | Hull Partnership – Architecture & Interior Design
Mithun – Architecture, Planning & Design
Nathan Good Architect
Natural Building Network
Natural Certified Remodeling
Nicholson Kovalchick Architects
Northwest Ecobuilding Guild
Northwest Solar Center, WSU/SCC
Obie Residential Design
O'Brien & Company Consultants
Oh Planning+Design Architecture
One World Design Architecture
Peoples Natural Construction
Pinnacle Inspections
Point Architects
Process Architecture, PC
Project Green Build
r/evolution Design
RO2, Inc. Interiors
Rowe Architecture & Planning, LLC
SERA Architects, Inc.
Shelter Design Studios
Solar Craft Design, LLC
Solarc Architecture & Engineering, Inc.
SRG Partnership – Architecture, Interiors & Planning
STAVE architecture
Stonhaus.Ark Architecture
Studio Ectypos Architecture
STUDIO-E Architecture, PC
THA Architecture, Inc.
Tom West Construction, LLC
Torrell Architects
Trane – HVAC & Controls
U.S. West Energy Solutions Corporation
Upwards Custom Construction
Urbansun Residential Design
V2 Design Architecture
Velocipede Architecture
Waterleaf – Architecture, Interiors & Planning
Will Thomas Designs, CBD
Wolf Paw Development, Inc.
Yost Grube Hall Architecture

SOUTHWEST

Arizona • Colorado • Nevada • New Mexico • Utah

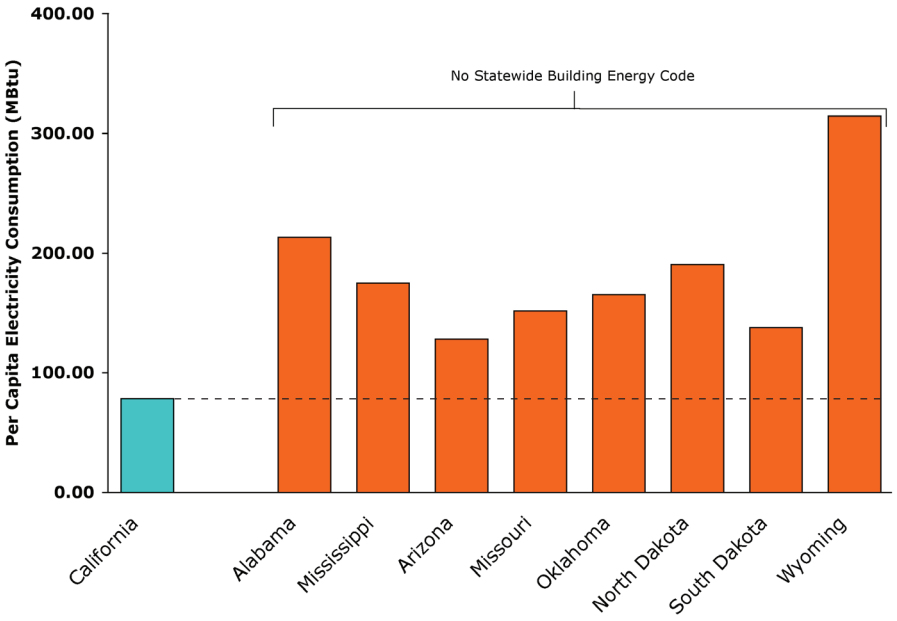
11ten Design
3BY Sustainable Design
American Institute of Architects Las Vegas
aka Green Services
Ambient Energy
AMD Architecture
American Institute of Architects Nevada
ARETE.DBL Architecture & Construction
Armando Cobo, Designer
Arizona State University Stardust Center
Beaudin Ganze Consulting Engineers
Bellanova Builders & Design
Borderline Cooperative
Brach Design
Brown+Wootton Architects
Cabit Holdings, LLC – Engineering & Facility
Cassio Design Build
Construction Reporter
Corey's Building and Renovations
DAJ Design, Inc.
Daniel Buck Construction, LLC
Dante Amato – Architect
