



## Submittal Checklist for Residential Solar and Wind Systems



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**Disclaimer: Completion of this form does not guarantee issuance of a permit. Failure to provide all requested documentation may significantly increase the time needed to process your application.**

#### General Requirements:

- Pima County Zoning Code 18.07.030 (P) Ancillary Scale Renewable Energy System regulates residential solar and wind systems. See page two of this document for requirements
- List applicable codes on cover sheet.
- Site Plan (Drawn to scale)
  - For all site plan information requirements see <http://www.pimaxpress.com/PDFs/3-02p07e01-SitePlan.pdf>
  - Size be 8 ½ inches x 11 inches minimum. Drawing scale: 1:10 to 1:50 acceptable.
  - Show location of all system components on roof or ground. (Panel layout, number of strings, location of tank for hot water systems)
  - For ground mounted systems:
    - Provide panel array dimensions: outside dimensions, total area covered, highest point above grade.
    - Provide the dimensions from the property lines to the proposed system and existing structures; show set backs.
    - Foundation must be engineered to support the weight of the system and to resist the wind uplift. (See Structural Requirements below)
- Provide cut sheets with UL or other approved listing for all system equipment.
- Solar Collector roof loading data and mounting system with fastener sizes and calculations for dead load and wind uplift. (See Structural Requirements below)

#### Photovoltaic Systems.

- One Line Diagram with conductor and conduit sizes and types.
- Method of connection to service: back-fed breaker, or line side tap
- Conductor size and over-current protection calculations.
- Roof conductor calculations are to be based on an ambient temperature of 71° - 80° C (159° - 176° F) using the adjustment factor .58.

- Non-roof conductor calculations are to be based on 41° - 45° C (105° - 113° F) using the adjustment factor of .87 (Per NEC 2008 310.15 (B) (2) (c))
- 3 Line Diagram with grounding sizing and connections.
- Use the [solar calculators](#) posted on our web site (under forms and calculators) to facilitate submittal and code review.

#### Solar Hot Water Systems

- Solar Hot Water Schematic, including temperature relief valve
- Backup Power at storage tank:
  - Electrical: one line diagram with conductor and conduit sizing and over-current protection sizing
  - Gas: Isometric of gas piping showing loads, new piping, existing piping and all sizing

#### Wind Energy Systems

- One tower system per residential lot.
- Towers require structural engineering or listing demonstrating integrity for wind and seismic loads.
- Include electrical diagrams per Photovoltaic Systems requirements above.

#### Structural Requirements

- Structural engineering calculations may be waived if you use the Pima County [Standard Operating Procedure 220.2](#) for live load displacement available at [www.PimaXpress.com](http://www.PimaXpress.com).
- A [wind uplift calculator](#) is also available on our web site.



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### 18.07.030 Land Use Regulations.

