

Appendix Tower Lakes Public Hearing on Solar Energy Systems

The Tower Lakes Plan Commission
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Charge from the Village Board

The Plan Commission has been charged by the Village Board with reviewing solar energy system options and drafting ordinance language.

History
Plan Commission approach
Rationale
Proposal
Next steps

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History

- Approximately 12 solar energy systems have been installed on roofs of homes in Tower Lakes prior to the drafting of this proposed draft Ordinance
- 04-25-2022 Permit application for a ground-mounted solar panel array on an adjacent lot was denied by the Building Inspector based on Section 10-6-8 of the Village Ordinance
- 06-02-2022 A Zoning Board of Appeals (ZBA) Hearing was held to consider a Variance; ZBA voted against approving and recommended that the Village Board review and outline potential renewable energy ordinance language
- 06-20-2022 The Plan Commission was charged by the Village Board with reviewing solar energy options and drafting an ordinance
- 09-19-2022 The Plan Commission will hold a Public Hearing regarding Solar Energy Systems

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Variance Request Section 10-6-8

(B) Incidental Uses of Existing Residence:

Except as otherwise prohibited and/or restricted herein, use of an existing residence and structures incidental thereto is permitted but only on the condition that such use is located on the same lot or parcel upon which the residence and/or structure is located. However, such incidental uses and structures shall not be constructed, established, and/or operated on any property within the Village prior to the establishment or construction of the principal use. Any garages or other accessory buildings in any residential A district must be attached to the residence in such a manner so as to be part of the dwelling unit, except playhouses and play equipment in conformity with Section 10-6-11 of this Chapter, and except chicken coops and runs in conformity with Section 8-3-10 of this Code.

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Plan Commission Approach

- Conduct a review of existing related local ordinances
- Define the scope of the issue:
 - Goal – based on the charge from the Village Board
 - Technical details
 - Risks/concerns versus benefits
 - Community and administration input
- Develop a proposal for the Village Board

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Existing Local Ordinances/Benchmarks for Roof-Mounted Solar Arrays

- Barrington – allowed
- Barrington Hills – allowed
- Deer Park – allowed and encouraged
- Lake Barrington – allowed
- South Barrington – allowed on side or rear roofs
- Tower Lakes – not addressed
- Wauconda – allowed in all zoning districts

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Existing Local Ordinances/Benchmarks for Ground-Mounted Solar Arrays

- Barrington – allowed with various restrictions; considered impervious surface
- Barrington Hills – allowed but must be 50 feet from property lines
- Deer Park – prohibited
- Lake Barrington – allowed on commercial but not residential installations
- South Barrington – prohibited
- Tower Lakes – not addressed
- Wauconda – allowed with restrictions

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Rationale – What the Proposal is Based On

- Addressing urgent concerns about worldwide climate change
- Responding to emerging renewable energy trends and options
- Reviewing related local ordinances
- Encouraging the use of local solar energy resources
- Promoting sustainable building design and practices
- Encouraging economic development while maintaining the community's semi-rural character
- Drafting clear and concise ordinance language regarding solar energy system installations
- Anticipating any potential challenges to the ordinance(s)

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Impact of Renewable Energy: Solar, Wind, Hydropower, Biomass, and Geothermal

- Reduces greenhouse gas emissions to address climate change
- Reduces air and water pollution
- Supports jobs and economic development
- Reduces the load on the electrical grid

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How Solar Energy Works

- Solar panels use photovoltaic cells that absorb photons from sunlight
- This creates an electric current
- Electricity created can be used at the time, stored by the utility for later use, sold back to the utility, or stored locally in batteries

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Impacts of Climate Change

Altered ocean currents Decreased agricultural output

Global warming Catastrophic storms **Rising sea levels**

Deforestation Famine Economic losses Food volatility Depleted snowpacks

Wildfires Flooding Habitat loss Declining biodiversity

Shifting habitats Prolonged heat waves **Extinctions**

Drought **Extreme temperatures** surface runoff

Greater health risks from disease Saltwater incursions More severe weather

Melting Polar ice cap Collapsing Ecosystems **Water scarcity**

Poverty and displacement

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Decarbonization Goals & Initiatives

UN Sustainable Development Goals Illinois Climate and Equitable Jobs Act

CHIPS and Science Act UN Framework Convention on Climate Change

2021 Tower Lakes Comprehensive Plan Paris Agreement on Climate Change

Explore emerging/alternative energy sources and incorporate the use of new technologies as appropriate Inflation Reduction Act

