



Planning Commission
App. No. 015-2016 TA

Zoning Text Amendment

Harrisville Township

Meeting: March 2, 2016
Applicant: Harrisville Township Zoning Commission
Hearing: TBA (Zoning Commission)
Amendment: Article IV, Section 409 Alternative Energy Systems, Outdoor Wood-Fired Boiler - Wind Energy - Solar
Reviewer: Susan Hirsch

Proposed Amendments: The entire Section 409 is new. Staff comments are in *italics*.

Article IV GENERAL REGULATIONS

Section 409 Alternative Energy Systems, Outdoor Hydronic Burners - Wind Energy - Solar Purpose

The purpose of this section is to accommodate Alternative Energy Systems, including solar panels/systems, small wind energy systems and outdoor hydronic burners in appropriate locations, while minimizing any adverse visual, safety and environmental impacts of the system. In addition, this section provides a permitting process for alternative energy systems to ensure compliance with the provisions of the requirements and standards established herein.

Section 409-1 OUTDOOR HYDRONIC BURNERS

Definitions:

- A. Outdoor Hydronic Burners - Any equipment, device, appliance or apparatus, or any part thereof, which is installed, affixed or situated outdoors for the primary purpose of combustion of fuel to produce heat or energy used as a component of heating system providing heat for any interior space or water source.
- B. Structure- Anything constructed or erected, the uses of which requires permanent or temporary location on the ground or attached to something having a permanent or temporary location on the ground, including, but not limited to buildings, signs, billboards, pergolas, roadside stands, fences, walls used as fences, decks, pools, sheds, Outdoor Hydronic Burners or off street parking facilities, including tower mounted wind and solar and wind energy systems.

Suggest that the definitions be placed in Article II, Definitions.

GENERAL REQUIREMENTS:

Any person who installs or operates on Outdoor Hydronic Burner shall comply with the following requirements:

- A. No person shall operate an Outdoor Hydronic Burner in such a manner as to create a public or private nuisance.
- B. All Outdoor Hydronic Burners shall be installed and operated in accordance with the manufacturer's instructions so as to not allow smoke or fumes to enter buildings on surrounding properties.
- C. Site Requirements:
 - 1. The Outdoor Hydronic Burners shall be installed on a lot of two (2) acres or more.
 - 2. The Outdoor Hydronic Burners shall be located in the side or rear yard areas.
 - 3. The Outdoor Hydronic Burners shall have a permanent stack/chimney.

Suggest a minimum height, i.e. 3-5 feet, above the peak of the roof of the principal building being serviced. The height could also be based on the distance and elevation of adjacent occupied buildings.

- D. Setback Requirements:
 - 1. Except for the principal building serviced, a hydronic burner shall be placed at least 150 feet from the nearest building intended for human habitation, place of assembly, education or occupancy by the public.
 - 2. The outdoor hydronic burners shall be located at least 25 feet from accessory buildings on the same lot.
- E. An Outdoor Hydronic Burner must meet the current EPA requirements at the time of installation and must be installed and operated according to EPA and manufacturing guidelines. No person shall construct, establish or install a new Outdoor Hydronic Burner that is not an EPA Phase 2 qualified Model. These Outdoor Hydronic Burners must follow Federal Government Guidelines.

~~E. Prohibited Fuels Material:~~

~~No person shall burn any of the following items in an outdoor hydronic burner:~~

- ~~1. Any wood that does not meet the definition of clean wood.~~
- ~~2. Garbage, Tires, lawn chippings or yard waste, Materials containing Plastic, Materials containing rubber, Waste Petroleum products, paints and paint thinner, Chemicals, Glossy or colored papers, Construction and demolition debris, Plywood Particleboard, Salt water driftwood, Manure, Animal carcasses, Asphalt products, Railroad ties, and Creosoted wood.~~

~~F. Allowable Fuel Materials:~~

~~Any person that operates an outdoor hydronic burner shall not use a fuel other than the following listed below:~~

- ~~1. Clean wood~~
- ~~2. Coal~~
- ~~3. Wood pellets made from clean wood.~~
- ~~4. Home heating oil in compliance with the applicable sulfur content limit or natural gas may be used as starter fuels for dual fired outdoor hydronic burners:~~
- ~~5. Other fuels as approved by the Environmental Protection Agency.~~

Stating that the outdoor hydronic burner must, "... meet the current EPA requirements at the time of installation and must be installed and operated according to EPA and manufacturing guidelines," would negate the need to list the acceptable fuels.

