SENATE . . . . . No. 2159

The Commonwealth of Massachusetts

In the One Hundred and Eighty-Ninth General Court
(2015-2016)

SENATE, Monday, March 7, 2016

The committee on Telecommunications, Utilities and Energy to whom was referred the petitions (accompanied by bill, Senate, No. 1751) of Cynthia S. Creem, Sean Garballey, Alice Hanlon Peisch and James B. Eldridge for legislation to promote energy efficient lighting, conserve energy, regulate outdoor night lighting, and reduce light pollution; and (accompanied by bill, House, No. 2878) of Sean Garballey and others relative to the installation of new permanent outdoor lighting fixtures and the cost of operating such fixtures,- reports the accompanying bill (Senate, No. 2159).

For the committee,
Benjamin B. Downing

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An Act improving outdoor lighting and increasing dark-sky visibility.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. Chapter 85 of the General Laws, as appearing in the 2012 Official Edition, is hereby amended by adding the following 2 sections:

Section 38. As used in Section 39, the following words shall, unless the context clearly requires otherwise, have the following meanings:

"Correlated color temperature", the apparent hue of the light emitted by a fixture, expressed in kelvins (K). The lower the K value, the "warmer" or more yellowish the source will appear, and the higher the K value, the "cooler", or more "bluish" the source will appear

"Direct light", light emitted by a fixture, whether from the light source, from a reflector, or through a refractor

"Façade lighting", permanent outdoor fixtures that are specifically intended to illuminate the exterior surfaces of buildings or structures

12 “Fixture”, a complete lighting unit, including a light source together with the parts
13 designed to distribute the light, to position and protect the light source, and to connect the light
14 source to the power supply

15 “Fixture lumens”, total lumens emitted by a fixture

16 “Fully shielded fixture”, a fixture that emits no direct light above a horizontal plane
17 through the fixture’s lowest light-emitting part, in its mounted position

18 “Glare”, light emitted by a fixture that causes visual discomfort or reduced visibility

19 “Illuminance”, the luminous power incident per unit area of a surface

20 “Light trespass”, light that falls beyond the property it is intended to illuminate

21 “Lumen”, a standard unit of measurement of the quantity of light emitted from a source
22 of light

23 “Ornamental Roadway Lighting”, a roadway-lighting fixture that serves a decorative
24 function in addition to a roadway-lighting function and which has a historical period appearance
25 or decorative appearance.

26 “Parking-lot lighting”, permanent outdoor fixtures specifically intended to illuminate
27 uncovered vehicle-parking areas

28 “Part-night service”, a rate charged by a utility company to provide unmetered electricity
29 for permanent outdoor fixtures that operate for only a portion of each night’s dusk-to-dawn
30 cycle.

31 “Permanent outdoor fixture”, a fixture for use in an exterior environment installed with
32 mounting not intended for relocation

33 “Roadway lighting”, permanent outdoor fixtures specifically intended to illuminate
34 public roadways

35 “Sky glow”, scattered light in the atmosphere, caused by light directed upward or
36 sideways from fixtures, reducing one’s ability to view the natural night sky.

37 “State funds”, bond revenues or money appropriated or allocated by the General Court.

38 Section 39. (a) No state funds shall be used to install a new permanent outdoor fixture, or
39 to pay for the cost of operating such fixture, unless the following conditions are met:

40 (1) in the case of roadway lighting or parking-lot lighting; whether mounted to
41 poles, buildings, or other structures, the fixture is fully shielded.

42 (2) in the case of building-mounted fixtures not specifically intended for roadway
43 lighting, parking-lot lighting, or façade lighting, the fixture is fully shielded when its initial
44 fixture lumens is greater than 3000 lumens.

45 (3) in the case of façade lighting, the fixture is shielded to reduce glare, sky glow,
46 and light trespass to the greatest extent possible.

47 (4) in the case of ornamental roadway lighting fixtures, the fixture emits no more
48 700 lumens above a horizontal plane through the fixture’s lowest light-emitting part.

49 (5) for illumination by new permanent outdoor fixtures for applications covered in
50 Section 39(a), only the illuminance levels required for the intended purpose as defined in the

10th edition of The Lighting Handbook, published by the Illuminating Engineering Society (IES), may be used. Where local city or county laws, ordinances, or regulations specify a different requirement, only the illuminance levels required for the intended purpose by these laws, ordinances, or regulations are to be used.

(6) the light emitted by the fixture shall have a correlated color temperature no greater than 4000K.

(7) in the case of roadway lighting unassociated with intersections of two or more streets or highways, the Department of Transportation has determined that the purpose of the fixture installation or replacement cannot be achieved by installation of reflectorized roadway markers, lines, warning or informational signs, or other passive means.

(b) This section shall not apply:

(1) if a federal law, rule or regulation preempts state law;

(2) if the outdoor lighting fixture is used temporarily for emergency procedures or for road repair;

(3) to navigational and other lighting systems necessary for aviation and nautical safety;

(4) to lighting for an athletic playing area; provided, however, that the fixtures used therefor shall be selected and installed so as to minimize glare, light trespass, and sky glow outside the athletic playing area;

70 (5) to the replacement of previously installed permanent outdoor fixtures that are
71 destroyed, damaged, or inoperative; have experienced electrical failure due to failed components;
72 or require standard maintenance;

73 (6) to lighting intended for tunnels and roadway underpasses; or

74 (7) to special events or situations that might require additional illumination,
75 including, but not limited to, the illumination of historic structures, monuments, or flags;
76 provided, however, that all such illumination be selected and installed to minimize glare, light
77 trespass, and sky glow to the greatest extent possible.

78 (c) No public utility company shall install a permanent outdoor fixture for roadway
79 lighting or parking-lot lighting if the cost of operating such fixture is paid for by state funds,
80 unless the provisions specified for such uses under Sections 39(a) and (b) are met.

81 (d) The Department of Energy Resources, in consultation with the Department of
82 Transportation, shall develop and promulgate regulations to implement and enforce this section,
83 including a system to ensure that the use of state funds complies with the requirements set forth
84 herein.

85 SECTION 2. The Department of Transportation shall:

86 (a) review and update warranting and other criteria for roadway lighting, to comply with
87 current standards, procedures, and accepted best practices;

88 (b) make a study of lighting operational costs, and develop recommendations on cost
89 reduction through replacement of existing fixtures with lower-wattage, fully shielded fixtures,

90 and by removal of unnecessary roadway lighting and installation of passive safety measures
91 where possible.;

92 (c) issue the first report of its findings and recommendations as required in this section to
93 the Department of Energy Resources on or before August 31, 2016, and annually thereafter.

94 SECTION 3. The Department of Public Utilities shall, subject to its ratemaking
95 authority, develop a rate for part-night service for unmetered roadway or parking-lot lighting to
96 apply to each new electric utility rate case submitted after January 1, 2016.

97 SECTION 4. This act shall take effect on November 1, 2016.