



STATE OF WASHINGTON

## STATE BUILDING CODE COUNCIL

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October 4, 2017

TO: Washington State Building Code Council

FROM: Eric Vander Mey, MVE Committee Chair

The Washington State Building Code Council (Council) finds the following provides a guide to the Goals of Washington State Energy Code (WSEC) per RCW 19.27A for both Residential & Nonresidential Buildings:

1. Per RCW 19.27A.020(2)(a) the Washington state energy code shall be designed to 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.
2. The WSEC must achieve a reduction in annual net energy consumption in buildings
  - a. By 2030, the code must achieve a reduction of 70 percent compared to the 2006 Washington State energy Code. **This reduction includes both the building site energy that is regulated and typical unregulated energy use (see footnote 1 for definitions). Energy consumption for electric vehicle charging and industrial processes is not included in the building energy use reduction targets. Site renewable energy production is included towards the net annual reduction goals.**
  - b. Each code cycle, the Council must adopt a code requiring increasingly energy efficient homes and buildings
  - c. The Council must determine and evaluate the costs and benefits of the WSEC
3. The Council must adopt more stringent energy codes
  - a. The legislature finds that energy efficiency is the cheapest, quickest, and cleanest way to meet rising energy needs, confront climate change, and boost our economy
  - b. The legislature promotes super-efficient, low-energy use building codes
  - c. The law directs the council to review the Washington state energy code every three years. Amendments adopted by the council must increase the energy efficiency of newly constructed buildings.
4. The Council must evaluate and determine the costs and the benefits
  - a. The legislature finds making homes, businesses, and public institutions more energy efficient will save money, create good local jobs, enhance energy security, reduce pollution that causes global warming, and speed economic recovery while reducing the need to invest in costly new generation
  - b. Any new measures, standards, or requirements adopted by the Council must be technically feasible, commercially available, and cost-effective to building owners and tenants.

- c. The Council has adopted a definition of cost-effectiveness based RCW 39.35 recommended by Department of Commerce
  - d. Executive Order 14-04 from Washington Governor Jay Inslee directs the Council to “ achieve early and widespread deployment of energy-neutral buildings prior to the 2031 statutory requirement in RCW 19.27A.160”
  - e. A guide on how to evaluate cost-effectiveness is therefore defined by the Council as a code change that has a net present savings over a 50-year life-cycle of a building utilizing the Life Cycle Cost Tool (LCCT) as developed by the Washington State Office of Financial Management (OFM). The methodology of the LCCT is based on the NIST Handbook 135 methodology and utilizes specific inputs as determined by the Council with guidance from the Washington State Department of Commerce (<http://www.ofm.wa.gov/budget/facilities/costanalysis.asp>). **The cost-effectiveness analysis shall use the average useful life years from the Appendix 7 of the BOMA Preventive Maintenance Guidebook for all building components that are evaluated (<https://icap.sustainability.illinois.edu/files/projectupdate/2289/Project%20Lifespan%20Estimates.pdf>). An alternate method of cost effectiveness analysis or determining average useful life years of building components may be applied.**
  - f. If the council determines that economic, technological, or process factors would significantly impede adoption of or compliance with incremental progress towards the 70 percent reduction in annual net energy consumption, the council may defer the implementation of the proposed energy code update and shall report its findings to the legislature by December 31st of the year prior to the year in which those codes would otherwise be enacted.
5. The Council has established rules for amendment of the WSEC
- a. Residential energy code covers residential buildings including single family homes, townhouses, and multi-family **dwelling unit** buildings that are 3 stories and less.
  - b. Commercial energy code covers all non-residential buildings, residential **dwelling unit** buildings that are 4 stories and more, **and all residential sleeping unit buildings regardless of the number of stories.**
  - c. The International Energy Conservation Code is the base document for the development of the WSEC. Washington state amendments are integrated into the base document.
  - d. In considering amendments to the state energy code, the Council established and consulted with a technical advisory group including representatives of appropriate state agencies, local governments, general contractors, building owners and managers, design professionals, utilities, and other interested and affected parties.

Footnote 1: ASHRAE 90.1-2016 defines regulated and unregulated energy use as follows:

**Regulated energy use:** energy used by building systems and components with requirements prescribed in Sections 5 through 10. This includes energy used for HVAC, lighting, service water heating, motors, transformers, vertical transportation, refrigeration equipment, computer-room cooling equipment, and other building systems, components, and processes with requirements prescribed in Sections 5 through 10.

