



Department of Commerce

Energy Performance Standard for Existing Buildings

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10/24/2019

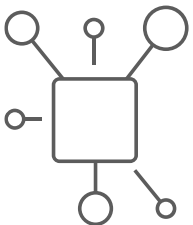




We strengthen communities



HOUSING / HOMELESSNESS



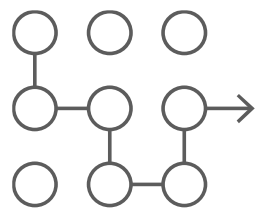
INFRASTRUCTURE



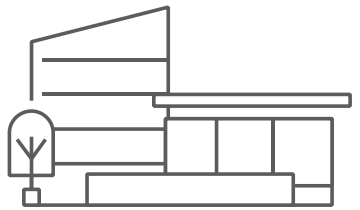
BUSINESS ASSISTANCE



ENERGY



PLANNING



COMMUNITY FACILITIES



CRIME VICTIMS / SAFETY



COMMUNITY SERVICE

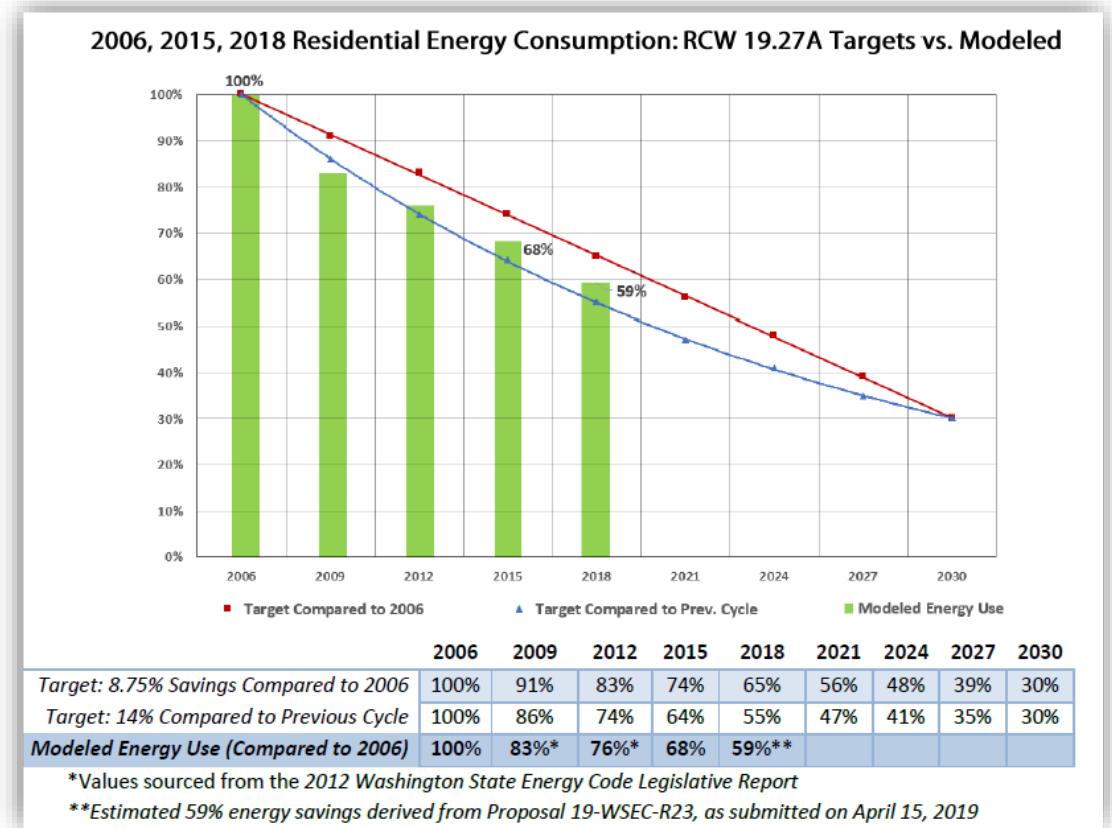
Washington State Energy Code Development- passed 2009

- **RCW 19.27a.020**

- 2) The council shall follow the legislature's standards set forth in this section to adopt
- (a) Construct increasingly energy efficient homes and buildings that help achieve the broader goal of building zero fossil-fuel greenhouse gas emission homes and buildings by the year 2031;

- **RCW 19.27a.150**

- residential and nonresidential construction permitted under the 2031 state energy code must achieve a seventy percent reduction in annual net energy consumption, using the adopted 2006 Washington state energy code as a baseline





WA Legislation of Interest

- **HB 1257 – Clean Buildings**
 - www.commerce.wa.gov/buildings
- **HB 1444 Appliance Efficiency**
 - www.commerce.wa.gov/appliances
- **SB 5116 Clean Energy Transformation**
 - www.commerce.wa.gov/ceta
- **HB 1112 transition away from hydrofluorocarbons**
 - <https://ecology.wa.gov/Air-Climate/Climate-change/Greenhouse-gases/Reducing-greenhouse-gases/Hydrofluorocarbons>

