Putting America’s Building Energy Code on a Glide Path of Steady Gains

THE POWER IS IN YOUR HANDS!
America’s Building Energy Policy Determined by Local Government

WILLIAM D. FAY
Executive Director
Buildings Are The “Elephant In The Room” of National Energy Policy

America’s Homes & Commercial Buildings use:

✓ 42% of all energy
✓ 54% of natural gas
✓ 71% of electricity

And account for 39% of US GHGs
AFTER MORTGAGE, PRINCIPAL & INTEREST, ENERGY IS THE HIGHEST COST OF HOME OWNERSHIP

Average U.S. Homeowner Costs 2007-2008
Buildings Last 70-100 Years, Even More

- Failure to address building efficiency will affect sound national energy efficiency policy for 4-5 generations.
- Retrofits far more costly than “Build It Right the First Time”
- Average home’s energy bills will total $170,000!!!
Codes Are Essential To Reducing Wasted Energy From Buildings

- Industry 32%
- Transportation 28%
- Buildings 40%
- Commercial 18%

- Covers 66% of energy usage

- Residential 22%
- Other 4%

- Cooling 13%
- Water Heating 12%
- Lights 11%
- Other 13%

- Heating 31%
- Ventilation 6%

- Covers 66% by codes
Codes Stabilize Grids; Delay the *Need* For New Power Plants

The 2011 Prediction:
Continued savings of the magnitude of recent efficiency gains in building energy codes and appliance standards “will completely offset the anticipated growth in demand in the residential, commercial, and industrial sectors combined, eliminating the need for additional power plants to serve these sectors through 2025.”

*Institute for Electric Efficiency White Paper  May 2011*

The 2014 Evidence:
“Improvements in energy efficiency for buildings & appliances appear to have broken the traditional connection between electricity demand & economic growth.”

*Duke Energy CEO Lynn Good, 1/6/2014 Financial Times interview*
Codes Are **The Most Cost Effective** Means of Reducing GHGs
Nine out of ten buyers would rather buy an energy-efficient home... and they are willing to pay up to 3% more!

(Source: National Association of Home Builders)
But How Do They Know When They’re Choosing a New Home?

No evident difference to a new homebuyer, but...
These Homes Look – And Are – Identical. . . Except for the Code They Meet!

No evident difference to a new homebuyer, but...

2006 IECC

2012/2015 IECC

This House Cost $1,250 More  
...Far Less Than 2-3%!
Which Home Would You Choose?

Better Codes = Better Homes

38% more efficient

$10,081 in energy savings over a typical 30-year mortgage after fully recouping $1,250 added cost.

Savings will continue to accrue over the home’s 80- to 100-year life

2012/2015 IECC
Success to Date . . .
And How We *Got* There
Focus on a “Whole House” Approach to Efficiency
## Galvanized “Unlikely” Base of Support

### Government
- National Association of State Energy Officials
- ICLEI

### Broad-Based Energy Efficiency Groups
- The Alliance to Save Energy
- American Council for an Energy Efficient Economy (ACEEE)
- United Nations Foundation

### Regional Energy Alliances
- Midwest Energy Efficiency Alliance (MEEA)
- Northeast Energy Efficiency Partnerships (NEEP)
- Northwest Energy Codes Group
- NW Energy Coalition
- South-central Partnership for Energy Efficiency as a Resource (SPEER)
- Southeast Energy Efficiency Alliance (SEEA)
- Southwest Energy Efficiency Project (SWEEP)

### Academia/Think Tanks
- American College and University Presidents
- Climate Commitment
- Institute for Market Transformation
- New Buildings Institute

### Affordable Housing Advocates
- Enterprise Community Partners
- Global Green USA
- LISC – Local Initiatives Support Corp.
- National Housing Institute
- National Low Income Housing Coalition

### Energy Consumers
- Consumers Federation of America
- Public Citizen

### Business/Insurance
- American Chemistry Council
- Bayer
- Business Council for Sustainable Energy
- Cardinal Glass
- Current Energy
- Extruded Polystyrene Foam Association (XPSA)
- Fireman’s Fund
- Green Chamber of Commerce
- North American Insulation Manufacturers Assn (NAIMA)
- Northwest Environmental Business Council
- Polyisocyanurate Insulation Manufacturers Assn (PIMA)
- Structural Insulated Panel Association (SIPA)
- Vinyl Siding Institute (VSI)

### Environmental Groups
- Center for Environment, Commerce & Energy
- Climate Crisis Coalition
- Environment America
- National Wildlife Federation
- Natural Resources Defense Council (NRDC)
- Sierra Club
- 2020 Vision

