SUPPLEMENTAL STAFF REPORT ON PETITION FOR ZONING ORDINANCE TEXT AMENDMENT

PLN-ZOTA-24-00003: SOLAR ENERGY SYSTEMS

APPLICANT: SILICON RANCH

PROPOSED TEXT: See attachment: Text underlined indicates an addition to the proposed text; text ~~stricken through~~ indicates a deletion.)

STAFF REVIEW:

Since the May Planning Commission Committee meetings, Planning Staff have reviewed ordinances, industry best practices, and literature on solar energy systems in order to review the applicant's proposal. Below are a summary of staff's findings.

Many of the ordinances reviewed by staff placed a distinction between solar energy systems that operated in an urban context and those in rural contexts. Within an urban context, the considerations for solar energy systems were primarily concentrated on the height of the systems, setbacks from adjoining uses, and ensuring the scale of the use was in keeping with the intent of the respective zones. All zoning ordinances and model ordinances reviewed allowed for integrated and roof-mounted solar energy systems as accessory uses. Ground mounted systems in residential and commercial zones were often allowed providing that the scale of the ground-mounted units remained subordinate to the principal use of the property. Large scale solar energy systems were often found to be most appropriate for industrial zones, and due to the scope of their use often required conditional use permits or other special review.

The treatment of ground mounted solar energy systems within a rural context varied significantly across the ordinances examined. While some municipalities permit the use as a by-right use in agricultural zones, the majority of ordinances examined either placed significant conditions on the use, or did not permit solar energy systems to operate in agricultural areas at all. The conditions for operation spoke to a number of concerns with large scale solar in agricultural contexts, relating to stormwater runoff, screening and scenic viewshed considerations, light and noise controls, and the development's impact on future soil productivity.

While most of the above concerns can be addressed with sufficient conditions and review, the research on how best to mitigate the impact that solar energy systems have on soils is less settled. In order to install solar energy systems, a number of physical changes are required on the site that result in disturbance of the existing soil. The amount of grading that is required for the orientation of the panels varies drastically by site and the technology used. Panels are installed on concrete pylons typically buried three feet or deeper into the ground, and are connected with buried electrical lines. Once installed, the surfaces under the solar panels are either paved, or utilize ground cover vegetation that is then maintained. Transformers and accessory structures are also installed above

ground to process the power and transfer it into the power grid. Finally, access and services roads are constructed to allow for the service and maintenance of the panels and the land around them. Based on those impacts, many ordinances, including the KY Model Zoning Ordinance prepared by the Kentucky Resources Council, advocates for avoiding areas of prime soils and locating solar uses on more marginal land. The application of agrivoltaics, or the co-use of these parcels for both agricultural and solar energy system uses has been the source of recent study; however, the suitability of the shaded areas under the panels for actual crop production has yet to be demonstrated. In the applicant's model, ground cover under the solar panels is grown and used for livestock grazing; however, those agricultural efforts are marginal in comparison to the scope of the larger project, or the production that could result for using the area for a dedicated agricultural purpose.

In an attempt to help restore the use of the land after the lifecycle of the solar energy systems are complete, the majority of ordinances reviewed by staff included requirements for providing a decommissioning plan. These plans require the developer to post a bond in order to provide for the cost of removal of the use, and the reclamation of the site to its original state. While decommissioning plans are a common feature of solar ordinances, the vast majority have never been tested. A 2021 study by the National Renewable Energy Laboratory of the USA's solar production found that at the time, 75% of the US's solar production energy production had come from facilities constructed since 2016. With a typical lifespan of approximately 30 years, the vast majority of solar energy systems uses are still productive, and will not be in a position to be discontinued and removed for some time. Consequently, completed decommissioning efforts are rare, and their effects on future agricultural production are understudied.

STAFF ALTERNATIVE TEXT PROPOSAL

Below are summaries of the proposed changes to the applicant's text that are detailed in the attached Staff Alternative Text along with commentary explaining the recommended change.

Section 2: Definitions

The applicant's text creates a definition for "agrivoltaics" uses; however, as staff's alternative language does not recommend inclusion of ground-mounted solar energy systems within the agricultural zones, defining "Agrivoltaic" uses is not needed at this time.

Staff's alternative language also modifies the acreages of the categories of ground mounted solar energy systems in order to better align their footprints with the intensity of their use.

Section 3: Applicability

The applicant proposes text that would allow for an expansion up to 5% of the total footprint without requiring additional review. Staff finds that any increase in an approved solar energy system should trigger review by the appropriate body. The provisions regarding maintenance of approved panels is unnecessary, and have been removed.

Section 4:Permitted Uses and Conditional Uses

The applicant's proposed text listed small scale ground mounted Solar Energy Systems as principal uses in residential and commercial zones. When listed as a principal use, a solar energy system could be the sole use of a parcel. This conflicts with the recent efforts to have a greater utilization of our existing residential and commercial land. Staff's alternative language proposes solar energy systems operating as an accessory use, with ground mounted solar energy systems being tied to

the square footage of the principal use to ensure that the parcels retain their emphasis on the principal uses. For the more intense industrial zones (B-4, I-1, I-2, and E-D zones), small and intermediate solar energy systems are appropriate as standalone principal uses; however, due to the potential scope of large-scale ground mounted solar energy systems, staff is recommending that large scale ground mounted solar energy systems require Board of Adjustment approval of a conditional use permit.

