

Energy Code Compliance in the US: A View From The Trenches



THE WORLD BANK
MAINSTREAMING BUILDING ENERGY
EFFICIENCY CODES
IN DEVELOPING COUNTRIES

NOVEMBER 19, 2009

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BCAP

Dedicated to the adoption, implementation,
and advancement of building energy codes

BCAP – Building Codes Assistance Project



Non-profit, based in D.C. since 1994

Formed as a joint project of the *Alliance to Save Energy*, the *Natural Resources Defense Council*, and the *American Council for an Energy Efficient Economy*

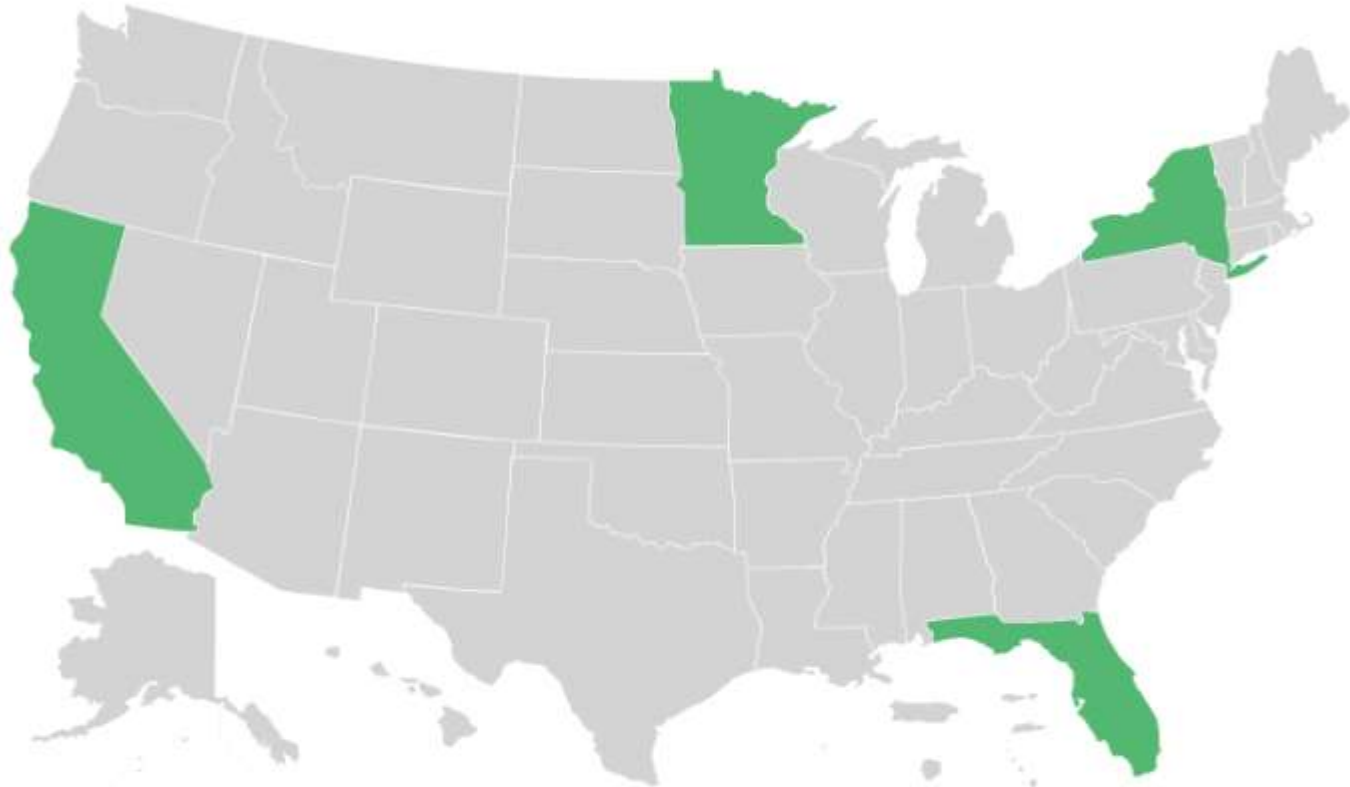
Provide *resources, education & advocacy assistance* for adoption, implementation, & advancement of effective energy codes on behalf of the US Department of Energy and other funders