DECOLights, Inc.
Dekker/Perich/Sabatini Architects
Dennis R. Holloway, Architect
Durango Fine Homes, LLC
Earth and Sky Architecture
EarthCARE International
Ecologic Construction
Edge Development
EverGreen Building Solutions, LLC
Evolved Designs
Getty Engineering Services
Green Design Collaborative
Green is a Verb Environmental Products
GreenDream Enterprises
Greenview Sustainability Consulting
GreenWeaver, Inc. Consulting
GSBS Architects
Halcom Consulting, LLC
Hale & Sun Construction, Inc.
Hoffman Architects, LLC
Home Energy Remediation Services, LLC
Humphries Poli Architects, PC
J.P. Copoulos, Architect
Jim Logan Architects
JMA Architecture Studios
KP2 Architects
La Mesilla Verde – New Mexico Green Build
Licata Hansen Architecture
Lightolier Las Vegas – Lighting Manufacturer
Lloyd Ziel Associates Architects
Lucchesi, Galati Architects
M Technologies Solar Engineering
Mahlman Studio Architecture
Marketexture Consulting
MHTN Architects
Michael Freeman, Architect
Moran Architects
Natural & Green Design
Net Zero Design, LLC
Nevadans for Clean Affordable Reliable Energy
Onwuegbu Architecture
Palo Santo Designs, LLC
PCD Engineering Services, Inc.
Pünckte Design Interiors
Pyatt Studio Architecture
Resource Engineering Group, Inc.
Rocky Mountain Institute
S7g Architecture
Sage West Architectural Consulting
SH Architecture
Sherwood Tanner Architects
SitePlus Consulting
SMPC Architects
Solar Energy International
SolarTerra, LLC
Stempel Form – Architecture, Planning & Design
Straw & Timber Craftsmen
Suby Bowden + Associates Architects
Sundancer Creations – Developer
Sundial Energy, Inc.
Surprise Community Development
Tate Snyder Kimsey Architects
TerraLogic Sustainable Solutions
Tishman Sustainability Corporation
USGBC Nevada
Valverde Energy
Veranda Design Group
Welles Pugsley Architects
WFA Architecture
Work in Progress Architects

