

Vernal City

Residential Solar Photovoltaic (PV) System

Plan Submittal Checklist

This checklist is only a basic list of items needed **to begin** a solar P V system plan review and is **not** all inclusive. Having all the items listed on this checklist does **not** guarantee a permit will be issued and any additional plans, information, and/or requirements may be requested or required by Vernal City at any time.

1. **Site plan:** A detailed site plan showing the location of the home, electrical service panel, service meter (if not part of the service panel), any sub-panelboards (which are to be backfed by the solar PV system), and all PV system components.
2. **Mounting system:** Provide detailed information on the module mounting system. The support manufacture specs must also specify the required support spacing based on the local wind and snow loads (typically manufacturers have wind loading tables for this). Note on the plans if the home roof rafters are engineered trusses or provide information on the type and size of the roof rafters if they are other than engineered trusses. Also note the type of the roof covering (shingles, metal, or tile) and how many layers of the roof coverings there are. If the racking system has integrated grounding/bonding, please also provide spec sheets showing such. (UL2703 Listed)
3. **One-line diagram:** A detailed one-line (or three-line) diagram is required and must show the type of PV system being installed (a string inverter system, micro inverter system, or AC module system), show the **exact** number and layout of modules and how they are connected together (in series or in parallel), show all wire types, all wire sizes, how many wires per circuit, conduit types and sizes, **detailed** info on the equipment grounding wiring and connections, note the locations of **all** circuits and system components on or in the house, show the ratings of all fuses or breakers, show ratings of all equipment, and note on the diagram if equipment is new or is existing. The diagram must also note the model numbers of equipment.
4. **Electrical panel to be backfed:** Note which home electrical panel the PV system will backfeed and give the location and rating of that panel. Please provide pictures of the service panelboard with a picture of its interior label also. Please also provide photos of labels of any sub-panel that will be backfed by the PV system.
5. **Module spec sheets:** Provide the PV module (solar panels) manufacture spec sheets showing the modules' STC rated watts (Pmp), volts (Vmp), amps (Imp), open circuit voltage (Voc), and short circuit current (Isc). Modules must also be shown to be listed UL 1703.
6. **Inverter spec sheets:** Provide the inverter manufacture spec sheets showing the amount of watts and volts the inverter can safely handle, and also noting the inverter's max rated AC output amps and AC voltage. Utility tied inverters must be shown to be listed as "utility interactive." All inverters must also be shown to be listed per UL 1741, and must have DC ground fault protection (this is required even for micro inverters and AC modules).
7. **Total array power:** (This is not required for systems with micro inverters) Provide the total amount of watts, amps, volts, open circuit voltage (Voc at the coldest possible outside temperature-see NEC 690.7), and short circuit current that the array can produce. This information must be based on the solar PV module manufacture specs.
8. **System components or equipment:** Provide information on the different types of components (such as j-boxes, disconnect switches, panelboards, etc) that will be used in the system and how they are to be installed. Also show that all equipment is listed and rated for the type of voltage (AC or DC), amount of voltage, and the amount of current (amps) that it could be subjected to.