Where I Come From: The Trenches



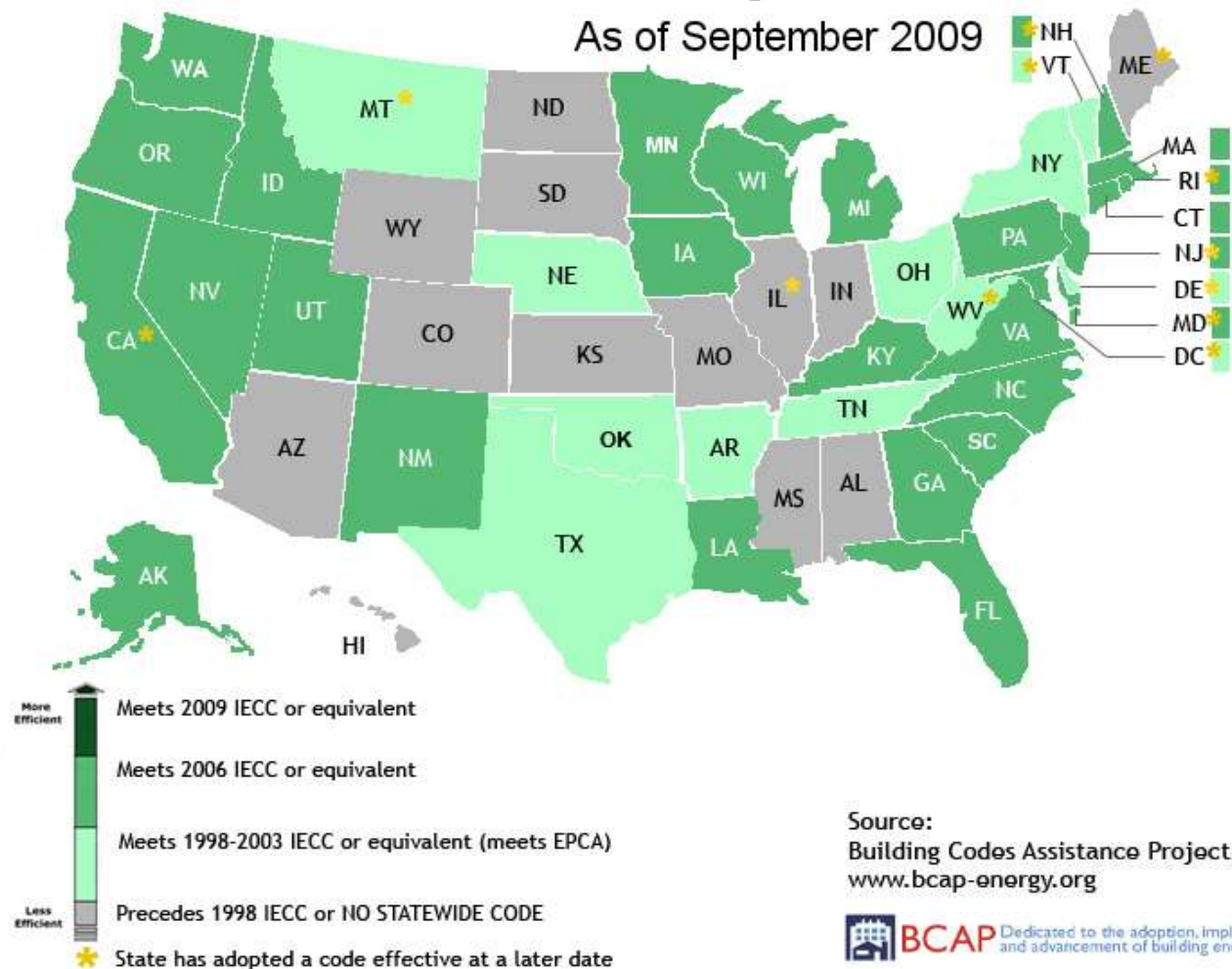
Back in the 80's:



Today:

Residential State Energy Code Status

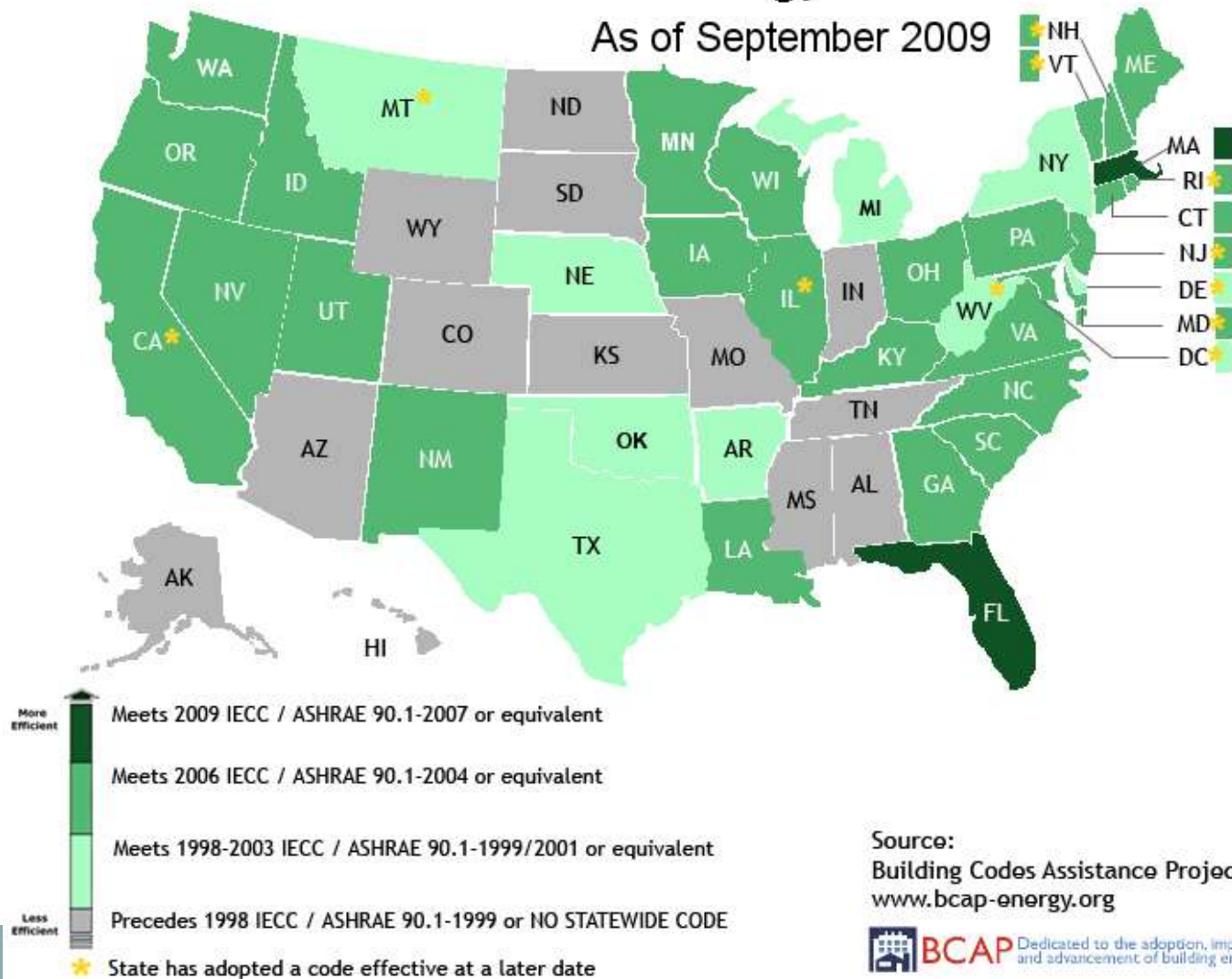
As of September 2009



Today:

Commercial State Energy Code Status

As of September 2009



Source:
Building Codes Assistance Project
www.bcap-energy.org

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However...



