
UZO Amendment #99 SOLAR ENERGY SYSTEM (SES)

**Staff Report
Jan 14, 2021**

There is an increased interest in solar energy systems due to a reduction in installation cost, State and Federal incentives, and the state's voluntary clean energy portfolio standard (CPS) program, which provides Indiana's utilities an incentive to increase the amount of renewable energy sources in their portfolio. Many communities in Indiana have utilized renewable energy production as an economic development tool. Solar developments meet the triple bottom line framework: social, environmental, and financial, making it an attractive option for Tippecanoe County.

In the process of developing the solar energy system ordinance for our community, staff conducted comprehensive research of the existing solar ordinances from both in and out-of-state communities. This review included standards from communities with extensive experience in large-scale solar energy systems and localities with newly adopted solar ordinances. Various experts affiliated with Duke and Tipmont REMC were consulted to help staff better understand the draft solar ordinance's applicability concerning industry practices, IURC regulations, and net metering. Staff also reviewed the draft Indiana solar ordinance and incorporated relevant components to the attached ordinance.

Based on the knowledge gathered from research, community engagement, conference attendance, and conversation with stakeholders and Administrative Officers, staff prepared the draft solar energy systems amendment for discussion with the ordinance committee at the October 2020 meeting. Since then, we have received various suggestions from the public, including the West Lafayette Go-Greener Commission, city staff, and committee members; many of these suggestions are included in the amendment. The ordinance committee and staff extensively discussed an equitable surety method for removing solar energy systems in the ad hoc committee meeting in mid-November. The ad hoc session's findings were presented to the ordinance committee meeting in December 2020 where the updated amendment received the committee's approval. Staff is excited to see these changes to the UZO and optimistic that it will provide solar development opportunities in Tippecanoe County.

Staff is also updating the existing mining reclamation requirements section of the ordinance because the proposed amendment includes surety templates applicable to restoration of extraction and processing sites involved in mining operations.

The proposed amendment will change the following sections of the UZO:

Section 1 provides additions to Chapter 1 Words and Terms Defined for terminologies related to solar energy system uses. **(UZO 1-10-2)**

Section 2 introduces the community-scale and large-scale solar energy system uses to the Chapter 3 Primary Use Table. **(UZO 3-2)**

Sections 3 and 4 create setback requirements for accessory SES for both residential and non-residential buildings in Chapter 4, Section 1 Accessory Uses, Accessory Structures and Accessory Buildings. **(UZO 4-1-b and UZO 4-1-c)**

Section 5 creates height requirements for accessory SES in Chapter 4, Section 5. **(UZO 4-5-1 -d)**

Section 6 creates a new sub-section in Chapter 4, Section 11 establishing development requirements for the Large-Scale Solar Energy System. **(UZO 4-11-14)**

Section 7 creates a new sub-section in Chapter 4, Section 11 establishing development requirements for the Community-Scale Solar Energy System. **(UZO 4-11-15)**

Section 8 introduces decommissioning documents including the breakdown of cost for removal of SES and surety form templates in the Appendix. **(UZO Appendix)**

Section 9 updates the mining reclamation section in Chapter 4, Section 11 to direct readers to the surety templates in Appendix L. **(UZO 4-11-4)**

RECOMMENDATION:

Approval

ORDINANCE NO. _____

AN ORDINANCE AMENDING ORDINANCE NO. _____ BEING THE UNIFIED ZONING ORDINANCE OF TIPPECANOE COUNTY.

Be it ordained by the (County Commissioners of Tippecanoe County, Indiana; the Common Council of the City of Lafayette, Indiana; the Common Council of the City of West Lafayette, Indiana; the Town Council of the Town of Battle Ground, Indiana; the Town Council of the Town of Dayton, Indiana; and the Town Council of Clarks Hill, Indiana), that Ordinance No. _____, being the Unified Zoning Ordinance of Tippecanoe County is hereby amended as follows:

Section 1: Change **UZO Section 1-10-2 Words and Terms Defined** to add the following definitions:

ABANDONED. Regarding *solar energy systems*, a **SES** that does not generate electricity for a continuous twelve (12) month period, or any solar energy system falling into a state of disrepair for twelve consecutive months shall be deemed abandoned.

