

U.S. DEPARTMENT OF  
**ENERGY**

Office of  
**ENERGY EFFICIENCY &  
RENEWABLE ENERGY**

# Equity and Codes: Ensuring Codes and Energy Efficient Buildings Address Affordable Housing Needs

Building Energy Codes Seminar Series

Building Technologies Office

Fall 2021



# NECC Seminar Series Lineup

Catch the entire lineup of sessions bi-weekly—Thursdays @ 1p ET:

- 8/12: Grid Integration and Electrification in Energy Codes
- 8/26: Approaching Zero, Where Do We Go From Here for Commercial Buildings
- 9/9: Codes Around the Globe: A Cross-National Comparison of Building Energy Codes
- 9/23: Evolution of Commercial Building Design and Construction
- 10/21: Zoning and Land-Use Regulation: Emerging Tools for Advancing Climate-Friendly Development
- **11/18: Equity and Codes: Ensuring Codes and Energy Efficient Buildings Address Affordable Housing Needs**

> Learn more: <https://www.energycodes.gov/2021-summer-seminar-series>

# About NEEP

A Regional Energy Efficiency Organization



One of six REEOs funded in-part by U.S. DOE to support state and local efficiency policies and programs.

# Northeast Energy Efficiency Partnerships



*“Assist the Northeast and Mid-Atlantic region to reduce building sector energy consumption 3% per year and carbon emissions 40% by 2030 (relative to 2001)”*

## Mission

We seek to accelerate regional collaboration to promote advanced energy efficiency and related solutions in homes, buildings, industry, and communities.

## Vision

We envision the region's homes, buildings, and communities transformed into efficient, affordable, low-carbon, resilient places to live, work, and play.

## Approach

Drive market transformation regionally by fostering collaboration and innovation, developing tools, and disseminating knowledge



# Today's Moderator & Panelists

## Moderator

- **Kai Palmer-Dunning** – Buildings and Communities Associate, NEEP

## Speakers

- **Roger Kainu**– Energy Analyst, Oregon Department of Energy
- **Neela Ram**– Climate Advisor in Mayor's Office of Atlanta, NRDC
- **Sonrisa Lucero**– Equitable Building Decarbonization Manager, RMI



OREGON  
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ENERGY

# Energy Codes in Oregon

November 18, 2021

Roger Kainu,  
Oregon Department of Energy

# OREGON DEPARTMENT OF ENERGY

Leading Oregon to a safe, equitable, clean, and sustainable energy future.

## Our Mission

The Oregon Department of Energy helps Oregonians make informed decisions and maintain a resilient and affordable energy system. We advance solutions to shape an equitable clean energy transition, protect the environment and public health, and responsibly balance energy needs and impacts for current and future generations.

## What We Do

On behalf of Oregonians across the state, the Oregon Department of Energy achieves its mission by providing:

- A Central Repository of Energy Data, Information, and Analysis
- A Venue for Problem-Solving Oregon's Energy Challenges
- Energy Education and Technical Assistance
- Regulation and Oversight
- Energy Programs and Activities



# WHY A DISCUSSION ON ENERGY CODES?

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- »» To listen and gather feedback
- »» To help inform
- »» To identify areas of improvement





# Oregon Energy Code Outreach

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- Oregon Energy Code Stakeholder Panel
  - Brings all types of stakeholders together to consider their issues and thoughts.
  - Began 18 months ago – now meets quarterly
  - Discusses current energy code issues (some directed by the governor)
  - Discusses current energy code performance – how Oregon is doing

# Beyond energy expert discussions

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- Became apparent that many folks affected by codes were not at the table.
- Became apparent many “underserved” stakeholders do not understand the code process.
- How to reach underserved?
- How to assist?

# QUESTIONS from the Public

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- »» How do BCD, ODOE, and local action all interact together in the process?
- »» What is the difference between codes and standards?
- »» What is the code adoption process in Oregon, and how do “model codes” play a role?
- »» How did we get here – what is the history of why the process is this way?
- »» How does Oregon compare to the other states?
- »» Is there interest in co-convening workshops for energy education or technical assistance with communities interested in changes to building codes?

**Other questions on your mind that we could try to cover today?**

# WHAT ARE ENERGY CODES?

Energy Codes create minimum requirements for design and construction.

