

Section 18 - Alternate Energy Resources

(orig. 4-20-10)

A. Intent and Purpose

This section is intended to establish regulations for the location, design, and appearance of alternate energy sources and energy conversion systems, to promote the research and development of sustainable alternative energy sources, and to encourage the preservation of the environment by using alternate energy sources. (orig. 4-20-10; am. 5-21-19)

B. Application

1. Energy Conversion Systems (ECS) requirements:

- a. Scope: ECS includes, but is not limited to, Wind Energy Conversion Systems (WECS) and Solar Energy Conversion Systems (SECS). (orig. 4-20-10; am. 5-21-19; am. 06-29-21)
- b. Definitions: For the purpose of this regulation the following definitions shall apply: (orig. 4-20-10; am. 06-29-21)
 - (1) Non-commercial ECS: This ECS shall only serve the principal and accessory uses of the property and shall not be designed with the intention of generating excess energy that can be sold to neighboring properties or to the public utility. However, this provision shall not be interpreted to prohibit the sale of excess energy generated from the system back to the public utility. (orig. 4-20-10; am. 7-17-18; am. 5-21-19)
 - (2) Commercial ECS: This ECS shall have the primary purpose of research and development of ECS technology, or the generation of electrical power for sale, resale, or off-site use. (orig. 4-20-10; am. 5-21-19)
- c. New ECS: New ECS and associated equipment shall be subject to these regulations. (orig. 4-20-10; am. 5-21-19; am. 06-29-21)
- d. Preexisting ECS: Preexisting ECS, for which a permit has been properly issued prior to April 20, 2010, shall not be required to meet the requirements of this section. Changes, alterations, modifications and additions to pre-existing systems not specifically allowed by previous permits shall meet the applicable requirements of this section. (orig. 4-20-10; am. 5-21-19; am. 06-29-21)
- e. Abandoned ECS: ECS shall be considered abandoned if the use is discontinued (no energy production) for a period of more than 12 consecutive months unless a plan has been submitted and approved by Planning and Zoning outlining steps and a schedule for returning the system to service. The owner of such system shall remove the same within 30 calendar days and revegetate the site within one (1) year of receipt of notice from Jefferson County notifying the owner of such abandonment. (orig. 4-20-10; am 3-3-15; am. 5-21-19; am. 06-29-21)
- f. Permits: It shall be unlawful for any person, firm, or corporation to erect, construct, change, alter, modify or add ECS or an accessory structure without first obtaining a permit from Planning and Zoning. (orig. 4-20-10; am. 06-29-21)
- g. Compliance with other Regulations: Nothing in this section precludes compliance with the specific zone district regulations, other regulations within this Zoning Resolution or other County regulations, or with State and Federal standards and regulations as they may exist. If such State and Federal standards and regulations are changed, then the owners of the ECS facility governed by this section shall bring such facility into compliance with such revised standards and regulations within the time period mandated by the controlling State or Federal agency. Failure to meet such revised standards and regulations shall constitute grounds for the removal of the ECS facility at the owner's expense. (orig. 4-20-10; am. 06-29-21)
- h. Alternatives: The provisions of this section are not intended to prevent the use of any design, material or method of installation not specifically proscribed by this section provided any such alternate has

been approved by Planning and Zoning. An alternate may be approved if the proposed design, material or method is equal to or better than the specific requirements of this section and complies with the intent of this section and such modifications are consistent with the overall intent of the Zoning Resolution, the Land Development Regulation, Plat and Exemption From Platting restrictions, Site Development Plan, and zoning conditions, and do not result in adverse impacts that were not previously considered. (orig. 4-20-10; am. 12-21-10; am. 3-26-13; am 3-3-15; am. 5-21-19; am. 06-29-21)