And - US Compliance Rates



State	Energy Code	Compliance Rate
Arkansas	92 MEC	55%
California	Title 24	70%
Idaho	1996 IRES	52%
Nevada	Various	-42% to 9%
New York/L.I.	2002 NYRes	0%
Oregon	2993 OREC	100%
Washington	1997 WSEC	93%
Iowa	2003 IECC	3%-23%

Enforcement Structures



State or Local
Government
Employees
Enforce Code

Third
Party

Self-Certify
&
Judicial
Enforcement



Why is Compliance Low?



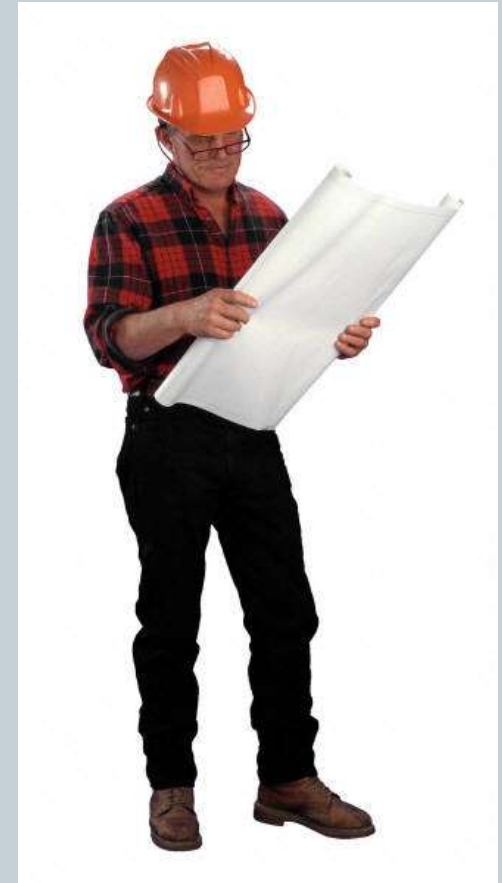
- Little/no enforcement
- Lack of knowledge
- Inconsistency



Barriers to Compliance



- **Little/no enforcement**
 - Low priority
 - Insufficient resources
 - Low political will (pressure from builders/developers)



Barriers to Compliance - Resources



Residential Energy Code

Current practice:

1.25 hours for building plan review & inspection

Recommended:

2.5 hours for building plan review & inspection

DOE/PNNL Study: 10-20 min. spent INSPECTION!

Note: does not include vehicle, equipment, office expense or time needed to travel to building sites

**Therefore - BCAP Recommendation:
29hrs/year in training!**



Barriers to Compliance



Lack of knowledge

- Builders don't understand energy efficiency
- Code officials don't have expertise or training
- Training in SILOS
- Architects learn design, not building science/performance
- Consumers ASSUME codes assure energy efficiency



Barriers to Compliance



- **Inconsistency/lack of standard protocols**
 - Record-keeping
 - Interpretation and application of code requirements



How to Improve Compliance



1. Improve enforcement and visibility/priority of energy code.
2. Improve the understanding of the energy code.
3. Improve the consistency of code enforcement.



Improve Enforcement/Visibility/Priority of Code



- Provide sufficient budget & staff
- Link codes to national/state/local goals & priorities
- Automate review/permit/inspection
- Existing buildings: use time-of-sale or other requirements to measure performance
- Outreach to Consumers!