*“Energy codes – specify how buildings must be constructed or perform, and are written in mandatory, enforceable language. States or local governments adopt and enforce energy codes for their jurisdictions.” – Pacific Northwest National Laboratory*

Examples of energy requirements in Oregon 2021 residential energy code:

- Attic insulation = R49
- Windows = U.27
- High efficiency lighting = 65 lumens/watt lamps
- Energy Star bathroom fans and outdoor ventilation supply fans

Energy efficiency standards (also referred to as appliance standards)

- Establish a minimum energy efficiency level that certain products must meet in order to be sold or installed.
- Are complementary to building codes



Department of Consumer  
and Business Services

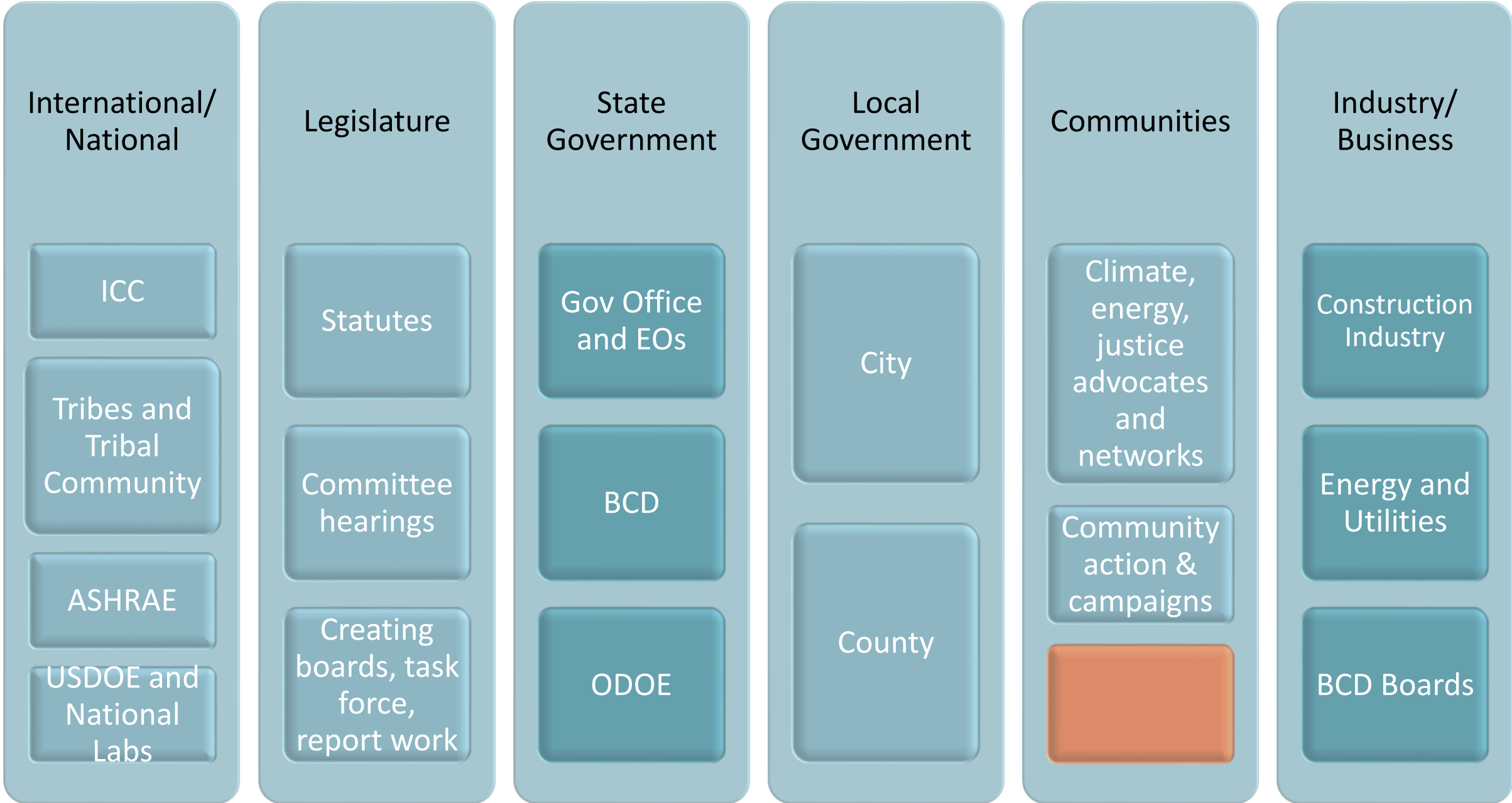
### Role: Regulation

- Informing public
- Guiding code adoption process
- Managing code proposals
- Analysis of code performance
- Educating code officials
- Code interpretation
- Works with BCD Boards



### Role: Advisory

- Construction Industry Energy Board membership
- Advisory – inputs, assumptions and analysis
- Training to industry and stakeholders
- Staff involved in Model Code development
- Outreach: Stakeholder Panel



