

**CHAPTER 40**

**SOLAR ENERGY SYSTEMS (SES)**

**ARTICLE I – GENERALLY**

**40-1-1**        **SCOPE.** This Article applies to all solar energy installations within the corporate boundaries of the Village.

**40-1-2**        **PURPOSE.** The purpose of this Chapter is to promote and encourage economic development, while maintaining order in the construction, installation and operation of Solar Energy Systems (SES) in the Village, while ensuring protection of the health, safety and welfare of the residents of the Village by promoting the safe, effective, and efficient use of solar energy to reduce on-site consumption of fossil fuels or utility-supplied electric energy. Also, to avoid adverse impact to important areas such as agricultural land, endangered species habitats, conservation land, and other sensitive lands. This Chapter shall not be deemed to nullify any provisions of local, state or federal law.

**40-1-3**        **DEFINITIONS.**

(A)            **Active Solar Energy System.** A solar energy system whose primary purpose is to harvest energy by transforming solar energy into another form of energy or transferring heat from a collector to another medium using mechanical, electrical, or chemical means.

(B)            **Building-integrated Solar Energy Systems.** An active solar energy system that is an integral part of a principal or accessory building, rather than a separate mechanical device, replacing or substituting for an architectural or structural component of the building. Building-integrated systems include but are not limited to photovoltaic or hot water solar energy systems that are contained within roofing materials, windows, skylights, and awnings.

(C)            **Grid-intertie Solar Energy System.** A photovoltaic solar energy system that is connected to an electric circuit served by an electric utility company.

(D)            **Ground Mount.** A solar energy system mounted on a rack or pole that rests on or is attached to the ground.

(E)            **Off-grid Solar Energy System.** A photovoltaic solar energy system in which the circuits energized by the solar energy system are not electrically connected in any way to electric circuits that are served by an electric utility company.

(F)            **Passive Solar Energy System.** A solar energy system that captures solar light or heat without transforming it to another form of energy or transferring the energy via a heat exchanger.

(G)            **Photovoltaic System.** An active solar energy system that converts solar energy directly into electricity.

(H)            **Renewable Energy Easement, Solar Energy Easement.** An easement that limits the height or location, or both, of permissible development on the burdened land in terms of a structure or vegetation, or both, for the purpose of providing access for the benefited land to wind or sunlight passing over the burdened land.

(I)            **Roof Mount.** A solar energy system that is mounted on a rack that is fastened onto a building roof.

(J)            **Solar Access.** Unobstructed access to direct sunlight on a lot or building through the entire year, including access across adjacent parcel air rights, for the purpose of capturing direct sunlight to operate a solar energy system.

(K)            **Solar Collector.** An assembly, structure, and the associated equipment and housing designed for gathering, concentrating, or absorbing direct and indirect solar energy for which the primary purpose is to convert or transform solar radiant energy into thermal, mechanical, chemical or electrical energy.

(L) *Solar Energy.* Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

(M) **Solar Energy System (SES).** All components required to become a complete assembly or structure that will convert solar energy into electricity for use.

(N) **Solar Energy System Addition.** A private solar energy system which is structurally attached to a building or structure on the zoning lot on which said system is located. Said system shall be considered part of the building and shall comply with all provisions of this Chapter pertaining thereto.

(O) **Solar Energy System, Private.** A collection of **one (1)** or more solar collectors designed for use by the occupant(s) of the zoning lot on which said system is located; excess power generation is limited to net metering or similar technology with regulations set by the local power utility, community, county, and state. Private solar energy system equipment shall conform to applicable industry standards, and applicants for building permits for private solar energy systems shall submit certificates from equipment manufacturers that the equipment is manufactured in compliance with industry standards.

(P) **Solar Farm.** A commercial facility that converts sunlight into electricity, whether by photovoltaics (PV), concentrating solar thermal devices (CST), or other conversion technology, for the primary purpose of wholesale sales of generated electricity. A solar farm is the principal land use for the parcel on which it is located.