Winners Are:

- 1112 Hydrofluorocarbon
- 1126 Distributed Energy
- 1257 Energy Efficiency
- 1428 Fuel Mix /Electricity Attributes
- 1444 Appliance Efficiency
- 1512 Electrification of Transportation
- 5116 Clean Energy Economy
- 5223 Net Metering
- 5588 Hydrogen
- 1102 > Budgets
- 1109 > Budgets
- 2042 Green Transportation



SB 5116 Clean Energy (electricity)

- 2025: Eliminate coal from retail portfolios
- 2030: Greenhouse gas neutral standard
 - At least 80 percent of electricity delivered to load must be renewable or non-emitting
 - Alternative compliance options for up to 20 percent
- 2045: 100 percent renewable or non-emitting retail electricity supply
- Safeguards for rates, vulnerable populations, and reliability
- Social cost of carbon included in utility planning efforts





HB 1444 Appliance Efficiency

- **Adds 17 new products to state standards**
 - Based on standards developed by the Appliance Standards Awareness Project, and the CEC
 - Consumer net present savings \$2 billion (2035)
- **First in nation, Grid Enabled Water Heater**
 - Facilitates demand control
 - Based on PGE and BPA demonstration projects





HB 1257 Clean Buildings

- **Existing buildings performance standard**
 - Mandatory standard and incentive program for building owners
- **Gas Utility Conservation and Renewable Natural Gas,**
 - Each gas company must identify and acquire all conservation measures that are available and cost-effective. Include social cost of carbon in economic analysis.
 - Renewable Natural Gas
- **State Building Code Council**
 - Change to economic evaluation criteria for adoption of energy code changes
 - Additional requirements for Electric Vehicle Charging Infrastructure



Energy Performance Standard for Existing Buildings

- Applies to nonresidential, hotel, motel, and dormitory buildings greater than 50,000 SF
- Compliance is a building owner obligation
- Rules under development, final by Nov. 1, 2020
- Early Adopter Incentive Program Begins July 1, 2021
 - Multifamily apartments also included in the incentive program
- Mandatory Requirements Beginning 2026-2028



HB 1257 – Instructions for Commerce

“In developing energy performance standards, the department shall seek to maximize reductions of greenhouse gas emissions from the building sector”.

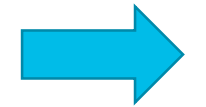
HB 1257 & standard 100



STANDARD

ANSI/ASHRAE/IES Standard 100-2018
 (Supersedes ANSI/ASHRAE/IES Standard 100-2015)
 Includes ANSI/ASHRAE/IES addenda listed in Annex N

Energy Efficiency in Existing Buildings



Direct Reference

Procedures for Commercial Building Energy Audits
 Second Edition

Performance Measurement Protocols for Commercial Buildings

GUIDELINE

ASHRAE

ASHRAE Guideline 14-2014
 (Supersedes ASHRAE Guideline 14-2002)

Measurement of Energy, Demand, and Water Savings

Approved by ASHRAE on December 16, 2014

Procedures for Commercial Building Energy Audits, Second Edition
 Sample EEM Summary Table

