

Oregon Department of **ENERGY**

EO 20-04
Implementation:
Energy Code
Stakeholders

Facilitator: Roger Kainu
July 12, 2020
1-2:30pm



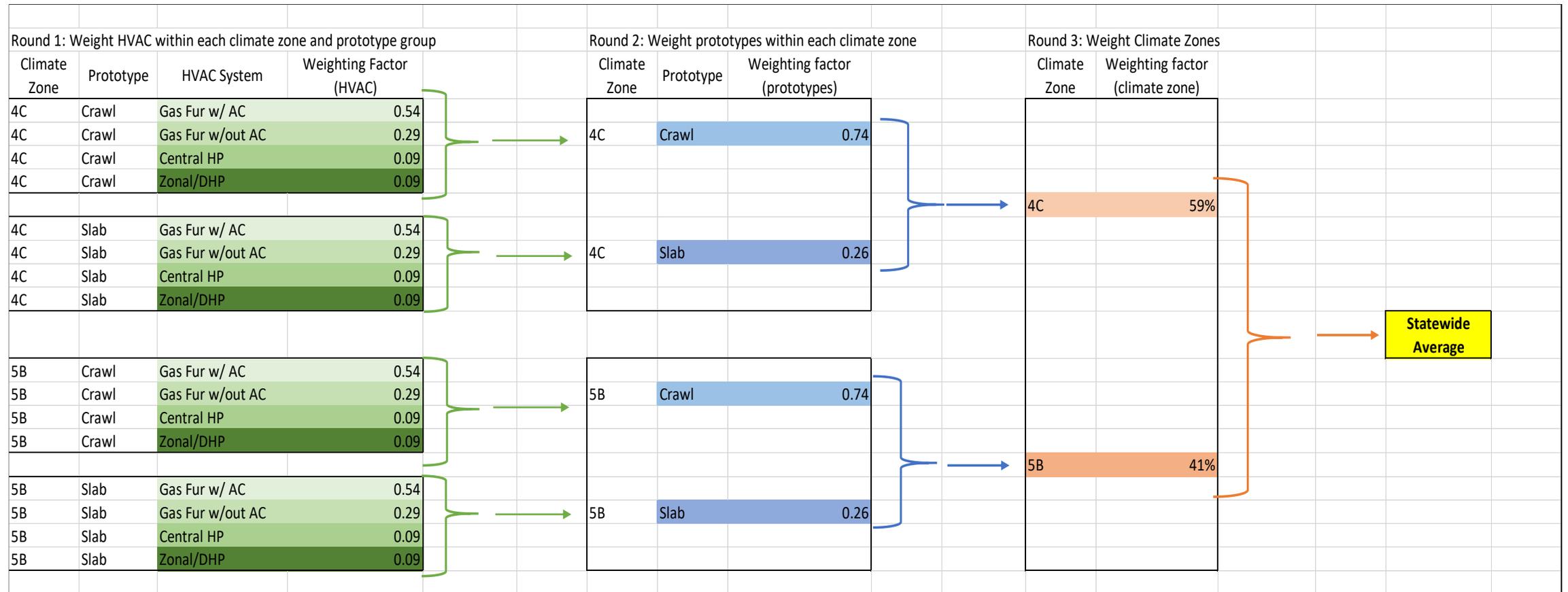
Agenda

| Topic | Lead | Action | Time |
|--------------------------------------|--------------------|---|--------|
| Intro and meeting description | ODOE staff | Share attendees and today's meeting description. | 5 min |
| Energy Code Weighting | BCD staff | Discussion of weighting factors applied to code inputs. | 10 min |
| Q/A | BCD/ODOE staff | Question and answer time. | 10 min |
| Commercial Code Process | ODOE and BCD staff | Review methodology, baseline and 2005 ODOE study. | 20 min |
| Q/A | BCD/ODOE staff | Question and answer time. | 10 min |
| Oregon Reach Code | BCD staff | Overview of Reach Code. | 15 min |
| Q/A | BCD/ODOE staff | Question and answer time. | 10 min |
| September Governor Report | BCD staff | BCD provides update on required governor report. | 5 min |
| Wrap-up | ODOE staff | Determine action items and announce next meeting. | 5 min |

Weighting For Final Residential Code Analysis

- Last issue for residential modeling
- Weighting from NEEA regional analysis figures
 - Adjusted to account for national code climate zones
 - Salem airport and Redmond airport weather files continue to be used
 - Spreadsheet will be available for public
- Weighted result used for 2006 residential code (100%)
 - 2030 Target to be 40% of this figure for September report to Governor
 - Analysis of path to 2030 target beginning

