Northwest Power and Conservation Council

August 1, 2006

MEMORANDUM

TO: Power Committee

FROM: Charlie Grist

SUBJECT: Model Conservation Standards Implementation

Staff will brief the Council on implementation of the non-residential model conservation standards in the Fifth Power Plan. This briefing will set the stage for a potential Council decision to revise the model conservation standards in the Fifth Power Plan. No decision is required at this time.

Background

The Act requires the Council to adopt model conservation standards (MCS) as part of each power plan. In Appendix F of the Fifth Power Plan, the Council set out the model standard for commercial buildings.

> New commercial buildings and existing commercial buildings that undergo major remodels or renovations are to be constructed to capture savings equivalent to those achievable through constructing buildings to the better of 1) . . . ASHRAE Standard 90.1-2001 . . . and addenda a through [m] or . . . 2) the most efficient provisions of existing commercial building energy standards promulgated by the states of Idaho, Montana, Oregon and Washington so long as those provisions reflect geographic and climatic differences within the region, other appropriate considerations, and are designed to produce power savings that are cost-effective for the region and economically feasible for [consumers] taking into account financial assistance made available from Bonneville. Page F-8.

The rationale behind this MCS is that each of the existing codes used in the region contains some leading-edge elements and some that could be improved. A consolidation of the best elements of each jurisdiction's code would yield a minimum viable model standard better than any of the existing codes. Furthermore, since each of the codes from which provisions would be draw are already adopted, they meet one of the Regional Act requirements for MCS, that the model standard be economically feasible for consumers.

851 S.W. Sixth Avenue, Suite 1100
Portland, Oregon 97204-1348
www.nwcouncil.org

Steve Crow
Executive Director

503-222-5161
800-452-5161
Fax: 503-820-2370

The plan also noted that the Council would assist in determining which provisions of existing codes make up the non-residential MCS. Since the adoption of the Fifth Power Plan, the region has undertaken a project to determine specific provisions from among the region's adopted codes that comprise the most efficient provisions from among the implemented codes. That project is called NWBest and it is nearing completion. In addition to identifying and codifying the "best-of-the-region," the NWBest team was asked to develop code provisions that go beyond existing regional codes and provide additional cost-effective energy savings.

Over the last 24 months the NWBest contractor, Ecotope, has reviewed and compared code provisions from the region for their stringency, clarity and ability to be implemented. With the help of a volunteer technical advisory group of regional experts from all four states, hundreds of code provisions were discussed and debated. The team will ultimately select a set of provisions that represents the best of the existing codes. The contractor is melding these into a single format and translating them in code language that could be adopted by jurisdictional code agencies. In addition, the team is identifying, analyzing and drafting code language for several code provisions that go beyond existing standards to capture more savings and still meet the MCS cost-effectiveness provisions of the Act.

Potential Implementation Decision

At the power committee meeting, staff will present the work of the NWBest team to date and identify and discuss options for Council consideration. At this point it appears there are two options for the Council. First, the Council could publish and make available the "best-of-the-region" language as the model standard. This approach would give regional code jurisdictions a viable model for the minimum standard as adopted in the Fifth Power Plan. Implicit in this approach is a finding that the "best-of-the-region" standards produce more savings than AHSRAE 90.1, and the Council should acknowledge this. Although this path would not require an amendment to the power plan, constituting instead a specification of what the plan envisioned for a commercial building MCS, it would be advisable to publish the standard for a short public comment period and then propose it for Council consideration and adoption. Alternatively, the Council could decide to adopt the high-efficiency provisions that exceed the "best-of-the-region" existing codes identified in the NWBest project. This path would call for an amendment to the power plan, with its attendant procedural requirements, including notice and comment and hearings in all four states. It would ultimately lead to an MCS that is more stringent and captures more cost-effective conservation than the minimum MCS adopted in the Fifth Power Plan. The Council would also have the opportunity to consider whether to recommend an MCS surcharge as part of an amendment of the MCS.