ACCESSORY SOLAR ENERGY SYSTEM. The *ground-mounted or building-mounted SES*, accessory to a *primary use*.

BUILDING-MOUNTED SOLAR ENERGY SYSTEM. An **SES** in which solar panels are structurally mounted to a building.

COMMUNITY-SCALE SOLAR ENERGY SYSTEM. A *ground-mounted SES* on less than 10 acres or a *building-mounted SES* on any amount of acreage that provides power to residential or commercial or industrial uses located on-site or off-site from the location of the solar energy generation.

CONCENTRATED SOLAR POWER (CSP). A solar energy system that uses mirrors to reflect and concentrate sunlight. CSP is not permitted in any zone.

GROUND-MOUNTED SOLAR ENERGY SYSTEM. An **SES** that is directly installed into the ground and is not attached or affixed to an existing building.

INVERTER. A device that converts direct current (DC) to alternating current (AC).

LARGE-SCALE SOLAR ENERGY SYSTEM. A *ground-mounted solar energy system*, on a tract(s) equal to or more than ten acres, for the purpose of generating photovoltaic power with the primary purpose of selling wholesale or retail generated electricity.

MEGAWATT (MW). A metric unit measurement of the use of electrical power equal to 1000 Kilowatts (kW).

MOUNTING DEVICES. Racking, frames, or other devices that allow the mounting of a solar energy system onto a roof surface or the ground.

SOLAR ENERGY SYSTEM (SES). A system (including solar collector surface and ancillary solar equipment) either affixed to a permanent primary or accessory building or functioning as a freestanding structure, that collects, stores, and distributes solar energy for uses including but not limited to heating or cooling, generating electricity, or heating water.

Section 2: Change UZO 3-2 Primary Use Table by adding the following:

Parking Groups	Special Conditions	Permitted Primary Uses	Residential Zones													Commercial Zones									Ind. Zns.1			Rural Zones				FP								
			RI	RIA	RIB	RIU	RIZ	R2	R2U	R3	RSU	R3W	R4W	NB	NBU	OR	MR	MRU	GB	HB	CB	CBW	I1	I2	I3	A	AA	AW	RE											
	4-11-14	"Large-Scale Solar Energy Systems"																																						
	4-11-15	"Community-Scale Solar Energy Systems"	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	

Section 3: Change UZO 4-1 (b) Accessory Uses, Accessory Structures and Accessory Buildings (residential) to include:

- (30) **accessory solar energy systems:**
 - (A) **Building-mounted solar energy systems** may project a maximum of three feet beyond the front or rear of the building and must be within the property lines.
 - (B) **Side setback** for **building-mounted solar energy systems** (considered as **structural projections**) as regulated in UZO 4-4-5 below.
 - (C) **Ground-mounted solar energy systems setback.** (standard)
 - (D) **Ground-mounted solar energy systems** shall be exempt from **lot coverage** requirements.

Section 4: Change UZO 4-1 (c) Accessory Uses, Accessory Structures and Accessory Buildings (non-residential) to include:

- (28) **accessory solar energy systems:**
 - (A) **Building-mounted solar energy systems** may project a maximum of three feet beyond the front or rear of the building and must be within the property line.
 - (B) **Side setback** for **building-mounted solar energy systems** (considered as **structural projections**) as regulated in UZO 4-4-5 below.
 - (C) **Ground-mounted solar energy systems setback** (standard).
 - (D) **Ground-mounted solar energy systems** shall be exempt from **lot coverage** requirements.

Section 5: Add UZO 4-5-1 (d) Height of the accessory solar energy system:

- (1) **Building-mounted solar energy systems** may exceed the maximum allowed **building height** on which it is located by five feet at the maximum incline (tilt).
- (2) **Ground-mounted solar energy systems** shall have a maximum height of 15 feet. Except in rural zones, where the maximum height of 20 feet shall be permitted.