Energy Code Weighting

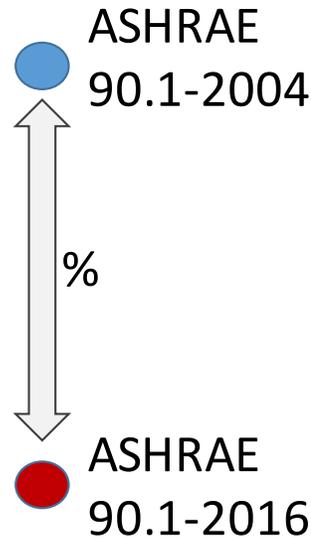
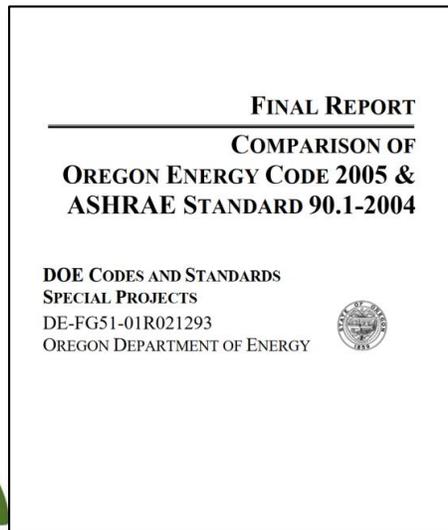


Commercial Code Baseline and Progress

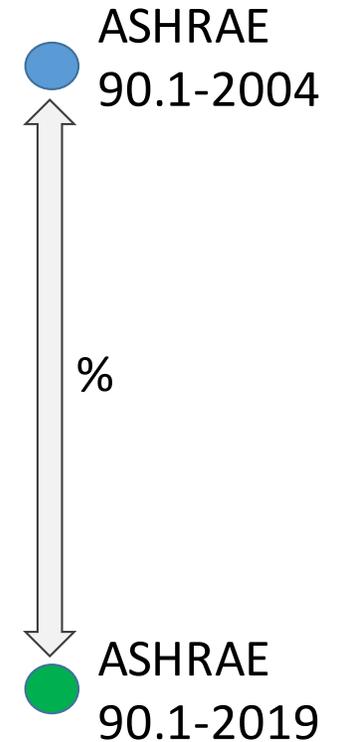
We have the benefit of several existing studies that can be leveraged to establish the baseline in 2006 and current progress

Energy Use

- ASHRAE 90.1-2004
- ↕ %
- 2004 OSSC (2006 code)



