

CECD1-10-22

IECC: SECTION 202 (New), SECTION 202, C405.15, C405.15.1, C405.15.2, TABLE C405.15.2, C405.15.2.1, C405.15.2.2, C405.15.3, TABLE C405.15.2(2) (New), C405.15.4, C406.3.1, C502.3.8, ASTM Chapter 06 (New), U. S. Environmental Protection Agency (New), California Air Resources Board (New)

Proponents: Bryan Holland, representing IECC CE Administration and Integration subcommittee

2024 International Energy Conservation Code [CE Project]

Add new definition as follows:

BIOMASS. Nonfossilized and biodegradable organic material originating from plants, animals and/or microorganisms, including products, byproducts, residues and waste from agriculture, forestry and related industries as well as the nonfossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of nonfossilized and biodegradable organic material.

Revise as follows:

BIOMASS WASTE. Organic non-fossil material of biological origin that is a byproduct or a discarded product. Biomass waste includes municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural crop byproducts, straw, and wood waste and wood residuals harvested at the building site, other biomass solids, liquids, and biogases; but excludes wood and wood-derived fuels (including black liquor), biofuel feedstock, biodiesel, and fuel ethanol.

Add new definition as follows:

DELIVERED LOW CARBON FUELS. Fuels delivered to the building site where the sum of the greenhouse gases emitted throughout the production and use life cycle of the fuel, expressed on a per-unit-of-fuel-energy basis, is reduced compared to a fossil fuel equivalent.

ON-SITE RENEWABLE ENERGY. Energy from renewable energy resources harvested at the building site.

Revise as follows:

RENEWABLE ENERGY RESOURCES. Energy derived from solar radiation, wind, waves, tides, biomass, biomass waste or extracted from hot fluid or steam heated within the earth.

C405.15 Renewable energy systems. *Buildings* in Climate Zones 0-7 shall comply with C405.15.1 through C405.15.4

C405.15.1 On-site renewable energy systems. *Buildings* shall install equipment for on-site renewable electricity generation with a direct current (DC) nameplate power rating of not less than 0.75 W/ft² (8.1 W/m²) multiplied by the sum of the gross conditioned floor area of all floors not to exceed the combined gross conditioned floor area of the three largest floors.

Exceptions: The following buildings or building sites shall comply with Section C405.15.2:

1. A building site located where an unshaded flat plate collector oriented toward the equator and tilted at an angle from horizontal equal to the latitude receives an annual daily average incident solar radiation less than 1.1 kBtu/ft² - day (3.5 kWh/m² - day).
2. A *building* where more than 80 percent of the roof area is covered by any combination of permanent obstructions such as, but not limited to, mechanical equipment, vegetated space, access, pathways, or occupied roof terrace.
3. Any building where more than 50 percent of the roof area is shaded from direct-beam sunlight by natural objects or by structures that are not part of the building for more than 2500 annual hours between 8:00 a.m. and 4:00 p.m.
4. A *building* with gross conditioned floor area less than 5,000 square feet (465 m²).

Revise as follows:

C405.15.2 Off-site renewable energy and delivered low carbon fuels. *Buildings* that qualify for one or more of the exceptions to Section 405.15.1 and do not meet the requirements of Section 405.15.1 either in part or in full, with an on-site renewable energy system, shall comply with this section. Buildings shall procure off-site renewable electrical energy, in accordance with C405.15.2.1 and C405.15.2.2, or shall procure delivered low carbon fuels in accordance with C405.15.2.2, that shall be not be less than the total off-site renewable electrical energy determined in accordance with Equation 4-14.

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

(Equation 4-14)

where:

TRE_{off} = Total off-site renewable electrical energy in kilowatt-hours (kWh) to be procured in accordance with Table C405.15.2 (1)
REN_{off} = Annual off-site renewable electrical energy from Table C405.15.2 (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

IREon = 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

Clred = Carbon intensity reduction factor in accordance with Table C405.15.2(2) where CI is calculated in accordance with the U.S. Environmental Protection Agency Renewable Fuel Standard or the California Low Carbon Fuel Standard.

TABLE C405.15.2(1) Annual Off-site Renewable Energy Requirement

Climate Zone	Annual Off-site Renewable Electrical Energy (kWh/W)
1A, 2B, 3B, 3C, 4B, and 5B	1.75 kWh/W
0A, 0B, 1B, 2A, 3A, and 6B	1.55 kWh/W
4A, 4C, 5A, 5C, 6A, and 7	1.35 kWh/W

C405.15.2.1 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 4-14, with one or more of the following:

1. A physical renewable energy power purchase agreement
2. A financial renewable energy power purchase agreement
3. A community renewable energy facility
4. Off-site renewable energy system owned by the building property owner

Revise as follows:

C405.15.2.2 Off-site contract and documentation. The *renewable energy* shall be delivered or credited to the building site under an energy contract with a duration of not less than 10 years. The contract shall be structured to survive a partial or full transfer of ownership of the building property. The total required off-site renewable ~~electrical~~ energy shall be procured in equal installments over the duration of the off-site contract. Delivered low carbon fuels shall document by a bill of lading either the carbon intensity of the delivered fuel or the B99, B100, R99 or R100 blend level in accordance with the U.S Environmental Protection Agency renewable fuel standard.

C405.15.3 Renewable energy certificate documentation. The property owner or owner's authorized agent shall demon-strate that where RECs or EACs are associated with on-site and off-site renewable energy production required by Sections C405.15.1 and C405.15.2 all of the following criteria for RECs and EACs shall be met:

1. Are retained and retired by or on behalf of the property owner or tenant for a period of not less than 15 years or the duration of the contract in C405.15.2.2 whichever is less;
2. Are created within a 12-month period of the use of the REC; and
3. Are from a generating asset constructed no more than 5 years before the issuance of the certificate of occupancy.

Add new text as follows:

U. S. Environmental Protection Agency U.S. EPA. USEPA William Jefferson Clinton Building North (WJC North)
1200 Pennsylvania Avenue N.W.
Washington, DC 20004

-
40 CFR Part 80-2023 Renewable Fuel Standard

California Air Resources Board California Air Resources Board. California Air Resources Board
4001 Iowa Ave
Riverside, CA 92507

-
LCFS22-02 Low Carbon Fuel Standard

Reason: This committee consensus proposal consolidates the action on CED1-18, 19, 20, 22, 23, 24, 25, and 181 with a recommended set of new and revised definitions and revised language in the main body of the code to correlate with the definitions. See the reason statement on CED1-18.

Cost Impact: The code change proposal will neither increase nor decrease the cost of construction.
This proposal does not affect the cost of construction.