Implementing Model Conservation Standards

Power Committee

August 15, 2006

Northwest Power and Conservation Council

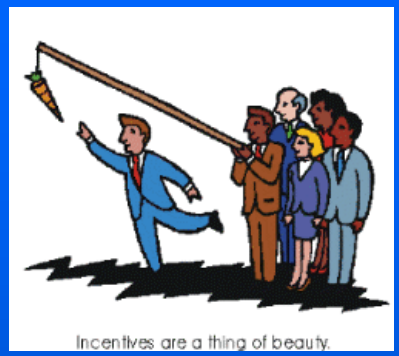
What are Model Conservation Standards?

- Standards set forth as models or templates
- Required by the Act as part of Council Plan
- Apply to:
  - New & existing buildings (via codes & programs)
  - Utility and government conservation programs
  - Other consumer actions

MCS Decision Criteria in the Act

- MCS must be set at levels that:
  - achieve ***all regionally cost-effective power savings*** and,
  - are ***economically feasible for consumers***, taking into account financial assistance that may be made available through Bonneville

What is the MCS Surcharge?



- Act provides for an incentive to urge utilities to achieve MCS
  - Called the MCS Surcharge
- Council Plan to recommend whether or not BPA should surcharge utilities for failure to adopt MCS
  - Applies to power sales from BPA to utilities
  - May not be less than 10%, nor greater than 50% of Bonneville's rate
- No surcharge recommended in 5th Plan

How Are MCS Used Absent a Surcharge?

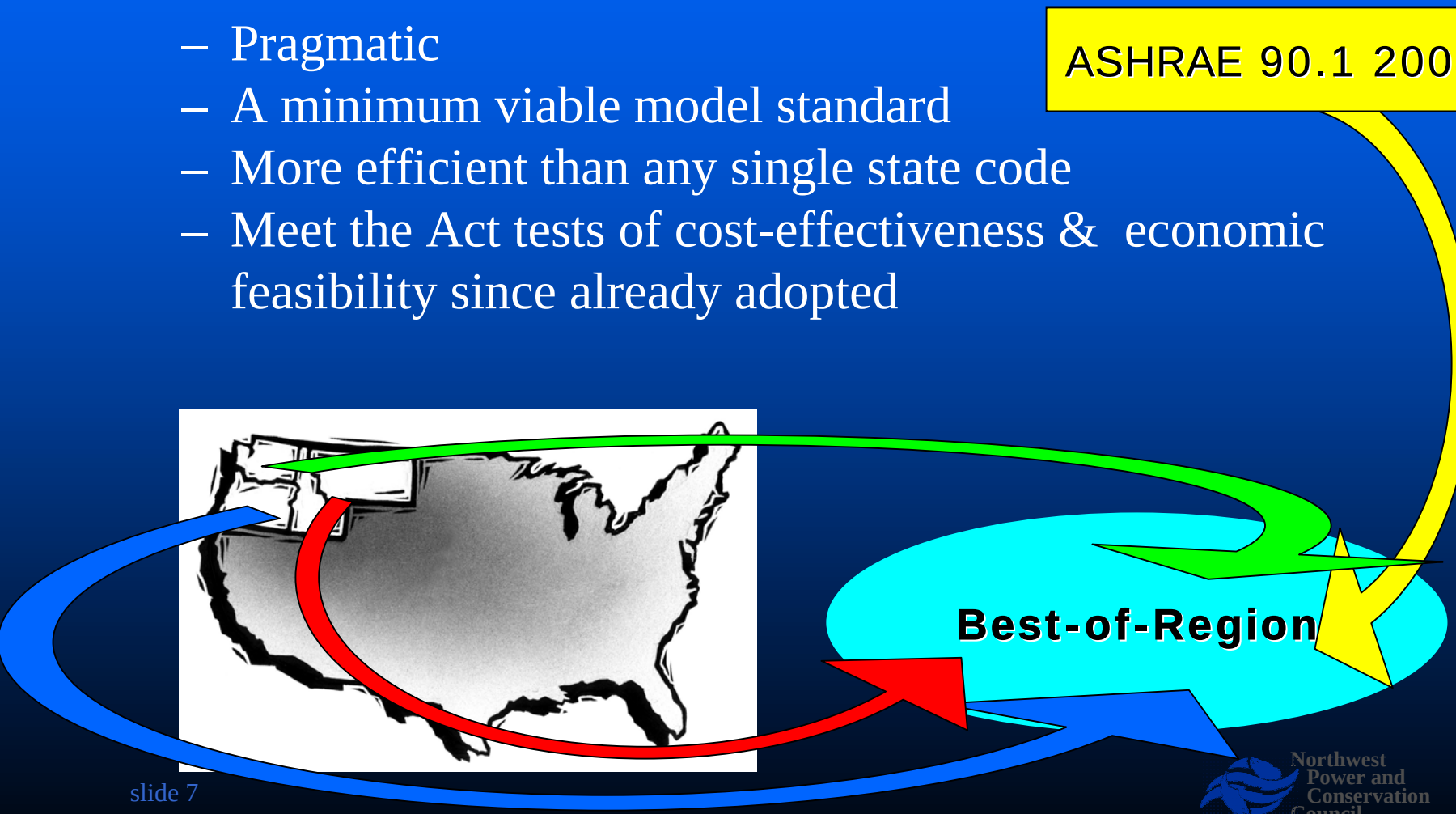
- Ready language for use in periodic revision of state or local codes
- Can be used in national and international proceedings to develop code revisions
- Elements can be used in utility programs as targets for beyond-code buildings
- Targets for market transformation programs