Encourage the use of alternative energy sources by waiving permitting fees and providing other incentives Global Environmental Facility

IPCC Climate Change 2022: Impacts, Adaptation, and Vulnerability Report Recommendations

Presidential Executive Order regarding Carbon Neutral Status

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Options Considered

- Draft ordinance language for rooftop solar panel installations
- Draft ordinance language for ground-mounted solar installations
- Draft ordinance language for both rooftop and ground-mounted solar installations
- Draft additional ordinance language for battery storage systems

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Proposed Areas of Review

- Public health and safety
- Environmental impacts
- Aesthetics and community value
- Effectiveness/efficiency
- Ease of installation and use
- Cost
- Potential hazards
- Longevity
- Disposal and recycling

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Solar Energy Benefits

- Provides an abundant, renewable source of energy
- Reduces greenhouse gas emissions
- Becomes more affordable as new technologies emerge
- Provides a return on investment
- Promotes energy independence
- Protects against rising electricity prices
- Qualifies for federal tax credits and state incentives
- Increases property values
- Uses many recyclable materials (e.g. glass, copper, and aluminum)

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Solar Energy Issues

- High initial cost
- Intermittent energy source (based on time of year and sun inclination)
- Weather dependent (affected by clouds and snow cover)
- Alters the land-use footprint
- Storage battery safety concerns
- Could be damaged in severe weather
- Currently only limited recycling opportunities are available
- Some environmental impact from the manufacturing and disposal of solar panels (may contain hazardous materials)

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Roof Versus Ground-Mounted Solar Panels – Benefits

- Less expensive
- Requires fewer materials to install
- Utilizes unused space
- Easier to obtain permits
- Less obtrusive

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Roof Versus Ground-Mounted Solar Panels – Issues

- Hard to access — especially on a steep or slippery roof
- Work primarily on south and west facing roofs
- More difficulty troubleshooting errors
- Roof design may limit installation size
- Might need to reinstall if roof needs replacing
- Holes in roof could lead to water damage
- Access must be provided in the event of a fire

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Ground Versus Roof-Mounted Solar Panels – Benefits

- Easy to access, clean, and troubleshoot
- Stronger racks overall
- Not confined to dimensions of a roof
- Not impacted if roof needs replacing
- Larger arrays possible

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Ground Versus Roof-Mounted Solar Panels – Issues

- Installation is more labor intensive and expensive
- Results in alterations of land use; can result in habitat loss
- Impacts sight lines for nearby roads and neighboring property owners
- Affects soil, air, and water resources
- Considered to be impervious surface

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Ground-Mounted Systems – Placement Issues to Consider

- Locations & setbacks
- Lot and impervious surface coverage ratios
- Exterior dimensions and square footage
- Height
- Location of septic tanks, pipes, and fields
- Location and screening from adjacent neighbors and roads
- Location of existing overhead or underground utilities or easements
- Location and size of existing waterways and wetlands
- Compliance with stormwater management ordinances

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Resources – Government Agencies

- The Council on Environmental Quality <https://www.whitehouse.gov/ceq/>
- National Renewable Energy Laboratory <https://www.nrel.gov/>
- Office of Energy Efficiency and Renewable Energy <https://www.energy.gov/eere/office-energy-efficiency-renewable-energy/>
- Senate Committee on Energy and Natural Resources <https://www.energy.senate.gov/home>
- US Department of Energy <https://www.energy.gov>
- US Department of Energy Department of Scientific and Technical Information (OSTI) <https://www.osti.gov>
- US Environmental Protection Agency <https://www.epa.gov>
- US Energy Information Administration <https://www.eia.gov>

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Resources – Organizations

- American Clean Power <https://cleanpower.org>
- American Council for an Energy Efficient Economy <https://www.aceee.org>
- American Council on Renewable Energy (ACORE) <https://acore.org>
- Energy Storage Association <https://energystorage.org>
- Intergovernmental Panel of Climate Change <https://www.ipcc.ch>
- International Carbon Action Partnership <https://icapcarbonaction.com/en>
- International Energy Agency <https://www.iea.org>
- International Renewable Energy Agency (IRENA) <https://www.irena.org>
- Our Energy Policy <https://www.ourenergypolicy.org>
- Renewable Fuels Association <https://ethanolrfa.org>
- Resources for the Future <https://www.rff.org>
- The United Nations <https://www.un.org>

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