- i. Maintenance: All Wind Energy Conversion System (WECS) shall be maintained so that they continue to comply with manufacturer’s specifications regarding noise decibels as well as being at or below decibel levels in the Jefferson County Noise Abatement Policy. (orig. 06-29-21)
 - j. Access to WECS: All WECS shall be secured to prevent unauthorized access. This may be accomplished through fencing with a locking gate, limiting tower climbing apparatus to no lower than 12 feet above the ground, or other means that ensures the facility cannot be climbed. (orig. 06-29-21)
2. The table below, along with the additional listed criteria, shall be used in determining if an ECS permit is allowed in a specific Zone District. (am. 5-21-19)
- a. ECS in Planned Developments will be reviewed and compared to the most similar standard zone district. (orig. 5-21-19)
 - b. A proposal for an ECS in a zone district that is blank in the table below will require a rezoning prior to the issuance of the ECS permit. Under the scenario where a rezoning is approved by the Board of County Commissioner, a Special Exception from the Board of Adjustment will not be required prior to the issuance of the ECS permit (orig. 5-21-19)

ALTERNATIVE ENERGY SYSTEMS TABLE (Table AES-1)

Zone District	Non-commercial WECS	Commercial WECS	Non-commercial SECS	Commercial SECS
All Residential Zone Districts	SE		P	
RC-1	SE		P	
C-1	SE		P	
C-2	SE		P	
I-1	SE	SE	P	SE
I-2	SE	SE	P	SE
I-3	SE		P	SE
I-4	SE	SE	P	SE
A-1	SE	SE	P	SE
A-2	SE	SE	P	SE
A-35	SE	SE	P	SE
CD	SE		P	SE
M-C		SE		SE
P = Permitted (Use by Right– administrative review of alternative energy permit) SE = Special Exception from Board of Adjustment required				

3. A permit for non-commercial ECS, and/or associated equipment as allowed in Table AES-1, may be issued by Planning and Zoning provided the information set forth in the application conforms to the requirements of this section. (orig. 4-20-10; am 3-3-15; am. 5-21-19)
- a. A permit is not required for flush-mounted non-commercial SECS on residential and commercial structures. (orig. 7-17-18; reloc. 5-21-19)

4. A permit for commercial ECS, and/or associated equipment as allowed in Table AES-1, may be issued by Planning and Zoning provided the information set forth in the application conforms to the requirements of this section and the Board of Adjustment has approved a Special Exception authorizing the commercial ECS facility. (orig. 4-20-10; am 3-3-15; am 5-21-19)
5. A nonrefundable processing fee in an amount established by the Board of County Commissioners is required for this process. (orig. 5-21-19)
6. The following procedure and requirements shall apply to ECS applications. (orig. 5-21-19)

C. Procedures

1. ECS Permit applications shall be accepted, reviewed and processed pursuant to the Miscellaneous Permit process outlined in the General Provisions and Regulations section of this Zoning Resolution, except as modified here. (orig. 4-20-10; am. 3-26-13)
2. All ECS applications shall include, in addition to other requirements, the following: (orig. 4-20-10; am. 5-21-19; am. 06-29-21)
 - a. A site plan that shows all existing property boundaries, structures and the shape, size, height, and location of all existing and proposed ECS structures, warning signs, fencing, and access restrictions. (orig. 4-20-10; am. 3-26-13; am. 7-17-18; am. 5-21-19)
 - b. At the request of the County: (orig. 4-20-10, am. 06-29-21)
 - (1) A description of any proposed ECS including elevations generally depicting all proposed structures, platforms, finish materials and colors, accessory equipment and height above grade. (orig. 4-20-10)
 - (2) A landscaping and/or visual mitigation plan (to scale) detailing how mitigation of visual impacts will be accomplished. This may include, but is not limited to, a visual study containing a view shed map depicting where within a three-mile radius any portion of the proposed facility could be seen, and cross-sectional views and photographic simulations showing the appearance of the proposed facility and accessory structures from up to five points within the view shed, such points to be mutually agreed upon by Planning and Zoning and applicant. (orig.4-20-10; am. 3-26-13; am 3-3-15; am. 7-17-18)
 - (3) An Erosion and Sediment Control Plan in accordance with the Land Disturbance Section (Plans and Specifications) of the Zoning Resolution. (orig. 4-20-10, am. 06-29-21)
 - (4) A performance guarantee, in an amount acceptable to Planning and Zoning and in a form acceptable to the County Attorney's Office, to ensure the landscaping, screening, erosion, and revegetation plans are completed. (orig.4-20-10)
 - (5) Proof of legal access is required for all commercial ECS. (orig. 5-21-19; am. 06-29-21)
 - c. For all applications that will proceed to the Board of Adjustment, the following additional requirements shall be provided:
 - (1) A narrative description of the request and reasons for the Special Exception. (orig. 06-29-21)
 - (2) A site plan showing the location of the proposed ECS in relation to lot lines and any other improvements on the property and for WECS the distance to adjacent residences or buildings housing animals shall be included. (orig. 06-29-21)
 - (3) A graphic showing the size, height, shape and technical specifications of the ECS. (orig. 06-29-21)
 - (4) If the request is for height above 50 feet, correspondence from the Colorado Division of Parks and Wildlife (DPW) and/or the United States Fish and Wildlife Service (USFWS) shall be submitted regarding impacts to wildlife. (orig. 06-29-21)