Section 6: Add UZO 4-11-14 Large Scale Solar Energy System as follows:

- (a) A **large-scale solar energy system** is exempt from UZO 4-6 and **lot coverage** requirements.
- (b) A pre-submission meeting is required before submitting a **special exception** request or an **improvement location permit** application. Both property owner and applicant must attend and shall be prepared to explain the justification for an SES proposal at the pre-submission meeting.
- (c) An applicant or a property owner shall submit the following with a **special exception** request or an **improvement location permit** application.
 - (1) A **large-scale solar energy system site plan** shall also include the following:
 - (A) All solar panels, **mounting devices**, and **inverters** shall be **setback** 50 feet from all property lines.
 - (B) Solar **inverters** shall be **setback** a minimum of 200 feet when abutting a residential use property line or residential zone.
 - (C) The height shall be calculated as the distance from ground level to the top of the solar panel at its greatest incline (tilt).
 - (D) All solar panels, as well as all **mounting devices**, shall be a minimum of 36 inches above ground level as measured from any ground point to the closest point of any solar panel or **mounting devices**.
 - (E) A security fence at least 6' high shall be installed around the **large-scale solar energy system** with emergency access allowed 24/7.
 - (F) Power transmission lines from a **large-scale solar energy system** shall be underground and shall be completely shielded against shock hazard. Lines that connect one panel to another or from the system to the main transmission lines are not required to be underground.
 - (G) Driveway entrances shall comply with UZO 4-7.
 - (2) A stormwater management plan shall be reviewed and approved by the participating jurisdiction.
 - (3) All driveway entrances shall be approved by the participating jurisdiction.
 - (4) Any approval, if required from the Federal Aviation Administration regulations, for installations surrounding airports shall conform to UZO 5-3.
 - (5) All applicable approvals from federal, state and local agencies.
 - (6) A **Bufferyard** is required as per UZO 4-9 except when waived by the **Administrative Officer**.

- (7) Pollinator-friendly seed mixes and native plants plan approved by a Registered Landscape Architect or Certified Ecologist or Licensed Horticulturist, are required around/under a large-scale solar energy system.
 - (8) The site shall be planted and maintained to be free of all invasive species, as listed by the Indiana Invasive Species Council.
 - (9) An applicant shall provide a redacted version of the executed power purchase agreement.
- (d) Decommissioning plan and removal requirements:
- (1) A decommissioning plan for a **large-scale solar energy system** shall be approved by the **ABZA** when **special exception** is required or by the **Administrative Officer** for systems permitted by right, prior to issuance of the **improvement location permit**. An approved decommissioning plan shall be recorded in the office of the Tippecanoe County Recorder.
 - (2) A decommissioning plan shall include removal of all solar electric systems, buildings, cabling, electrical components, security fence, driveway entrance, foundations, pilings, and any other associated facilities, pollinator friendly seed mixes and native plants, so that any agricultural ground upon which the facility or system was located is again tillable and suitable for agricultural uses. However, the landowner may request in writing that the existing pollinator friendly seed mixes and native plants, driveway entrance, security fence or other land surface areas not be restored, and this request shall be approved by the **ABZA** or the **Administrative Officer**. Hazardous materials, including **mounting devices** from a **large-scale solar energy system** shall be disposed of in accordance with federal and state law.
 - (3) A final decommissioning plan shall be certified by a Professional Engineer, or a Registered Land Surveyor, or a Registered Landscape Architect.
 - (4) An applicant or a property owner shall provide an itemized cost estimate using the template in **Appendix L** to decommission the **large-scale solar energy system** prepared by a Professional Engineer who has expertise in the removal of solar facilities to the **ABZA** or the **Administrative Officer**. A cost estimate shall not include any estimates or offsets for the resale or salvage values of the **large-scale solar energy system** equipment and materials.
 - (5) An applicant or a property owner shall be required to file a surety using a form in **Appendix L**, acceptable to the APC's legal counsel or **Administrative Officer**, for the estimated amount, approved by the **ABZA** when **special exception** is required or by **the Administrative Officer** for systems permitted by right, prior to the issuance of an **improvement location permit**.
 - (6) A decommissioning cost estimate shall include a mechanism for calculating increased removal costs due to inflation. This cost estimate shall be recalculated every five years and the surety shall be updated to reflect the

change. Failure to renew the cost estimate and update the surety every five years shall void the grant of special exception.