(Q) **Solar Garden.** A commercial solar-electric (photovoltaic) array, of no more than **twenty (20) acres** in size, that provides retail electric power (or a financial proxy for retail power) to multiple households or businesses residing in or located off-site from the location of the solar energy system. A county solar garden may be either an accessory use, when a part of an existing or a proposed subdivision or a special use if it is a stand-alone garden.

(R) **Solar Heat Exchanger.** A component of a solar energy device that is used to transfer heat from one substance to another, either liquid or gas.

(S) **Solar Hot Air System.** An active solar energy system (also referred to as Solar Air Heat or Solar Furnace) that includes a solar collector to provide direct supplemental space heating by heating and re-circulating conditioned building air.

(T) **Solar Hot Water System.** A system (also referred to as Solar Thermal) that includes a solar collector and a heat exchanger that heats or preheats water for building heating systems or other hot water needs, including residential domestic hot water and hot water for commercial processes.

(U) **Solar Mounting Devices.** Racking, frames, or other devices that allow the mounting of a solar collector onto a roof surface or the ground.

(V) **Solar Storage Unit.** A component of a solar energy device that is used to store solar generated electricity or heat for later use.

**40-1-4 BUILDING PERMIT REQUIREMENTS AND FEES.** All Solar Energy Systems (SES) will be required to have a Village Building Permit before any work can be started. A written plan and a plat/drawing for the proposed Solar Energy System shall be provided with the Building Permit Application. The plat/drawing must show the location of the system on the building or on the property, (for a ground-mount system show arrangement of panels), with all property lines and set back footages indicated. Fees for processing the applications for building permits shall be submitted to and collected by the Village.

**40-1-5 PERMITTED/SPECIAL USE.**

(A) A single ground mount, roof mount or building integrated private solar energy system for residential/business use is permitted as an Accessory Use in the Village where there is a principal structure, and shall be subject to the regulations for accessory uses.

(B) Solar Gardens shall be allowed in the Village, and shall require a Special Use Permit whether accessory or principal use of the property. However, the requirement for a Special Use Permit may be waived, provided the solar garden's owner/lessee obtains, and records with the Village Clerk, signed and notarized affidavits, agreeing that the need for a Special Use Permit be waived, from all

property owners adjoining the lot on which the solar garden is to be located (as determined by the

Village). Unless otherwise noted in this Chapter, solar gardens must comply with all required standards for structures in the district in which the system is located.

(C) Solar Farms require a Special Use Permit. Unless otherwise noted in this Chapter, solar farms must comply with all required standards for structures in the district in which the system is located.

**40-1-6            SETBACK REQUIREMENTS.**

(A) Setback requirements for all Solar Energy Systems (SES) shall meet the structure minimum setback requirements when the SES is oriented at any and all positions.

(B) The solar array and all components of the solar collector system in a Solar Farm shall be kept at least **one hundred (100) feet** from a property line or right-of-way. However, this requirement may be waived, provided the solar farm's owner/lessee obtains, and records with the Village Clerk, signed and notarized affidavits, agreeing that the required minimum setback be waived from all property owners and affected road authorities adjoining the zoning lot on which the solar farm is to be located (as determined by the Village). However, in no instance shall any part of a solar farm, be located within **fifty (50) feet** of any of the aforementioned items.

(C) No solar energy system shall be allowed to be placed in the front yard of any residentially used or zoned property.

(D) Roof mounted solar energy systems shall not extend beyond the exterior perimeter of the building on which the system is mounted.

**40-1-7            HEIGHT REQUIREMENTS.**

(A) Building or roof mounted solar energy systems shall not exceed the maximum allowed height approved by the Village Board.

(B) Ground or pole mounted solar energy systems shall not exceed the maximum height, when oriented at maximum tilt, as prescribed by the Village Board.

**40-1-8            OTHER REQUIREMENTS.**

(A) Upon request from the Village, an owner of a commercial Solar Energy System must provide documentation, within **thirty (30) days**, that the Solar Energy System is still in use. If it is not, the owner of the System will have **one hundred eighty (180) days**, after notification from the Village, to remove the Solar Energy System from the property.

(B) Upon request from the Village, the owner or operator of a Solar Farm or a Solar Garden must submit, within **fourteen (14) days**, a current operation and maintenance report.