# Building Codes Division Boards

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*There are seven governor-appointed boards that assist the division to carry out its mission of ensuring safe construction while promoting a positive business climate.*

## Boards

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### BOARDS

Board of Boiler Rules

Building Codes Structures Board

Construction Industry Energy Board

Electrical and Elevator Board

Mechanical Board

Residential and Manufactured  
Structures Board

State Plumbing Board

Board archives

<https://www.oregon.gov/bcd/boards/Pages/index.aspx>

# MODEL ENERGY CODE

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## International Code Council – ICC

- Publishes and maintains the International Energy Conservation Code (IECC), which is **a model energy code that makes allowances for different climate zones**. Because it is written in mandatory, enforceable language, state and local jurisdictions can easily adopt the model as their energy code. Before adopting the IECC, state and local governments often make changes to reflect regional building practices.

The ICC publishes new model codes on a three-year cycle. Oregon is currently using the 2018 model energy code with Oregon amendments for higher performance and application to local climate conditions.



# BOARDS AND COMMITTEES

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## Construction Industry Energy Board

- Evaluates and **approves or disapproves proposed state building code standards and administrative rules** relating to the energy use and energy efficiency aspects of the electrical, structural, prefabricated structure, and low-rise residential specialty. The proposed standards evaluated by the board may include energy-conserving technology, construction methods, products, and materials.
- **11 members**, including Building Codes Structures Board members, Electrical and Elevator Board members, Mechanical Board members, Residential and Manufactured Structures Board members, State Plumbing Board members, and an employee or officer from the Oregon Department of Energy.

# CURRENT CODE ADOPTION PROCESS

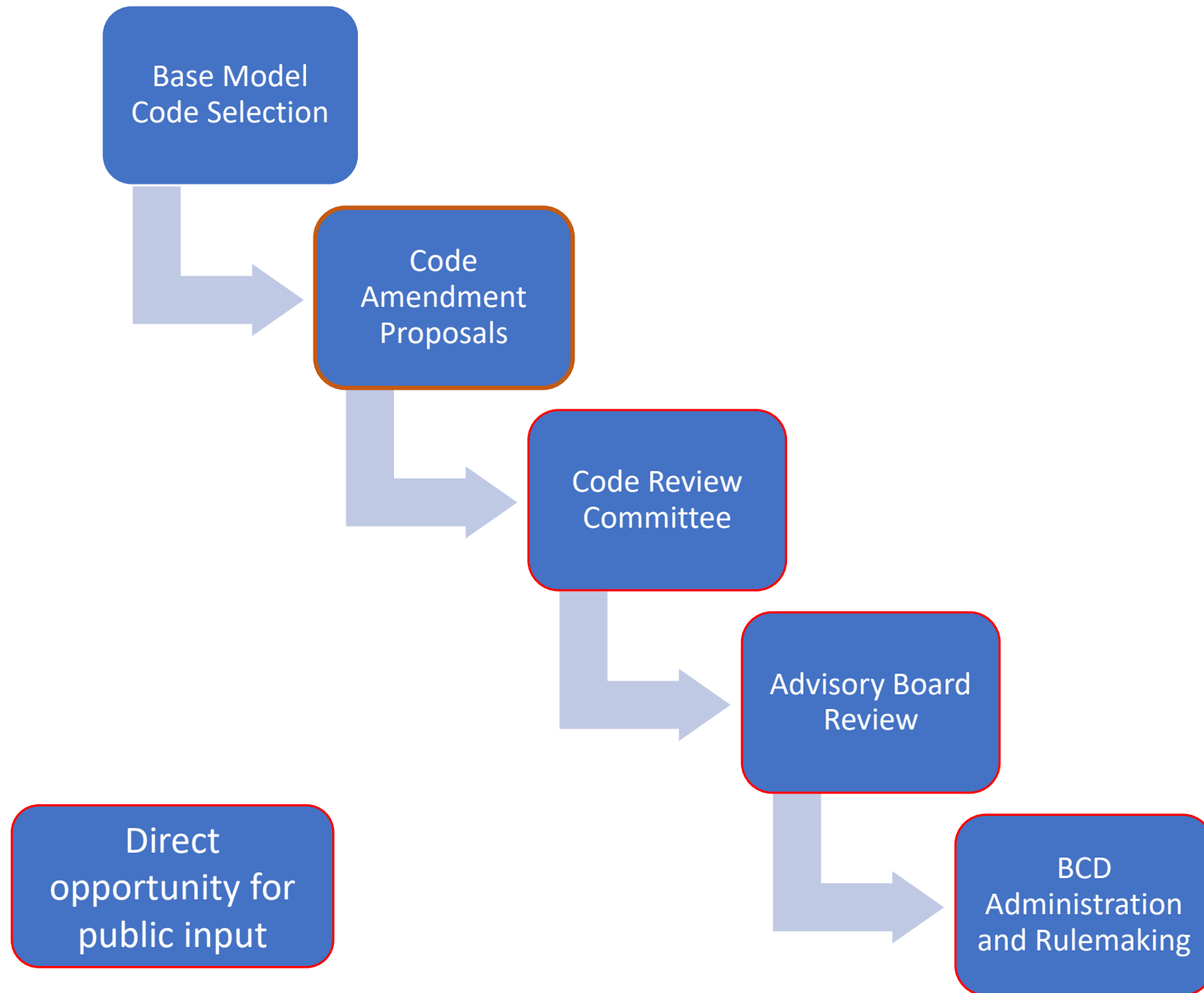
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- (1) The division, in consultation with the appropriate advisory board, **establishes a timetable to collect proposed code amendments**. The timetable depends on the publication date and general availability of the proposed base model code.
- (2) The division will notify interested persons of the timetable at least 45 days before the ending period for **collecting proposed code amendments**.
- (3) During the timeframe for proposing code amendments, an interested person may also **recommend that the division incorporate statewide code interpretations** and alternate method rulings into the Oregon specialty code.
- (4) The division, in consultation with an appropriate advisory board, reviews prior code amendments, statewide code interpretations, and alternate method rulings during the code adoption and amendment process. **The division recommends** whether to carry prior code amendments, statewide code interpretations, and alternate method rulings forward to a newly adopted Oregon specialty code or to archive prior code amendments, statewide code interpretations, and alternate method rulings for informational purposes.

