

## CHAPTER 16 - ALTERNATIVE ENERGY SYSTEMS

### SECTION 16.0 GENERAL:

Wind, thermal and solar energy are abundant, renewable and non-polluting energy resources; converting them to electricity will reduce the Town of Cave Creek (“the Town”) residents dependence on nonrenewable energy resources; using them will enhance the reliability and quality of the power grid, reduce peak power demands and diversify the Town’s energy supply choices, and make the electricity market more competitive by promoting customer choice.

#### A. Purpose:

The purpose of this Chapter is to:

1. Encourage the application of alternative energy systems within the Town.
2. Provide a procedure for the development of nontraditional electrical power generation sources, including wind, thermal & solar power, co-sited with existing uses.
3. Establish sound technical standards for the development of alternative energy systems.
4. Provide guidelines with standards, specifications and design expectations so as to facilitate the application, project review and approval process.
5. Ensure that any proposed alternative energy system is designed so as to protect the health, safety and welfare of the Town residents.
6. Minimize the alteration of the natural environment.
7. Minimize negative impacts on surrounding properties.

#### B. Resources:

The following resources are provided to assist the applicant in determining applicable statutes, codes, ordinances and regulations:

1. The Town of Cave Creek Zoning and Subdivision Ordinances.
2. The Town of Cave Creek Town Code.

3. The Town of Cave Creek adopted Building Codes.
4. The Town of Cave Creek accepted Technical Design Guidelines:
  - No. 1: Grading & Drainage
  - No. 2: Transportation
  - No. 3: Utilities
  - No. 4: Landscaping
  - No. 5: Trails
5. Applicable Arizona Public Service Company (“APS”) standards.
6. Applicable Federal, State, County and Town statutes, codes, ordinances and regulations.

C. Authorization:

The authorization for the accessory use of an alternative energy system is administratively approved by the Zoning Administrator, pursuant to the criteria and procedures as contained within this Ordinance. Proposed systems shall meet all relevant Federal, State, County and Town statutes, codes, ordinances and regulations.

D. General Regulations:

1. The construction of all improvements related to the installation of an alternative energy system shall require, at a minimum, the submittal for and approval of a Building Permit and Zoning Clearance.
2. The construction of all improvements related to the installation of an alternative energy system shall be subject to all applicable Federal, State, County and Town statutes, codes and ordinances.
3. If there is a conflict between the provisions of this Chapter and other Federal, State of Arizona, Maricopa County, other adopted Town Codes or Ordinances, the more restrictive shall apply.
4. Modification to, including the expansion of an existing approved alternative energy system shall follow the same approval procedure as established for the permitting of the original system.

E. Installation Considerations:

While there are several factors that influence the decision to install an alternative energy system the basic guidelines to consider are:

1. Town building and zoning codes;
2. Parcel size;
3. Parcel topography;
4. Ambient wind speed;
5. The amount of energy (kWh per month) that a property owner is trying to produce;
6. Distance from adjacent properties;
7. Tower height restrictions;
8. Noise level restrictions;
9. Lighting limitations;
10. Fencing/security;
11. Lot coverage and lot disturbance limitations.

F. Review Criteria:

1. That the proposed accessory use is secondary to the property owner's use of the premises for other lawful purposes.
2. That the proposed accessory use is designed to minimize negative impacts that may be created by the use.
3. That adequate measures have been undertaken by the property owner to reduce the risk of accidents.
4. That the proposed accessory use is essential or desirable and not detrimental or injurious to the public health, safety, or general welfare of the community.

5. That the proposed accessory use is adequately supported by necessary services such as roads, fire protection, emergency response, and drainage structures.
6. That the approval of a Building Permit from the Town is contingent upon the applicant receiving prior written approval of the proposed alternative energy system by the APS.
7. That the Town's Building Official may require that Design Plans and an Engineering Report prepared and certified by an Arizona Licensed Professional Engineer (mechanical/electrical) be included as a part of the Building Permit submittal.

## SECTION 16.1 SOLAR ENERGY SYSTEMS DEVELOPMENT STANDARDS:

### A. Solar Energy System Regulations:

1. A solar energy system shall be defined as an accessory use and shall be allowed within all Town land use zones.
2. The solar energy system is secondary to the beneficiary's use of the premises for other lawful purposes.
3. Normal maintenance and repair of alternative energy systems shall be a permitted use in all zones.
4. Ground-mounted electrical and control equipment must be labeled and secured.
5. Solar panels are permitted as a rooftop installation in any zone.
6. Free-standing ground-mounted arrays are not classified as buildings and as such may be located any where upon a lot, tract or parcel, with the exception of the Native Habitat Corridor (NHC) as required within the Desert Rural (DR) Zones.
7. The solar energy system shall be sited in such a manner so as to minimize negative impacts on surround properties.
8. The maximum height of free-standing ground-mounted arrays shall be fifteen feet (15') when measured from finished grade.
9. Solar energy systems shall not be used for advertising.