**90.1-2016 Building Performance Factors
Table 4.2.1.1**

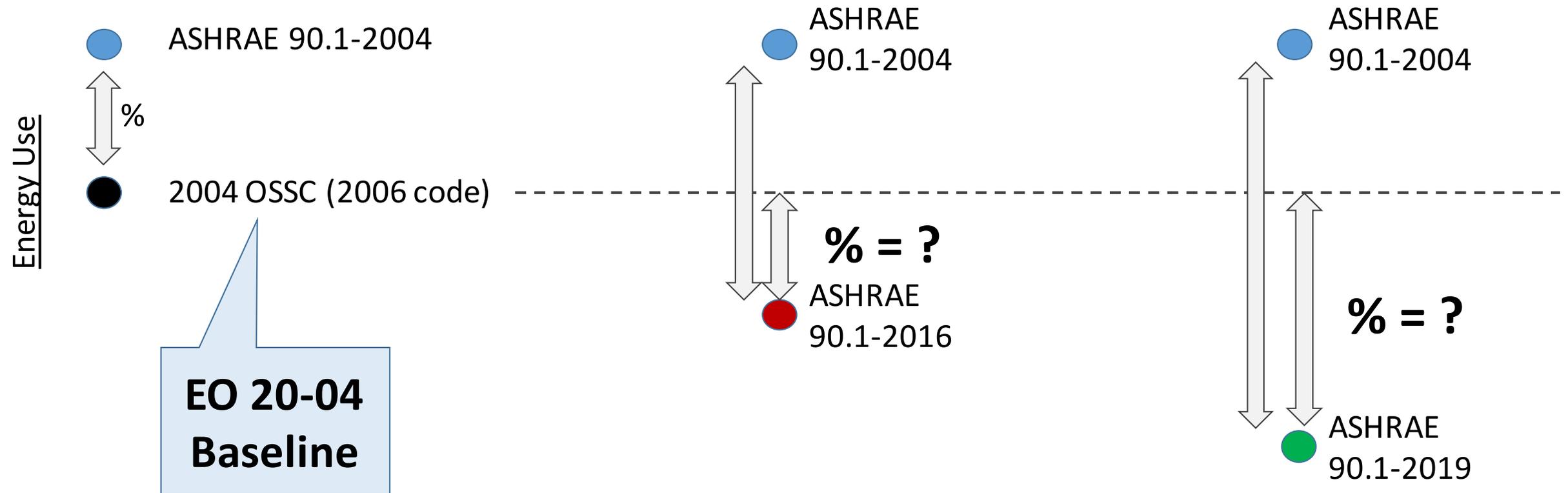


**90.1-2019 Building Performance Factors
Table 4.2.1.1**

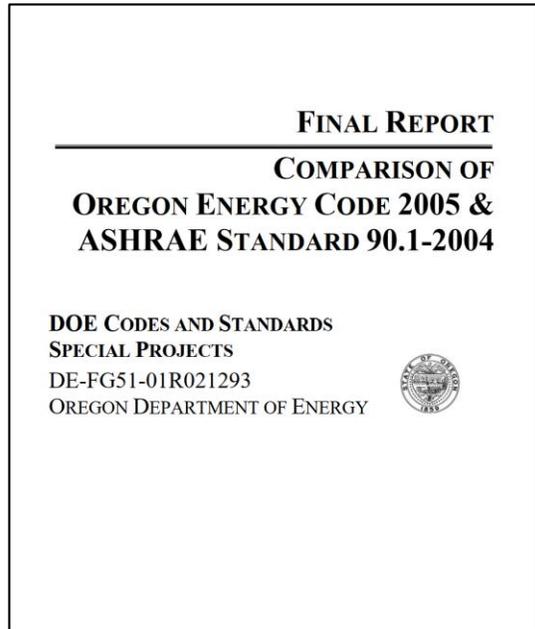


Commercial Code Baseline and Progress

Use the fixed comparison to ASHRAE 90.1-2004 to establish Oregon 2019 (current) and next-cycle progress compared to Oregon 2006



Commercial Code Baseline and Progress



- From report, 2004 OSSC was **~5% more efficient** than 90.1-2004 for whole building energy use (weighted average across multiple building types in that study)
- Adjustments:
 - Remove “Misc. Electric Loads” from both Oregon and 90.1-2004
 - Re-weight building types to align with ASHRAE weightings for similar building types
- Result: 2004 OSSC was about **4% more efficient** than 90.1-2004

Commercial Code Baseline and Progress

- Use 90.1 Building Performance Factors, which are published in each code and represent energy performance reductions for code-regulated measures needed to meet Appendix G performance pathway.
- Use ASHRAE building weightings to determine weighted average across building-types, climate zones

ASHRAE 90.1-2016

Table 4.2.1.1 *Building* Performance Factor (BPF)