- (7) An applicant or a property owner shall file and receive an approval for a demolition permit before decommissioning begins.
- (8) When a decommissioning is complete, an applicant or a property owner shall submit the final report outlining the completion of the decommissioning plan to the **ABZA** if granted through **special exception** or the **Administrative Officer** for approval. The **ABZA** or the **Administrative Officer** shall then release the surety.
- (9) If an applicant or a property owner fails to meet the requirements set in the decommissioning plan or the **large-scale solar energy system** is **abandoned**, the **ABZA** or the **Administrative Officer** may request the county to declare the surety in default and use the proceeds to complete the decommissioning plan.

Section 7: Add UZO 4-11-15 Community-Scale Solar Energy System as follows:

- (a) A **community-scale solar energy system** is exempt from UZO 4-6 and **lot coverage** requirements.
- (b) A pre-submission meeting is required before submitting a **special exception** request or an **improvement location permit** application. Both property owner and applicant must attend and shall be prepared to explain the justification for an SES proposal at the pre-submission meeting.
- (c) **Ground-mounted:**
 - (1) An applicant or a property owner shall submit the following with an **improvement location permit** application:
 - (A) All solar panels, **mounting devices**, and **inverters** shall be **setback** 25 feet from all property lines.
 - (B) Solar **inverters** shall be **setback** a minimum of 50 feet when abutting a residential use property line or residential zone.
 - (C) The height shall be calculated as the distance from ground level to the top of the solar panel at its greatest incline (tilt).
 - (D) A security fence at least 6' high shall be installed around the **community-scale solar energy system** with emergency access allowed 24/7.
 - (E) Power transmission lines from **ground-mounted community-scale solar energy system** shall be underground and shall be completely shielded against shock hazard. Lines that connect one panel to another or from the system to the main transmission lines are not required to be underground.
 - (F) Driveway entrances shall comply with UZO 4-7.
 - (2) A stormwater management plan shall be reviewed and approved by the participating jurisdiction.

- (3) All driveway entrances shall be approved by the participating jurisdiction.
- (4) Any approval, if required from the Federal Aviation Administration regulations, for installations surrounding airports shall conform to UZO 5-3.
- (5) All applicable approvals from federal, state and local agencies.
- (6) A **Bufferyard** is required as per UZO 4-9 except when waived by the Administrative Officer.
- (7) Institutional uses are exempt from the requirements of 4-11-15 (b) 8 (D-F and I)
- (8) Decommissioning plan and removal requirements:
 - (A) A decommissioning plan for a **community-scale solar energy system** shall be approved by the **Administrative Officer** prior to issuance of the **improvement location permit**.
 - (B) A decommissioning plan shall include removal of all solar electric systems, buildings, cabling, electrical components, security fence, driveway entrance, foundations, pilings, and any other associated facilities. However, the landowner may request in writing that the existing driveway entrance, security fence or other land surface areas not be restored, and this request shall be approved by the **Administrative Officer**. Hazardous materials, including **mounting devices** from a **community-scale solar energy system** shall be disposed of in accordance with federal, state and local laws.
 - (C) A final decommissioning plan shall be certified by a Professional Engineer.
 - (D) An applicant or a property owner shall provide an itemized cost estimate using the template in **Appendix L** to decommission the **community-scale solar energy system** prepared by a Certified Engineer or contractor who has expertise in the removal of solar facilities to the **Administrative Officer**. The cost estimate shall not include any estimates or offsets for the resale or salvage values of the **community-scale solar energy system** equipment and materials.
 - (E) A decommissioning cost estimate shall include a mechanism for calculating increased removal costs due to inflation. This cost estimate shall be recalculated every five years and the surety shall be updated to reflect the change. Failure to renew the cost estimate and update the surety every five years shall void the grant of special exception.
 - (F) An applicant or a property owner shall be required to file a surety using a form in **Appendix L**, acceptable to the **Administrative Officer**, for the estimated amount, approved by the **Administrative Officer** prior to the issuance of an **improvement location permit**.

- (G) An applicant or a property owner shall file and receive an approval for a demolition permit before decommissioning begins.
- (H) When a decommissioning is complete, an applicant or a property owner shall submit the final report outlining the completion of the decommissioning plan to the **Administrative Officer** for approval. The **Administrative Officer** shall then release the surety.
- (I) If an applicant or a property owner fails to meet the requirements set in the decommissioning plan or a **community-scale solar energy system** is **abandoned**, the **Administrative Officer** may request the county to declare the surety in default and use the proceed to complete the decommissioning plan.

