

(Effective July 1, 2020)

WAC 51-11C-90500 Appendix F—Outcome-based energy budget.

Informational Note: *The provisions contained in this appendix are not mandatory unless specifically referenced in the adopting ordinance.*

F101.1 General. This section is an outcome-based energy budget compliance requirement pursuant to RCW 19.27A.160 to incrementally move toward achieving by 2031 a 70 percent reduction in annual net energy use compared with 2006 baseline. As an outcome-based energy budget, this requirement uses a building's actual energy use to determine compliance.

F101.2 Scope. Buildings permitted under this section shall document one year of net energy use below an energy budget within 3 years after occupancy and every 5 years thereafter. Buildings and sites shall also be designed with the ability to offset in the future all estimated energy needs through renewable energy generation with minimum 40 percent on-site, maximum 40 percent off-site, and maximum 20 percent through green power purchase. Buildings that exceed the energy budget by up to 20 percent shall offset the excess amount through a green power purchase agreement. Buildings that exceed the energy budget by more than 20 percent shall, using a posted performance bond or financial security, offset the excess amount over 20 percent by installing renewable energy or with an energy retrofit.

F101.3 Building permit submittal. Building designs shall establish on the Washington State Outcome-Based Energy Budget form (Figure F101.3):

1. The anticipated building energy use is lower than the energy budget.
2. The energy generation ability in the future is greater than or equal to the anticipated building energy use.

F101.3.1 Anticipated building energy use. The total yearly energy use from all metered fuel sources is the anticipated building energy use. Any energy used from district energy, combined heat and power, renewable energy, or captured waste heat systems must be metered. Buildings with any nonmetered energy sources are not permitted for compliance with this section. All secondary spaces and services (examples: Exterior building and site lighting, surface parking, garages, and exterior swimming pools) associated with the building shall be included in the overall energy use total. The anticipated site Energy Use Intensity (EUI) for each fuel source shall be reported in units of kWh/ft²/yr or kBtu/ft²/yr using the conversions listed below:

Metered Fuel Source	to kWh:	to kBTU:
Electric	kWh × 1	kWh × 3.412
Gas	Therm × 29.308	Therm × 100
Propane	Cubic Foot × 0.738	Cubic Foot × 2.5185
Fuel Oil	Gallon × 43.872	Gallon × 149.6905

F101.3.2 Building use and occupancy types. Building use and occupancy types permitted are indicated in Table F101.3.2.

F101.3.3 Maximum site energy budget. Table F101.3.2 indicates the site EUI budget for each building use and occupancy type along with the building enclosure requirements for all use and occupancy types.

F101.3.3.1 Mixed-use buildings. For buildings that contain more than one building use or occupancy type, the overall energy budget shall be based on the individual floor area percentage totals of each use times the individual energy budget and summing the results of all individual areas.

F101.3.3.2 Energy budget level options. Development teams may commit to a future, more stringent energy budget level from Table F101.3.2. Actual energy use and energy generation ability will be evaluated on this lower budget level.

F101.3.3.3 Energy modeling. A proposed building energy model is required for compliance with Section F101.3.2. A baseline energy model is not required. The proposed design model must show estimated energy use below the energy.

F101.3.4 Energy generation ability. Permit documents shall indicate the location, space allocated, and connection pathways for future installation of all potential energy generation systems. Only items defined by the Washington State Energy Code as on-site renewable energy shall be used to meet energy generation requirements.

F101.3.4.1 Energy generation categories. The development team shall complete the Washington State Outcome-Based Energy Budget form (Figure F101.3) to show the total renewable energy generation ability in the following categories:

1. Building integral: Renewable energy generation sources attached to the building. This value, combined with the on-site value, shall be at least 40 percent of the energy budget.

2. On-site: Renewable energy generation sources located on the building site property. This value, combined with the building integral value, shall be at least 40 percent of the energy budget.

3. Off-site: Renewable energy generation sources not located on the building site. This amount is limited to 40 percent of the energy budget. A specific off-site location does not need to be identified.

4. Green Power: Renewable energy purchased through the electric utility provider for the building. This amount is limited to 20 percent of the energy budget.

F101.3.4.2 Energy generation ability for building sites within a 2030 District. The development team for building sites within a designated 2030 District recognized by Architecture 2030 may use the Architecture 2030 Challenge 70 percent energy reduction target from the 2003 baseline as the energy budget. Building locations meeting this criteria and choosing this energy budget are exempt from the building integral and on-site requirements in Section F101.3.4.1. Green power remains capped at 20 percent. The generation requirements may be split, in any amount, among the building integral, on-site, or off-site categories. Actual energy use will be evaluated against the Architecture 2030 Challenge 70 percent energy reduction budget.