With regards to the agricultural zones, the applicant proposes allowing ground-mounted solar energy systems as principal and conditional uses based on their size. Staff recommendes that integrated and roof-mounted solar energy systems be allowed as accessory uses; however, staff finds that it is premature to incorporate ground-mounted solar into the agricultural zones at this time due to the potential long-term impact these uses may have on the parcel's future agricultural viability. Additionally, community-wide conversations are necessary to create consensus on the compatibility of large-sale solar energy system uses with the character of Fayette County's rural areas.

Section 5: Accessory Use
Accessory uses have been combined into section 4 and deleted.

Section 6: General Requirements Applicable to Integrated and Rooftop Solar Energy Systems
The applicant's text lists provisions for private solar easements, which are not governed by the Zoning Ordinance, as well as provisions relating to tree removal and Historic Preservation, which are subject to existing regulations elsewhere in the Zoning Ordinance. These sections have been removed because they are duplicative.

Section 7: General Requirements Applicable to Ground Mounted SESs
The applicant's text lists provisions for private solar easements, which are not governed by the zoning ordinance, as well as provisions relating to tree removal and height and setback variances, which are subject to existing regulations elsewhere. These sections have been removed because they are duplicative.

Staff is proposing a provision that specifies that the area of the solar energy system not count towards calculations of minimum lot coverage or floor area ratio. The intent behind these provisions is to encourage greater building coverage and density, which are not met with solar energy system panels.

As the Staff does not recommend the inclusion of ground mounted solar energy systems in our agricultural zones, the provisions relating to agrivoltaic projects and non-agrivoltaic projects have been removed.

Staff has shifted language in Section 8 of the applicant's text that related to decommissioning Siting Board Regulated Solar Energy Systems to this section. The applicant's initial language only required decommissioning plans for developments that require review by the Siting Board. Per KRS 100.23, such language would exclude any merchant solar energy system that produces less than 10mW of energy, which typically requires approximately 40 acres of land. This requirement would create a gap where large-scale ground mounted solar energy systems that are less than 40 acres would not have to provide for decommissioning. Staff recommends modifying that language to specify that such standards would apply to all large-scale solar energy systems.

Additionally, the applicant's decommissioning language was worded in such a way that the property owner had the flexibility to opt out of removing the use and reclaiming the land at the end of the panels' use. Staff has proposed that the decommissioning not be optional, and that returning the land to its previous condition be mandatory if the use is terminated.

Section 8: Standards Applicable to Siting Board Regulated SES
With the edits to decommissioning being relocated to Section 7, this section is no longer necessary.

Section 9: Conditional Use Permit Review Standards
The text reiterates the standards and review processes outlined in Article 7 of the Zoning Ordinance, and is not necessary.

EVALUATION

In consideration of the staff alternative text, Staff was required to balance multiple aspects of the Goals, Objectives, and Policies outlined in the Imagine Lexington 2045 Comprehensive Plan. Unequivocally, the Comprehensive Plan calls for an increased emphasis on supporting renewable energy, calling for a reduction in Lexington-Fayette County's carbon footprint, and community wide net zero greenhouse gas emissions by the year 2050 (Theme B, Goal #2). In considering how best to implement solar energy systems, staff must also weigh their inclusion against Comprehensive Plan concepts that called for the protection and enhancement of the natural, cultural, historic and environmental resources of Lexington-Fayette County (Theme E, Goal #2.a), and the preservation, protection, & promotion of the iconic Bluegrass landscape (Livability Policy #2).

Staff's language reflects increased support for solar energy within the urban context of Lexington-Fayette County. It explicitly defines the forms of solar energy systems and where they can be used. The language allows for integrated and rooftop solar to operate in all zones, and allows for ground-mounted solar energy systems to operate in a manner that is subordinate and context sensitive within residential and commercial areas. Within more intense industrial zones, ground-mounted solar energy systems will be able to operate as principal uses, with only the largest and most impactful ground-mounted solar energy systems requiring conditional use review and approval by the Board of Adjustment.

Staff recommendations for the rural context reflect the lack of certainty and consensus on several aspects of the operation of ground-mounted solar energy systems in agricultural areas. Like within the urban contexts, staff is recommending that integrated and rooftop solar systems be permitted in the agricultural zones, but are not recommending the inclusion of ground-mounted solar energy systems. It is not fully clear at this time how the establishment of ground-mounted solar energy systems impacts the soils of agricultural parcels, or their future agricultural potential. Most decommissioning plans that have been established in other municipalities have yet to be implemented, and little information is present regarding the success of the reclamation efforts and the reintroduction of agricultural uses. The discussions on whether larger scale solar energy systems are in keeping with the character of our rural areas should be based on a larger, more robust process, with opportunities for stakeholder and community conversations that seek consensus. Similar processes and reviews have occurred for discussions regarding previous changes to our agricultural zones, such as the Recreational Tourism Work Group in 2012.

The Staff Recommends: **APPROVAL OF THE STAFF ALTERNATIVE TEXT**, for the following reasons:

1. The proposed language will allow for increased utilization of solar energy systems within urban contexts, contributing to the community's efforts to reach net-zero emissions by 2050 (Theme E, Goal #1.c).
2. The decision on how to address ground mounted solar energy systems in our rural areas should be based on a larger, more robust process, with opportunities for stakeholder and community conversations that seek consensus (Theme E, Goal #2.a).

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