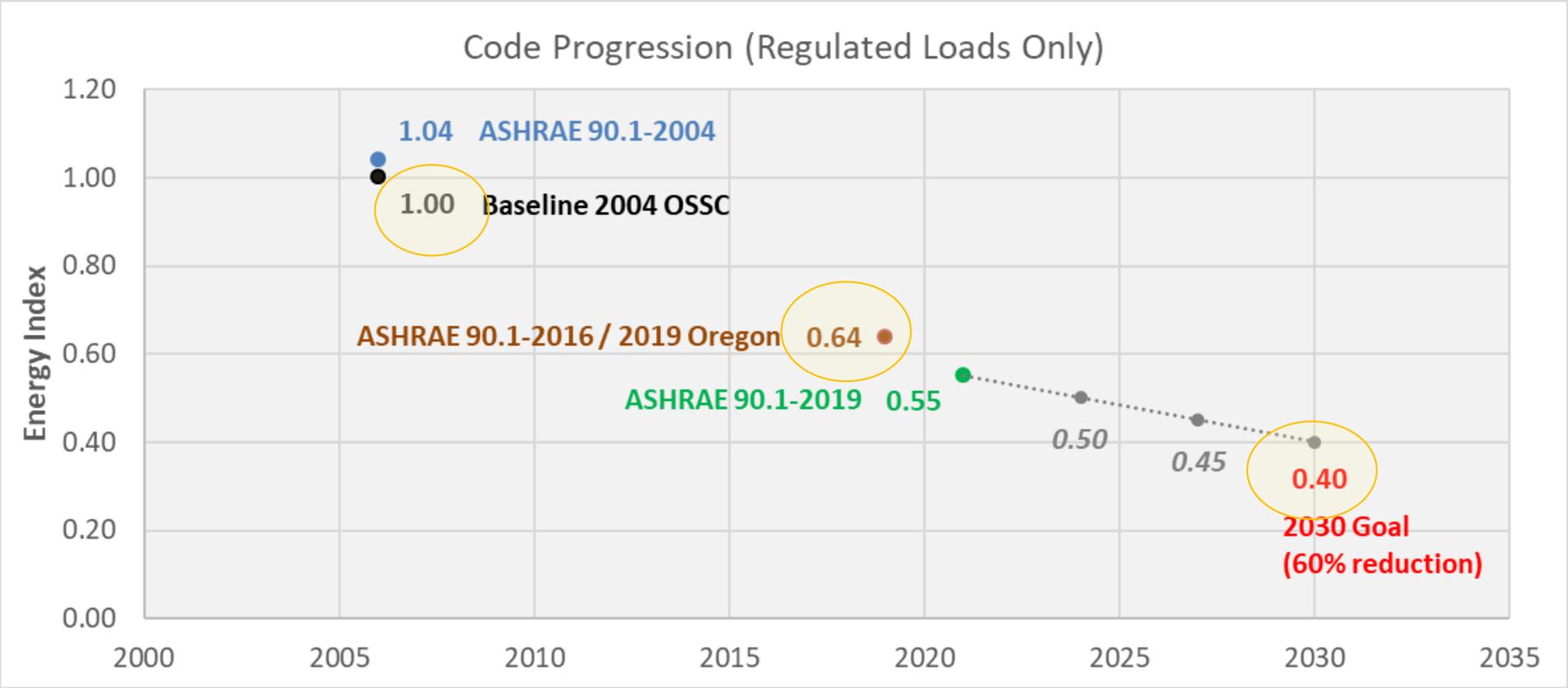
| <i>Building Area Type</i> ^a | Climate Zone | |
|--|--------------|------|
| | 4C | 5B |
| Multifamily | 0.81 | 0.8 |
| Healthcare / hospital | 0.55 | 0.52 |
| Hotel / motel | 0.62 | 0.61 |
| Office | 0.58 | 0.61 |
| Restaurant | 0.6 | 0.58 |
| Retail | 0.6 | 0.59 |
| School | 0.49 | 0.5 |
| Warehouse | 0.63 | 0.61 |
| All others | 0.61 | 0.57 |

ASHRAE 90.1-2019

Table 4.2.1.1 *Building* Performance Factor (BPF)

| <i>Building Area Type</i> ^a | Climate Zone | |
|--|--------------|------|
| | 4C | 5B |
| Multifamily | 0.74 | 0.73 |
| Healthcare / hospital | 0.54 | 0.52 |
| Hotel / motel | 0.52 | 0.51 |
| Office | 0.49 | 0.51 |
| Restaurant | 0.61 | 0.6 |
| Retail | 0.54 | 0.54 |
| School | 0.38 | 0.4 |
| Warehouse | 0.46 | 0.47 |
| All others | 0.54 | 0.51 |