What MCS are in the Fifth Plan (Appendix F)

- Finding: There are cost-effective measures beyond what is in current codes
- Residential: Detailed analysis of measures
  - Appendix G
- Commercial: Best-of-Region Baseline MCS
  - MCS is the better of ASHRAE Standard 90.1 or the most efficient provisions from among the existing codes promulgated within the four states

5th Plan Non-Residential MCS Rationale

- Consolidate the best elements of each state's code
  - Pragmatic
  - A minimum viable model standard
  - More efficient than any single state code
  - Meet the Act tests of cost-effectiveness & economic feasibility since already adopted



Northwest Power and Conservation Council

But:

- There may be some measures beyond best-of-region that are:
- Cost-effective
- Economically feasible
- And should be in the MCS

Council Action Item: Assist Specifying Best-of-Region

- The most efficient (stringent & comprehensive)
- Provide clear code language
- Are easily implemented & checked in the field
- Meet the conditions for MCS in the Act

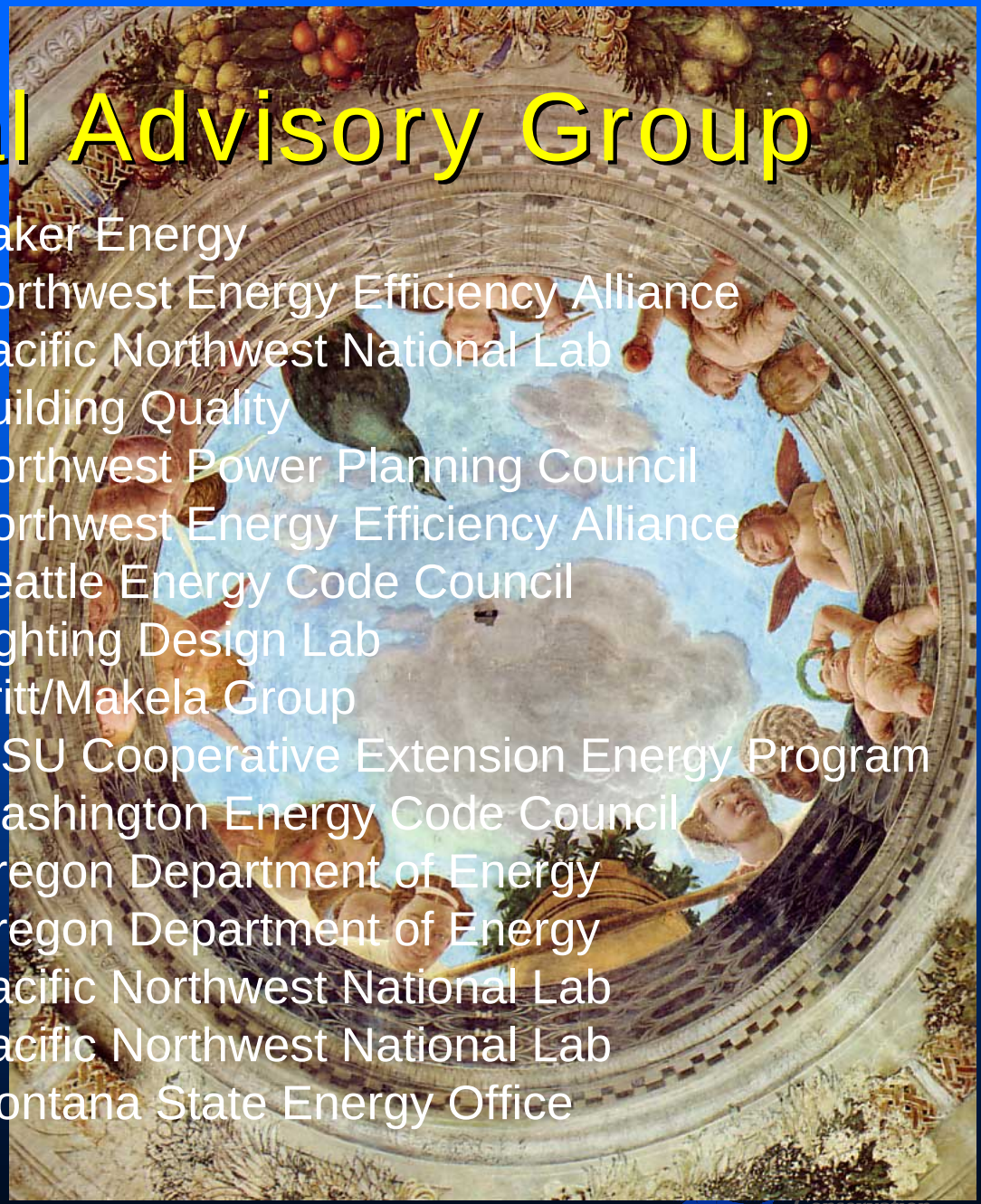
What Have We Been Doing?

- Reviewed provisions of five enforced non-residential codes plus ASHRAE Standard 90.1
  - OR, WA, Seattle
  - IECC (international code used in ID & MT)
- Consulted with advisory group of experts in four states to identify the better provisions
- Developing code language
- Considered provisions beyond existing codes
- It is called NWBest
  - NW Benchmark Standard

Status of NWBest?

- Been working on it for 18 months via contactor
- A technical advisory group of 16 experts
- Plus limited review by others
- Best-of-region first draft June 2005
- Developing provisions beyond best-of-region
- Final revisions & report due soon

