ARTICLE 19G – ALTERNATIVE ENERGY
[Article 19G created 7-9-14 by Ord. No. 224, previously Art. 19]

The intent of these regulations is to permit and provide for opportunities for alternative energy generation within Edgmont Township while at the same time protecting and preserving the health, safety, and welfare of the Township residents.

SECTION 1900G WINDMILLS

A. Use Regulations.

1. Conditional Use. Windmills may be permitted in all zoning districts by Conditional Use subject to the provisions of Article 21, Section 2112 and provided the application shall otherwise comply with this Section and the regulations of the zoning district wherein the proposed use is to occur.

2. Prohibited Use. There shall be no commercial use of windmill(s) for the generation of energy, except that energy generated in excess of the energy requirements of the property may be sold back to a public utility in accordance with the law.

3. Number of Windmills.

a. Residential. Wind energy generation on properties in residential use shall be limited to one (1) windmill per lot or tract of land.

b. Non-residential. A property in non-residential use may have up to three (3) windmills if the applicant can demonstrate that the energy provided by a single windmill is insufficient to provide for the energy needs for the property.

4. Accessory Structures and Use.

a. Accessory Use. Windmills shall be considered accessory structures and the generation of
energy as an accessory use in accordance with this Section.

b. Limit of Power Generation. Power generated by a windmill under this Section shall not exceed 10 kW on properties in residential use and 20 kW on properties in non-residential use.

B. Setback and Height Regulations.

1. Location. No windmill shall be placed in the front yard.

2. Setback Requirement. No windmill shall be placed closer to a property line, utility (including overhead utility lines), structure, or fuel source than the distance of its height plus twenty-five percent (25%) of its height.

3. Height.

   a. Maximum. The maximum height of any windmill, measured from the average approved finished grade at the perimeter of the windmill foundation to the highest vertical point of a blade at its maximum vertical position, shall not exceed forty-five feet (45').

      (1) Exception. A property in non-residential use may have a windmill that does not exceed fifty-five (55) feet as measured above.

   b. Minimum. No windmill blade at its lowest point shall be closer to the surface of the ground than fifteen feet (15').

C. Standards of Approval.

1. Site Plan. A site plan shall be prepared and sealed by a registered professional engineer and submitted with and as part of any Conditional Use application. The site plan shall contain in
addition to the other requirements of this Section, the following:


b. Grades. Existing and proposed grades.

c. Man Made Structures. Location of all man made structures on the property, as well as all man made structures within two hundred feet (200’) of the proposed windmill.

d. Overhead Structures. Location of all wires, overhead structures, and natural and man made features.

e. Soil Types. Soil type(s) where the foundation will be constructed.

f. Construction Details. Complete structural and construction details, including narrative descriptions, demonstrating how the foundation, support, underground wiring, battery storage detail (if not located within the principal structure) and other parts of the windmill will be constructed, installed and maintained, together with the safety features proposed to prohibit unauthorized access.

g. Proposed Structures. All new structures, together with any alterations to or modifications of existing structures, proposed in connection with the windmill.

h. Setback. The applicant shall demonstrate that should the windmill fall, it will fall within the setback prescribed by this Section; otherwise the applicant shall provide sufficient setbacks in addition to those prescribed by this Section to comply with the setback area demonstrated by the applicant. In no case shall the setbacks be
reduced below those prescribed by this Section.

i. Additional Information. Such other information as may be required by the Township.

2. Speed of Operation and Braking Mechanism. The applicant shall demonstrate that the windmill has an automatic braking, governing or feathering system to prevent uncontrolled rotation, overspeeding and/or excessive pressure on the windmill or any of its component parts.

3. Wind Availability. The applicant shall demonstrate that the proposed site has sufficient wind for the continued and proper operation of the windmill.

4. Monopole. Only single pole (monopole) windmill structures shall be permitted. A windmill pole shall be self-supporting upon its foundation (i.e., no guy wires).

5. View shed. The proposed location of the windmill shall be demonstrated to protect and maintain existing view sheds from the subject property and those of surrounding properties.

   a. Photographic Evidence. The applicant shall provide photographic evidence adequate to demonstrate compliance with this Section including, but not limited to, perspectives of the proposed site from all sides of the property (looking in and looking out), adjacent road ways and neighboring properties.