**Unregulated energy use:** energy used by building systems and components that is not regulated energy use. (See regulated energy use.)

**Progress toward 70% Reduction in Net Annual Energy Consumption per 2015 WSEC SBCC Report to the Legislature:**

<https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=6212>

**Executive Summary: On-Track Incremental improvement in the 2015 Washington State Energy Code**

The Washington State Building Code Council (Council) submits this report to the Legislature as required by RCW 19.27A.160. The report addresses progress toward a 70 percent reduction in net annual energy consumption in newly constructed residential and nonresidential buildings by 2031, compared to the 2006 Washington State Energy Code (WSEC), Building energy efficiency is the single largest factor in the region's future electric needs.

**On Track to Meet Savings Targets for 3-year cycle (2012-2015)**

For the 2015 adoption cycle, the goal was to achieve between 26 and 36 percent cumulative energy savings for all new buildings compared to the 2006 WSEC. An incremental savings between 3 and 12 percent for residential and between 8 and 18 percent for commercial was needed to achieve the goal for the 2012-2015 cycle. RCW 19.27A.160 directs the council to move incrementally toward the 70 percent goal with each WSEC update.

At the final adoption in November 2015, the Council modified several of the 14 WSEC amendments with the most significant impact on energy use. Based on initial estimates, the Council believes final adoption of these amendments achieves the incremental savings needed to achieve the goal for the 2012-2015 cycle. Further study of the expected savings is needed to confirm initial estimates.

**Progress toward 70% Reduction in Net Annual Energy Consumption per 2012 WSEC SBCC Report to the Legislature:**

<https://fortress.wa.gov/ga/apps/sbccfFile.ashx?cid=2498>

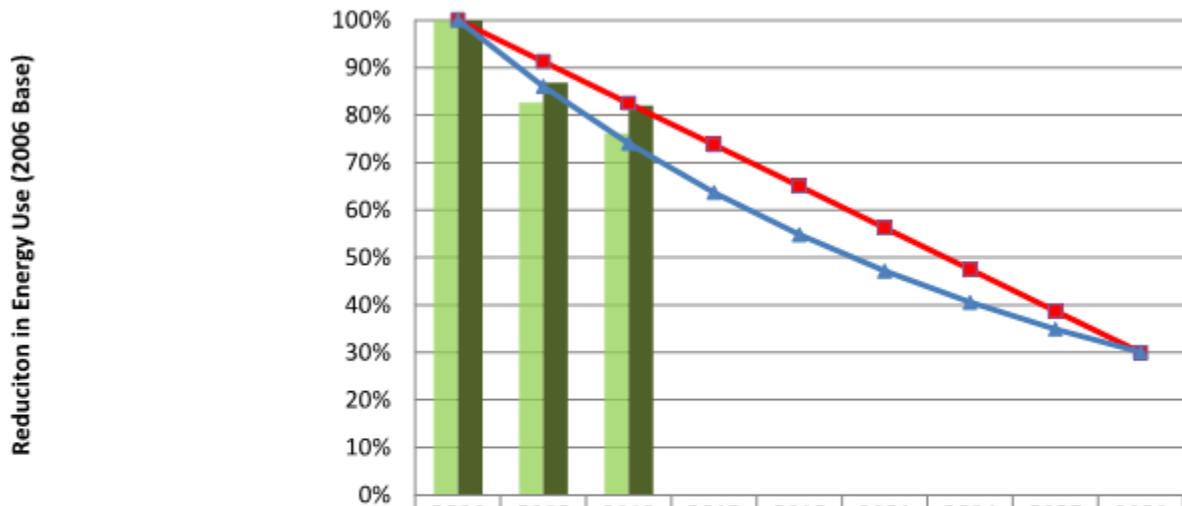
**Executive Summary:**

The Washington State Building Code Council (Council) submits this report to the legislature as required by RCW 19.27A.160, to report on the incremental progress toward a 70 percent reduction in net annual energy consumption in newly constructed residential and nonresidential buildings by 2031, compared to the 2006 Washington State Energy Code (WSEC).

The Council has been provided two models for measuring incremental changes. The two models are:

1. Each code cycle; reduce target energy use by 8.75% compared to the 2006 WSEC.
2. Each code cycle; reduce target energy use by 14% compared to the previous edition of the WSEC.