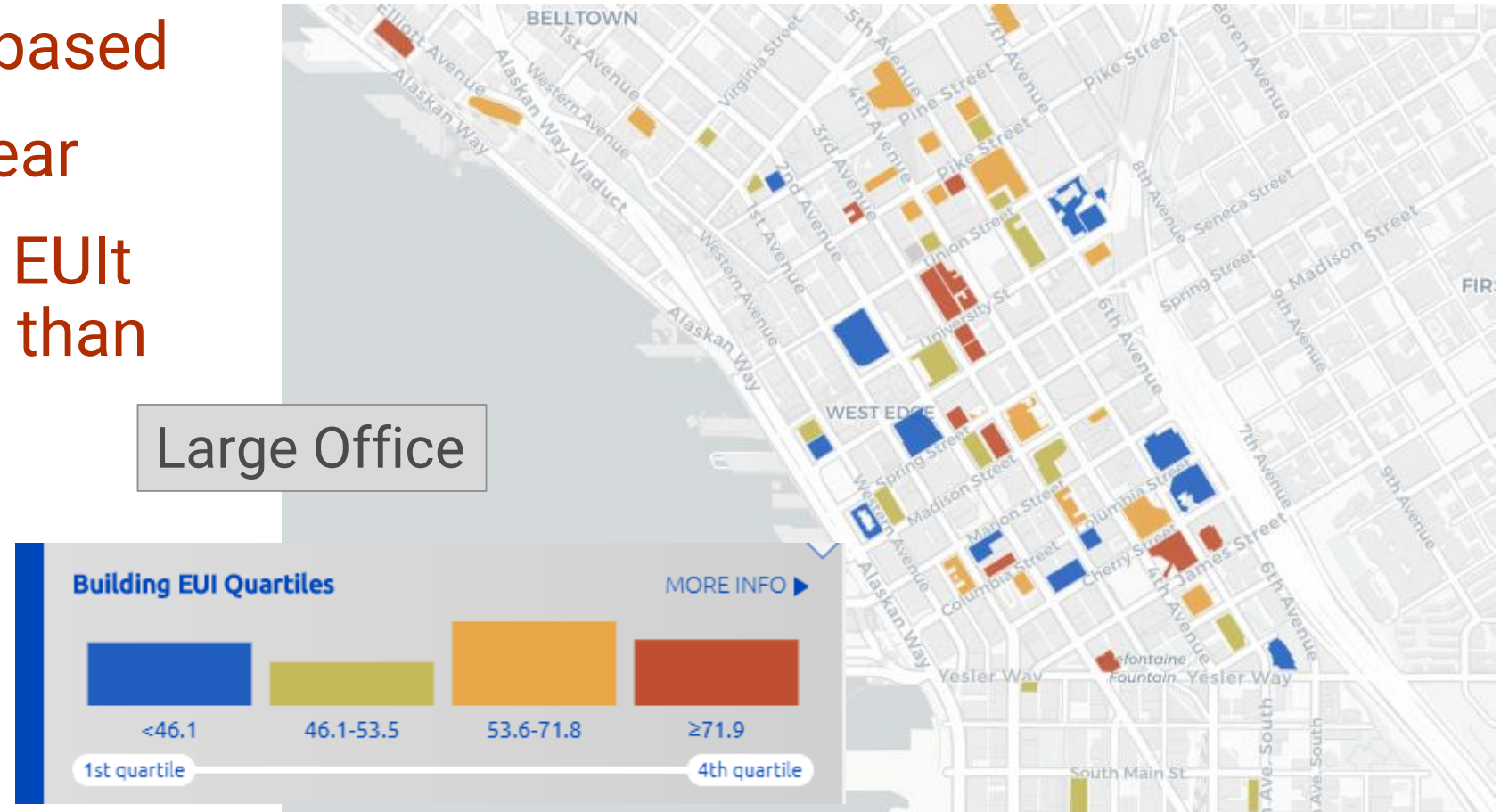
Measure Number	Measure Description	Annual Energy and Cost Savings			Total Score
		Peak Demand Savings (kW)	Electricity Savings (kWh)	Gas/Fuel Savings (therms)	
EEM-1	Replace Inefficient Lamps with CFLs	7.8	15,285	-	5
EEM-2	Reduce Pressure Setting on Pneumatic Compressor	-	2,372	-	5
EEM-3	Install VFD on Variable Condenser Loop Pump to Reduce Flow	19.0	169,872	-	5
EEM-4	Install VFD and implement Demand-Controlled Ventilation for AHU-3	-	12,448	-	5
EEM-5	Install VFD Sensors and VFD to Control Storage Exhaust Fan	18.8	49,948	-	5
EEM-6	Adjust Water Flowrate Control and Install Condensing Boiler	-	44,838	17,203	5
EEM-7	Replace Garage VFD Motors with LEO Motors with Integral Motor Sensor	6.8	28,854	-	5
EEM-8	Repair Economizers on All Air Handlers	5.0	22,342	-	5
EEM-9					
EEM-10					
EEM-11					
EEM-12					
TOTALS (Recommended Measures)		87.8	338,880	17,023	5


*NPV assumes a discount rate of 4%.

Informative background and tools

Energy Utilization Targets (EUIt)

- Performance based
- $EUI = \text{Btu/SF/year}$
- State Specific EUIt shall be- “less than average”





Standard 100 Requirements

As directed by section 4 of the standard

All buildings

- Section 5 Energy management
 - benchmarking
- Section 6 Operations and Maintenance
- Section 7 Develop and Report Weather adjusted EUI

Buildings that exceed EUI Targets or do not have EUI Targets

- Section 8 Conduct ASHRAE level 2 audit
- Section 9 Implement measures to:
 - meet target
 - OR
 - a bundle of optimized measures = SIR 1 or greater



Key Rulemaking Subjects

- Adopt with modifications ASHRAE Standard 100
- Set WA specific Energy Utilization Targets (EUI_t)
- Adopt life cycle cost methodology
- Develop administrative procedures



To participate

- <https://www.commerce.wa.gov/buildings>
- **Introduction webinar** Wednesday, Oct. 30, 2019 at 2 p.m. PST
- **Tentative workshop dates**
 - Friday, November 8, 2019
 - Tuesday, November 19, 2019
 - Wednesday, December 4, 2019
 - Tuesday, December 10, 2019
 - Thursday, December 19, 2019