(C) In all undeveloped areas, the Solar Energy developer will be required to complete a consultation with both the Illinois Historic Preservation Agency (IHPA) and the Illinois Department of Natural Resources (IDNR) through the Department's online EcoCat Program. The cost of this consultation shall be at the developer's expense. The final certificate from EcoCat shall be provided to the Village before a permit or Special Use Permit will be issued.

(D) No fencing is required however if installed on the property the fencing shall have a maximum height of **eight (8) feet**. The fence shall contain appropriate warning signage that is posted such that is clearly visible on the site.

(E) Any lighting for Solar Farms/Gardens shall be installed for security and safety purposes only. Except for lightening that is required by the FCC or FAA, all lighting shall be shielded so that no glare extends substantially beyond the boundaries of the facility.

(F) Reflection angles for solar collectors shall be oriented such that they do not project glare onto adjacent properties.

(G) Electric solar energy system components must have a UL listing and must be designed with anti-reflective coating(s).

(H) Solar Energy Systems must be in compliance with ALL State of Illinois Building, Electric, Plumbing and Energy Codes.

(I) **Design Standards.** Active solar energy systems shall be designed to conform to the county comprehensive plan and to blend into the architecture of the building or may be required to be screened from routine view from public rights-of-way other than alleys. Screening may be required to the extent it does not affect the operation of the system. The color of the solar collector is not required to be consistent with other roofing materials.

- (1) **Building Integrated Photovoltaic Systems.** Building integrated photovoltaic solar energy systems shall be allowed regardless of whether the system is visible from the public right-of-way, provided the building component in which the system is integrated meets all required setback, land use or performance standards for the district in which the building is located.
- (2) **Solar Energy System with Mounting Devices.** Solar energy systems using roof mounting devices or ground-mount solar energy systems shall not be restricted if the system is not visible from the closest edge of any public right-of-way or immediately adjacent to a residential structure.
- (3) **Reflectors.** All solar energy systems using a reflector to enhance solar production shall minimize glare from the reflector affecting adjacent or nearby properties. Measures to minimize glare include selective placement of the system, screening on the north side of the solar array, modifying the orientation of the system, reducing use of the reflector system, or other remedies that limit glare.
- (4) **Aviation Protection.** For solar units located within **five hundred (500) feet** of an airport or within approach zones of an airport, the applicant must complete and provide the results of the Solar Glare Hazard Analysis Tool (SGHAT) for the Airport Traffic Control Tower cab and final approach paths, consistent with the Interim Policy, FAA Review of Solar Energy Projects on Federally Obligated Airports, or most recent version adopted by the FAA.

(J) **Coverage.** Roof or building mounted solar energy systems, excluding building-integrated systems, shall allow for adequate roof access for fire-fighting purposes to the south-facing or flat roof upon which the panels are mounted. Ground-mount private solar energy systems shall be exempt from impervious surface calculations if the soil under the collector is not compacted and maintained in vegetation. Foundations, gravel, or compacted soils are considered impervious.

(K) **Plan Approval Required.** All solar energy systems shall require administrative plan approval by the Public Works Superintendent via the review of the application for a building permit.

- (1) **Plan Applications.** Plan applications for solar energy systems shall be accompanied by horizontal and vertical (elevation) drawings. The drawings must show the location of the system on the building or on the property for a ground-mount system, including the property lines.
  - (a) **Pitched Roof Mounted Solar Energy Systems.** For all roof-mounted systems other than a flat roof the elevation must show the highest finished slope of the solar collector and the slope of the finished roof surface on which it is mounted.
  - (b) **Flat Roof Mounted Solar Energy Systems.** For flat roof applications a drawing shall be submitted showing the distance to the roof edge and any parapets on the building and shall identify the height of the building on the street frontage side, the shortest distance of the system from the street frontage edge of the building, and the highest finished height of the solar collector above the finished surface of the roof.
- (2) **Plan Approvals.** Applications that meet the design requirements of this Chapter, and do not require an administrative variance, shall be

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granted administrative approval by the Village President. Plan approval does not indicate compliance with Building Code or Electric Code.

(L) **Approved Solar Components.** Electric solar energy system components must have a UL listing or approved equivalent and solar hot water systems must have an SRCC rating.