### Labor
- Blue Green Alliance

### Utilities
- American Public Power Association
- Edison Electric Institute
- National Rural Electric Cooperative Association
Mayors Strongly Support Dynamic IECC Efficiency Gains


- Endorse “30% Solution” & 5% Gain “Builder Flex”
- Oppose Rollbacks and Trade-Offs that Weaken the Stringency of Gains
- Encourage Municipal Support for All Eligible Code Officials to Vote
Federal Law: DOE Must “Determine” If IECC Updates Are More Efficient

- A favorable DOE determination sets a vast & effective energy code adoption process in motion:
  - 2-Year clock starts ticking for states meet or exceed the new stronger efficiency levels;
  - broad-based network of efficiency, low income, consumer, business, and other advocates begin state and local adoption campaigns;
  - DOE produces supporting materials and frees funding that supports the new ICC code and trains builders and code officials to understand and implement it
  - New code also becomes the baseline for future code activities at DOE.
Progress – 38-54% Efficiency Boost


17
DOE study uses a life-cycle approach, balancing first costs against longer-term energy savings over typical 30-year mortgage – but savings continue for decades more.

<table>
<thead>
<tr>
<th>IECC Climate Zone</th>
<th>30-Year Life-Cycle Savings ($US)</th>
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<tbody>
<tr>
<td></td>
<td>IECC 2009 vs. 2006</td>
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<tr>
<td>1</td>
<td>$2,877</td>
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<tr>
<td>2</td>
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<tr>
<td>8</td>
<td>$9,147</td>
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Alliance to Save Energy: “If all states had adopted the 2012 IECC in 2012 and achieved full compliance by 2013 ...”

- 3.5 quadrillion Btu annual energy savings by 2030.
- $40 billion annual energy cost savings by 2030.
- 200 million metric tons of carbon dioxide emissions avoided annually by 2030.
Continuing Success in 2016 . . .
The Hurdles Ahead and How We Can Put the IECC on a Glide Path of Future Gains
Local Officials Reject Rollbacks & Trade-Offs in 2015 IECC. Can They Do It Again?

Code officials showed little appetite for proposals that would have weakened the 2015 IECC’s efficiency.

Results for EECC’s 22 *Worst* Residential Proposals:

<table>
<thead>
<tr>
<th>Proposal</th>
<th>Status</th>
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<tr>
<td>RE166</td>
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<tr>
<td><strong>8 Proposals to Weaken Insulation</strong></td>
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<td>• RE26</td>
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<td>• RE28</td>
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<td>• RE32</td>
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<td>• RE37</td>
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<tr>
<td>• RE38</td>
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<tr>
<td><strong>3 proposals to Remove Glazing Backstop</strong></td>
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<td>• RE165</td>
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<tr>
<td>• RE170</td>
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<tr>
<td>• RE181</td>
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<tr>
<td><strong>3 Unreasonable Fenestration Proposals</strong></td>
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<tr>
<td>• RE95</td>
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Simple 2016 Goals for the 2018 IECC

Achieve a minimum 5% efficiency boost in the 2018 IECC over the 2015 IECC

- Put 2018 and future IECCs on a glide path of steady efficiency improvements
- Defeat efficiency rollbacks and trade-offs

Increase *cdpACCESS* voting participation by local and state governments

Urge elected officials to link code official voting to their jurisdiction’s energy and environmental policies
So Where Does Solar PV and Other Onsite Generation Fit In?
EECC Opposes Trade-Offs That Weaken the Building Envelope

• Building envelope measures like insulation, sealing & windows deliver efficiency for the life of the building.
  o Measures like sealing and wall insulation must be installed at first construction or are lost for the life of the building.
  o Also lost is the opportunity to reduce HVCA size & the solar PV system needed to meet the home’s electricity demand.

• In our quest to net zero construction, we support a strong building envelope AND – not OR – the addition of solar or other renewable features

• A less efficient envelope translates into higher utility bills, even with renewable option.
Unanswered Trade-Off Questions for Low Income Families

• *If lower income families are “who’s left” after net metering kicks in, won’t they necessarily see their energy costs grow?*

• Many envelope improvements are fixed and either permanent or likely to be replaced by equally efficient products (such as windows). *Can the same be said about photovoltaics?*

• Most long-lasting envelope features don’t require any owner occupant maintenance. The same is not true of PV.

• Extended heat waves and cold snaps are when strong envelopes perform best and weak envelopes put families into arrears in paying their energy bills. *Won’t a weaker envelope particularly be a problem in cold, cloudy weather, when the envelope doesn’t perform as well and the sun isn’t out to generate electricity?*
THANK YOU!

http://energyefficientcodes.org/POWER

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