CALIFORNIA

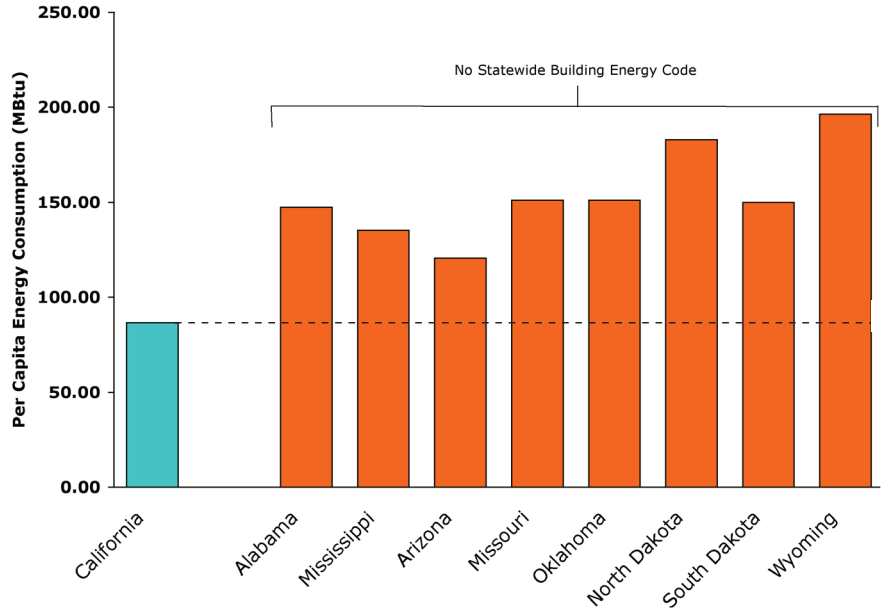
450 Architects, Inc.
A.S. Construction, Inc.
Abels Architecture
Advanced Solar Electric, Inc.
AIM Associates Architects
Alfa Tech Cambridge Group – MEP & Energy Engineering
Andres + Andres Designs
Anshen + Allen, Architects
Arkin Tilt Architects
Avalon Enterprises – Architecture & Construction
Bahr Architects, Inc.
Beverly Prior Architects
Beyond Efficiency Consulting
Blue Sky Lending
BOE Alliance International Architecture & Design
Boor Bridges Architecture
Brightworks Consulting
Brummitt Energy Associates, Inc.
BSA Architects
Build It Green Consulting
Cameron MacAllister Group
Carbon Reduction Services
Case + Abst Architects
Claremont Environmental Design Group
Costarella Architects
Daniels Design Associates – Interiors
Danna Sigal, Architect
Davis Energy Group – Mechanical Engineering
Design Rationale Architecture
DonWest Architect
DPR Construction, Inc.
DSA Architects
EHDD Architecture
Emergent Structures, Inc.
Endres Ware – Architecture & Engineering
Environmental Building Strategies
eSolutions Environmental Design
WSP Flack + Kurtz – Architects & Engineers
Full Circle Architecture, LLP
Galley Eco Capital, LLC
Garcia Architects
Gerard Lee Architects
Green Building Architects
Green Building Pages
Green Dinosaur Building Consultants
Greening Your Environment
Guttmann & Blaevoet Consulting Engineers
Hafsa Burt & Associates Architecture
Hammond Fine Homes, Inc.
HartmanBaldwin Design/Build, Inc.
Hauck Architecture
Healing Spaces by Design
Heat Wave Radient Supply
Heschong Mahone Group Energy Consulting
ILA | Zammit Engineering, Inc.
InsuredGreen, LLC
Integral Impact, Inc.
Johnson Lyman Architects
Kalia Modern Eco-Living
Keri Cross Marketing
Kritzinger+Rao – Planning & Urban Design
Lindblad Architects
Literacy for Environmental Justice
Loisos + Ubbelohde Architects
Marcus & Willers Architects
McParlane & Associates Engineering
Michael Heacock + Associates Consultants
Michel Saint-Sulpice, Architect
Miralles Associates Architects
Mobius CRE, LLC – Real Estate Advisory
Modern Earth Finance, Inc.
Natural Logic Consulting
Natural Paradigms
NBA Engineering, Inc.
Noll & Tam Architects
ONUMA Architecture
Operation Architecture
organicARCHITECT
P2S Engineering, Inc.
Paravant Architecture
Paul Harris, Architect
Peter Spellman Design
Platt/Whitelaw Architects
Point of Entry Architecture
Randall Eveleigh, Architect
Re:Vision – Design Solutions
REAS – Residential Energy Assessment Services
Renfro & Cuningham Architects
Roy Prince Architect
RRM Design Group
Ruhnau Ruhnau Clarke Architects
Rumsey Engineers
Salerno Livingston Architects
San Luis Sustainability Group
Schweitzer + Associates Consultants
Serious Building Materials
Solutions Architecture
Soohoocity Green Building Design
SRG Partnership – Architecture, Interiors & Planning
Steinberg Architects
Stenfors Associates Architects
Suntech America
Sustainable Designs
Teta Architecture, Inc.
The Ratcliff Architects
Timmons Design Engineers
Todd Jersey Architecture
Tomaro Design Build, Inc.
Treehouse Design Partnership
University of Southern California School of Architecture AIAS Chapter
Wayland Engineering, Inc.
Weeks-Manjarres Architects
WJRB Consulting & Design, Inc.
WLC Architects, Inc.
Yarmy and Yarmy Architecture and Interior Design
Zagrodnik + Thomas Architects