SECTION 409-2 WIND ENERGY SYSTEMS

Definitions:

- A. FALL ZONE: The potential fall area for the wind energy system. It is measured by using 110% of the total height as the radius around the center point of the base of the tower.
- B. NACELLE: The encasement that houses all of the generating components, gear box, drive train and other equipment.
- C. POWER GRID: The transmission system created to balance the supply and demand of electricity for consumers of Ohio.
- D. STRUCTURE MOUNTED WIND ENERGY SYSTEM: A wind energy system mounted on a structure roof, walls, or other elevated surface. A structure mounted wind energy system must be an ancillary use to the main structure. A structure mounted wind energy system shall project no more than twenty (20) feet above the highest point of the roof excluding chimneys, antennae, and other similar protuberances.
- E. TEMPORARY ANEMOMETER: A temporary wind speed indicator constructed for the purpose of analyzing the potential for utilizing a wind energy system at a given site. This includes the tower, base plate, anchors, cables and hardware, wind direction vanes, booms to hold equipment, data logger, instrument wiring and any telemetry devices that are used to monitor

or transmit wind speed and wind flow characteristics over a period of either instantaneous wind information or to characterize the wind resource at a given location.

There is no Subsection F. Suggest re-lettering.

- G. TOWER MOUNTED WIND ENERGY SYSTEM: A wind energy system mounted on a tower.
- H. TURBINE: The device that converts kinetic wind energy into rotational energy that drives an electrical generator. A wind turbine typically consists of a tower, nacelle body and a two or with two or more blades
- I. WIND ENERGY SYSTEM: A system that converts the kinetic energy of the wind into electricity available for use beyond that used by the system. A wind energy system consists of any base, blade, foundation, generator, nacelle, rotor, tower, transformer, vane, wire, inverter, batteries, or other components used in the system.
- J. WIND ENERGY SYSTEM TOTAL HEIGHT: The vertical distance measured from the ground level at the base of the tower to the uppermost vertical extension of any blade, or the maximum height reached by any of the wind energy system.
- K. WIND ENERGY SYSTEM TOWER: The monopole or guyed monopole constructed to support a wind energy system.
- L. WIND ENERGY SYSTEM TOWER HEIGHT: The height above grade of the fixed portion of the tower, excluding the wind energy systems.

Again, suggest that all definitions be placed in Article II Definitions.

CONDITIONALLY PERMITTED USE

Wind energy systems that ~~operate as an~~ (generate?) aggregate capacity of less than five megawatts may be permitted as a conditional use in all zoning districts after submission of an application per Article VIII and only after site plans have been approved according to Section 305 and upon issuance of a conditional zoning certificate by the Board of Zoning Appeals subject to the general requirements of the Harrisville Township Zoning Resolution and the specific requirements of Section 409-2.

It is not clear whether wind energy systems that generate aggregate capacity of more than five megawatts are permitted, and if they are permitted, in what zoning districts and under what regulations?

REGULATIONS FOR TOWER MOUNTED WIND ENERGY SYSTEMS

(Including Temporary Anemometers)

- A. Lot Area Requirements: 5 acre minimum
- B. Yard requirements: Side yard setbacks and rear yard setback must be greater than that or equal to the radius of the fall zone as defined in Article II (definitions).

The way this is worded, a tower mounted wind energy system would be the principal use on the lot. There may be situations where the tower mounted energy system is providing energy for a residence, barn, or commercial activity on the same lot. In that case it would be an accessory use and the fall zone should also include a setback from the principal use.