**Statutory/Other Authority:** ORS 447.020, 455.030 & 479.730

**Statutes/Other Implemented:** ORS 447.020, 455.030 & 479.730

# Code Adoption Process



# HOW DID WE GET HERE?

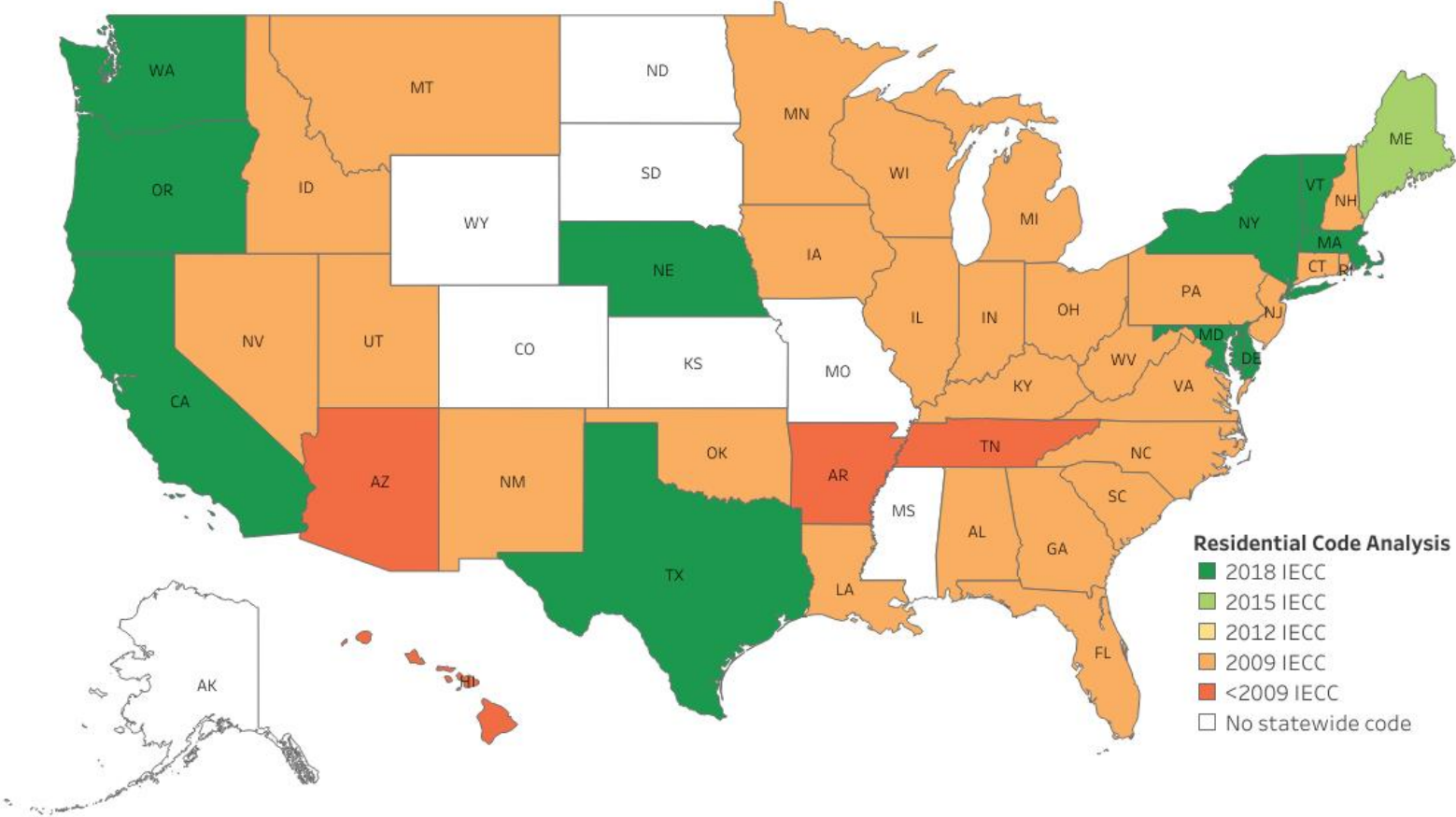
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## 1970s