6. Visual Features. The design color and other visual features of the windmill shall be designed and installed in such a manner so as to create the least visual impact practicable.

7. Interference.
a. Signals. The proposed location and operation of the windmill shall be demonstrated not to interfere with any broadcast, radio, wireless, or other telecommunications signals or facilities.

b. Structures. In addition to the setback requirements of this Section, the windmill shall be clear of and shall not interfere with any existing trees, structures, wires, and the like.

c. Shadow Flicker. Shadow flicker shall be mitigated on neighboring properties.

D. Other Standards.

1. Permit. All required permits must be obtained from the Township and any other jurisdiction prior to commencing construction of the windmill and its accessory components.

2. Underground Utilities. All utilities, lines, cables, wires, and other connections to or from the windmill and any other structure associated with the windmill shall be at or below grade, except as otherwise permitted by the Board of Supervisors.

3. Noise Limitations. Noise emitted from the operation of the windmill shall be in accordance with Township Ordinances.

4. Lighting. Windmills shall not be lighted except as otherwise required by law.

5. Other Uses. There shall be no antennae, advertising, or other items or material affixed to or otherwise placed on the windmill, except those required for safety.

6. Access. Maintenance access to a windmill shall not be provided at any point lower than fifteen feet (15’) measured from the top of the windmill base. Other proposed means of access and/or the limitation thereof and security therefore must be
approved by the Board of Supervisors as part of the Conditional Use process.

7. Warning Signs. Caution signs may be placed at the setback limit warning of ice and blade throws. Signs should be placed no lower than three feet (3’) high and a minimum of one (1) square foot, maximum of two (2) square feet reading “CAUTION: FALLING OBJECTS.” Each sign may also contain the contact information of the property owner.

8. Additional Information. The Township may require the submission of additional information at any time prior to, during, or following the Conditional Use hearing(s).

9. Recording of Conditional Use. All conditions of any Conditional Use granted by the Township shall be obligations of any succeeding owners of the property. To assist with this subsection, any Conditional Use approval permitted a windmill shall be recorded verbatim against the property in the County Office of the Recorder of Deeds.

E. Abandonment.

1. Cessation of Use. Any windmill which has not been in active and continuous use for a period of one (1) year shall be deemed to have been abandoned and shall be removed, along with any associated structures and equipment, from the property.

2. Restoration of Property. The former windmill site shall be restored to as natural condition as possible within six (6) months of abandonment.

F. Applicability of Other Ordinances. Windmills shall be subject to the requirements of the Edgmont Township Subdivision and Land Development Ordinance, including, without limitation, stormwater management control, stormwater infiltration control, erosion control, traffic control, landscaping, lighting and other standards prescribed by the Edgmont Township Subdivision and Land Development Ordinance and/or other applicable Township Ordinances.
G. Certifications and Inspections.

1. Township Certification. No windmill shall commence operation until the Township has issued a Use and Occupancy Certificate.

2. National and State Standards. The applicant shall show that all applicable manufacturer’s, Commonwealth of Pennsylvania and U.S. standards for the construction, operation, and maintenance of the proposed windmill have been met, including without limitation, back feed prevention and lightning grounding. Windmills shall be built, operated and maintained to the applicable industry standards of the Institute of Electrical and Electronic Engineers (IEEE) and the American National Standards Institute (ANSI). The applicant for a windmill shall furnish evidence, over the signature of a professional engineer licensed to practice in the Commonwealth of Pennsylvania that such windmill is in compliance with such standards and has been constructed and installed in accordance with the approved plans and specifications.

3. Annual Inspection Report. Whenever a windmill is authorized by Conditional Use, an annual inspection report prepared by an independent professional engineer licensed in the Commonwealth of Pennsylvania shall be obtained by the property owner and submitted to the Township on request of the Township. The inspection report shall certify the structural soundness and proper operation of the windmill. The requirement to submit the annual report shall be such that it shall be required even if not specifically included in or as part of a Conditional Use decision.

SECTION 1901G  SOLAR ENERGY GENERATION

A. Use Regulations.
1. By Right. Solar panels and solar energy collectors shall be a use by right in all zoning districts.

2. Prohibited Use. There shall be no commercial use of solar panels or solar energy collectors except that energy generated in excess of the energy requirements of the property may be sold back to a public utility in accordance with the law.