1. Tower mounted wind energy systems are not permitted in any front yard.

C. General Requirements

- 1. Height Restriction: The tower mounted wind energy system total height shall not exceed one hundred fifty (150) feet ~~in height~~.
- 2. Blade Ground Clearance: The vertical distance from ground level to the tip of a wind generator blade is at its lowest point shall be at least twenty five (25) feet.
- 3. Climbing Access: The tower shall have either: 1) tower climbing apparatus located no closer than ten (10) to the ground level at the base of the structure; 2) a locked anti-climb device installed on the tower; or 3) a secure enclosed access.
- 4. No lighting shall be allowed unless required by the Federal Aviation Administration (FAA)
- 5. All signs, both temporary and permanent, are prohibited on wind energy systems except what is required in general requirement #6.
- 6. Manufacturer, installer, owner, voltage, any applicable warning emergency contact personnel and 24-hour emergency phone numbers must be attached to the wind energy system so that the emergency vehicles can locate the responsible parties.
- 7. All wiring associated with the operation of the wind energy system shall be in conduit above and underground.
- 8. The wind energy system tower must meet all applicable federal, state and local codes.
- 9. Maintenance: The property owner is responsible for ensuring that the wind turbine operates as designed and in compliance with the guidelines of the Harrisville Township Zoning Resolution. If at any

time wind energy system becomes unsafe for any reason the owner shall remove or repair the wind energy system immediately.

Staff suggests that the Township consider including language requiring the owner to totally remove the wind energy system if it ceases to perform as originally intended for a period of time (i.e. zero electricity generation for a period of 6 consecutive months).

The Township has included the following safety/compatibility requirements for Structure Mounted Wind Energy Systems: Staff suggests that they also be included for Tower Mounted Wind Energy Systems:

- 1. Controls and Brakes. All wind energy systems shall be equipped with a redundant braking system. This includes both aerodynamic over speed controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a fail-safe mode. Stall regulation shall not be considered a sufficient braking system for over speed protection.*
- 2. Electrical Components. All electrical components of the WPGF shall conform to applicable local, state, and national codes, and relevant national and international standards (ie. ANSI and International Electrical Commission).*
- 3. Color. Towers and blades shall be painted white or gray or another non-reflective, unobtrusive color.*
- 4. Noise. The sound level produced by a wind turbine shall not exceed 60 dBA or 10 decibels above the ambient decibel level, measured at any property line abutting a contiguous property not owned by the system owner. This level may be exceeded during short term events, such as times of excessive wind speeds or during power outages.*

REGULATIONS FOR STRUCTURE MOUNTED WIND ENERGY SYSTEMS

- A. Lot Area and Frontage Requirements: Must be 2 acre minimum and meet frontage requirements for structures under the regulations of each zoning district.
- B. Yard Requirements: Must meet all minimum requirements for structures under the regulations of each zoning district.
- C. General Requirements:
 1. No lighting shall be allowed unless required by the Federal Aviation Administration.
 2. All signs, both temporary and permanent, are prohibited on wind energy system except what is required in general requirements #3.
 3. Manufacturer, installer, owner, voltage, any applicable warning,

emergency contact personnel and 24-hour emergency numbers must be attached to the wind energy system so that emergency vehicles can locate the responsible parties.

4. All wiring associated with the operation of a wind energy system shall be located underground in conduit.
5. The structure mounted wind energy system must meet all applicable federal, state and local codes.
6. Maintenance: The property owner is responsible for ensuring that the wind turbine operates as designed and in compliance with the guidelines for the Harrisville Township Zoning Resolution. If at any time energy system becomes unsafe for any reason the owner shall remove or repair the wind energy system immediately.

Staff suggests that the Township consider including language requiring the owner to totally remove the wind energy system if it ceases to perform as originally intended for a period of time (i.e. zero electricity generation for a period of 6 consecutive months.)

7. Safety / compatibility requirements:
 - a. Controls and Brakes. All wind energy systems shall be equipped with a redundant braking system. This includes both aerodynamic over speed controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a fail-safe mode. Stall regulation shall not be considered a sufficient braking system for over speed protection.
 - b. Electrical Components. All electrical components of the WPGF shall conform to applicable local, state, and national codes, and relevant national and international standards (ie. ANSI and International Electrical Commission).
 - c. Color. Towers and blades shall be painted white or gray or another non-reflective, unobtrusive color.
 - d. Noise. The sound level produced by a wind turbine shall not exceed 60 dBA or 10 decibels above the ambient decibel level, measured at any property line abutting a contiguous property not owned by the system owner. This level may be exceeded during short term events, such as times of excessive wind speeds or during power outages.