- Governor Tom McCall – focus on state parks, bottle bill, and air and water
- 1973 – Oregon adopts a statewide uniform building code
- 1974 – Oregon became the first state with a statewide energy code – Responsibility transferred to Department of Commerce – now DCBS
  
- *Before:* codes were developed and administered via four different agencies, resulting in conflicting codes, duplication, non-uniform interpretations, and industry confusion with code requirements.
- *Now:* consistent construction with uniform statewide codes

# RESIDENTIAL ENERGY CODE PERFORMANCE

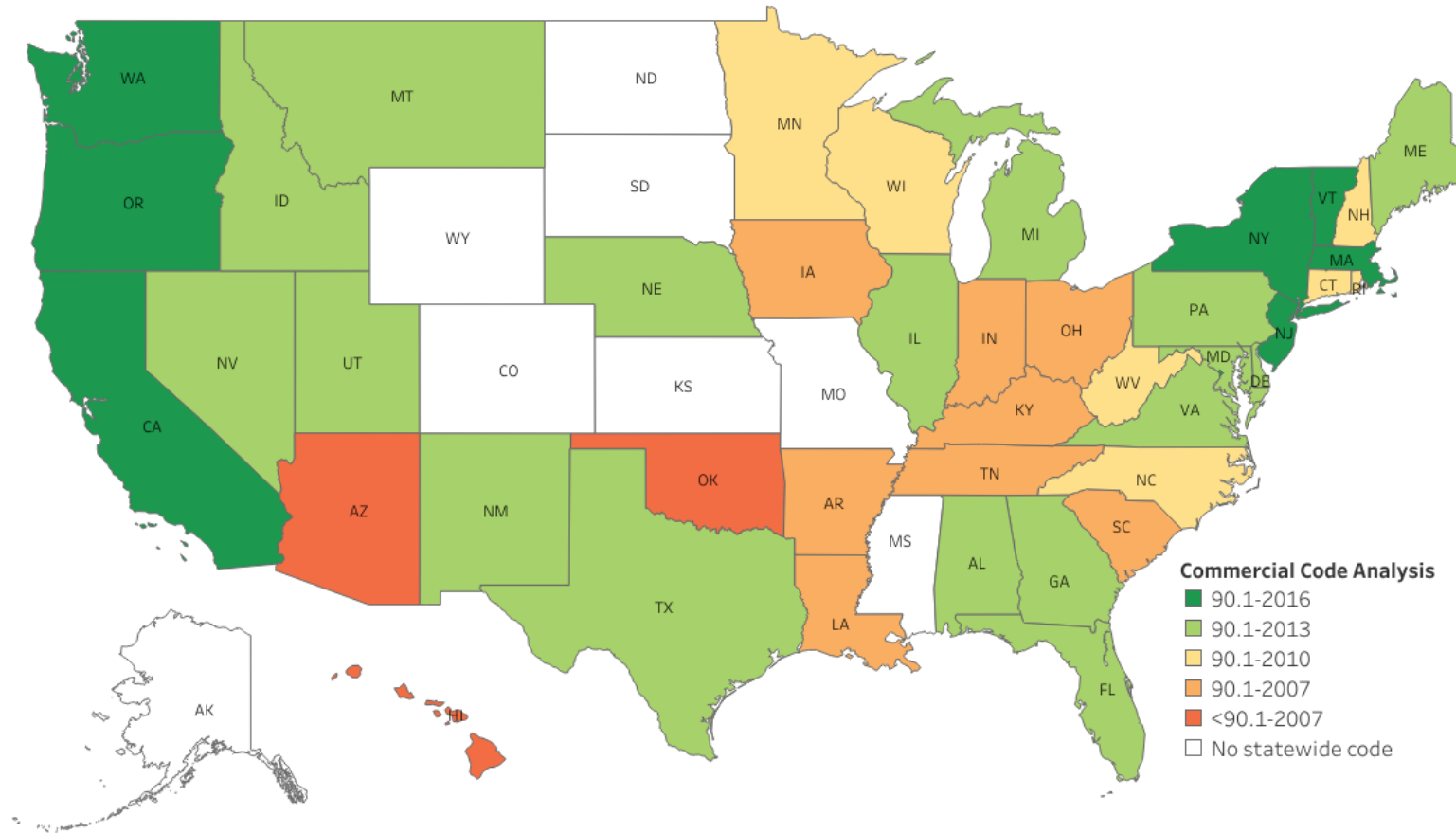
## Residential Buildings



US DOE BECP: Status of State Energy Code Adoption - <https://www.energycodes.gov/status/residential>  
Updated as of 10/01/21