3. Accessory Structures and Uses.
   
a. Accessory Use. All solar panels and solar energy collectors shall be accessory to the principal use of the lot and shall be located on the same lot as the principal use which they serve.

B. Bulk, Area and Height Requirements.

1. Location. All solar panels and solar energy collectors which are not mounted on the principal or accessory use building shall be located in the rear or side yards, only.

2. Setback. Solar panels and solar energy collectors shall be set back a minimum of fifteen (15) feet or one hundred twenty-five percent (125%) of the height of the solar panel or solar energy collector (if not attached to the principal use building or structure), whichever is greater.

3. Height. No point of a solar panel, solar energy collector or its support structure, which is not attached to the principal use building or structure, shall exceed twenty (20) feet.

4. Extension of Building Height. Solar panels or solar energy collectors which are attached to the principal use building or structure may, when attached, cause said building or structure to exceed the maximum height requirements of the zoning district in which it is located by no more than thirty-six (36) inches.
5. Impervious Cover. If solar panels or solar energy collectors are not mounted on a building or structure, the area of the panels or collectors shall be considered to be impervious surfaces for purposes of calculating maximum allowable impervious coverage in the underlying zoning district.

C. Standards of Approval.

1. Permit. No person shall install, construct or otherwise implement any solar panel(s) or solar energy collector(s) for a building or structure, residential or commercial, within the Township without first obtaining a permit from the Township. No person shall repair or modify any existing solar panel(s) or solar energy collector(s) in the Township without first obtaining a permit from the Township.

2. Compliance with Building Code. An applicant shall comply with all applicable Edgmont Township Building Code requirements for solar panels and solar energy collectors, in addition to the requirements of this Section. In the event of a conflict between the provisions of this Section and the Edgmont Township Building Code, the Edgmont Township Building Code shall control.

3. Structural Analysis. If the solar panels or solar energy collectors are attached to a building or structure, a structural analysis must be submitted with the permit application stating that the roof structure is sufficient to support the solar panels or solar energy collectors.

D. Other Standards.

1. Glare. All solar panels and solar energy collectors shall be located so as not to cast glare upon any neighboring properties or any public or private street.

2. Visual Impact. Solar panels and solar energy collectors shall be located to minimize visual impact to neighboring properties.
3. Heat Load. Solar panels and solar energy collectors shall not create any additional heat load upon neighboring properties.

4. Roof Mount Requirements. Solar panels mounted directly or indirectly on or as part of a roof, must:
   a. Be able to support a firefighter’s weight.
   b. Ensure continued access to the roof.
   c. Provide pathways to all areas of the roof.
   d. Provide opportunities for smoke ventilation.
   e. Provide emergency egress from the roof.
   f. Provide a main electrical service disconnect with all weather markings to give emergency responders appropriate warning and guidance with respect to working around and isolating the solar panels.

E. Abandonment.

1. Cessation of Use. Any solar panel or solar energy collector which has not been in active and continuous use for a period of one (1) year shall be deemed to have been abandoned and shall be removed, along with any associated structures and equipment, from the property.

F. Applicability of Other Ordinances. Solar panels and solar energy collectors shall be subject to the requirements of the Edgmont Township Subdivision and Land Development Ordinance, including, without limitation, stormwater management control, stormwater infiltration control, erosion control, traffic control, landscaping, lighting and other standards prescribed by the Edgmont Township Subdivision and Land Development Ordinance and/or other applicable Township Ordinances.
SECTION 1902G  GROUND SOURCE HEAT PUMPS

A. Definitions.

For the purposes of this Section, the following words, terms and phrases shall have the meanings indicated as follows:

1. **CASING** – An impervious durable pipe placed in a well or closed-loop geothermal borehole to prevent the walls from caving in and to seal off the surface drainage or water, gas or other fluids or materials from entering the well or borehole.

2. **CLOSED-LOOP GEOTHERMAL BOREHOLE** – A boring(s) drilled to facilitate the installation of a pipe loop for a ground source heat pump system whether circulating water, heat transfer fluid or refrigerant using indirect exchange (See, Geothermal Well).

3. **CLOSED-LOOP SYSTEM** – A closed or sealed system designed to heat and/or cool a dwelling or building which circulates water, heat transfer fluid or refrigerant through sealed underground loops. The loops are installed either in closed-loop boreholes or horizontally in trenches or ponds.

