**II. A.**

# Memorandum
# Planning & Development Services Division

**To:** **Planning and Public Works Committee**

**From:** Aimee E. Nassif, Planning and Development Services Director

**Date:** March 1, 2013

**RE:** **Renewable Energy for Residential Properties**

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Current practices for reviewing requests for solar energy systems on residential properties involves review by both the City of Chesterfield Planning and Development Services Division and St. Louis County prior to the issuance of building permits. In an effort to clarify the City's review procedures and codify our requirements into one document, a Draft ordinance was presented to this Committee in October. At that time, discussions revolved mainly around the legal issues which may impede a municipality's ability to create review criteria and development standards above and beyond what currently exists in the Missouri State Code of Regulations.

While there are several court cases involving the right to solar energy systems pending in Missouri, current case law does not prohibit a municipality from establishing review procedures and criteria. However, due to legal protections currently in place at both the state and national level which guarantee a property owner the right to have and use solar energy; we do advise against establishing criteria which would impede a property owner to install a solar energy system on their private residence.

In addition to the protections afforded a private property owner in both Missouri State Statute and the Missouri State Code of Regulations, a number of states have adopted legislation to prohibit subdivision indentures and other covenants, conditions, or deed restrictions that run with the land from prohibiting solar energy systems. These laws, often referred to as ***Homeowner's Solar Rights Laws***, have been adopted in California, Illinois, Florida, Texas, Maine, Louisiana, and a number of other states. In Missouri, such a bill was introduced in the House of Representatives in January 2012, but was later placed on informal calendar in May 2012 and has not since been read again.

The City of Chesterfield does not create, amend, or enforce subdivision indentures. When a municipal zoning application (building permit) for exterior residential work is received by the City, the applicant is required to inform their subdivision trustees and adjacent property owners. In addition, the City sends notice to the subdivision trustees of the request. Be advised, that we do not seek approval from the subdivision trustees as their indentures and the enforcement thereof is a private, civil matter. However, we do require notification to them so that the homeowner is aware that approval by the City does not constitute approval of any indenture requirements.

In the State of Missouri, subdivision indentures can restrict the use, location and aesthetics of solar energy systems. As such, plans for solar energy systems would be reviewed by the subdivision trustees or an appointed architectural control committee (as many subdivisions have) for compliance with the specific requirements and general intentions of the subdivision indentures. However, case law could be set in the near future which would prohibit such indentures from being overly restrictive or prohibitive as well. Recently, a cause of action was filed in the City of Wildwood against a residential subdivision trustee group who denied a residential property owner's request to install a solar energy system on their property. This case is currently still pending.

Staff has spent the last several months researching various documents, code, statutes and other sources of information on this subject. In addition, information was obtained from a professional networking opportunity where examples of various regulations and ordinances from other states were provided.

***After reviewing these documents and speaking with our City Attorney we are confident of the City's legal authority to create an ordinance to clearly define the criteria for the installation of solar energy systems on private residential property. However, due to the legal protections currently in place protecting one's right to solar energy on private property, we do not recommend that such standards or criteria be difficult or overly burdensome on property owners.***

*Monarch Fire Protection District*

The Committee also asked Staff how Monarch Fire Protection District reviews permits for solar energy systems, specifically roofmounted systems. Fire Marshal Roger Herin advised Staff that Monarch's main concern is with roof-mounted systems regarding access, ventilation, and the marking of energized conductors (electric wiring) with no means of disconnection. While several of these areas of concern are addressed with the 2009 IRC (International Residential Code), the 2012 IRC covers the area of solar energy in greater detail and specifically addresses these concerns. At this time, St. Louis County has not yet adopted the 2012 IRC but does plan to do so in the near future. As you are aware, the City contracts with St. Louis County for the enforcement of all building codes; as such this area of permit review falls under the purview of St. Louis County.

As you may recall from the previous meeting, St Louis County currently does the following reviews with solar energy permit requests and requires the following:

- Verification from an engineer that the roof can handle the additional dead load added to the roof, usually in the range of two (2) to five (5) pounds per square foot.
- Wind load verification, fire classification, proper pressure and temperature release valves, adequate flashing and sealing to prevent water, rodent and insect entry, installation in accordance with manufacturer's instructions, labeling of pertinent product information, protection from freezing, and access for inspection.
- Electric code requirements which cover grounding, labels and markings, circuit requirements, overcurrent protection, means of disconnection, wiring methods, component interconnections, access to boxes, and storage batteries must be met.

- For ground-mounted systems, installation must be in accordance with manufacturer's instructions; and for ground-mounted systems ten (10) feet in height or greater, verification from an engineer that the structure meets wind load requirements.
- Applicants must apply for and receive a permit for applicable electrical, mechanical, and plumbing work prior to commencing installation.