# COMMERCIAL ENERGY CODE PERFORMANCE

## Commercial Buildings



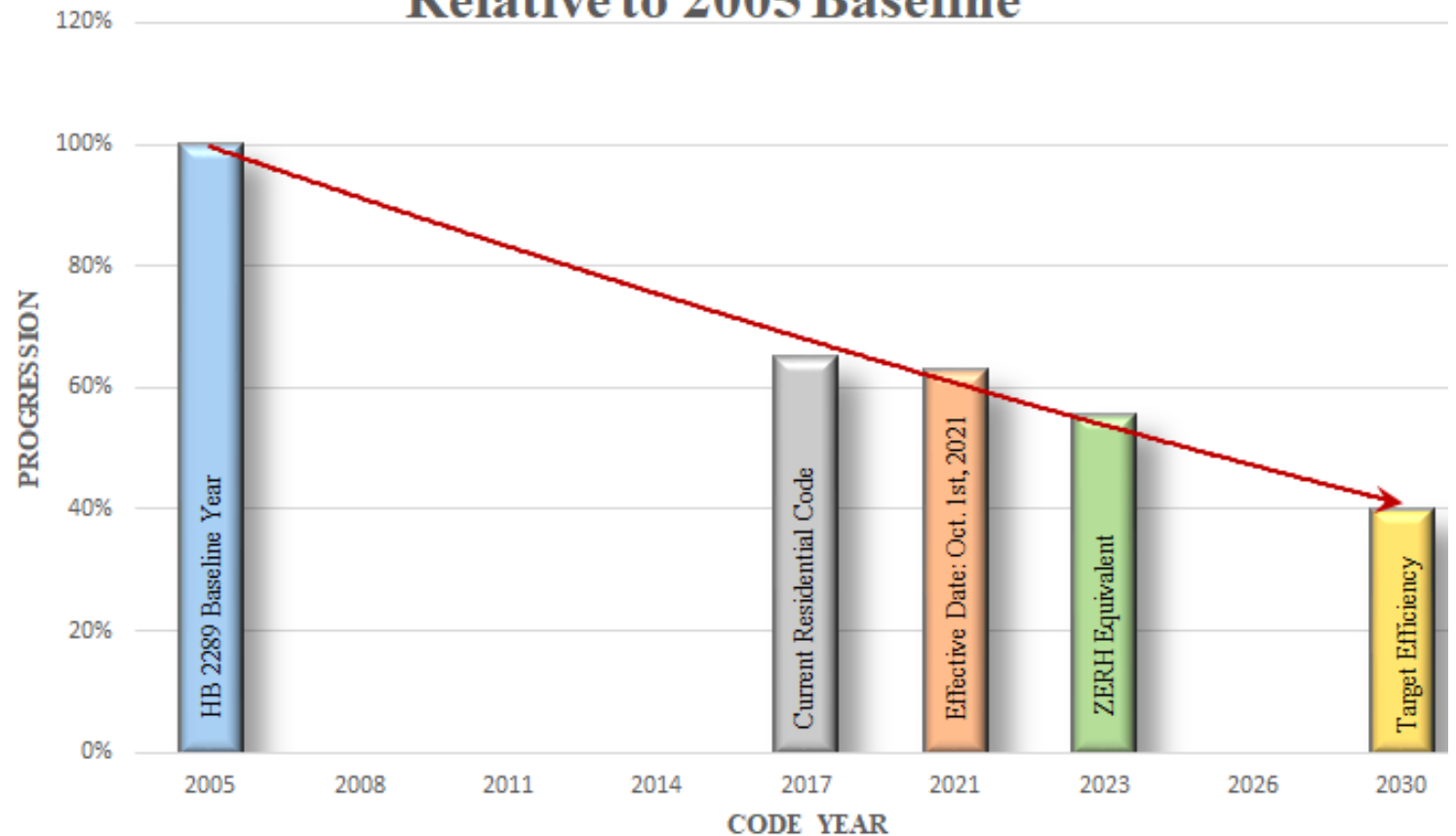
# GOVERNOR-LED PROGRESS



- (5) Convening periodic workshops for purposes of assisting electric companies, consumer-owned utilities, and operators of electrical distribution systems to develop and share best practices for mitigating wildfire risk; and
- (6) In cooperation with Oregon Housing and Community Services, establish a public process to address and mitigate differential energy burdens and other inequities of affordability and environmental justice, including rate design and other programs to mitigate energy burden.

6. **Directives to the Department of Consumer and Business Services Building Codes Division.** In addition to the general directives set forth in paragraph 3, BCD is directed to take the following actions:
- A. **Energy Efficiency Goal for New Construction.** BCD, through its advisory boards and committees, and in cooperation with ODOE, is directed to adopt building energy efficiency goals for 2030 for new residential and commercial construction. That goal shall represent at least a 60 percent reduction in new building annual site consumption of energy, excluding electricity used for transportation or appliances, from the 2006 Oregon residential and commercial codes.
  - B. **Code Progress and Updates.** BCD, through its advisory boards and committees, and in cooperation with ODOE, is directed to evaluate and report on Oregon's current progress toward achieving the goal for new residential and commercial buildings, pursuant to paragraph 6(A) of this Executive Order, and options for achieving steady progress toward the goal over the next three code cycles (2023, 2026, and 2029). Pursuant to its authority under ORS 455.500, BCD also is directed to update the Reach Code on the same timeline. No later than September 15, 2020, BCD should submit a report to the Governor on current progress and options for achieving the goals over the next three code cycles. The report should be updated every three years thereafter.
  - C. **Baseline Metrics and Reductions.** BCD, in cooperation with ODOE, is directed to agree on metrics, based on best practice and academic research, to inform the baseline and reductions associated with the code updates set forth in paragraph 6(B).

## Reduction in ORSC Regulated Energy Use Relative to 2005 Baseline



# REACH CODES

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- Designed to be a voluntary option to exceed current energy code