APPENDIX D

Illustrations

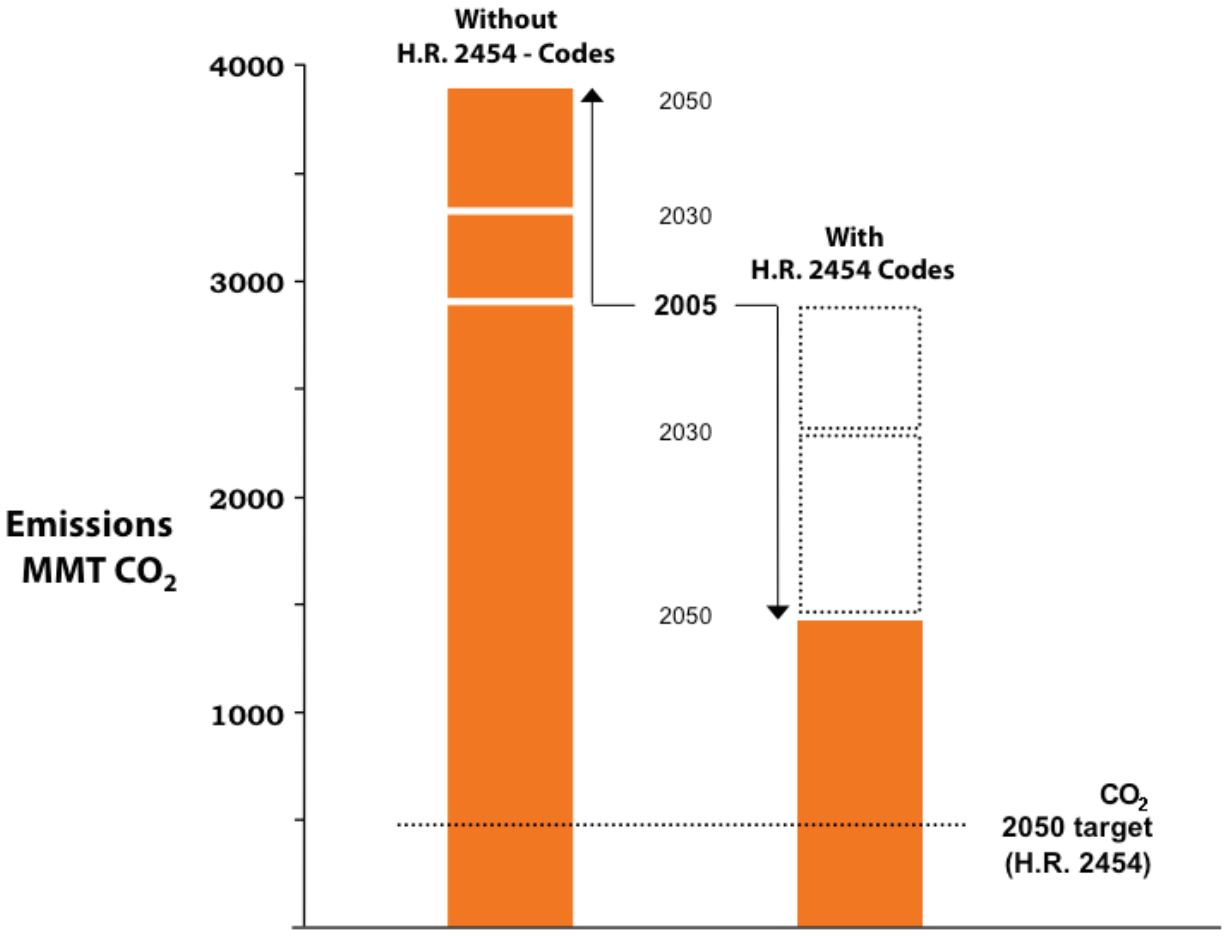


Electricity Consumption Per Capita



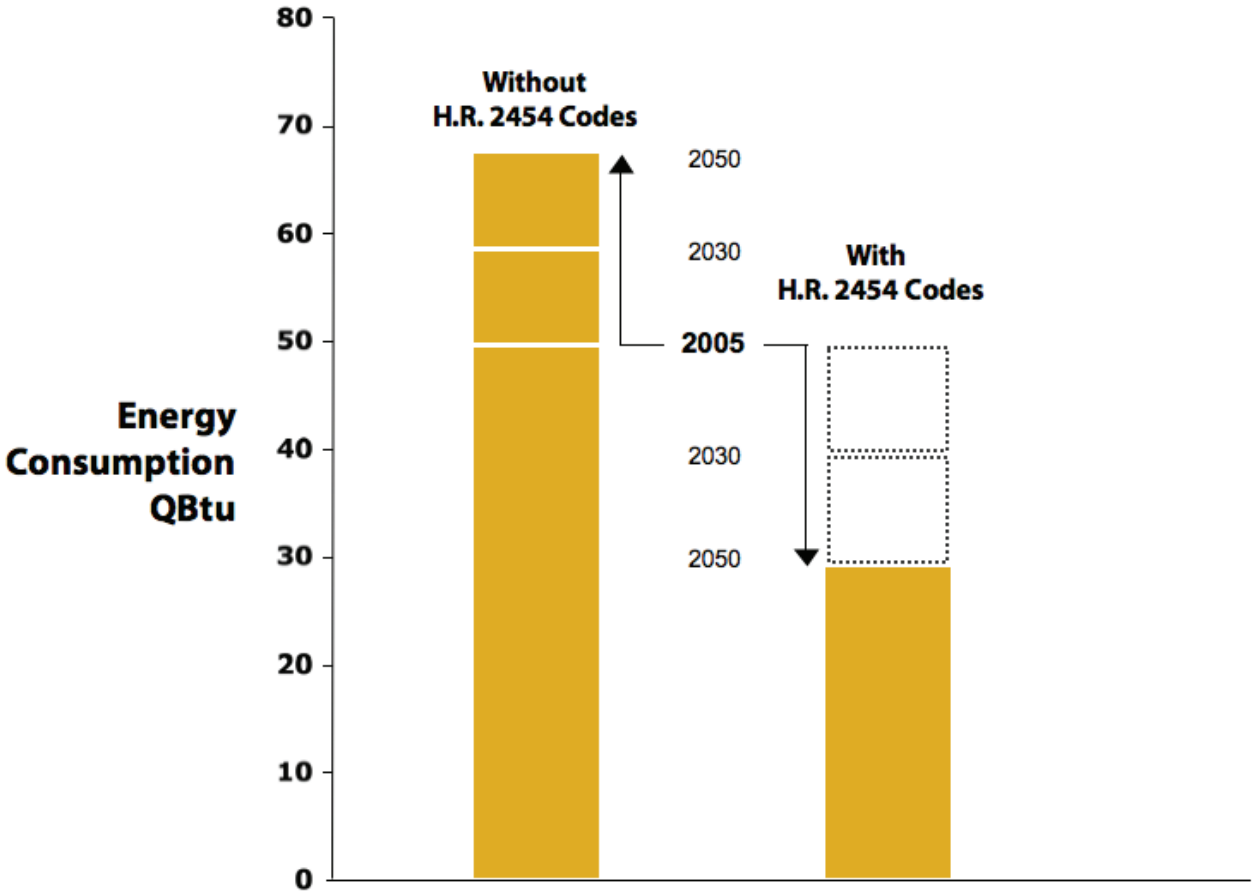
Building Energy Consumption Per Capita

Source: ©2009 2030, Inc. / Architecture 2030.
Data Source: U.S. Energy Information Administration. *State Energy Consumption Estimates: 1960 Through 2006*. Washington: 2008. Using 2006 data.



U.S. BUILDING SECTOR CO_2 EMISSIONS [11]

Source: ©2009 2030, Inc. / Architecture 2030.
Data Source: CO_2 Emissions and Projections: U.S. Energy Information Administration. CO_2 Reduction Analysis: Architecture 2030.



U.S. BUILDING SECTOR ENERGY CONSUMPTION [11]

Source: ©2009 2030, Inc. / Architecture 2030.
Data Source: Energy Consumption and Projections: U.S. Energy Information Administration. Building Code Energy Reductions Analysis: Architecture 2030.

ENDNOTES

1. U.S. Energy Information Administration. *Annual Energy Outlook 2009 Early Release: Tables 2, 4, 5, and 18.* ONLINE. 2008. U.S. Energy Information Administration. Available: http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html [December 2008]. Using 2008 data. The 50.1% of total annual U.S. energy consumption consists of 42% building operations (residential, commercial, and industrial building HVAC, hot water and plug load), 8% building construction and the embodied energy of building materials.