Technical Advisory Group

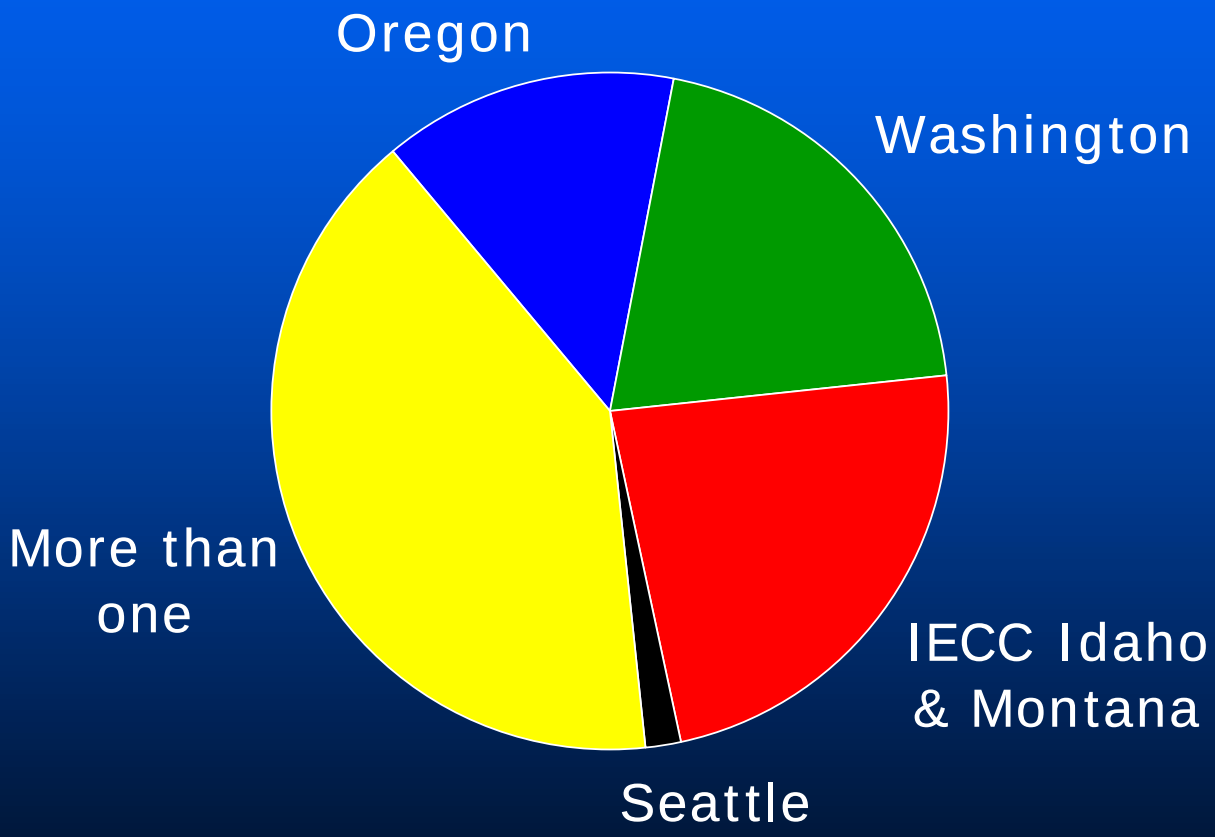


Ken Baker	Baker Energy
David Cohen	Northwest Energy Efficiency Alliance
Pam Cole	Pacific Northwest National Lab
Craig Conner	Building Quality
Charlie Grist	Northwest Power Planning Council
Jeff Harris	Northwest Energy Efficiency Alliance
John Hogan	Seattle Energy Code Council
Michael Lane	Lighting Design Lab
Eric Makela	Britt/Makela Group
Chuck Murray	WSU Cooperative Extension Energy Program
Stan Price	Washington Energy Code Council
Michael Rosenberg	Oregon Department of Energy
Alan Seymour	Oregon Department of Energy
Diana Shankle	Pacific Northwest National Lab
Todd Taylor	Pacific Northwest National Lab
Paul Tschida	Montana State Energy Office