Improve Enforcement/Visibility/Priority of Code

- Link financial assistance to compliance
- Make data publicly available
- Withhold certificates of occupancy on non-compliant buildings
- Inspect and test buildings:
Austin, Seattle, Portland



Improve Understanding of Codes



- Mandate certification/training requirements
- Provide consistent training content
- Train stakeholders (code officials, builders, design professionals, policy makers) together
- Develop and use regional code experts
- Use compliance failures to adjust training content
- Hold field training sessions for all parties



Improve Consistency of Code Enforcement



- Standardize practice & procedures
 - Permit requirements
 - Record-keeping
 - Plan review and inspection protocol
 - Code interpretations
- Link plan review & permits to site inspection
- Conduct site inspections to coincide with critical compliance milestones



Improve Consistency of Code Enforcement

- Use third party enforcement
 - Private sector firms
 - HERS-As-Codes, Energy Star
 - Utilities
- Use commissioning
- Use compliance testing
- Promote use of checklists and other tools to clarify requirements

REScheck Inspection Checklist
New York State Energy Conservation Construction Code
REScheckSoftware Version 3.5 Release 1

DATE: 12/20/02

Bldg. |
Dept. |
Use |

Ceilings:

[] 1. Ceiling 1: Flat Ceiling or Scissor Truss, R-38.0 cavity insulation
Comments: _____

[] 2. Ceiling 2: Cathedral Ceiling (no attic), R-19.0 cavity + R-5.0 continuous insulation
Comments: _____

Above-Grade Walls:

[] 1. Wall 1: Wood Frame, 16" o.c., R-19.0 cavity insulation
Comments: _____

Basement Walls:

[] 1. Basement Wall 1: Solid Concrete or Masonry, 7.0' ht/6.0' bg/7.0' insul,
R-11.0 cavity insulation
Comments: _____

Windows:

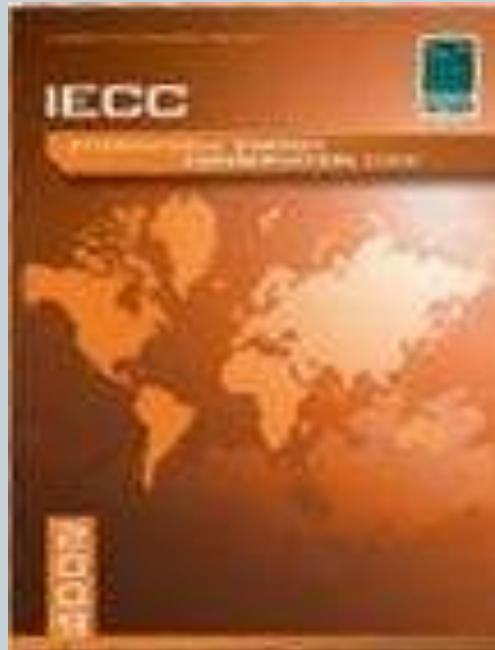
[] 1. Window 1: Metal Frame with Thermal Break: Double Pane with Low-E, U-factor: 0.350
For windows without labeled U-factors, describe features:
Panes _____ Frame Type _____ Thermal Break? [] Yes [] No
Comments: _____



New Federal Requirements



- Adopt model codes
- 90% compliance for new and existing buildings within 8 years



Up-coming BCAP work: State, Local, International



- **Assistance on adoption**

- Engaging key stakeholders
- Providing exemplary legislative models
- Advanced Code Adoption and Implementation

- **Assistance on implementation**

- Compliance assurance through outreach, curriculum development, new approaches in training, etc.
- Enforcement assistance to address barriers identified
- Expand the Implementation Infrastructure
 - ✦ i.e. - Energy Code Ambassadors Project
 - ✦ Commissioning, HERS-As-Code, Training Assessment & Strategy



O.C.E.A.N. – A Repository and Conduit



Online Code Environment & Advocacy Network

- Lessons learned, best practices, and resources
- State amendments, local policies, implementation and enforcement practices, etc.

Ultimate Goal: expedite advances in code effectiveness by sharing information.



