Energy Trust of Oregon

# Code Change Impact on ENERGY STAR New Homes Program

## Conservation Advisory Council
## June 20, 2007

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# Outline

- Groundwork
  - Code change
  - Measures
  - Timeline
  - Outcomes
- Proposed 08 ENERGY STAR Homes Program
  - Non-participating builders
  - Participating builders
  - Next generation of the program

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# Proposed Residential Code Change

- In response to Governor Kulongoski's Global Warming Advisory Committee recommendations to achieve at least 15 percent energy savings by 2015
- Increases residential energy code by 15%
- Mix of required baseline measures and one set of optional measures

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# Required Measures

| Building Component | Required Performance | Equiv. Value[b] |
|---|---|---|
| Wall insulation-above grade | U-0.060 | R-21[c] |
| Wall insulation-below grade [e] | F-0.565 | R-15 |
| Flat ceilings[f] | U-0.031 | R-38 |
| Vaulted ceilings[f] | U-0.042 | R-38[g] |
| Underfloors | U-0.028 | R-30 |
| Slab edge perimeter | F-0.520 | R-15 |
| Heated slab interior[i] | n/a | R-10 |
| Windows | U-0.32 | U-0.32 |
| Glazed doors w/>2.5 $ft^2$ glazing[j] | U-0.40 | U-0.40 |
| Window area limitation[k] | n/a | n/a |
| Skylights[l] | U-0.60 | U-0.60 |
| Exterior doors[m] | U-0.20 | U-0.20 |
| Forced air duct insulation | n/a | R-8 |

# Additional Measures

- High efficiency HVAC equipment, or
- High efficiency duct sealing, or
- High efficiency building envelope, or
- High efficiency ceilings, windows and water heating, or
- High efficiency water heating & improved efficiency lighting, or
- A solar photovoltaic package, or
- A solar water heating package, or
- Homes and apartment units that are 1,500 square feet and smaller with electric heat or ductless heating systems will meet this additional requirement.

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# Additional Measures

| Measures | | |
|---|---|---|
| | High Eff .HVAC | High Eff. Ducts |
| Underfloor | R-30 | R-30 |
| Slab edge perimeter | R-15 | R-15 |
| Heated slab interior | R-10 | R-10 |
| Doors w/>2.5 $ft^2$ glazing | U-0.40 | U-0.40 |
| Skylights[a] | U-0.60 | U-0.60 |
| Window area limitation | n/a | n/a |
| Exterior doors[b] | U-0.20 | U-0.20 |
| Windows | U-0.32 | U-0.32 |
| Below grade wall insulation | R-15 | R-15 |
| Above grade wall insulation | R-21 | R-21 |
| Flat ceilings | R-38 | R-38 |
| Vaulted ceilings | R-38[c] | R-38[c] |
| Forced air duct insulation | R-8 | R-8 |
| 90% AFUE, 8.5 HSPF ht pump, 3.0 COP grnd source ht pump | Yes | |
| Perform-tested ducts, all int ducts | | Yes |
| Unit is ≤1,500 $ft^2$ in condition. area | | |
| 50% fixtures-high efficient lighting | Yes | Yes |
| 75% fixtures-high efficient lighting | | |
| On-demand water heating | | |
| Solar photovoltaic | | |
| Solar water heating | | |

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# Timeline

- Proposed code upgrade drafted by ODOE in early 07
- Draft given to building code department and made public in April
- Public hearing in late June/early July
- Building code energy committee to review results of hearing and make decision in September/October
- If passed, new code goes into effect April 2008

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# Possible Outcomes

- Committee adopts code as proposed with April start-date
- Committee adopts a variation of the code (~1-14% increase)
- Committee drops code proposal altogether
- Code passes, but start date later than April
- If code passes, new RETC start in January 2009

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# Possible Outcomes

- If code is passed, we expect…
  - A small bump in homes permitted before April (permits expire after 180 days and cost ~$1/sq ft)
  - Training of builders and code officials to be sufficiently provided by mid-summer?
  - Estimate 500 homes to be permitted after April 1 and completed before December 31