- Builders may select the Reach Code option as an offering
- Limited uptake in the past
- Energy Trust EPS program and other “above code options”
- City interest in a mandatory reach code



# REACH CODES

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Cities can offer a voluntary reach code and use incentives to encourage participation.  
Example of South Hillsboro (SOHI):

- Developer and builder incentives
  - ✓ Reduced System Development Charges
  - ✓ Faster permitting times

Cities can develop a mandatory reach code by following state rule for Local Amendment Request



# REACH CODES

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A local municipality may request under [ORS 455.040 \(State building code preempts local ordinances and rules\)](#) a **local amendment relating to matters covered under the building code**, by submitting to the division, in writing, a local amendment application. The application must include:

- **(a)** The reason for the request;
- **(b)** The name of, and contact information for, the building official responsible for submitting the request and enforcing and interpreting the local amendment if approved;
- **(c)** A copy of the municipality's proposed local ordinance or administrative rule; and
- **(d)** A copy of the report required by section (2)(b) of this rule.
- And more...

# How to get involved and next events

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- Oregon Energy Code Stakeholder Panel
  - 40+ stakeholders join to hear updates and offer input
  - Next session is December 14 at 1:30. Join our email list
  - See: [State of Oregon: GET INVOLVED - Oregon Energy Code Stakeholder Panel](#)
- BCD announcements via email
  - [Building Codes Division : Energy Code Program : Codes and standards : State of Oregon](#)
- Upcoming workshop with communities
- Co-convene opportunities?



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# Questions?

Roger Kainu

[Roger.Kainu@energy.oregon.gov](mailto:Roger.Kainu@energy.oregon.gov)

# A Vision for a 100% Clean Energy Future

# Atlanta's Clean Energy Plan

# A Stakeholder Driven Process for Implementation

# The Clean Energy Advisory Board



# Looking Ahead and Next Steps



**Thank You**

Neela Ram  
Climate Advisor, City of Atlanta  
American Cities Climate Challenge

[nram@nrdc.org](mailto:nram@nrdc.org)

# Equity and Codes: Ensuring Codes and Energy Efficient Buildings Address Affordable Housing Needs

November 18<sup>th</sup>, 2021



Transforming global energy use to create a clean, prosperous, and secure low-carbon future.