(d) **Building-mounted:**

- (a) A **community-scale solar energy system** may exceed the maximum allowed **building height** on which it is located by ten feet at the maximum incline (tilt).
- (b) A **community-scale solar energy system** may project up to three feet beyond the **front** or **rear** of the building, and as regulated in UZO 4-4-5 below.
- (c) A **community-scale solar energy system** shall comply with all applicable federal, state and local laws and ordinances, including but not limited to building codes, fire codes, and historic preservation districts.

Section 8: Add **UZO Appendix L-Decommissioning Documents** to include a cost estimate table with the minimum required line items to decommission a SES and surety template as follows:

L-1 Breakdown of Cost for Removal of SES

Decommissioning Costs					
S.N	Item Description	Quantity	Unit	Unit Cost	Total Cost
1	Mobilization/Demobilization				
	Mobilization/Demobilization		Lump Sum		
2	Permitting				
	Local Permits		Lump Sum		
	State Permits		Lump Sum		
3	Civil Infrastructure				
	Removal Gravel Surfacing from Road		CY*		
	Haul Gravel Removed from Road		CY		

	Disposal of Gravel Removal from Road 325		CY		
	Removal Geotextile Fabric from Road Area		SF*		
	Culvert Removal and Disposal		Each		
	De-Compact and Grade Road Corridor		LF		
	Topsoil and Stabilization on Removed Road		Acres		
	Removal of Security Fence		LF*		
4	Structural Infrastructure				
	Remove PV Rack Steel Posts		Each		
	Haul PV Rack Array Steel Post		Ton		
	Removal Transformer Station Post		Each		
	Haul Transformer Station Post		Ton		
	Removal Array Tracker & Motors		Each		
	Haul Array Tracker & Motors		Ton		
	Remove, Load, Haul Concrete Electrical Pads		CY*		
5	Electrical Collection/Transmission System				
	Removal of PV Modules		Each		
	Haul PV Modules		Ton		
	Remove and Load Inverters		Each		
	Haul Inverters		Ton		
	Removal Loading and Freight of Transformers		Each		
	Removal, Loading and Freight of Electrical Equipment		Each		
	Removal and Disposal of SCADA Equipment		Each		
	Removal and Load Underground Collector System Cables		LF*		
	Haul Underground Cable		Ton		
6	Site Restoration (if applicable)				
	Perimeter Controls		LF*		
	Topsoil and Turf Establishment on area within Removed Array		Acres		
Grand Total = Add the total cost for items included in sections 1 through 6 above.					

* SF = Square Feet, CY= Cubic Yard, LF= Linear Feet

Note: Items listed above are required at the minimum.

L-2 Performance Bond

TO BE ISSUED ON BONDING COMPANY
STATIONERY

PREFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, That we, (NAME AND ADDRESS OF PRINCIPAL), as Principal, and (NAME AND ADDRESS OF SURETY), as Surety, are held and firmly bound unto Tippecanoe County, Indiana, in the sum of _____ (AMOUNT SPELLED OUT) _____, (NUMERICAL AMOUNT), for payment of which we firmly bind ourselves, our heirs, executors, administrators, and assigns.

THE CONDITION OF THIS BOND is such that if the said Principal shall complete the reclamation/decommissioning of (ABZA APPROVED CASE NUMBER and NAME OR ILP NUMBER), approved on _____ . 20__ and (RECORDED RECLAMATION/DECOMMISSIONING PLAN DOCUMENT NUMBER) assigned by the County Recorder, on or before (TIME ESTABLISHED AT THE TIME OF FILING), then this obligation is null and void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, we have here unto set our hands and seal this
(DATE - DAY, MONTH, YEAR).