*Lot Size Restriction*

Ground-mounted solar energy systems should not include a minimum lot size requirement for several reasons. First and foremost, State law provides that every property owner has a right to solar energy. If the City prohibited a property owner from having solar energy, it would be in direct violation with State Statute and the Missouri State Code of Regulations. Secondly, Staff believes that such a restriction may not achieve its intended purpose of limiting the visibility of such structures. Under a minimum lot size restriction, solar energy systems could still be placed immediately adjacent to the setback line. Instead, Staff recommends the use of setbacks and screening to more effectively accomplish the same goal of limiting visibility from adjacent properties and rights-of-way.

*Small Wind Energy Systems*

In completing our research on solar energy ordinances and regulations, we found that many of the municipalities who have solar energy regulations also have regulations for small wind energy systems. While we have not received any permits to date for such alternative energy sources, the opportunity exists to be proactive in our approach to alternative energy sources. If the City directs Staff to move forward with the solar energy regulations, we recommend including regulations for small wind energy systems, thereby creating a comprehensive renewable energy ordinance for residential properties. Expanding the solar energy ordinance to include small wind energy systems can ensure that the City has clear and concise regulations in place if in the future wind becomes a viable source of energy in the community. Other municipalities have taken a similar approach, including Clayton, Ellisville, and O'Fallon, Missouri.

Language pertaining to small wind energy systems has been incorporated into the draft ordinance and includes restrictions on location, height, noise, flicker, and other key items.

*Department Recommendation and Request*

Attached to this report is a draft ordinance establishing regulations and development criteria for renewable energy systems on residential properties. The renewable energy systems are regulated in the proposal as structures. Therefore, if language regulating these is approved, it will be incorporated into Chapter 7 of the Chesterfield City Code which pertains to buildings and building regulations.

As discussed previously, Staff will be coming back to this Committee in the future with a proposal for an ordinance which addresses renewable energy systems for nonresidential properties as well.

***Staff recommends favorable consideration of the draft language and seeks this Committee's direction on moving forward to City Council with said draft.***

***Thank you.***

Attachment A

**Residential Renewable Energy Ordinance.**

1. *Purpose.* The purpose of this Section of the City Code is to promote the use of renewable energy and to provide for the development, installation, and construction of solar and small wind energy systems on residential property subject to criteria and regulations established to protect the public health, safety and welfare of the residents of the City.

2. *Definitions.* For the purposes of this Ordinance, terms used for renewable energy structures shall be defined as follows:

    1) Building Integrated Photovoltaic System (BIPV). An active solar system that is an integral part of a principal or accessory building, rather than a separate mechanical device, replacing or substituting for an architectural or structural component of the building. Building-integrated systems include but are not limited to photovoltaic or hot water solar systems that are contained within roofing materials, windows, skylights, and awnings. PV shingles or tiles, PV laminates, and PV glazing are all examples of BIPV.
    2) Glare. The effect produced by light reflecting from a solar energy system with an intensity sufficient to cause annoyance, discomfort, or loss in visual performance and visibility.
    3) Ground-Mounted Solar Energy System. A solar energy system that is not attached to a structure and is affixed to the ground.
    4) Photovoltaic (PV) System. A solar energy system that converts sunlight into electrical energy.
    5) Roof-Mounted Solar Energy System. A solar energy system affixed to the roof of either a principal or accessory structure.
    6) Small Wind Energy System. A structure designed for the purpose of converting wind energy into electrical energy to reduce on-site consumption of utility power. This includes vertical-axis and horizontal-axis systems mounted on a building or a freestanding tower.
    7) Solar Energy System. A structure designed for the purpose of collecting and transforming solar energy into thermal or electrical energy. Solar energy systems may include photovoltaic or solar thermal systems.
    8) Solar Thermal System. A solar energy system that uses sunlight to produce heat that is used for space heating and cooling, domestic hot water, and heating pool water.

3. *Applicability.*

1) Solar and small wind energy systems are structures which shall be permitted on all residential property zoned residential, estate or non-urban district.
2) The requirements of the City Code shall apply to all solar and small wind energy systems installed or modified after the effective date of this Ordinance on all residential property zoned residential, estate or non-urban district.
3) Any upgrade, modification, or structural change that alters the size or placement of an existing solar or small wind energy system shall comply with the provisions of this Section.

4. *Solar Energy Systems – Minimum Requirements.*

1) The following general requirements apply to all solar energy systems. All solar energy systems shall:

a) comply with all minimum yard structure setback requirements for the zoning district in which the property is located;
b) be placed in such a manner that glare will not be directed onto nearby properties or adjacent streets; and
c) adhere to Chapter 7 of the City Code pertaining to minimum standards for property maintenance.