2. U.S. Energy Information Administration. *Annual Energy Outlook 2009 Early Release: Tables 2, 4, and 5.* ONLINE. 2008. U.S. Energy Information Administration. Available: http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html [December 2008]. Using 2008 data. Residential, commercial and industrial building operations (HVAC, hot water and plug load).

3. U.S. Energy Information Administration. *Annual Energy Outlook 2009 Early Release: Tables 2, 4, and 5.* ONLINE. 2008. U.S. Energy Information Administration. Available: http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html [December 2008]. The U.S. Energy Information Administration projects residential and commercial electricity consumption will increase 6.99 QBtu between 2008 and 2030.

4. The baseline energy code is defined as the 2006 International Energy Conservation Code (2006 IECC) for residential buildings and ASHRAE 90.1-2004 for commercial buildings.

5. Issued by Architecture 2030 in January 2006.

6. Source: RESNET. In 2006 – 6,000 homes, 2007 – 23,702 homes, 2008 – 21,939 homes and 2009 – 20,000 homes (estimate) have been certified to receive the homebuilders $2,000 federal tax credit for a new energy efficient home that achieves 50% energy savings for heating and cooling over the 2004 International Energy Conservation Code (IECC) and supplements. 2004 IECC is approximately equivalent to 2006 IECC.