SECTION 409-3 SOLAR ENERGY CONDITIONAL USEAGE

Definitions:

- A. SOLAR ENERGY SYSTEMS: Solar Energy Systems means any device or combination of devices or elements which rely upon direct sunlight as an energy source, including but not limited to any structure of device which collects sunlight for generating energy primarily for use offsite.
- B. SOLAR ARRAY: Solar Array means a structure containing one or more receptive cell or panels for the purpose of converting solar energy into useable electrical energy by way of solar energy system.

Again, suggest that all definitions be placed in Article II Definitions.

Purpose and Intent:

The purpose of this subsection is to establish guidelines for the siting of solar arrays and accessory equipment, buildings or facilities that generate, maintain, operate, manage, store and transmit power, other than facilities designed for single-user applications.

Is it the intent of Harrisville Twp. that single-user applications are exempt from regulation? Solar panels, regulated later in this section, are often a single-user application of solar energy.

General Requirements:

- A. A solar collection device or combination of devices shall be designed and located to avoid glare or reflection onto adjacent properties and adjacent roadways and shall not interfere with traffic or create safety hazard.
- B. Solar energy systems shall not be used for displaying any advertising. Shall include identification of the manufacturer, operator, or facilitator of the project, and shall not be artificially lit except to the extent required for safety, maintenance, or temporary repair.
- C. All solar energy systems shall be located on the property with a minimum lot or parcel size of 2 acres ~~or more~~.
- D. Solar energy systems including the solar collection devices or combination of devices shall not exceed the height recommended by the manufacturer or distributor of the system. In no case will the height of any solar energy system exceed 40 feet in height.

Although 40 feet appears excessive, it is the height permitted for any structure, including accessory structures, on a lot.

- E. Each solar energy system, including solar collection devices, associated buildings, and accessory structure, shall meet the principal structure minimum yard depth requirements (setbacks) for the assigned zoning district.
- F. On-site power lines excluding solar array or solar panel wiring, shall be placed

underground except where necessary to connect to the public utility. Electrical transformers for utility interconnections may be underground if required by the public utility. Appropriate warning notice of electrical hazards shall be placed on solar energy systems and all access doors and electrical equipment shall be lockable.

- G. No solar energy system shall be erected, constructed, installed, or modified as provided in the section without first obtaining a building and electrical permit. All such solar energy systems shall be constructed and operated in accordance with all local, state, and federal laws.
- H. Solar energy systems site plan submittal requirements shall include: a site plan showing roads, locations of all structures, locations of solar arrays, and distances to property lines or right-of-ways (setbacks). Documentation of land ownership or authorization or consent of the landowner to permit installation of the use is also required prior to permit approval.
- I. Any solar energy system found to be abandoned or unsafe by a building official shall be repaired or removed by the landowner.

Staff suggests that the Township consider including language requiring the owner to totally remove the solar energy system if it ceases to perform as originally intended for a period of time (i.e. zero electricity generation for a period of 6 consecutive months).

REGULATIONS FOR SOLAR PANELS

- A. Ground-mounted solar panels shall be located within the area and yard requirements for each zoning district, and shall not exceed the height of twelve (12) feet.
- B. Roof-mounted solar panels on the principal building shall be installed on the plane of the roof material (flush mounted) or made part of the roof design (e.g. utilizing capping or framing compatible with the color of the roof or structure), but shall not extend more than eight inches from roof surface.
- C. All solar panel installations shall comply with any applicable building, plumbing and electrical codes.
- D. Roof mounted solar panels on a flat roof shall not exceed (10) ten feet in height above the roof deck

Staff Recommendation: Staff recommends **APPROVAL WITH MODIFICATIONS** for the proposed Harrisville Township text amendment, subject to Staff Comments. Staff further recommends that Harrisville Township submit this text amendment to the Medina County Prosecutor's Office for their final review.

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