## SECTION 16.2 WIND ENERGY SYSTEMS DEVELOPMENT STANDARDS:

### A. Wind Energy System Regulations:

1. A wind energy system shall be defined as an accessory use and shall be allowed within all Town land use zones.
2. Noise impacts shall be reduced through engineering, siting decisions, and turbine size/quantity modifications.
3. The wind energy system is secondary to the beneficiary's use of the premises for other lawful purposes.
4. All wind turbine towers shall be designed as freestanding (no guy wire).
5. Only one (1) wind energy system and related support structures and other improvements may be located on a lot, tract or parcel.
6. A wind energy system shall not be placed within the front yard of the parcel upon which it is located.
7. Ground-mounted electrical and control equipment must be labeled and secured.
8. The wind energy system's sound level shall be in compliance with applicable Town Code requirements.
9. One (1) small scale wind energy system and related support structures and other improvements may be authorized under the following conditions:
  - a. The lowest point on all rotor blades must be at least ten feet (10') above adjacent ground level.
  - b. The wind energy systems height shall be determined as the vertical distance from finished grade level to the center of the hub for the rotor blades. The height does not include the diameter of the rotor blades. In no case shall the wind energy system exceed thirty feet (30') in height.

- c. All wind energy systems shall be set back from all dwellings located on the same parcel a distance equal to one (1) times the associated wind turbine's tower height including the blades at their highest point.
- d. All wind energy systems shall be set back from all property lines a distance equal to one (1) times the height of the proposed wind turbine tower including the blades at their highest point.
- e. Wind energy systems shall have an automatic brake or other device to prevent over-speeding from exerting pressure on the tower structure.
- f. All wind energy towers shall have lightning protection.
- g. Wind energy systems shall not be used for advertising.
- h. Wind energy systems shall not be artificially lighted unless required by the Federal Aviation Administration or other agency with regulatory authority.
- i. All wind energy systems proposed to be located within four (4) miles from the nearest point of the nearest runway of the nearest airport, the applicant for a TOCC Building Permit shall comply with all the requirements imposed by the Federal Aviation administration (FAA) and provide a written statement from the FAA that sets forth the FAA's comments, prohibitions and requirements, if any, for the proposal.
- j. If the use of any wind energy system is discontinued for a period of one (1) year or more, the owner of such system shall remove the system within ninety (90) days of written notification by the Planning department.

If such system is not removed within said ninety (90) days, the TOCC may refer the issue to the Town Marshal for appropriate action.

## SECTION 16.3 THERMAL ENERGY SYSTEMS DEVELOPMENT STANDARDS:

### A. Thermal Energy System Regulations:

1. A thermal energy system shall be defined as an accessory use and shall be allowed within all Town land use zones.
2. The thermal energy system is secondary to the beneficiary's use of the premises for other lawful purposes.
3. Normal maintenance and repair of alternative energy systems shall be a permitted use in all zones.
4. Ground-mounted electrical and control equipment must be labeled and secured.
5. Thermal energy systems shall not be used for advertising.

## SECTION 16.4 LOT COVERAGE & LAND DISTURBANCE REGULATIONS:

### A. General Regulations:

1. The minimum Grading & Drainage design standards as contained in the Town of Cave Creek Technical Design Guideline No. 1 - Grading & Drainage and this Ordinance shall apply to all construction projects located within the Town.
2. All buildings, structures, roads, and drives shall, to the fullest extent practicable, follow and utilize the natural contours of the land to minimize disturbance.
3. No disturbance shall be permitted beyond the approved non-disturbance boundaries either during or after construction.
4. The boundaries of construction and proposed disturbance areas shall be clearly staked in the field and outlined with temporary construction fencing, prior to and during construction. Non-disturbance boundaries shall conform to those depicted on a Town approved Site Plan.
5. Land disturbed in violation of this Ordinance shall be required to be re-graded to the original natural contours of the site and be revegetated with indigenous plants of the same species, size, and at a similar density present on undisturbed land adjacent to the disturbance (see the Town of Cave Creek Technical Design Guideline No. 4 – Landscaping).

6. Proposed improvements or additions to existing structures or other property improvements within or near wash areas are subject to the regulations established in this Ordinance. Proposals for such improvements or additions shall be accompanied by an exhibit showing the necessary calculations used to determine that the minimum Ordinance requirements have been satisfied.

## SECTION 16.5 DOCUMENTATION REQUIREMENTS:

### A. Plan Submittal:

All plans submitted to the Town for review shall meet or exceed the associated standards as set by the Arizona Public Service Company (APS). In order to obtain a Building Permit for a lot or parcel, two (2) copies of the following plans, studies and/or reports are required to be submitted to, and approved by the Town:

1. A detailed Site Plan as described in this Ordinance shall be provided.
2. Three or more cross sections shall be taken at different locations throughout the construction site and drawn perpendicular to the existing contours. Said cross sections shall be drawn with a vertical to horizontal ratio of 1:1 and shall clearly be shown on the Site Plan.
3. A "Site/Drainage Analysis" shall be required for any Site Plan which contains a wash area. The subject Site Analysis shall contain a "Natural Wash Corridor Analysis," and other "Engineering Analyses" that may be required by the Town Engineer. All maps shall be at the same scale as the associated Site Plan.

The Natural Wash Corridor Analysis shall, at a minimum, identify all washes recognized as "Waters of the U.S." by the U.S. Army Corps of Engineers and shall include information on the habitat value of each particular wash.

4. The engineer certified design plans (civil, structural, mechanical, electrical, etc.).
5. A copy of the engineering modeling and analysis report for the system to be installed, prepared and certified by an Arizona licensed professional engineer (mechanical/electrical).
6. Additional information that the Town may determine as necessary to evaluate proposed development plans.