4. **DEP** – The Department of Environmental Protection of the Commonwealth of Pennsylvania or any successor agency thereto.

5. **GEOTHERMAL WELL** – A well(s) installed for the purpose of heating and/or cooling the dwelling or building on a property (See, Closed-Loop Geothermal Borehole).

6. **GEOTHERMAL WELL INSTALLATION CONTRACTOR** – Any individual in immediate supervision of and/or responsible for the drilling of boreholes used for the purpose of geothermal heating and/or cooling of a dwelling or building as part of a ground source heat pump. This individual is
responsible for boring, closed-loop geothermal pipe installation and grouting of boreholes.

7. **GROUND SOURCE HEAT PUMP** – A ground source heat pump, which shall include, but not be limited to, any components of a heating and/or cooling system (including supply wells) installed in a closed-loop geothermal borehole and used for heating and/or cooling of a building or dwelling using a heat transfer fluid or direct exchange system.

8. **GROUT** – Bentonite, bentonite / sand mix or other approved impervious material placed between the casing and the undisturbed formation surrounding the well or closed loop geothermal borehole to create a permanent water tight joint or connection.


10. **OPEN-LOOP SYSTEM** – An open or unsealed system designed to heat and/or cool a building which uses a ground water supply well to extract ground water which is passed through a heat pump and into any discharge well or other area.

B. Use Regulations.

1. By Right. The installation of a closed loop ground source heat pump system shall be a use by right in all zoning districts.

2. Accessory Structures and Use. Ground source heat pumps shall be accessory to the principal use of the lot and shall be located on the same lot as the principal use which they serve.

3. Closed Loop. All ground source heat pump systems shall be closed-loop systems.

   a. No open-loop systems shall be permitted.
b. Class V wells (as defined by U.S. EPA) are prohibited.

c. A ground source heat pump system shall not be connected in any way to any sanitary sewage disposal or stormwater system.

C. Bulk Regulations.

1. Setback Requirement. The installation of closed-loop geothermal boreholes shall strictly observe the following minimum isolation distances:

<table>
<thead>
<tr>
<th>Source</th>
<th>Minimum Isolation Distances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delineated wetlands, flood plains, lakes, ponds or other surface waters</td>
<td>50 feet</td>
</tr>
<tr>
<td>Storm drains, retention/detention basins and similar storm water facilities</td>
<td>10 feet</td>
</tr>
<tr>
<td>Subsurface sewage absorption areas, elevated sand mounds, cesspools, sewage seepage pits</td>
<td>50 feet</td>
</tr>
<tr>
<td>Septic tanks, aerobic tanks, sewage pump tanks and holding tanks</td>
<td>25 feet</td>
</tr>
<tr>
<td>Sewer drains and public sewer laterals</td>
<td>10 feet</td>
</tr>
<tr>
<td>Preparation area or storage area of hazardous spray materials, fertilizers, chemicals or salt piles (If borehole is cased and grouted inside and out)</td>
<td>300 feet (150 feet)</td>
</tr>
<tr>
<td>Exterior surface or subsurface containers or tanks used for storage of materials that cannot be properly disposed of by passage through soil. This includes, but is not limited to, gasoline and all other petroleum products, and propane.</td>
<td>30 feet</td>
</tr>
<tr>
<td>Building Foundations</td>
<td>10 feet</td>
</tr>
<tr>
<td>Retaining walls and overhead power lines</td>
<td>15 feet</td>
</tr>
<tr>
<td>Identified NPL Site (Superfund) plume area</td>
<td>300 feet</td>
</tr>
<tr>
<td>Property lines of properties served by public sewers</td>
<td>10 feet</td>
</tr>
<tr>
<td>Property lines of properties served by on-lot septic systems</td>
<td>40 feet</td>
</tr>
<tr>
<td>Rights-of-ways and easements</td>
<td>10 feet</td>
</tr>
<tr>
<td>Any other source or potential source of pollution</td>
<td>As Approved by the Township Board of Supervisors</td>
</tr>
</tbody>
</table>
D. Standards of Approval.