7. Source: U.S. Department of Energy - Annual savings evaluated relative to the 2006 International Energy Conservation Code (2006 IECC), using average utility rates and climate data for each location - Atlanta, Chicago, Denver, Houston, New Orleans, Phoenix and Seattle. Based on a 2,500 square foot new home with the additional cost for efficiency measures added into a 30-year mortgage at 7% APR.

8. Source: National Renewable Energy Laboratory estimates for the cities of Atlanta, Chicago, Denver, Houston, New Orleans, Phoenix and Seattle evaluated relative to the baseline energy code 2006 IECC and a 30-year mortgage at 5.5% APR.

9. U.S. Energy Information Administration. *Annual Energy Outlook 2009 Early Release: Tables 3, 4, and 5.* ONLINE. 2008. U.S. Energy Information Administration. Available: http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html [December 2008].

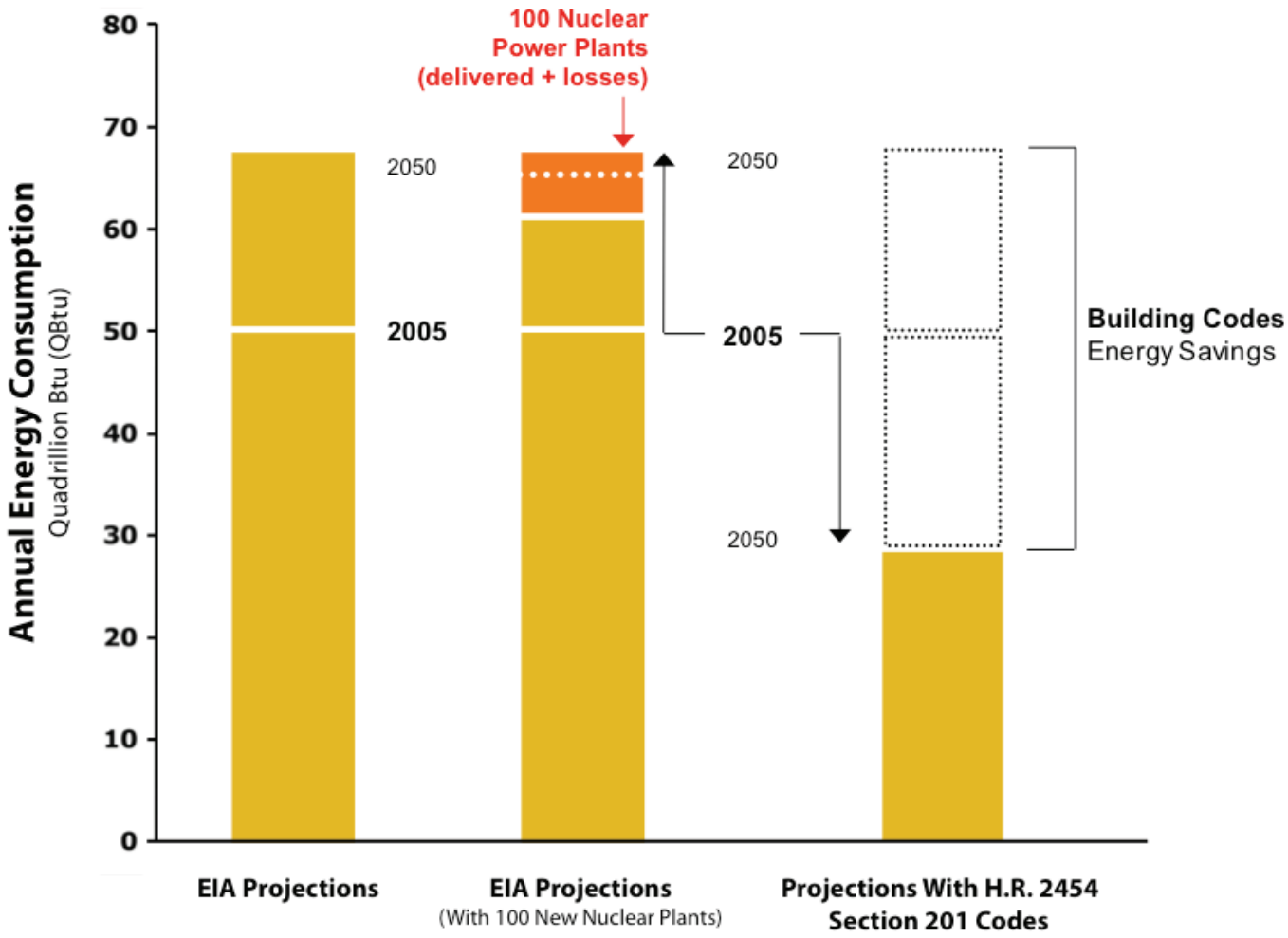
10. Architecture 2030. *The 2030 Challenge: Who's on Board*. Retrieved July 13, 2009, from http://www.architecture2030.org/2030_challenge/onboard.html. For Appendix B, see also the American Institute of Architects 2030 Commitment.