(M) **Compliance with Building Code.** All active solar energy systems shall meet approval of county building code officials, consistent with the State of Illinois Building Code and solar thermal systems shall comply with HVAC-related requirements of the Energy Code. Any county adopted building codes will apply and take precedence where applicable.

(N) **Compliance with State Electric Code.** All photovoltaic systems shall comply with Illinois State Electric Code.

(O) **Compliance with State Plumbing Code.** Solar thermal systems shall comply with applicable Illinois State Plumbing Code requirements.

(P) **Compliance with State Energy Code.** All photovoltaic systems and solar thermal systems shall comply with the Illinois State Energy Code.

(Q) **Utility Notification.** All grid-intertie solar energy systems shall comply with the interconnection requirements of the electric utility. Off-grid systems are exempt from this requirement.

(R) **Principal Uses.** The Village encourages the development of commercial or utility scale solar energy systems where such systems present few land use conflicts with current and future development patterns. Ground-mounted solar energy systems that are the principal use on the zoning lot or lots are special uses in selected districts.

(1) **Solar Gardens.** The Village permits the development of unincorporated solar gardens, subject to the following standards and requirements:

(a) **Rooftop Gardens Permitted.** Rooftop community systems are permitted in all zoning districts where buildings are permitted.

(b) **Ground-Mount Gardens.** Ground-mount community solar energy gardens must be less than **twenty (20) acres** in total size. Ground-mount solar developments covering more than **twenty (20) acres** shall be considered solar farms.

(c) **Stormwater and NPDES.** Solar gardens are subject to Village regulations, erosion and sediment control provisions and NPDES permit requirements.

(d) **Interconnection.** An interconnection agreement must be completed with the electric utility in whose service territory the system is located.

(e) **Aviation Protection.** For solar gardens located within **five hundred (500) feet** of an airport or within approach zones of an airport, the applicant must complete and provide the results of the Solar Glare Hazard Analysis Tool (SGHAT) for the Airport Traffic Control Tower cab and final approach paths, consistent with the Interim Policy, FAA Review of Solar Energy Projects on Federally Obligated Airports, or most recent version adopted by the FAA.

(f) **Other Standards.** Ground-mount systems must comply with all required standards for structures in the district in which the system is located. All solar gardens shall also be in compliance with all applicable local, state and federal regulatory codes, including the State of Illinois Uniform Building Code, as amended; and the National Electric Code, as amended. Also, Health Department requirements for wells and septic systems must be met.

(2) **Solar Farms.** Ground-mount solar energy systems that are the primary use on the lot, designed for providing energy to off-site uses or export to the wholesale market, are permitted under the following standards:

(a) **Special Use Permit.** Solar farms are special uses in agricultural district.



- (b) **Stormwater and NPDES.** Solar farms are subject to Village Stormwater Management regulations, erosion and sediment control provisions and NPDES permit requirements.
- (c) **Ground Cover and Buffer Areas.** Top soils shall not be removed during development, unless part of a remediation effort. Soils shall be planted to and maintained in perennial vegetation to prevent erosion, manage run off and build soil. A plan must be approved by the Soil Water Conservation District and paid for by the developer. The Village has a Noxious Weed Ordinance which is to be followed. Due to potential county liability under the Illinois Endangered Species Protection Act **(520 ILCS 10/11(b))** it is required that any crops planted be in compliance with all federal and state laws protecting endangered species. This will also include pollinators such as bees. A report showing demonstration of plan compliance shall be submitted annually, and paid for by the developer.
- (d) **Foundations.** A qualified engineer shall certify that the foundation and design of the solar panels racking and support is within accepted professional standards, given local soil and climate conditions.
- (e) **Other Standards and Codes.** All solar farms shall be in compliance with all applicable local, state and federal regulatory codes, including the State of Illinois Uniform Building Code, as amended; and the National Electric Code, as amended.
- (f) **Power and Communication Lines.** Power and communication lines running between banks of solar panels and to nearby electric substations or interconnections with buildings shall be buried underground. Exemptions may be granted by DeKalb County in instances where shallow bedrock, water courses, or other elements of the natural landscape interfere with the ability to bury lines, or distance makes undergrounding infeasible, at the discretion of the Public Works Superintendent. In addition, the Illinois Department of Agriculture (IDOA) has established standards and policies in the Agricultural Impact Mitigation Agreements (AIMA) regarding the construction or burial of electric transmission lines which should be agreed to and adhered to between the landowner and the developer.
- (g) **Site Plan Required.** A detailed site plan for both existing and proposed conditions must be submitted, showing location of all solar arrays, other structures, property lines, right-of-way, service roads, floodplains, wetlands and other protected natural resources, topography, farm tile, electric equipment, fencing, and screening materials and all other characteristics requested by the Village. The site plan should also show all zoning districts, and overlay districts.
- (h) **Aviation Protection.** For solar farms located within **five hundred (500) feet** of an airport or within approach zones of an airport, the applicant must complete and provide the results of the Solar Glare Hazard Analysis Tool (SGHAT) for the Airport Traffic Control Tower cab and final approach paths, consistent with the Interim Policy, FAA Review of Solar Energy Projects on Federally Obligated Airports, or most recent version adopted by the FAA.