(NAME OF PRINCIPAL)

ATTEST: _____

BY: (SIGNATURE OF PRINCIPAL)
(TYPED NAME OF INDIVIDUAL SIGNING)

(NAME OF SURETY)

BY: (SIGNATURE OF REPRESENTATIVE)
(TYPED NAME OF INDIVIDUAL SIGNING)

APPROVED BY:

TIPPECANOE COUNTY
AREA PLAN COMMISSION

Director

L-3 Surety-Secured by Deposit

SURETY - SECURED BY DEPOSIT

KNOW ALL MEN BY THESE PRESENTS: That I (we), _____, of _____ in the County of Tippecanoe, Indiana, hereby am (are) held and stand firmly bound, and bind and obligate myself (ourselves), and my (our) successors, assigns, executors, administrators, heirs, and devisees to Tippecanoe County in the sum of _____ dollars (\$_____) and have secured my (our) compliance with this obligation by the deposit with the County Auditor of said sum in money, savings bank books duly assigned, or negotiable securities, in an amount satisfactory to the Area Plan Commission.

The CONDITION of this obligation is such that is the undersigned or his (their) successors, assigns, executors, administrators, heirs, or devisees shall have within the time specified in the order of the Area Plan Commission fully and satisfactorily performed in the manner specified, including all of the conditions, contained in the (ABZA APPROVED CASE OR ILP NUMBER), approved on _____, 20 ____, and in the (RECORDED RECLAMATION/DECOMMISSIONING PLAN DOCUMENT NUMBER) assigned by the County Recorder, or is hereafter granted, by the Area Plan Commission, then this obligation shall be null and void; OTHERWISE it shall remain in full force and effect, and the aforesaid security for the payment of said sum shall be and become the sole property of Tippecanoe County as liquidated damages.

IN WITNESS WHEREOF, the obligor has hereunto set his (its, our) hand(s) and seal(s) this _____ day of _____, 20 ____ .

L-4 Irrevocable Letter of Credit

TIPPECANOE COUNTY, INDIANA

IRREVOCABLE LETTER OF CREDIT

(Name of Bank)

Tippecanoe County
Indiana

Date: _____

Dear Sirs:

We hereby open our irrevocable credit in your favor available by your drafts at sight on us for a sum not exceeding \$_____ for the account of _____(PURCHASER), to be accepted by your signed statement that drawing is due to default or failure to perform by PURCHASER, the following reclamation/decommissioning on or before

(Insert date of completion as stated in the application for reclamation plan and 5 years for decommissioning plan)

RECORDED RECLAMATION/DECOMMISSIONING PLAN DOCUMENT NUMBER

in **ABZA APPROVED CASE NUMBER and NAME OR ILP NUMBER**, a **SPECIAL EXCEPTION REQUEST OR ILP** in Tippecanoe County, Indiana.

Acting through the Board of County Commissioners, you will notify us when either:

1. The **RECLAMATION/DECOMMISSIONING** have been timely completed and the credit may be released, or
2. The purchaser has failed to perform or is in default thereunder.

All drafts drawn hereunder must be marked: "Drawn under _____
(Name of Bank)

_____, Credit No. _____, dated _____

The amount of any draft drawn under this credit must, concurrently with negotiation, be endorsed on the reverse side hereof, and the presentment of any

such draft shall be a warranty by the negotiating bank that such endorsement has been made and that documents have been forwarded as herein required.

Except so far as otherwise expressly stated herein, this credit is subject to the uniform customs and practices for commercial documentary credits fixed by the 13th Congress of the International Chamber of Commerce.

We hereby agree with the drawers, endorsers, and bona fide holders of drafts under and in compliance with the terms of this credit that the same shall be duly honored on due presentation and delivery of documents as specified if negotiated on or before _____.

Very truly yours,

(Name of Bank)

By:

(Authorized Signature)

Section 9: Update **UZO 4-11-4 (c) Mining Reclamation Requirements** to read as follows:

(c) In order to grant a **special exception**, the **ABZA** must approve the Reclamation Plan and also make it a condition of its grant, as per 6-4-4-d below. The petitioner shall record the approved Reclamation Plan in the Office of the County Recorder. The petitioner must then provide **APC** staff with surety **using a form in Appendix L**, in favor of Tippecanoe County in an amount equal to \$3000 per acre of land within the approved **setbacks**, before seeking an improvement location permit (Amend 5).

This ordinance shall be in full force and effect from and after its passage.