

# New Off-site Renewable Energy Appendix (2383)

IECC: C405.15.2, TABLE C405.15.2, C405.15.2.1, C405.15.2.2, C405.15.3, C405.15.4, CX101.4 (New), CX101.4.1 (New), CX101.4.2 (New), CX101.5 (New), CX101.6 (New)

**Proponents:** Gary Heikkinen, Gary W Heikkinen Energy Consulting, American Gas Association (gary.heikkinen@nwnatural.com)

## 2024 International Energy Conservation Code [CE Project]

~~C405.15.2~~ **CX101.1 Off-site renewable energy.** *Buildings* that qualify for one or more of the exceptions to Section C405.15.1 or do not meet the requirements of Section C405.15.1 with an on-site renewable energy system shall procure off-site renewable electrical energy, in accordance with Sections ~~C405.15.2.1~~ CX101.1.1 and ~~C405.15.2.2~~ CX101.1.2 that shall be not less than the total off-site renewable electrical energy determined in accordance with Equation ~~4-11~~ CX-1

$$TRE_{off} = (REN_{off} \times 0.75 \text{ W/ft}^2 \times \text{FLRA} - IRE_{on}) \times 15$$

**Equation 4-11**

where:  
 $TRE_{off}$  = Total off-site renewable electrical energy in kilowatt-hours (kWh) to be procured in accordance with Table ~~C405.15.2~~ CX101.1  
 $REN_{off}$  = Annual off-site renewable electrical energy from Table ~~C405.15.2~~ CX101.1 in units of kilowatt-hours per watt of array capacity.  
FLRA = The sum of the gross conditioned floor area of all floors not to exceed the combined floor area of the three largest floors.  
 $IRE_{on}$  = Annual on-site renewable electrical energy generation of a new on-site renewable energy system, to be installed as part of the building project, whose rated capacity is less than the rated capacity required in Section C405.15.1.

**TABLE ~~C405.15.2~~ CX101.1 ANNUAL OFF-SITE RENEWABLE ENERGY REQUIREMENTS**

CLIMATE ZONE	ANNUAL OFF-SITE RENEWABLE ELECTRICAL ENERGY (kWh/W)
1A, 2B, 3B, 3C, 4B and 5B	1.75
0A, 0B, 1B, 2A, 3A and 6B	1.55
4A, 4C, 5A, 5C, 6A and 7	1.35

~~C405.15.2.1~~ **CX101.1.1 Off-site procurement.** The building *owner*, as defined in the *International Building Code*, shall procure and be credited for the total amount of off-site renewable electrical energy, not less than required in accordance with Equation 4-11, with one or more of the following:

1. *Physical renewable energy power purchase agreement.*
2. *Financial renewable energy power purchase agreement.*
3. *Community renewable energy facility.*
4. *Off-site renewable energy system owned by the building property owner.*
5. *Renewable energy investment fund.*
6. *Green retail tariff.*

The generation source shall be located where the energy can be delivered to the *building site* by any of the following:

1. Direct connection to the off-site renewable energy facility.
2. The local utility or distribution entity.
3. An interconnected electrical network where energy delivery capacity between the generator and the *building site* is available.

~~C405.15.2.2~~ **CX101.1.2 Off-site contract.** The renewable energy shall be delivered or credited to the *building site* under an energy contract with a duration of not less than ~~10~~ 5 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property.

~~C405.15.3~~ **CX101.2 Renewable energy certificate (REC) documentation.** The property *owner* or owner's authorized agent shall demonstrate that where renewable energy certificates (RECs) or energy attribute certificates (EACs) are associated with on-site and off-site renewable energy production required by Sections C405.15.1 and ~~C405.15.2~~, CX101.1 all of the following criteria for RECs and EACs shall be met:

1. The RECs and EACs are retained and retired by or on behalf of the property owner or tenant for a period of not less than ~~15~~ 5 years or the duration of the contract in Section ~~C405.15.2-2~~, CX101.1.2 whichever is less.
2. The RECs and EACs are created within a 12-month period of the use of the REC.
3. The RECs and EACs are from a generating asset placed in service not more than 5 years before the issuance of the certificate of occupancy.