F101.4 Actual energy use submittal. The building owner or representative shall submit energy use documentation summary from all energy source providers or from an energy benchmarking service to the building code official. Code compliance is achieved with net energy use be-

low the energy budget for any continuous 12-month span within the first 3 years of occupancy.

F101.4.1 Energy use monitoring period and occupancy. The energy use monitoring time frame shall start on the first full-month billing cycle of the utility or energy source provider(s) 6 months after a certificate of occupancy is issued. Buildings shall be deemed substantially occupied when a minimum 85 percent of the floor area, including all common areas, is occupied. The energy monitoring start time may be delayed up to an additional 6 months from certificate of occupancy (up to 12 months total) if 85 percent occupancy is not yet achieved. Buildings not 85 percent occupied after 12 months shall start the monitoring period for the portions occupied with an energy budget based on the spaces occupied and all common areas combined.

F101.4.2 Change of occupancy use during monitoring period. If an area within the building changes from one occupancy use to another with a different target EUI energy budget or if the building occupancy level drops below 50 percent, the target EUI energy budget shall be recalculated to become the new energy budget against which the building energy use shall be compared for compliance.

F101.4.3 Energy metering. All building spaces and uses subject to an energy budget or a portion of the energy budget shall be metered separately for all energy uses.

F101.4.4 Energy budget responsibility. The building owner is responsible for the compliance of the whole building. At the building owner's discretion, responsibility for the energy use budget may be divided and transferred into portions attributable to the occupant, operator or controller of each energy budget space. Common area spaces not under the control of an occupant or tenant may not be transferred.

F101.5 Actual energy use above the energy budget. Buildings exceeding the energy budget are not in compliance with the energy code and the building owner shall complete one of the following measures within 1 year:

1. Owners of buildings with actual energy use that exceeds the energy budget by up to 20 percent may offset the excess energy amount through annual green power purchase agreement from the utility provider at a rate of 1.1 times the excess energy amount until future code compliance is demonstrated.

2. Owners of buildings with actual energy use that exceeds the energy budget by more than 20 percent and up to 40 percent shall complete item 1 and either install on-building, on-site, or off-site energy generation equipment or invest in an energy conservation retrofit using the performance bond or financial security for energy amount remaining above 20 percent.

3. Owners of buildings with actual energy use that exceeds the energy budget by more than 40 percent shall complete item 1, item 2, and post a replacement performance bond or financial security equal to the first bond or security amount.

F101.5.1 Continued energy monitoring. Upon completing the necessary compliance measure(s) in Section F101.5 the building owner is provided another 3-year time frame to achieve and document net energy use below the energy budget for any continuous 12-month span. Owners of buildings that remain more than 20 percent above the energy budget shall repeat the measures in Section F101.5, up to 3 times maximum, using the performance bond or financial security to install energy genera-

tion equipment or to install an energy retrofit and post a new performance bond equal to the first.

F101.5.2 Tradable certificate for energy savings. As an alternate to the requirements of Section F101.5 a building owner may, when this market-based instrument becomes available, purchase a Tradable Certificate for Energy Savings (TCES) or "white certificates" from a building or entity with energy savings. The building owner shall purchase TCES's equal to 1.1 times the amount that the building's actual energy use exceeds the energy budget.

F101.6 Performance bond or financial security. A building developer must secure and submit to the code official a performance bond or an irrevocable financial security letter of credit from a state of Washington financial institution prior to certificate of occupancy issuance. The bond or security shall have a value equal to \$4.00 per square foot of gross conditioned floor area. The bond or security shall be used only to install renewable energy on the building or for investment into energy conservation measures as part of an energy retrofit. The bond or security may also be held for one additional 3-year energy-monitoring period if green power is purchased. Upon demonstrated compliance with the energy budget, the bond or security requirement shall be released.

F101.6.1 Failure to submit energy use data. Building owners that fail to submit energy use data at the end of the 3-year monitoring period shall forfeit the full amount of the performance bond or financial security as payment to the local jurisdiction. Building owners that fail to submit energy use data at the end of each continuing five-year monitoring period shall be fined an amount equal to the original bond or financial security by the local jurisdiction.

F101.7 Continued energy budget certification. After achieving code compliance buildings shall be required every 5 years to document a continuous 12-month span with net energy use that is lower than the required energy budget. Owners of buildings with actual energy use that is at least 2.5 percent below their energy budget (from year permitted baseline, not voluntary year) may sell, when a future market-based instrument becomes available, their unused energy equivalents in the form of a "white certificate" or Tradable Certificate for Energy Savings.