## Incremental Improvement Compared to Targets



	2006	2009	2012	2015	2018	2021	2024	2027	2030
<span style="color: green;">■</span> Residential	100%	82.7%	76.1%						
<span style="color: darkgreen;">■</span> Commercial	100%	86.8%	82.0%						
<span style="color: red;">■</span> Target: 8.75 % savings compared to the 2006 WSEC	100%	91%	83%	74%	65%	56%	48%	39%	30%
<span style="color: blue;">▲</span> Target: 14% savings compared to each previous code	100%	86%	74%	64%	55%	47%	41%	35%	30%

NOTE: The table above is not included in the 2015 Report to the Legislature

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**Department of Commerce:**

[2017 Strategic Plan Update](#)

[2014 Strategic Plan Update](#)

[2011 Strategic Plan](#)

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**Chapter 19.27A RCW**  
**ENERGY-RELATED BUILDING STANDARDS**

[Chapter Listing](#) | [RCW Dispositions](#)

**Sections**

<a href="#">19.27A.015</a>	State energy code—Minimum and maximum energy code.
<a href="#">19.27A.020</a>	State energy code—Adoption by state building code council—Preemption of local residential energy codes.
<a href="#">19.27A.025</a>	Nonresidential buildings—Minimum standards—Amendments.
<a href="#">19.27A.027</a>	Personal wireless service facilities exempt from building envelope insulation requirements.
<a href="#">19.27A.045</a>	Maintaining energy code for residential structures.
<a href="#">19.27A.050</a>	State building code council—Construction—Inclusion of successor agency.
<a href="#">19.27A.060</a>	Hot water heaters—Temperature regulation.
<a href="#">19.27A.070</a>	Intent.
<a href="#">19.27A.080</a>	Definitions.
<a href="#">19.27A.090</a>	Portable oil-fueled heaters—Sales and use—Approval required.
<a href="#">19.27A.100</a>	Portable oil-fueled heaters—Requirements for approval.
<a href="#">19.27A.110</a>	Portable oil-fueled heaters—Jurisdiction over approval—Sale and use governed exclusively.
<a href="#">19.27A.120</a>	Violations—Penalty.
<a href="#">19.27A.130</a>	Finding—2009 c 423.
<a href="#">19.27A.140</a>	Definitions.
<a href="#">19.27A.150</a>	Strategic plan—Development and implementation.
<a href="#">19.27A.160</a>	Residential and nonresidential construction—Energy consumption reduction—Council report.
<a href="#">19.27A.170</a>	Qualifying utilities—Maintenance of records of energy consumption data—Disclosure.
<a href="#">19.27A.180</a>	Energy performance score—Implementation strategy—Development and recommendations.
<a href="#">19.27A.190</a>	Qualifying public agency duties—Energy benchmark—Performance rating—Reports.

**NOTES:**

*State building code: Chapter [19.27](#) RCW.*

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**19.27A.015**  
**State energy code—Minimum and maximum energy code.**

Except as provided in \*RCW [19.27A.020\(7\)](#), the Washington state energy code for residential buildings shall be the maximum and minimum energy code for residential buildings in each city, town, and county and shall be enforced by each city, town, and county no later than July 1, 1991. The Washington state energy code for nonresidential buildings shall be the minimum energy code for nonresidential buildings enforced by each city, town, and county.

[ [1990 c 2 § 2.](#)]

**NOTES:**

\***Reviser's note:** RCW [19.27A.020](#) was amended by 2009 c 423 § 4, changing subsection (7) to subsection (6).

**Findings—1990 c 2:** "The legislature finds that using energy efficiently in housing is one of the lowest cost ways to meet consumer demand for energy; that using energy efficiently helps protect citizens of the state from negative impacts due to changes in energy supply and cost; that using energy efficiently will help mitigate negative environmental impacts of energy use and resource development; and that using energy efficiently will help stretch our present energy resources into the future. The legislature further finds that the electricity surplus in the Northwest is dwindling as the population increases and the economy expands, and that the region will eventually need new sources of electricity generation.

It is declared policy of the state of Washington that energy be used efficiently. It is the intent of this act to establish residential building standards that bring about the common use of energy efficient building methods, and to assure that such methods remain economically feasible and affordable to purchasers of newly constructed housing." [ [1990 c 2 § 1.](#)]

**Severability—1990 c 2:** "If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected." [ [1990 c 2 § 13.](#)]

**Effective dates—1990 c 2:** See note following RCW [19.27.040](#).

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## 19.27A.020

### **State energy code—Adoption by state building code council— Preemption of local residential energy codes.**

(1) The state building code council shall adopt rules to be known as the Washington state energy code as part of the state building code.