1. Permit Required. No person shall install, construct, drill or excavate to facilitate the construction or installation of a ground source heat pump for use as a heating and/or cooling system for a residential or commercial building within the Township without first obtaining a ground source heat pump permit from the Township. No person shall drill or excavate to repair or modify or to facilitate the repair or modification of a ground source heat pump system in the Township without first obtaining a ground source heat pump permit.

   a. Permits obtained pursuant to this Section for geothermal well installation, shall be valid for a period of one (1) year from the date of issue and may be extended for a period not to exceed thirty (30) days from the date of expiration, upon application to the Township and payment of any applicable fee.

2. Plan Submittal.

   a. Plans, including the installation specifications for the ground source heat pump system, shall be submitted to the Township at the time of and as part of the permit application and shall include the following:

      (1) The proposed location of the geothermal boreholes and any associated piping.

      (2) For nonresidential applications:

         i. Demonstration of compliance with all federal, state and local regulations regarding well spoils, run off and soil and erosion control.

         ii. Property restoration plans.
3. **Piping Material.** The piping for ground source heat pump systems must be made of polyethylene, polybutylene or a material approved by the Township.

4. **Circulating Fluid.** Solutions containing ethanol, methanol, propylene glycol, or other fluid approved by the Township shall be used as the circulating fluid for ground source heat pump systems.

E. **Other Standards.**

1. **Stakeout Inspection.** Prior to commencing any work under any permit, the property shall be staked to accurately identify the approved location of each proposed geothermal borehole. The Township shall inspect the property and shall sign off on each location prior to any drilling or installation. Once approved no geothermal borehole location shall be changed without the prior written consent of the Township.

2. **Proper Installation.** The geothermal well installation contractor shall be responsible for drilling the borehole(s) in the permitted location, installing the pipe loop in accordance with the ground source heat pump system manufacturer, backfilling of any trench, and the grouting of all borehole(s). Backfill material shall first include the replacement of the material removed from the trench. If additional backfill material is required, clean fill shall be used.

3. **Protection.** All boreholes and associated piping shall be adequately protected from damage during construction of the geothermal heat pump system and/or any other construction occurring on the property.

4. **Casings.** Casings may be necessary to hold the closed-loop geothermal borehole(s) open during the drilling process. Casings may be left in the closed-loop geothermal borehole(s) at the
discretion of the well contractor. When a casing is used grouting of the annular space is required. Grout shall be mixed, pumped and placed in accordance with the procedures recommended by IGSHPA.

5. Protection of Borehole. Closed-loop geothermal boreholes shall be located, drilled and finished in a manner that will protect the borehole structure from damage from surface activities or other natural occurrences so that the quality of the local groundwater cannot be affected.

6. Trace Wire. Trace wire shall be provided to identify the location of all borehole(s) and piping.

7. Activation Requirements. With respect to each ground source heat pump well installation, the geothermal well installation contractor shall provide to the Township before activation of the ground source heat pump system:

   a. Written records, including a written geologic log, evidencing compliance with this Section.

   b. Written records detailing the grouting for each borehole.

   c. “As-built” plans and related documentation for each such system and borehole location.

   d. Written documentation verifying the ground source heat pump system has been successfully pressure tested and it is ready for use and operation.

F. Abandonment. In the event of the discontinuance of the use of the ground source heat pump system, a system closure plan shall be prepared and submitted to the Township for approval.

G. Applicability of Other Ordinances. The ground source heat pump system shall be subject to the requirements
of the Edgmont Township Subdivision and Land Development Ordinance, including, without limitation, stormwater management control, stormwater infiltration control, erosion control, traffic control, landscaping, lighting and other standards prescribed by the Edgmont Township Subdivision and Land Development Ordinance and/or other applicable Township Ordinances.

H. Maintenance of Ground Source Heat Pump.

1. Maintenance Specifications. All ground source heat pump systems shall be properly maintained in accordance with manufacturer’s specifications, the installer’s specifications, and any applicable DEP or federal regulations.

2. Maintenance Responsibility. Any person who owns a lot upon which a ground source heat pump system is installed and any person who occupies a structure which is served by a ground source heat pump system shall be responsible for maintaining the ground source heat pump system.

3. Malfunction. If a ground source heat pump system malfunctions, the person(s) responsible for the maintenance of the ground source heat pump system shall take all action necessary to repair, modify or alter the ground source heat pump system to eliminate the malfunction.