- (i) **Endangered Species and Wetlands.** Solar farm developers shall be required to initiate a natural resource review consultation with the Illinois Department of Natural Resources (IDNR) through the department's online, EcoCat program. Areas reviewed through this process will be endangered species and wetlands. The cost of the EcoCat consultation will be borne by the developer.

**40-1-9            LIABILITY INSURANCE AND INDEMNIFICATION.**

(A) For Solar Farms and Solar Gardens, commencing with the issuance of building permits, the Applicant, Owner, or Operator shall maintain a current general liability policy covering bodily injury and property damage with limits of at least **Three Million Dollars (\$3,000,000.00)** per occurrence and **Five Million Dollars (\$5,000,000.00)** in the aggregate. Such insurance may be provided pursuant to a plan of self-insurance, by a party with a net worth of **Twenty Million Dollars (\$20,000,000.00)** or more. The Village shall be named as an individual insured on the policy to the extent the Village is entitled to indemnification.

(B) For Private/Individual SES(s), commencing with the issuance of building permit, the Applicant or Owner shall maintain a current liability policy covering bodily injuries and any damage that may occur, on their home owner's policy or other applicable policy as approved by the Director of Community Development.

(C) Any SES(s), Applicant, Owner, or Operator, whether individual or commercial, shall defend, indemnify, and hold harmless the Village and its officials, employees, and agents (collectively and individually, the "Indemnified Parties") from and against any and all claims, demands, losses, suits, causes of actions, damages, injuries, costs, expenses, and liabilities whatsoever, including reasonable attorney's fees, except to the extent arising in whole or part out of negligence or intentional acts of such Indemnified Parties (such liabilities together known as "liability") arising out of Applicant, Owner, or Operators selection, construction, operation, and removal of the SES(s) and affiliated equipment including, without limitation, liability for property damage or personal injury (including death), whether said liability is premised on contract or on tort (including without limitation strict liability or negligence). This general indemnification shall not be construed as limited or qualifying the Village's other indemnification rights available under the law.

**40-1-10            DECOMMISSIONING.**

(A) A decommissioning plan shall be required to be submitted when applying for all Solar Farms and Solar Gardens, to ensure that facilities are properly removed after their useful life.

(B) Decommissioning of solar panels must occur in the event they are not in use for **ninety (90) consecutive days.**

(C) The owner or operator will have **six (6) months** to complete the decommissioning plan after operation of a Solar Farm or Solar Garden stops being operational.

(D) The decommissioning plan shall include provisions for removal of all structures and foundations, restoration of soil and vegetation and a plan ensuring financial resources will be available to fully decommission the site.

(E) The Village Board may require the posting of a bond, letter of credit or the establishment of an escrow account to ensure the proper decommissioning. The posting of a bond may be required prior to the issuance of a building permit for the facility.

(F) In the event that the State of Illinois enacts a law with regards to the decommissioning of a Solar Farm, the strictest requirements shall prevail.

**(Ord. No. 2018-5; 05-22-18)**