# What are Codes Designed to Do?

- **I-Codes (ICC – International Construction Codes)**

- Safety, Health, Welfare
- Not unnecessarily increase construction costs
- Do not inhibit or give preference to new materials, products or methods of construction
- Minimum Requirements of what will be built
- Can include voluntary, higher performance pathways
- IECC now updated as a “Standard,” decisions by board, not government elections

- **Some Jurisdictions make their own Codes**

- California’s Title 24

# Resilience

- Baseline weather information is used not created in the code
  - Weather baselines are adopted
    - Design temperatures -> when does A/C become standard?
    - Wind Speeds
  - Zoning will determine flood protection needs, but code determines the protections
- Can future proof
  - Solar
  - EV
  - Battery Backup
  - Greywater or Recycled Water

# What Outcome Are We Trying to Achieve When We Talk About Equity?

## • Existing Building Stock

- Substandard living conditions
  - Poor Air Quality (indoors and out)
  - Mold or Unsafe Conditions
  - Lack of extreme weather preparedness
  - Heat Island and Vegetation
- Energy Inefficient housing
  - Energy Burden
- Affordability
- Context to other services, i.e. food, transportation
- Tenants and Owner Considerations

## • New Construction Building Stock

- Affordability
- Balance between cost to acquire and cost to operate
  - Cost effectiveness test
- Gentrification
- Tenant vs Owner Considerations

# Code Adoption and Update Process

- **Typically Eight Step Process that includes:**

- Public Proposals
- Public Debate
- Technical Committee Review and Recommendations
- Public Comment
- Final Voting

- **Procedural Challenges**

- Participation in code development is typically limited to Subject Matter
  - The language, timing, method of communication is fairly inaccessible
  - Must be aware of process and be equipped to participate
- Charge of the committee
  - Were they seated with the directive to be more aggressive?
  - Do we have the authority to do this?
- Scope of the Code

# Equity Considerations within Code

## Standard I-Code

- Operational cost savings or increases may or may not be shared with renter
  - Something that can be addressed potentially with metering requirements
- Contextual Environmental Conditions can be addressed (NAAQS, Ground level ozone, PM2.5)
  - Indoor Air Quality
    - Air tightness (Envelope and Interior Walls)
    - Entrances
    - Filtering
    - Ventilation
    - Appliances
    - Furnishings

## The New Frontier

### (International Green Construction Code)

- Comfort
- Sound
- Daylight
- Heat Island
- Vegetation
  - Amount and Type
  - Soil Amendments
- Light Pollution
- Recycling
- Evs
- And so much more...!



# Pitfalls and ToDo's

- **Unintended consequences**

- Do you promote demolition over rehab?
- Deferred upgrades
- Lack of compliance
- Excessively difficult to implement (headache factor)
- Push out small building owners or parts of workforce

- **Within the code**

- Flexibility
  - Performance versus Prescriptive
    - Challenges with enforcement on performance
  - Alternative Compliance Pathways
- Exceptions

# Codes Can't Go Alone

- **Implementation Cost Assistance**

- Utility
- PACE
- Federal/State/Local

- **Technical Support**

- Resources and Training

- **Workforce to deliver the work**

- Highroad jobs
- MBE/WBE

- **Context of the building**

- Redlining / Systemic Racism
- Air Pollution / Asthma
- Utility Burden, Income Stress

- **Awareness, Outreach, Engagement, Decision-making**

- **Capture equity efforts in holistic approach – building retrofits**

# Who is here?

- **Who is here?**

- Government
- NGO / Non-profit
- Private Sector
- Utility

- **What is your working knowledge of codes?**

- Intimate: I am in the design/build industry and work with the code building by building
- Intimate: I work with codes regularly from an enforcement or policy setting and work across multiple buildings in a week
- Higher Level: I have occasionally worked with codes on specific issues or opportunities
- Introductory: I am new to codes and want to explore the opportunities with them

# Who is here?

- **Do you work to develop or operate affordable housing?**
  - Yes
  - No
  
- **What is your familiarity with Equity?**
  - I am a champion for equity and have advocated for it to be institutionalized in multiple settings
  - I try to apply an equity lens to my work
  - I am supportive of equity, but don't have much experience with it
  - I am not sure what equity means in relation to my work or how to apply it
  - I am not interested in advancing equity in my work

# Thank you!

Sonrisa Lucero  
slucero@rmi.org



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# Questions



**Building Energy Codes**

U.S. DEPARTMENT OF ENERGY

# PAST EVENTS

Listen to past events on-demand at [www.energycodes.gov/2021-summer-seminar-series](http://www.energycodes.gov/2021-summer-seminar-series)

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