#### P. Ancillary Scale Renewable Energy System.

1. **Purpose:** a. To encourage energy self-sufficiency on an individual scale through the use of ancillary scale renewable energy systems; b. To minimize to the extent possible adverse visual effects and any possible audio effects of renewable energy systems through appropriate development standards; c. To provide clear regulations for the use of ancillary scale renewable energy systems.
2. **Applicability:** Primarily intended for on-site use only to off-set part or all of a property owner's or occupant's electrical requirements; selling excess energy produced is incidental to the primary use. Ancillary scale renewable energy systems are considered accessory uses to be allowed in all zones subject to the following development standards.
3. **Development Standards** – Ancillary Scale Solar Energy Systems:
  - a. Minimum site area: In accordance with the underlying zone.
  - b. Setbacks:
    - 1) Ground-mounted solar energy systems six feet in height or less:
      - i) Front: In accordance with the minimum front yard requirements for a Main Structure or Building of the underlying zone.
      - ii) Side: In accordance with the minimum side yard requirements for an Accessory Structure or Building of the underlying zone.
      - iii) Rear: In accordance with the minimum rear yard requirements for an Accessory Structure or Building of the underlying zone.
    - 2) Ground-mounted solar energy systems greater than six feet in height:
      - i) Front: In accordance with the minimum front yard requirements for a Main Structure or Building of the underlying zone.
      - ii) Side: In accordance with the minimum side yard requirements for a Main Structure or Building of the underlying zone plus two feet.
      - iii) Rear: In accordance with the minimum rear yard requirements for a Main Structure or Building of the underlying zone.
    - 3) Roof-mounted solar energy panels: In accordance with the minimum yard requirements for the applicable structure (Main or Accessory) to which the panel is attached.
    - 4) Solar energy panels co-located on existing utility poles: In accordance with the underlying requirements for the existing pole.
  - c. Height: [Reference Figure 18.07-1]
    - 1) Ground-mounted solar energy systems: Maximum 10 feet, with the following exception that systems up to 16 feet shall be allowed in the IR (Institutional Reserve), RH (Rural Homestead), GR-1 (Rural Residential), SR (Suburban Ranch), and SR-2 (Suburban Ranch Estate) zones and all commercial and industrial zones.
    - 2) Roof-mounted solar energy panels:
      - i) Parapet or flat roof: The highest point of the solar device structure shall be no more than eight feet above the top of the parapet or roof line, and the combined height of the solar device structure and the structure to which it is attached shall comply with the maximum height of the underlying zone allowed for the applicable structure (main or accessory) to which the solar device structure is attached.
      - ii) Gable, hip or gambrel roof: The highest point of the solar device structure shall be no more than six feet above the roof, and the combined height of the solar device structure and the structure to which it is attached shall comply with the maximum height of the underlying zone allowed for the applicable structure (main or accessory) to which the solar device structure is attached.
    - 3) Solar energy panels co-located on existing utility poles: In accordance with the underlying requirements for the existing pole.
    - 4) Height is calculated as measured to the highest point of the solar device structure from the finished grade.
  - d. Ground-mounted solar energy systems located within the Single Residence Zone (CR-1) or Single Residence Zone (CR-2), and ground-mounted solar energy systems within the Suburban Ranch Zone (SR) and Suburban Ranch Estate Zone (SR-2) if the system is set back less than fifty feet (50') from the abutting properties, shall require a wall or opaque fence (no chain link fencing) on the side abutting the neighbor(s) or that portion of the side affecting the abutting neighbor as determined by the Chief Zoning Inspector or their designee, equal to the height of the system up to six feet or vegetative screening capable of growing up to or greater than the height of the system, be provided to help obscure the solar system from the abutting neighbors' ground-level views. The applicant may obtain an exception from this screening requirement to allow no fencing or chain link fencing with written consent from all abutting property owners submitted to the Chief Zoning Inspector or their designee. The applicant must specify to the abutting property owners whether the exception is for no fencing or chain link fencing.
  - e. Lot coverage: Accessory structure maximum lot coverage shall not apply.
  - f. Solar energy panels co-located on existing utility poles are limited to 16 square feet per pole.
  - g. An accessory structure proposed for roof-mounted solar energy panels must serve some other function (e.g. carport, shed) than to mount solar panels, otherwise the system is defined as "ground-mounted" and subject to Sections 18.07.030(P)(3)(b)(1) or (2) and 18.07.030(P)(3)(c)(1).
4. **Solar energy systems** shall be located such that prolonged and/or substantial concentrated solar radiation or glare shall not be directed onto abutting properties or roadways.
5. **Energy production:** The chief zoning inspector or designee may request prior to issuing permits that the property owner provide written certification that the energy produced by the renewable energy system(s) is reasonably equivalent to the electrical usage of the property; any selling of excess energy is incidental.
6. **An exception** to the setback requirements may be made subject to approval of a Modification of Setback Requirements (MSR) request in accordance with Section 18.07.070.
7. **Any renewable** energy system which becomes inoperable shall at the owner's expense be made operational or shall be removed from the property within one year of the date the system became inoperable.