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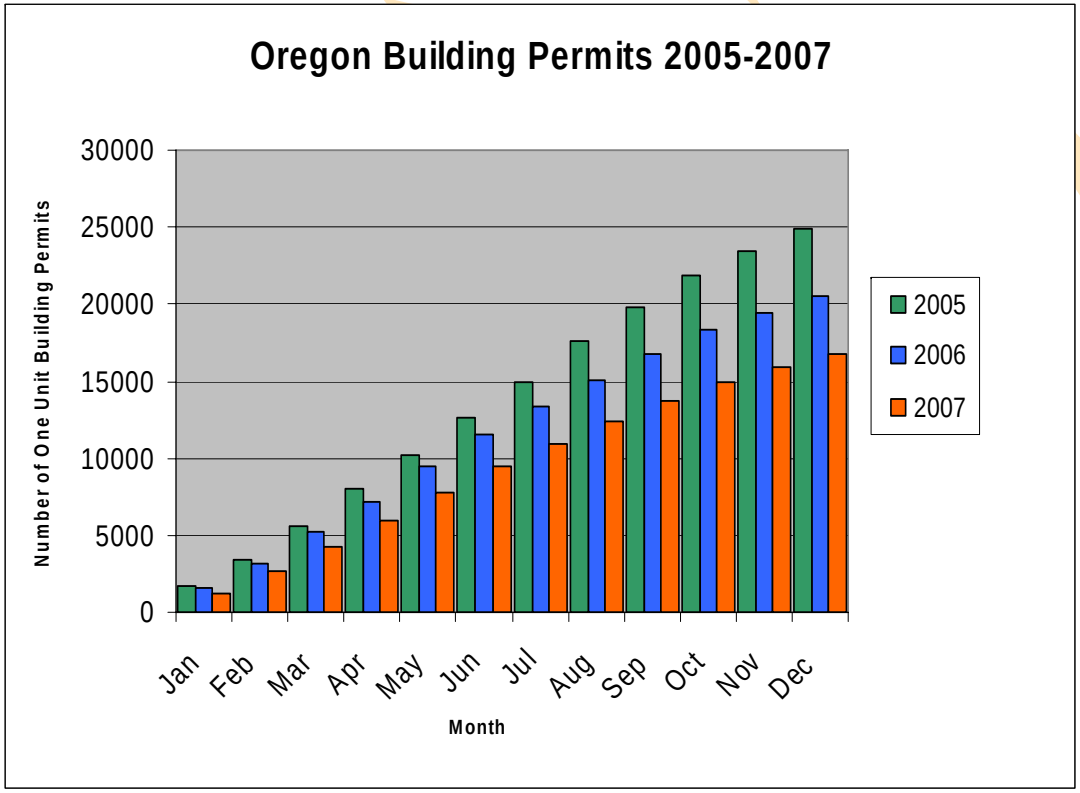
# Homes Backup

- 18% drop in 2007, assuming 7% drop in 2008
- 13,300 housing starts in ETO territory in 08
- Goal of ~12% market share (up from 9% in 06)
- Total E* Home goal in 08 ~1,600
- 68% of E* Homes in 08 fall under old code
- ~500 E* Homes need to be "grandfathered"

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# Proposed 2008 Program

1. Support for non-participating builders
   - Training on new code, assistance with subcontractors, incentives, etc.
2. Moving participating builders to next level
   - Provide training and incentives so they build to the ENERGY STAR 2.0 level in 2008
3. Supporting next generation of design and practices
   - Encouraging advanced building techniques and energy efficient technologies

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# Non-Participating Builders

- Use code change as recruiting tool
- Similar program to 2007 (incentives, training, marketing opportunities, etc.)
- Provide training for builders and their subcontractors about the new code and ENERGY STAR

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# Participating Builders

- Get them building to ENERGY STAR 2.0 (will be required Jan. 2009)
  - High efficiency equipment and duct sealing
  - New incentives for measures expected to be included in new BOP:
    - Insulation grading, glazing, highest efficiency equipment, water heaters, etc.
- Continue to demonstrate differentiation value
- Continue to support solar integration

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# Next Generation

- Support builders who want to go above and beyond (offer pilot incentives):
  - Advanced framing, wall systems and insulation
  - Duct-less homes
  - Ducts inside the conditioned space
- Provide training and support to improve design
  - Passive solar and orientation
  - No AC design
  - Neighborhood performance

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# Need CAC Thoughts…

- Proposing to keep incentives consistent throughout 2008 for clarity and simplicity in the marketplace
- ~500 homes "grandfathered" in
  - SHOULD be new under the code
  - BUT being labeled as ENERGY STAR and are receiving incentives
  - When do we decide the market is sufficiently trained? April? July?

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