~~C405.15.4~~ **CX101.3 Renewable energy certificate purchase.** A *building* that qualifies for one or more of the exceptions to Section C405.15.1, and where it can be demonstrated to the *code official* that the requirements of Section ~~C405.15.2~~ CX101.1 cannot be met, the building owner shall contract the purchase of renewable electricity products before the certificate of occupancy is issued. The purchase of renewable electricity products shall comply with the Green-e Energy National Standard for renewable electricity products equivalent to ~~five~~ three times the amount of total off-site renewable energy calculated in accordance with Equation ~~4-11~~. CX101.1

**Add new text as follows:**

**CX101.4 Off-site Renewable Fuels.** Buildings that qualify for one or more of the exceptions to Section C405.15.1 or do not meet the requirements of Section C405.15.1 with an on-site renewable energy system can procure off-site renewable fuels in accordance with Sections CX101.4.1 and CX101.4.2 to reduce the requirements for off-site renewable electrical energy in Section CX101.1.  $TRE_{off} = TRE_{off} - RTN_{off}$  Equation CX101.2 Where:  $TRE_{off}$  = Total adjusted off-site renewable electrical energy in kilowatt-hours (kWh) to be procured  $TRE_{off}$  = Total off-site renewable electrical energy to be procured  $RTN_{off}$  = Btu of renewable fuels/3412

**CX101.4.1 Off-site renewable fuels procurement.** The building owner, as defined in the International Building Code, shall be credited for the total amount of off-site renewable fuels procured with one or more of the following: 1. Physical renewable fuels purchase agreement. 2. Financial renewable fuels purchase agreement. 3. Off-site renewable fuels system owned by the building property owner. 4. Renewable energy investment fund. 5. Green retail tariff. The renewable fuels source shall be delivered to the building site by any of the following: 1. Direct connection to the off-site renewable fuels facility. 2. The local utility or distribution entity. 3. An interconnected piping network where energy delivery capacity between the renewable fuels source and the building site is available.

**CX101.4.2 Off-site contract.** The renewable energy shall be delivered or credited to the building site under an energy contract with a duration of not less than 5 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property.

**CX101.5 Renewable thermal certificate (RTC) documentation.** The property owner or owner's authorized agent shall demonstrate that where renewable thermal certificates (RTCs) or energy attribute certificates (EACs) are associated with off-site renewable fuels production required by Section CX101.4, all of the following criteria for RTCs and EACs shall be met: 1. The RTCs and EACs are retained and retired by or on behalf of the property owner or tenant for a period of not less than 5 years or the duration of the contract in **Section CX101.4.2**, whichever is less. 2. The RTCs and EACs are created within a 12-month period of the use of the RTC. 3. The RTCs and EACs are from a renewable fuels asset placed in service not more than 5 years before the issuance of the certificate of occupancy.

**CX101.6 Renewable thermal certificate purchase.** Where it can be demonstrated to the code official that the requirements of **Section CX101.4** cannot be met, the building owner shall contract the purchase of renewable thermal credits before the certificate of occupancy is issued. The purchase of renewable thermal credits shall comply with the Green-e Renewable Fuels Standard for renewable fuels products equivalent to three times the amount of total off-site renewable energy required in **Section CX101.4**.

**Reason:** Confirming and enforcing the installation of on-site renewable energy systems is relatively easy to accomplish. However, the enforcement of long-term contracts for off-site renewable energy is problematic at best and not possible at worst. This code should cover the construction of buildings and not after-occupancy and operational issues. Therefore, move the off-site renewable energy systems

provisions into an appendix. This proposal also expands and provides more options for customers to procure renewable energy by adding renewable fuels and Renewable Thermal Certificates. More options will allow more buildings to comply with these requirements. If a building cannot meet the on-site requirements for renewable energy, consider requiring additional credits to compensate rather than requiring long-term off-site renewable energy contracts.

**Cost Impact:** The code change proposal will neither increase nor decrease the cost of construction. Since this proposed appendix covers only off-site renewable energy procurement, it does not impact the cost of construction.

**Cost Impact (Detailed):** The change proposal is editorial in nature or a clarification and has no cost impact on the cost of construction

**Justification:**

This is an appendix and only covers the off-site renewable energy procurement, it does not impact the cost of construction.