Commercial Code Baseline and Progress

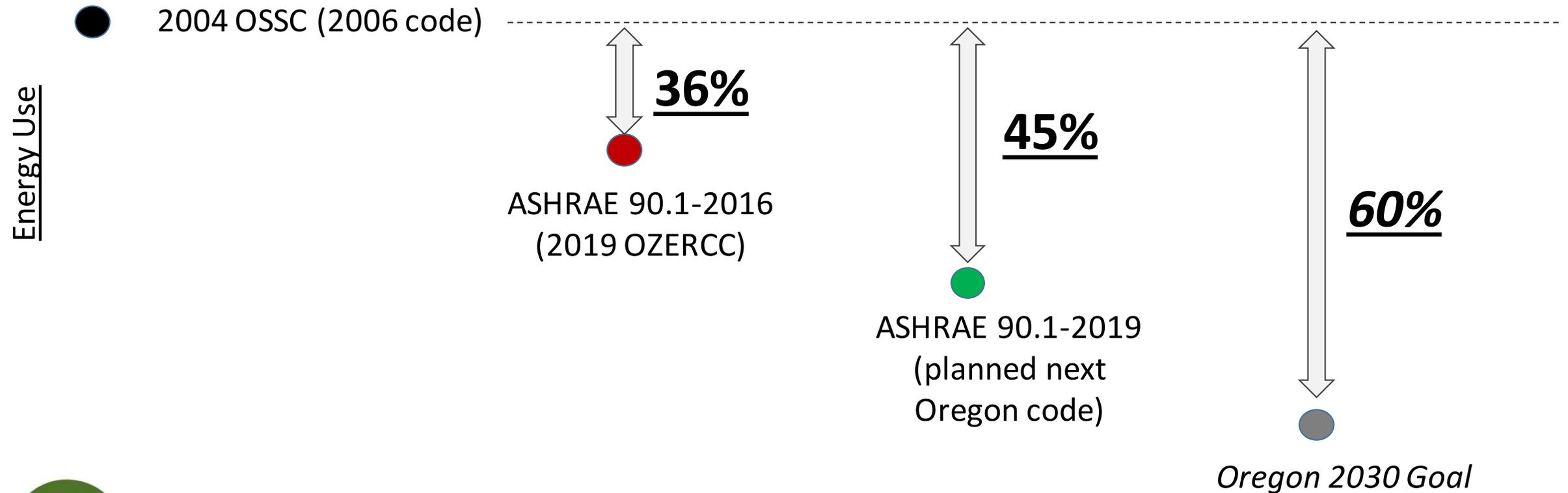


| Building Area Type | ASHRAE 90.1-2004 | 2006 Baseline | ASHRAE 90.1-2016 | | | ASHRAE 90.1-2019 | | | 2024 | 2027 | 2030 Goal |
|---|------------------|------------------|------------------|------|------------------|------------------|------|------------------|------------------|------------------|------------------|
| | Weighted Average | Weighted Average | 4C | 5B | Weighted Average | 4C | 5B | Weighted Average | Weighted Average | Weighted Average | Weighted Average |
| Weighted Average (ASHRAE 90.1-2004 = 1) | 1 | 0.96 | 0.64 | 0.60 | 0.61 | 0.55 | 0.52 | 0.53 | 0.48 | 0.43 | 0.38 |
| Weighted Average (Oregon 2006 = 1) | 1.04 | 1.00 | 0.66 | 0.62 | 0.64 | 0.57 | 0.54 | 0.55 | 0.50 | 0.45 | 0.40 |
| Oregon Year | 2006 | 2006 | | | 2019 | | | 2021 | 2024 | 2027 | 2030 |
| <i>Placeholders</i> | | | | | | | | | | | |



Commercial Code Baseline and Progress

Progress toward achieving the 2030 Goal



EO 20-04 Code Goals

- BCD
 - Advisory Boards
 - Committees
- ODOE
- 60 percent reduction
- 2006 code baseline
- Regulated loads only

6. (A) BCD, through its advisory boards and committees, and in cooperation with ODOE, is directed to adopt energy efficiency goals for 2030 for new residential and commercial construction. That goal shall represent as least a 60 percent reduction in new building annual site consumption of energy, excluding electricity used for transportation or appliances, from the 2006 residential and commercial codes.

September Governor's Report

- BCD
 - Advisory Boards
 - Committees
- ODOE
- Evaluate and report on progress
- Option for achieving steady progress
- Over next 3 code cycles

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 is also 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.

Oregon's Reach Code

- BCD
- Pursuant to ORS 455.500
- Update the Reach Code on the same timeline
- Available Statewide voluntary
- Delegation of Programs to local jurisdictions
 - Local Amendment Requests
 - [OAR 918-020-0370](#) includes
 - 1) A local municipality may request under ORS 455.040 a local amendment relating to matters covered under the building code, by submitting to the division, in writing, a local amendment application.
 - Jurisdiction shall “Identify the financial or regulatory incentives provided by the municipality to businesses or contractors impacted by the local amendment request”

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 is also 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.

Meeting Wrap-up



- Recording will be available
- Action items identified and distributed
- Next meeting date 9/15
- Any questions, please send to:
Roger.Kainu@Oregon.Gov

- Meeting materials:
<https://www.oregon.gov/energy/Get-Involved/Pages/Energy-Code-Stakeholder-Panel.aspx>

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