- (5) A visibility analysis of the ECS and proposed mitigation techniques, such as color and/or reflectivity. (orig.06-29-21)
- (6) If the Special Exception request involves a WECS, information from the manufacturer's documentation which shall include the make, model, picture and manufacturer's specification, including specifications of electromagnetic shielding, filtering, or construction design so as to not cause electrical, radio frequency, television, and other communication signal interference, and noise decibels produced by the system. Noise decibels for a turbine within or adjacent to a residential zone district shall not exceed the decibels allowed by the Jefferson County Noise Abatement Policy for sound from non-vehicular sources located in a residential zone. (orig. 4-20-10, am. 06-29-21)
- (7) Location and proximity of any designated historical resources or districts on or adjacent to the proposal. (orig. 06-29-21)
- (8) Proposals for Commercial WECS shall include a decommissioning plan which details the anticipated life of the project, when and how the facility is to be decommissioned, and an estimated cost of decommissioning. (orig. 4-20-10; reloc. 5-21-19)
- (9) Commercial WECS shall provide a report addressing the minimization, or mitigation of interference with electromagnetic communications, such as radio, telephone, microwaves, or television signals caused by the proposed WECS including letters of notification of all communication providers within a two-mile radius of the proposed project. Additionally, a map of sufficient scale identifying the location of such communications facilities within a two-mile radius of the proposed project shall be provided for review and verification. (orig. 4-20-10; reloc. 5-21-19)
- (10) Commercial WECS shall provide a report by a licensed professional engineer demonstrating compliance with applicable structural standards and the general structural capacity of the proposed facility. (orig. 4-20-10; reloc. 5-21-19)
- (11) Copies of all FCC or FAA notifications/permits as required. (orig. 4-20-10; reloc. 5-21-19)

D. Specific Standards

1. Non-commercial Energy Conversion Systems (ECS)

- a. A Board of Adjustment Special Exception is required for all Non-commercial WECS. The Board of Adjustment, in reviewing and making its decision upon such applications shall consider the impacts of the proposed use upon property in the surrounding area, including but not limited to: (orig. 5-21-19; am 06-29-21)
 - (1) Justification for height of a WECS through competent information, such as anemometer data or National Renewable Energy Laboratory mapping, that the proposed site provides sufficient wind potential to justify a taller system; (orig. 06-29-21)
 - (2) The visibility of the WECS from off-site properties; (orig. 06-29-21)
 - (3) The noise impacts of the WECS to off-site properties; (orig. 06-29-21)
 - (4) The effect of the proposed facility on wildlife; (orig. 06-29-21)
 - (5) The effect on the health, safety, and welfare of the residents of the surrounding areas; (orig. 06-29-21)
 - (6) All public testimony including registered associations, as applicable, or property owner positions; (orig. 06-29-21).
 - (7) The ability to mitigate other negative impacts of the proposed WECS; and (orig. 06-29-21);
 - (8) The Board of Adjustment shall require that all Non-commercial WECS will be operated in

accordance with the applicable Performance Standards as set forth in Alternate Energy Resources section of the Zoning Resolution in effect at the time of the application upon approval of a Special Exception except where a Variance for those standards has been approved. (orig. 06-29-21)

b. Wind Energy Conversion Systems (WECS) Performance Standards: (orig. 4-20-10)