(2) The council shall follow the legislature's standards set forth in this section to adopt rules to be known as the Washington state energy code. The Washington state energy code shall be designed to:

(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;

(b) Require new buildings to meet a certain level of energy efficiency, but allow flexibility in building design, construction, and heating equipment efficiencies within that framework; and

(c) Allow space heating equipment efficiency to offset or substitute for building envelope thermal performance.

(3) The Washington state energy code shall take into account regional climatic conditions. One climate zone includes: Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Skamania, Spokane, Stevens, Walla Walla, Whitman, and Yakima counties. The

other climate zone includes all other counties not listed in this subsection (3). The assignment of a county to a climate zone may not be changed by adoption of a model code or rule. Nothing in this section prohibits the council from adopting the same rules or standards for each climate zone.

(4) The Washington state energy code for residential buildings shall be the 2006 edition of the Washington state energy code, or as amended by rule by the council.

(5) The minimum state energy code for new nonresidential buildings shall be the Washington state energy code, 2006 edition, or as amended by the council by rule.

(6)(a) Except as provided in (b) of this subsection, the Washington state energy code for residential structures shall preempt the residential energy code of each city, town, and county in the state of Washington.

(b) The state energy code for residential structures does not preempt a city, town, or county's energy code for residential structures which exceeds the requirements of the state energy code and which was adopted by the city, town, or county prior to March 1, 1990. Such cities, towns, or counties may not subsequently amend their energy code for residential structures to exceed the requirements adopted prior to March 1, 1990.

(7) The state building code council shall consult with the department of enterprise services as provided in RCW [34.05.310](#) prior to publication of proposed rules. The director of the department of enterprise services shall recommend to the state building code council any changes necessary to conform the proposed rules to the requirements of this section.

(8) The state building code council shall evaluate and consider adoption of the international energy conservation code in Washington state in place of the existing state energy code.

(9) The definitions in RCW [19.27A.140](#) apply throughout this section. [ [2015 c 11 § 3](#); [2010 c 271 § 304](#); [2009 c 423 § 4](#); [1998 c 245 § 8](#); [1996 c 186 § 502](#); [1994 c 226 § 1](#); [1990 c 2 § 3](#); [1985 c 144 § 2](#); [1979 ex.s. c 76 § 3](#). Formerly RCW [19.27.075](#).]

#### NOTES:

**Finding—Intent—2015 c 11:** See note following RCW [19.27.031](#).

**Purpose—Effective date—2010 c 271:** See notes following RCW [43.330.005](#).

**Findings—Intent—Part headings not law—Effective date—1996 c 186:** See notes following RCW [43.330.904](#).

**Effective date—1994 c 226:** "This act is necessary for the immediate preservation of the public peace, health, or safety, or support of the state government and its existing public institutions, and shall take effect immediately [April 1, 1994]." [ [1994 c 226 § 2](#).]

**Effective dates—1990 c 2:** See note following RCW [19.27.040](#).

**Findings—Severability—1990 c 2:** See notes following RCW [19.27A.015](#).

**Severability—1985 c 144:** "If any provision of this act or its application to any person or circumstance is held invalid, the remainder of the act or the application of the provision to other persons or circumstances is not affected." [ [1985 c 144 § 7](#).]

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## 19.27A.025

### Nonresidential buildings—Minimum standards—Amendments.

(1) The minimum state energy code for new nonresidential buildings shall be the Washington state energy code, 1986 edition, as amended. The state building code council may, by rule adopted pursuant to chapter [34.05](#) RCW, amend that code's requirements for new nonresidential buildings provided that:

(a) Such amendments increase the energy efficiency of typical newly constructed nonresidential buildings; and

(b) Any new measures, standards, or requirements adopted must be technically feasible, commercially available, and cost-effective to building owners and tenants.

(2) In considering amendments to the state energy code for nonresidential buildings, the state building code council shall establish and consult with a technical advisory committee including representatives of appropriate state agencies, local governments, general contractors, building owners and managers, design professionals, utilities, and other interested and affected parties.