2) Minimum Requirements for Ground-Mounted Solar Energy Systems. All ground-mounted solar energy systems shall:

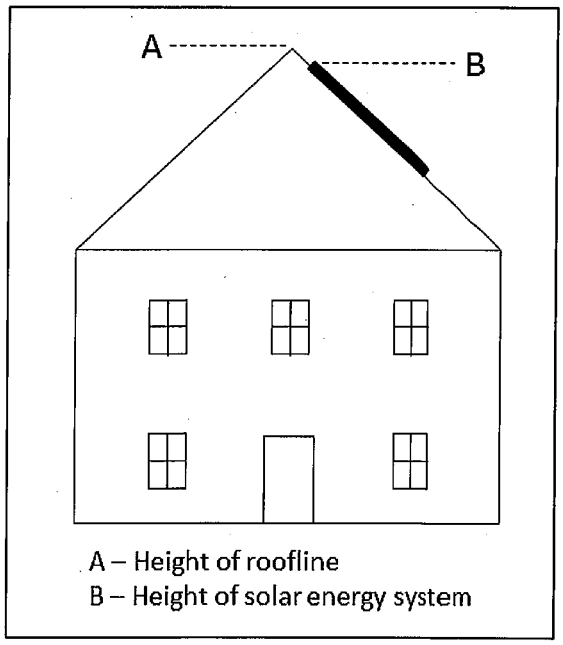
a) be located in the rear yard of the residential property;
b) not exceed ten (10) feet in height as measured from the average grade at the base of the structure to the highest point of the structure;
c) have all exterior electrical and/or plumbing lines connecting to a principal or accessory structure be located underground; and
d) be screened by vegetation or fencing to minimize visibility from adjacent properties and the right-of-way.

3) Minimum Requirements for Roof-Mounted Solar Energy Systems.

a) All roof-mounted solar energy systems shall be mounted on a principal or accessory building or structure.

b) Mounting on sloped roofs:

1. system shall not exceed the height of the existing roofline as illustrated below.
2. system shall be positioned in a symmetrical fashion and centered on the plane of the roof on which it is located.
3. system shall be set back at least two (2) feet from any outside edge, ridge, or valley of the roof.




c) Mounting on flat roofs. When located on a flat roof, roof-mounted solar energy systems shall be screened from public view by parapet walls or other architectural screening as approved by the City. The height of the solar energy system shall not exceed the maximum height permitted for residential dwelling units in the district in which the property is located.

4) Building-Integrated Photovoltaic Systems.

    a) Building-integrated photovoltaic systems may be located on any roof plane or wall.

5. *Small Wind Energy Systems – Minimum Requirements.* One small wind energy system shall be permitted per residential lot and shall:

    1) comply with all minimum yard structure setback requirements for the zoning district in which the property is located;
    2) only be located in the rear yard of the residential property;
    3) have a maximum tower height that does not exceed the maximum height permitted for structures in the zoning district the tower is located. Height shall be measured as the distance from average grade at the base of the structure to the highest point of the structure;
    4) adhere to Chapter 7 of the Chesterfield City Code pertaining to minimum standards for property maintenance;
    5) be placed in such a manner that glare will not be directed onto nearby properties or adjacent street and does not create significant shadow flicker impacts. "Significant shadow flicker" is defined as more than 30 hours per calendar year on abutting occupied buildings;
    6) have a sound level that does not exceed 60 decibels as measured at the site property line, except during short-term events such as severe wind storms and utility outages;
    7) either be stock color from the manufacturer or painted with a non-reflective, unobtrusive color that blends in with the surrounding environment;
    8) have all exterior electrical lines located underground; and
    9) not be illuminated by artificial means, except where the illumination is specifically required by the Federal Aviation Administration or other federal, state, or local regulations.

6. *General Review Process.* Municipal Zoning Approval is required for all solar and small wind energy systems prior to the issuance of a building permit The following information shall be submitted to the Planning and Development Services Division:

    1) An Application for Municipal Zoning Approval.
    2) Five (5) copies of a plot plan, drawn to scale and including the following information:

a) location and size of the renewable energy structure, including the height of the residential structure, the maximum height of the solar or small wind energy system, and the height of all other structures located on the property;
b) the location and type of screening for proposed ground-mounted solar energy systems;
c) all existing and proposed easements/rights-of-way on the site;
d) specific structure setbacks in accordance with the structure setbacks established in the governing zoning district;
e) for small wind energy systems, the Applicant shall have the burden of proving the shadow flicker will not have significant adverse impact on neighboring or adjacent uses. Potential shadow flicker will be addressed either through siting or mitigation measures; and
f) any other information as required by the City of Chesterfield.

7. *Appeal.* Decisions of the Planning & Development Services Director regarding the application of this ordinance may be appealed to the Board of Adjustment in accordance with applicable procedures as established by the Board of Adjustment.

8. *"Grandfathered" or Existing Solar and Small Wind Energy Systems.* Solar and small wind energy systems lawfully installed and operable on residential property, prior to the effective date of this Section of the City Code, are exempt from the requirements herein unless:

    1) The solar or small wind energy system is moved to another location on the property, enlarged, or replaced with a new solar or small wind energy system; or
    2) Any other work or alteration is done to the existing solar or small wind energy system that requires Municipal Zoning Approval by the City.

9. *Penalty for Violation.* This ordinance and the requirements thereof are exempt from the warning and summons for violation set in Section 1003.410 of the Zoning Ordinance of the City of Chesterfield.