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THE TENNESSEE ENERGY EFFICIENT OUTDOOR LIGHTING ACT

The Tennessee Lighting Regulations are amended by adding a new article to read as follows:

Section 1. Purpose and Intent

The legislature finds that careful management of outdoor lighting is necessary to protect the health, safety, energy security, environment, and general welfare of the people of the state.

Until the end of the nineteenth century, waning daylight brought an end to many of mankind's activities. This began to change with the introduction of incandescent lamps, which dramatically increased the range of pursuits possible after dark. Civic, social, cultural, educational, and commercial endeavors now go forward with an ease and freedom unimaginable in earlier times. As the science of lighting evolved, however, technical advancements gradually outstripped the basic requirement of providing adequate illumination for the task at hand. In the case of outdoor lighting, there is now growing recognition that the consequences are not altogether benign.

Increasing scientific and experiential evidence demonstrates that misdirected, unshielded, excessive or unnecessary outdoor night lighting has major detrimental effects. Energy is wasted when illumination is used excessively and inefficiently, causing unnecessary health-threatening emissions from burning of fossil fuels. Such emissions also pollute the state's waters and contribute to global warming. Because the human eye automatically adjusts to the brightest light in view, the glare from unshielded or excessively bright outdoor lighting can actually interfere with the clear perception of other objects in one's field of vision. Inappropriate use of outdoor lighting can have a negative impact on the natural environment, interfering with normal patterns of activity, behavior and physiology of flora and fauna. Recent research has indicated that exposure to light at night can upset normal human circadian rhythms, thereby disrupting hormone secretions and weakening the body's immune system.

In addition, sky glow from unshielded and unnecessary outdoor lighting thwarts the ages-old human yearning to gaze at, learn from, and enjoy the wonders of the night sky.

The legislature further finds that cost-efficient means and practices exist through use of luminaires to provide adequate night lighting when needed that is safe and effective but causes minimal light trespass, glare, and sky glow. These means and practices are possible with increased public awareness through education and prudent public action as provided in this article.

Therefore, it is the purpose of this article to begin limiting light pollution in the state in a cost-effective and socially feasible manner in order to protect public health, safety, and the environment.

Section 2. Definitions.

- (1) "Luminaire" means a complete lighting unit, including a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps, and to connect the lamps to the power supply; a light fixture.
- (2) "Light pollution" means any adverse effect of outdoor lighting including, but not limited to, glare and sky glow.
- (3) "Lumen" means the unit of measurement used to quantify the amount of light produced by a lamp or emitted from a luminaire.
- (4) "Watt" is a recognized, fixed measure of power consumption.
- (5) "Sky glow" means the illumination of the nighttime sky that results from upward shining light, which is reflected off molecules and particles of dirt and moisture in the atmosphere.

Section 3. Requirements.

- (a) No state agency or public corporation operating in the state shall install or cause to be installed any new or replacement permanent outdoor luminaire unless the following conditions are met:
 - (1) Any luminaire with a lamp or lamps having total initial output greater than 1800 lumens shall be fully shielded, except that a historic-style decorative luminaire may emit up to two percent of its total lumens above the horizontal plane;
 - (2) if a lighting recommendation published by the Illuminating Engineering Society of North America applies, full consideration is given to the minimum maintained light level adequate to meet the recommendation;
 - (3) if no such lighting recommendation applies, no more than the minimum 30 maintained light level adequate for the intended purpose is used;
 - (4) for roadway lighting unassociated with intersections, a determination is made that the purpose of the lighting installation or replacement cannot be achieved by installation of reflectorized roadway markers, lines, warnings or informational signs, or other passive means;
 - (5) adequate consideration has been given to conserving energy and minimizing glare and sky glow; and
 - (6) the new or replacement luminaire meets the luminaire efficiency and lamp luminous efficacy standards developed pursuant to subdivision five of this section.

(b) The following situations shall be exempt from the requirements of subdivision (a) of this section:

(1) Situations where federal laws, rules, and regulations take precedence;

(2) Situations where fire, police, rescue, or repair personnel, including utility personnel, need light for temporary emergencies or road repair work;

(3) Situations where the luminaire is a replacement for a luminaire that is part of a continuous roadway lighting design;

(4) Situations where there are special requirements, such as sports facilities, tunnels, traffic control devices, navigation lighting airports, under bridge lighting, natural and cultural monuments, or flag lighting; provided, however, that all such lighting shall be selected and installed to shield the lamp or lamps from direct view and to minimize upward lighting and glare to the greatest extent possible; and

(5) Situations where a written determination with findings has been made that a specified exemption to any requirement of subdivision one of this section is necessary and appropriate for a compelling safety interest that cannot be adequately addressed by any other method.

(c) Where any exemption in subdivision (b) of this section is for a state agency or state public corporation, the written determination shall be made by the chief executive officer of the agency or corporation or his or her designee. Where the exemption is for a county, city, town, or village, or a public corporation therein, the written determination shall be made by the appropriate county executive, mayor, supervisor, or chief executive officer or his or her designee.

(d) The Department, in consultation with the Department of Transportation and the Office of General Services, and giving consideration to the recommended practices adopted by the Illuminating Engineering Society of North America, shall establish rules to implement the provisions of this section, including a system to ensure that the use of state funds for street lighting complies with the requirements set forth herein, and shall provide for the wide dissemination of this information. The Commissioner, in consultation with the Tennessee State Energy Research and Development Authority, shall develop luminaire efficiency and lamp luminous efficacy standards for lighting regulated under this section. For purposes of this section "luminaire efficiency" shall mean the percentage of lumens generated by a lamp which actually leave a luminaire; and "lamp luminous efficacy" shall mean the amount of light generated by a lamp/ballast system (in lumens) divided by the power it uses (in watts). Such standards shall be promulgated on or before the effective date of this article and shall take effect one hundred eighty days after such effective date.

Section 4. Reporting on New Technologies.

In recognition of the ongoing research into and development of new technologies in the outdoor lighting field, the Department, in consultation with the Tennessee Department of Energy and Conservation, shall report to the legislature regarding new findings from research and new technologies that may affect the provisions of this article. Such reporting may include recommended amendments to this article to increase its effectiveness in implementing the purposes of achieving healthy, safe and energy efficient outdoor lighting.

Section 5. Dark-Sky Preserves.

The Commissioner, in consultation with affected state agencies and local authorities, may identify and nominate as "dark-sky preserves" areas of the state which are especially suitable for astronomical observations and/or which provide, due to their darkness, nocturnal benefits to flora and fauna, or to citizens desiring views of unpolluted or relatively unpolluted night skies. Within eighteen months of the nomination of the first dark-sky preserve, the Commissioner shall prepare and submit to the Governor and legislature for review and approval a proposed plan to preserve these areas as necessary and appropriate to protect astronomical observations and/or flora and fauna.

Section 6. Model Comprehensive Outdoor Lighting Ordinance.

The Commissioner, in consultation with the Tennessee Department of Energy and Conservation, the Secretary of State, and the Commissioners of Transportation and the Office of General Services, shall prepare or cause to be prepared and distributed to cities, towns and villages a model comprehensive outdoor lighting ordinance for the purpose of saving energy, reducing unnecessary glare and reducing unnecessary sky glow.