F101.8 Local amendments. Local jurisdictions may amend the current code cycle EUI maximum energy budget by adopting a more stringent future code year value stated in Table F101.3.2.

**Table F101.3.2
Washington State Outcome-Based Energy Budget**

Zone 4C:

	Site EUI	Base	Current	Future			
Building Occupancy/Use	ft ² /year	2003	2018	2021	2024	2027	2030
A-3							
Library	kWh	30.5	14.6	13.3	11.9	10.5	9.1
	kBtu	104	49.9	45.3	40.6	35.9	31.2
B							

	Site EUI	Base	Current	Future				
Building Occupancy/Use	ft ² /year	2003	2018	2021	2024	2027	2030	
Office/Bank	kWh	19.7	8.5	7.8	7.2	6.6	5.9	
	kBtu	67.3	28.9	26.7	24.5	22.4	20.2	
Medical Office (nondiagnostic)	kWh	14.8	7.1	6.4	5.8	5.1	4.4	
	kBtu	50.4	24.2	21.9	19.6	17.4	15.1	
E School K-12	kWh	17.1	8.2	7.4	6.7	5.9	5.1	
	kBtu	58.4	28.0	25.4	22.8	20.2	17.5	
1-2 Hospital (in-patient)	kWh	51.6	24.8	22.5	20.1	17.8	15.5	
	kBtu	176.1	84.5	76.6	68.7	60.8	52.8	
M Grocery/Food Market	kWh	66.6	32.0	29.0	26.0	23.0	20.0	
	kBtu	227.4	109.1	98.9	88.7	78.5	68.2	
	kWh	25.7	12.3	11.2	10.0	8.9	7.7	
	kBtu	87.5	42.0	38.1	34.1	30.2	26.3	
S-1 Parking	Enclosed Garage ^a	kWh	3.8	2.3	2.0	1.7	1.4	1.1
		kBtu	13.0	8.0	7.0	5.9	4.9	3.9
	Open Garage ^a	kWh	2.3	1.4	1.2	1.0	0.9	0.7
		kBtu	7.8	4.8	4.2	3.6	3.0	2.3
	S-2 NonRefrigerated Distribution/ Shipping ^b	kWh	8.6	4.1	3.7	3.3	3.0	2.6
		kBtu	29.2	14.0	12.7	11.4	10.1	8.8
R-2 Multi-Family (3+ stories)	Lobby/Common Area	kWh	29.0	17.5	15.3	13.1	10.9	8.7
		kBtu	99	59.7	52.2	44.7	37.2	29.7
	Studio/Micro-unit	kWh	9238	3284	3156	3028	2900	2771
		kBtu	31520	11205	10768	10331	9893	9456
	One Bedroom	kWh	18476	6568	6312	6055	5799	5543
		kBtu	63040	22411	21536	20661	19787	18912
	Two Bedroom	kWh	27714	9852	9468	9083	8699	8314
		kBtu	94560	33616	32304	30992	29680	28368
	Three Bedroom	kWh	36952	13136	12624	12111	11598	11086
		kBtu	126080	44821	43072	41323	39573	37824
	Additional Bedroom	kWh	9238	3284	3156	3028	2900	2771
		kBtu	31520	11205	10768	10331	9893	9456
	All Occupancies/Use Types		2003	2018	2021	2024	2027	2030
	U-Factor							
Vertical Fenestration								
Nonmetal			0.28	0.27	0.25	0.24	0.23	
Metal - Fixed			0.33	0.31	0.28	0.26	0.23	
Metal - Operable			0.34	0.32	0.29	0.26	0.23	
Roof			0.016	0.015	0.014	0.013	0.012	
Wall (above/below grade)			0.031	0.028	0.024	0.021	0.018	

All Occupancies/Use Types	2003	2018	2021	2024	2027	2030
Floors		0.024	0.023	0.021	0.020	0.018
	F-Value					
Slab on Grade		0.41	0.39	0.36	0.34	0.32
	CFM75/ft²					
Air Leakage		0.25	0.17	0.14	0.11	0.08

Zone 5B:

Building Occupancy/Use	Site EUI	Base	Current	Future				
	ft ² /year	2003	2018	2021	2024	2027	2030	
A-3 Library	kWh	31.9	15.3	13.9	12.4	11.0	9.6	
	kBtu	108.8	52.2	47.3	42.4	37.5	32.6	
B Office/Bank	kWh	20.1	9.1	8.3	7.5	6.8	6.0	
	kBtu	68.6	30.9	28.3	25.8	23.2	20.6	
	Medical Office (nondiagnostic)	kWh	15.0	7.2	6.5	5.9	5.2	4.5
		kBtu	51.3	24.6	22.3	20.0	17.7	15.4
E School K-12	kWh	18.3	8.8	8.0	7.1	6.3	5.5	
	kBtu	62.4	30.0	27.2	24.3	21.5	18.7	
1-2 Hospital (in-patient)	kWh	48.5	23.3	21.1	18.9	16.7	14.6	
	kBtu	165.5	79.4	72.0	64.5	57.1	49.7	
M Grocery/Food Market	kWh	66.3	31.8	28.8	25.8	22.9	19.9	
	kBtu	226.1	108.5	98.4	88.2	78.0	67.8	
	Retail	kWh	28.4	13.6	12.4	11.1	9.8	8.5
		kBtu	97.0	46.6	42.2	37.8	33.5	29.1
S-1 Parking Enclosed Garage ^a	kWh	3.8	2.3	2.0	1.7	1.4	1.1	
	kBtu	13.0	8.0	7.0	5.9	4.9	3.9	
	Open Garage ^a	kWh	2.3	1.4	1.2	1.0	0.9	0.7
		kBtu	7.8	4.8	4.2	3.6	3.0	2.3
S-2 NonRefrigerated Distribution/ Shipping ^b	kWh	10.5	5.0	4.6	4.1	3.6	3.1	
	kBtu	35.8	17.2	15.6	14.0	12.4	10.7	
R-2 Multi-Family (3+ stories)	Lobby/Common Area	kWh	29.0	18.8	16.3	13.8	11.2	8.7
		kBtu	99	64.2	55.6	46.9	38.3	29.7
	Studio/Micro-unit	kWh	9238	3495	3314	3133	2952	2771
		kBtu	31520	11925	11308	10691	10073	9456
	One Bedroom	kWh	18476	6990	6628	6267	5905	5543
		kBtu	63040	23851	22616	21381	20147	18912
	Two Bedroom	kWh	27714	10485	9943	9400	8857	8314
		kBtu	94560	35776	33924	32072	30220	28368

Building Occupancy/Use	Site EUI	Base	Current	Future			
	ft ² /year	2003	2018	2021	2024	2027	2030
Three Bedroom	kWh	36952	13980	13257	12533	11809	11086
	kBtu	126080	47701	45232	42763	40293	37824
Additional Bedroom	kWh	9238	3495	3314	3133	2952	2771
	kBtu	31520	11925	11308	10691	10073	9456
All Occupancies/Use Types		2003	2018	2021	2024	2027	2030
U-Factor							
Vertical Fenestration							
Nonmetal			0.25	0.23	0.21	0.18	0.16
Metal - Fixed			0.31	0.27	0.23	0.20	0.16
Metal - Operable			0.32	0.28	0.24	0.20	0.16
Roof			0.016	0.015	0.014	0.013	0.012
Wall (above/below grade)			0.031	0.028	0.024	0.021	0.018
Floors			0.024	0.023	0.021	0.020	0.018
F-Value							
Slab on Grade			0.41	0.39	0.36	0.34	0.32
CFM75/ft²							
Air Leakage			0.25	0.17	0.14	0.11	0.08

^aLighting power allowance must still comply with Table C405.4.2(2).

^bApplicable to heated warehouses only.

FIGURE F101.3.2

Washington State Outcome-based Energy Budget Form

WASHINGTON STATE OUTCOME-BASED ENERGY BUDGET FORM

(reserved for graphics)

Building occupancy/use _____

Conditioned floor area SF

Code maximum site EUI energy budget

Predicted EUI

Electric

Gas

Propane

Oil

Other (source/generation)

Generation Potential EUI

Building Integral (combined must exceed 40%)

On-site

Off-site (max 40%)

Purchase (max 40%)

Percentage better than energy budget

Percentage potential EUI above predicted EUI

PROJECT SUMMARY

Building Name _____

Address _____

City _____

Owner _____

Address _____

City, State, Zip _____

PROJECT CERTIFICATION

Name _____

Firm _____

Date _____

(seal)

[Statutory Authority: RCW 19.27A.020, 19.27A.025, 19.27A.160 and chapter 19.27 RCW. WSR 19-24-040, § 51-11C-90500, filed 11/26/19, effective 7/1/20.]