11. U.S. Energy Information Administration. *Annual Energy Outlook 2009 Early Release: Tables 2, 4, 5, and 18.* ONLINE. 2008. U.S. Energy Information Administration. Available: http://www.eia.doe.gov/oiaf/aeo/aeoref_tab.html [December 2008]. Assumptions:
    - 25% of all new buildings meet each new baseline code the second year the baseline code is established; 50% of all new buildings meet the new code the year after; and 100% of all new buildings meet the new code every following year until a new a new baseline code is established.
    - The same amount of building area – that is built new each year – is renovated each year to meet the baseline code in the same percentages as above.
    - 6.2% of annual Industrial Sector energy consumption goes to the Building Sector for industrial building operations (HVAC and Lighting). Based on U.S. Energy Information Administration, 2004 Building Energy Data Book.
    - 8% of total annual U.S. energy consumption goes to the Building Sector for building construction and the embodied energy of building materials. Based on i.) assumptions from Stein, R. (1977). Architecture and energy. Garden City, NY: Anchor Press and ii.) the embodied energy as approximately 20% of the 50-year operational energy of a building.
    - 'Reach codes' are developed and implemented nationally at an average annual rate of 6.6% of new building construction and major renovations.

ADDENDUM

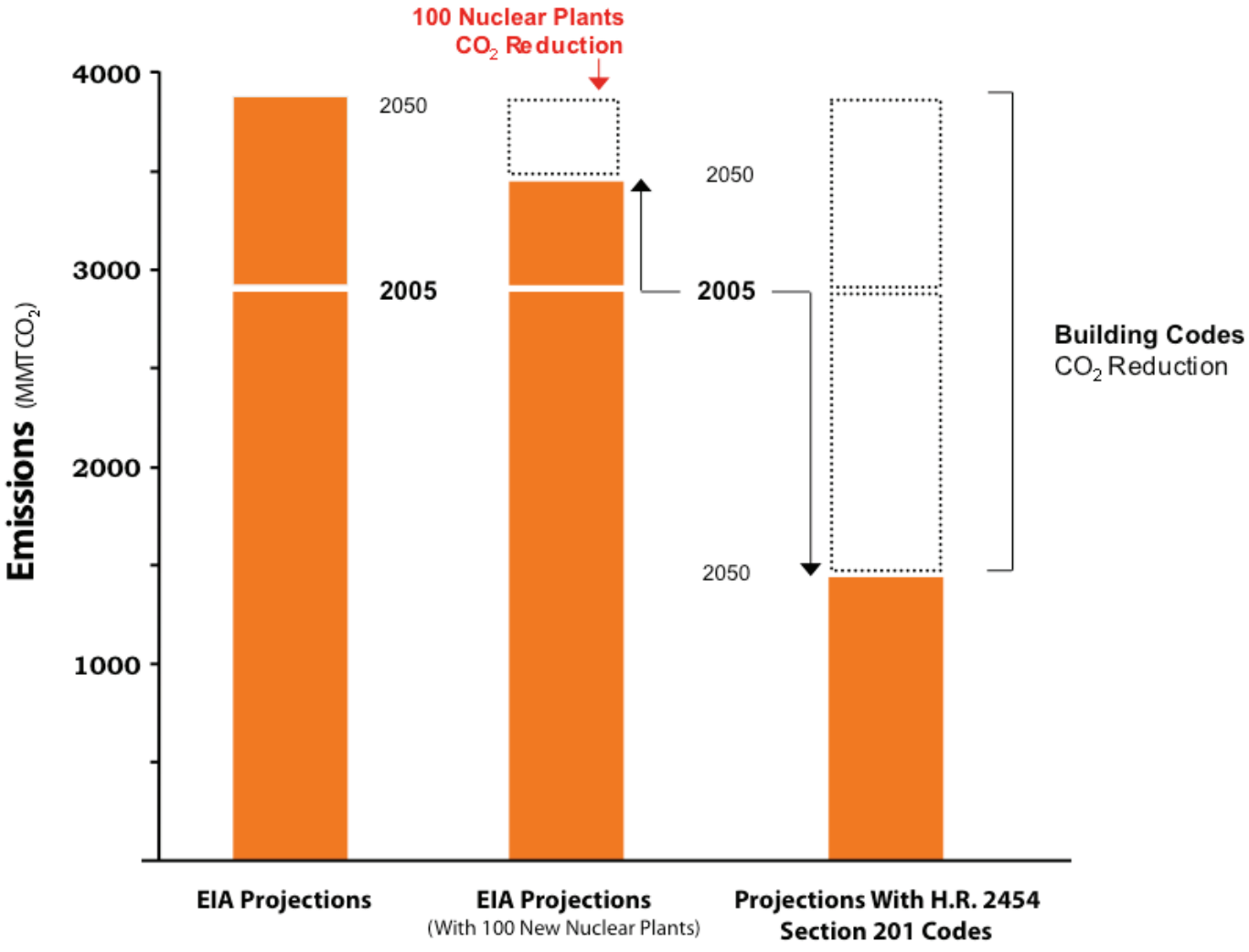
Illustrations

The following graphs compare the energy and CO_2 impacts of H.R. 2454, Section 201 with 100 new 1000 MW nuclear power plants:



U.S. BUILDING SECTOR ENERGY CONSUMPTION PROJECTIONS 2005-2050

Source: ©2009 2030, Inc. / Architecture 2030.
Data Source: Energy Consumption and Projections: U.S. Energy Information Administration;
U.S. Department of Energy. Building Code Energy Reductions Analysis: Architecture 2030.
Assumptions: The Building Sector will consume 78.6% of total U.S. electricity production in 2050
(U.S. Energy Information Administration).



U.S. BUILDING SECTOR CO_2 EMISSIONS PROJECTIONS 2005-2050

Source: ©2009 2030, Inc. / Architecture 2030.
Data Source: : CO_2 Emissions and Projections: U.S. Energy Information Administration; U.S. Department of Energy. CO_2 Reduction Analysis: Architecture 2030.
Assumptions: The Building Sector will consume 78.6% of total U.S. electricity production in 2050 (U.S. Energy Information Administration).