Major Findings for Best-of-Region

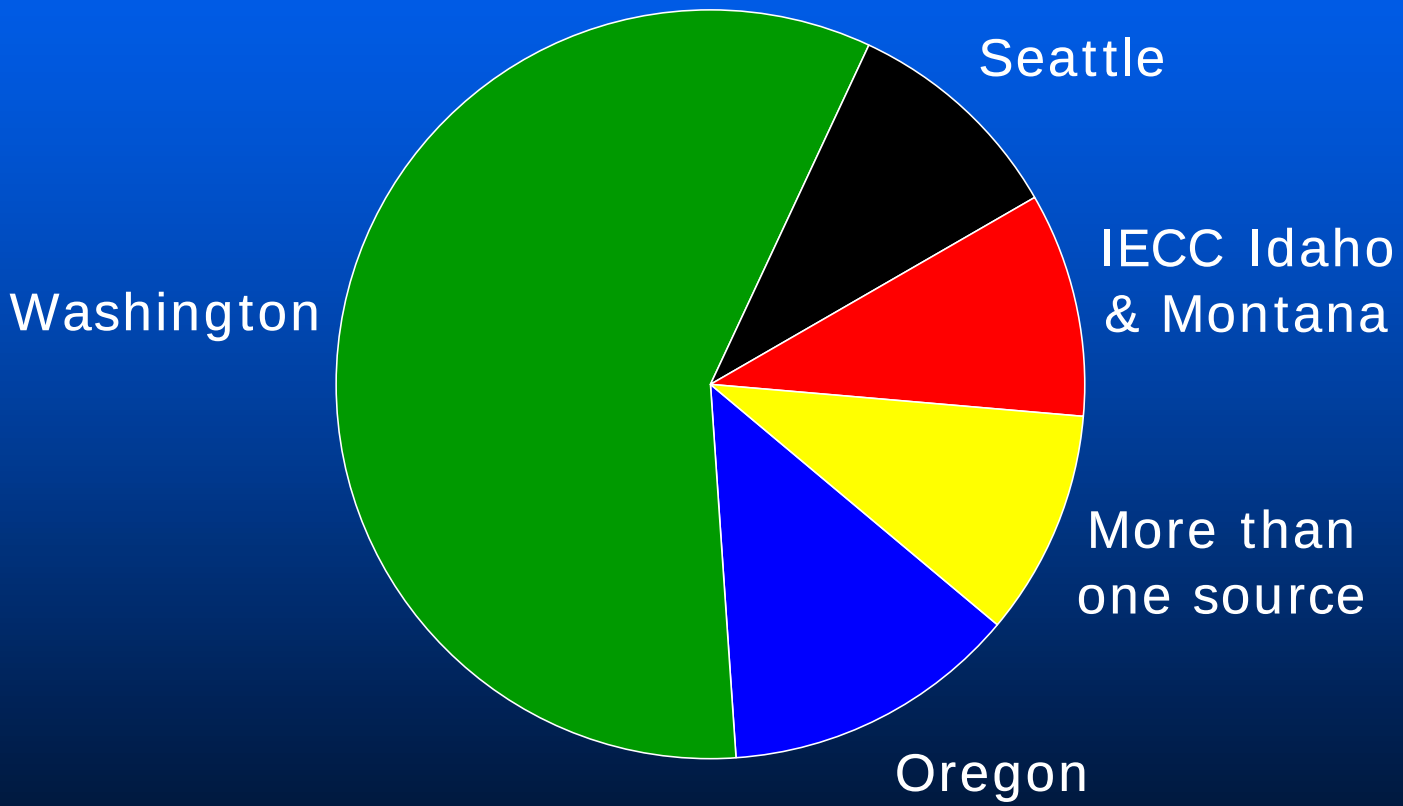
- General consensus on many key aspects among the five enforced codes
- Most differences reside with “Exceptions”
- Each jurisdiction is source of some “Best”
- Oregon & Seattle regulate aspects of buildings not regulated by others
- ASHRAE model for some aspects like equipment
- The combined best-of-region is more stringent than any state code