- (1) The height of the building mounted WECS shall not exceed the maximum height permitted in the zone district. (orig. 4-20-10; am 7-17-18)
- (2) Free standing non-commercial WECS, where permitted, shall not exceed the maximum height provided in the table below: (orig. 4-20-10; am 7-17-18)

HEIGHT, SETBACK AND LOCATION REQUIREMENTS TABLE

PROPERTY SIZE	MAXIMUM HEIGHT	SETBACKS	LOCATION
87,120 s.f. (2 acres) or less	50 feet	Zone District	Back yard or side yard
87,121 s.f. (2 acres) to 217,800 s.f. (5 acres)	60 feet	standard zone district setback for towers less than or equal to zone district height allowance. All others a 1:1 ratio	Any Location
217,801 s.f. (5 acres) to 435,600 s.f. (10 acres)	80 feet	standard zone district setback for towers less than or equal to zone district height allowance. All others a 1:1 ratio	Any Location
Greater than 435,600 s.f. (10 acres)	100feet	standard zone district setback for towers less than or equal to zone district height allowance. All others a 1:1 ratio	Any Location

- (3) Building mounted non-commercial WECS shall be placed on a structure that either meets the minimum setback requirements of the zone district, has gone through a process to legalize the existing setbacks, or has been established as being legal non-conforming in regards to the setbacks of the structure (orig. 4-20-10; am. 3-26-13)
- (4) Maximum height is the vertical distance from any part of the structure, including blades, to the finished grade level. (orig. 06-29-21)
- (5) Free standing non-commercial WECS shall be constructed of a monopole or guyed tower, and shall meet the minimum setback for the primary structure, or shall be setback 1:1 times the height of the tower, whichever is greater. The foregoing setbacks also apply to existing above ground utility lines or facilities that exceed 20 feet in height unless a letter of no objection is obtained from the utility or easement holder. (orig. 4-20-10; am. 3-26-13; am. 7-17-18, am. 06-29-21)
- (6) Non-commercial WECS shall be painted a subdued earth-tone, gray, or other non-obtrusive color to mute the visual impact of the system. (orig. 4-20-10; am. 7-17-18, am 06-29-21)

c. Solar Energy Conversion Systems (SECS) Performance standards:

- (1) The height of the building mounted SECS shall extend no further than 5 feet above the structure to which it is mounted, or exceed the maximum height permitted in the zone district, whichever is lower. (orig. 4-20-10; am. 3-26-13)
- (2) Free standing non-commercial SECS, where permitted, shall not exceed 12 feet in height. (orig. 4-20-10)

- (3) Building mounted non-commercial SECS shall be placed on a structure that either meets the minimum setback requirements of the zone district, has gone through a process to legalize the existing setbacks, or has been established as being legal non-conforming in regards to the setbacks of the structure. (orig. 4-20-10; am 3-26-13)
 - (4) Free standing non-commercial SECS shall meet the minimum setback for an accessory structure. (orig. 4-20-10; am. 3-26-13)
 - (5) Non-commercial SECS shall be painted, where possible, a subdued earth-tone, or gray to mute the visual impact of the system. (orig. 4-20-10; am 7-17-18)
2. Commercial Energy Conversion Systems (ECS)
- a. A Board of Adjustment Special Exception is required for all commercial ECS and the associated equipment. The Board of Adjustment, in reviewing and making its decision upon such applications may consider the impacts of the proposed use upon property in the surrounding area, including but not limited to: (orig. 5-21-19)
 - (1) Visual and aesthetic impact, including the scale of the facility as it relates to the uses on surrounding properties; (orig. 5-21-19)
 - (2) Noise; (orig. 5-21-19)
 - (3) Community character; (orig. 5-21-19)
 - (4) The compatibility of the ECS with the existing and allowable land uses in the surrounding area; (orig. 5-21-19)
 - (5) The effect upon health, safety and welfare of the residents in the surrounding area; (orig. 5-21-19)
 - (6) The effect of the proposed facility on wildlife; (orig. 5-21-19)
 - (7) The ability to mitigate negative impacts upon the surrounding area; and (orig. 5-21-19)
 - (8) The Board of Adjustment shall require that all Commercial ECS will be operated in accordance with the applicable Performance Standards as set forth in Alternate Energy Resources section of the Zoning Resolution in effect at the time of the application upon approval of a Special Exception except where a Variance for those standards has been approved. (orig. 06-29-21)
 - b. Wind Energy Conversion Systems (WECS) Performance Standards:
 - (1) The subject lot, tract, or parcel where a commercial tower is proposed must meet the current minimum lot size requirement of the zone district in which it is to be erected. (orig. 4-20-10; am. 5-21-19)
 - (2) Freestanding towers shall meet the minimum setback for a primary structure, or shall be setback 1:1 to the total height of the tower, whichever is greater. (orig. 4-20-10; am. 3-26-13; am 7-17-18; am. 5-21-19)
 - (3) All setbacks shall be measured from the base of the tower. (orig. 4-20-10; am. 5-21-19)
 - (4) All free-standing towers shall be constructed in a monopole design of tubular steel, or equivalent material, and shall be self-supporting without the use of guy wires or other similar features. (orig. 4-20-10; am. 5-21-19)
 - (5) All towers shall be white, gray, or another non-obtrusive color demonstrated to minimize visibility unless otherwise required by FAA regulations. The rotor blades may be black in order to facilitate deicing. (orig. 4-20-10; am. 5-21-19)