(3) Decisions to amend the Washington state energy code for new nonresidential buildings shall be made prior to December 15th of any year and shall not take effect before the end of the regular legislative session in the next year. Any disputed provisions within an amendment presented to the legislature shall be approved by the legislature before going into effect. A disputed provision is one which was adopted by the state building code council with less than a two-thirds majority vote. Substantial amendments to the code shall be adopted no more frequently than every three years. [ [1991 c 122 § 3.](#)]

#### NOTES:

**Findings—Severability—1991 c 122:** See notes following RCW [80.04.250](#).

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## 19.27A.045

### Maintaining energy code for residential structures.

The state building code council shall maintain the state energy code for residential structures in a status which is consistent with the state's interest as set forth in section 1, chapter 2, Laws of 1990. In maintaining the Washington state energy code for residential structures, beginning in 1996 the council shall review the Washington state energy code every three years. After January 1, 1996, by rule adopted pursuant to chapter [34.05](#) RCW, the council may amend any provisions of the Washington state energy code to increase the energy efficiency of newly constructed residential buildings. Decisions to amend the Washington state energy code for residential structures shall be made prior to December 1 of any year and shall not take effect before the end of the regular legislative session in the next year.

[ [1990 c 2 § 5.](#)]

#### NOTES:

**Findings—Severability—1990 c 2:** See notes following RCW [19.27A.015](#).

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## 19.27A.150

### Strategic plan—Development and implementation.

(1) To the extent that funding is appropriated specifically for the purposes of this section, the department of commerce shall develop and implement a strategic plan for enhancing energy efficiency in and reducing greenhouse gas emissions from homes, buildings, districts, and neighborhoods. The strategic plan must be used to help direct the future code increases in RCW [19.27A.020](#), with targets for new buildings consistent with RCW [19.27A.160](#). The strategic plan will identify barriers to achieving net zero energy use in homes and buildings and identify how to overcome these barriers in future energy code updates and through complementary policies.

(2) The department of commerce must complete and release the strategic plan to the legislature and the council by December 31, 2010, and update the plan every three years.

(3) The strategic plan must include recommendations to the council on energy code upgrades. At a minimum, the strategic plan must:

(a) Consider development of aspirational codes separate from the state energy code that contain economically and technically feasible optional standards that could achieve higher energy efficiency for those builders that elected to follow the aspirational codes in lieu of or in addition to complying with the standards set forth in the state energy code;

(b) Determine the appropriate methodology to measure achievement of state energy code targets using the United States environmental protection agency's target finder program or equivalent methodology;

(c) Address the need for enhanced code training and enforcement;

(d) Include state strategies to support research, demonstration, and education programs designed to achieve a seventy percent reduction in annual net energy consumption as specified in RCW [19.27A.160](#) and enhance energy efficiency and on-site renewable energy production in buildings;

(e) Recommend incentives, education, training programs and certifications, particularly state-approved training or certification programs, joint apprenticeship programs, or labor-management partnership programs that train workers for energy-efficiency projects to ensure proposed programs are designed to increase building professionals' ability to design, construct, and operate buildings that will meet the seventy percent reduction in annual net energy consumption as specified in RCW [19.27A.160](#);

(f) Address barriers for utilities to serve net zero energy homes and buildings and policies to overcome those barriers;

(g) Address the limits of a prescriptive code in achieving net zero energy use homes and buildings and propose a transition to performance-based codes;

(h) Identify financial mechanisms such as tax incentives, rebates, and innovative financing to motivate energy consumers to take action to increase energy efficiency and their use of on-site renewable energy. Such incentives, rebates, or financing options

may consider the role of government programs as well as utility-sponsored programs;

(i) Address the adequacy of education and technical assistance, including school curricula, technical training, and peer-to-peer exchanges for professional and trade audiences;

(j) Develop strategies to develop and install district and neighborhood-wide energy systems that help meet net zero energy use in homes and buildings;

(k) Identify costs and benefits of energy efficiency measures on residential and nonresidential construction; and

(l) Investigate methodologies and standards for the measurement of the amount of embodied energy used in building materials.

(4) The department of commerce and the council shall convene a work group with the affected parties to inform the initial development of the strategic plan.

[ [2010 c 271 § 306](#); [2009 c 423 § 3](#).]

**NOTES:**

**Purpose—Effective date—2010 c 271:** See notes following RCW [43.330.005](#).

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**19.27A.160**

**Residential and nonresidential construction—Energy consumption reduction—Council report.**

(1) Except as provided in subsection (2) of this section, 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.

(2) The council shall adopt state energy codes from 2013 through 2031 that incrementally move towards achieving the seventy percent reduction in annual net energy consumption as specified in subsection (1) of this section. The council shall report its progress by December 31, 2012, and every three years thereafter. If the council determines that economic, technological, or process factors would significantly impede adoption of or compliance with this subsection, the council may defer the implementation of the proposed energy code update and shall report its findings to the legislature by December 31st of the year prior to the year in which those codes would otherwise be enacted.

[ [2009 c 423 § 5](#).]