O.C.E.A.N. – A Repository and Conduit



Data tailored to meet the needs of specific stakeholder groups (e.g., consumers, policymakers, code officials, climate activists)

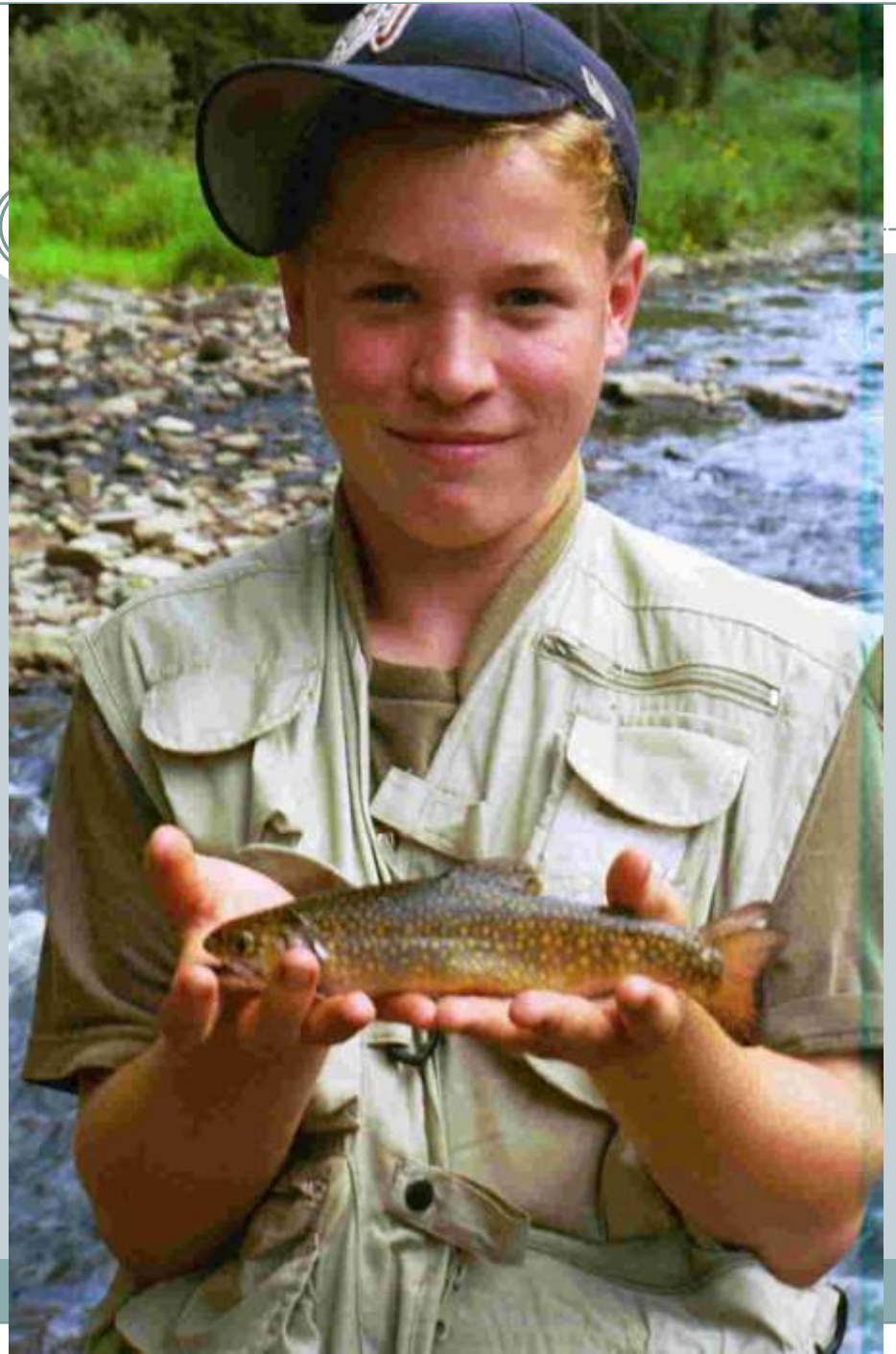
Interactive Web Posting: allows users to disseminate new information

- OCEAN Connect: online discussions, post code-related needs or services
- Code Network: online discussions of adoption strategy for energy code advocates



Remember!

**We're all In
this together!**



Thank You!



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OCEAN

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