- (6) All turbines shall be equipped with redundant braking systems. This includes both aerodynamic (including variable pitch) overspeed controls and mechanical brakes. (orig. 4-20-10; am. 5-21-19)
 - (7) Rotor blades or airfoils must maintain at least a 25-foot clearance between their lowest point and the ground unless the proposed design follows the best management practices for safety. (orig. 4-20-10; am. 3-26-13; am. 5-21-19)
 - (8) No tower shall have light, reflectors, flashers, daytime strobes, steady nighttime red lights, or other illuminating device affixed to it unless required by FAA or FCC. Security lighting is allowed at the tower base. (orig. 4-20-10; am. 5-21-19)
 - (9) No signs shall be placed on towers. (orig. 4-20-10; am. 7-17-18; am. 5-21-19)
 - (10) Cautionary signs in conformance with the Signs section of this Resolution shall be posted on the site to warn of high voltage and no trespassing. (orig. 4-20-10; am. 7-17-18; am. 5-21-19)
 - (11) The specific proposed tower support structure shall be engineered, constructed, installed and maintained to withstand the normal wind and vertical loads, plus safety loads, for the specific proposed location and for the specific wind load size, in force at the time of application. (orig. 4-20-10; am. 5-21-19)
 - (12) The tower support structure shall be electrically grounded per the International Electrical Code in force at time of application, and consistent with normal engineering practices. (orig. 4-20-10; am. 5-21-19)
- c. Solar Energy Conversion Systems (SECS) Performance Standards:
- (1) The subject lot, tract, or parcel where a commercial array is proposed must meet the current minimum lot size requirement of the zone district in which it is to be erected. (orig. 4-20-10; am. 5-21-19)
 - (2) The setback for a free-standing arrays shall meet the minimum setback for the primary structure. (orig. 4-20-10; am. 3-26-13; am. 5-21-19)
 - (3) All setbacks shall be measured from the panel. (orig. 4-20-10; am. 5-21-19)
 - (4) The height of the building mounted arrays shall extend no further than 5 feet above the structure to which it is mounted, or exceed the maximum height permitted in the zone district, whichever is lower. (orig. 4-20-10; am. 3-26-13; am. 5-21-19)
 - (5) Free standing commercial arrays shall not exceed the maximum height of 25 feet. (orig. 4-20-10; am. 5-21-19)
 - (6) The height shall be measured from the average natural ground level adjacent the base of the array to the highest point of the array. (orig. 4-20-10; am. 5-21-19)
 - (7) Cautionary signs in conformance with the Signs section of this Resolution shall be posted on the site to warn of high voltage and no trespassing. (orig. 4-20-10; am. 5-21-19)