Source Code for 58 Lighting Power Density Provisions in Best-of-Region



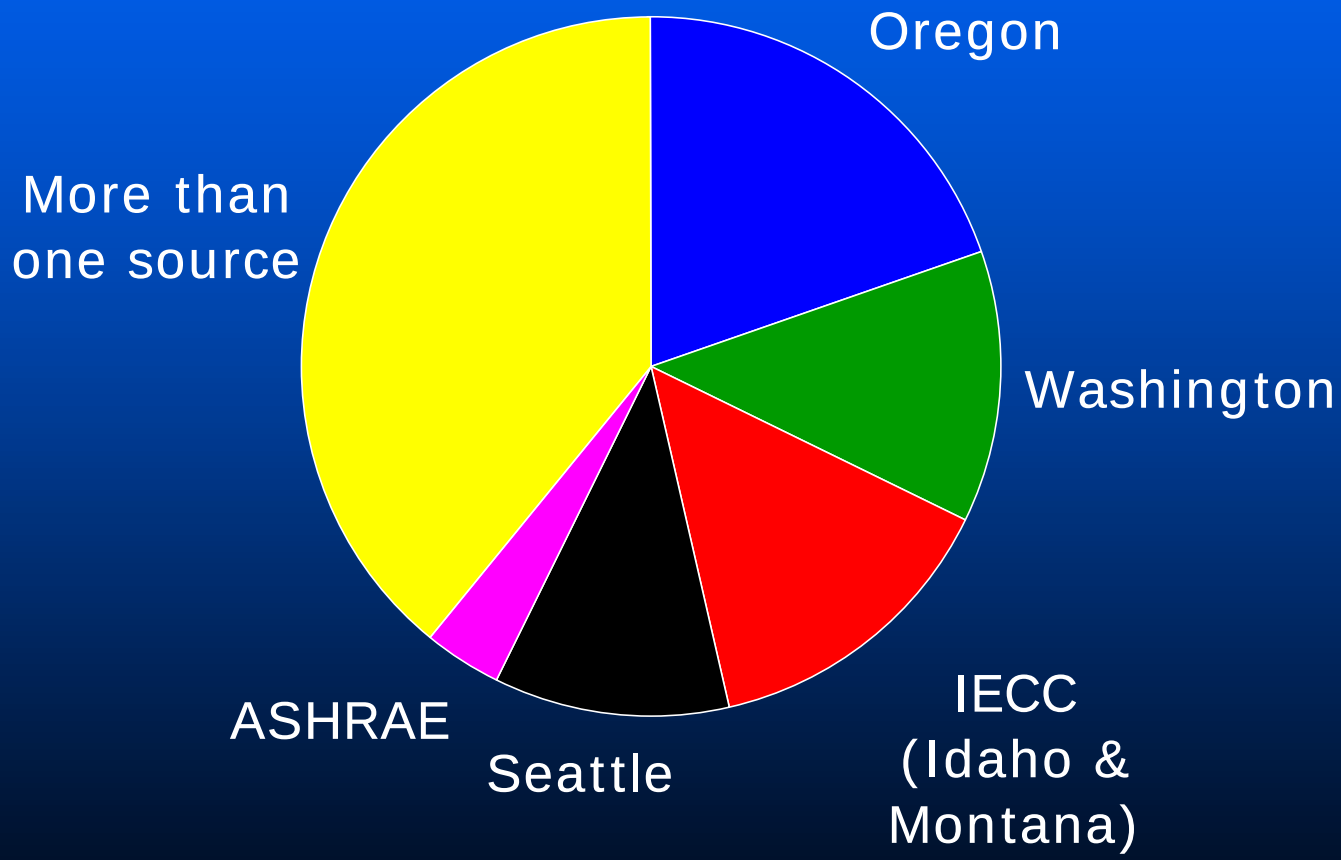
Northwest Power and Conservation Council

Source Code for 31 Envelope Provisions in Best-of-Region



Northwest Power and Conservation Council

Source Code for 56 Mechanical Provisions in Best-of-Region



What's in Best-of-Region?

- It is written in IECC format: Easy-to-use
- Removed exceptions & loopholes
- Extend efficiency to more applications
- Better suite of lighting power densities
- Sometimes simplicity chosen over stringency
- Avoided code provisions that are in flux

Beyond Best-of-Region Code Elements: NWBest

- More stringent lighting power densities
- More stringent display lighting provisions
- Daylight sensing
- Staged or variable speed compression required
- Extend demand control ventilation
- Reduce reheat in multi-zone
- Damper air leakage, air sealing, minor changes to insulation tables, NFRC window rating required

What Do We Do Now?

- Publish best-of-region upon completion
- Open a public comment period
- Propose it for Council consideration & adoption as a specification of MCS in plan

OR

- Adopt provisions beyond best-of-region
- Amend 5th Power Plan
  - Provide notice & comment hearings

End