

SENATE . . . . . No. 1937

The Commonwealth of Massachusetts

PRESENTED BY:

Cynthia Stone Creem

To the Honorable Senate and House of Representatives of the Commonwealth of Massachusetts in General Court assembled:

The undersigned legislators and/or citizens respectfully petition for the adoption of the accompanying bill:

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

PETITION OF:

| NAME:                          | DISTRICT/ADDRESS:                                 |                  |
|--------------------------------|---|------------------|
| <i>Cynthia Stone Creem</i>     | <i>First Middlesex and Norfolk</i>                |                  |
| <i>Jennifer E. Benson</i>      | <i>37th Middlesex</i>                             | <i>1/29/2019</i> |
| <i>William N. Brownsberger</i> | <i>Second Suffolk and Middlesex</i>               | <i>1/29/2019</i> |
| <i>Adam G. Hinds</i>           | <i>Berkshire, Hampshire, Franklin and Hampden</i> | <i>1/30/2019</i> |
| <i>Edward J. Kennedy</i>       | <i>First Middlesex</i>                            | <i>1/30/2019</i> |
| <i>Bruce E. Tarr</i>           | <i>First Essex and Middlesex</i>                  | <i>1/30/2019</i> |
| <i>Joanne M. Comerford</i>     | <i>Hampshire, Franklin and Worcester</i>          | <i>1/31/2019</i> |
| <i>Sal N. DiDomenico</i>       | <i>Middlesex and Suffolk</i>                      | <i>2/1/2019</i>  |
| <i>Sheila C. Harrington</i>    | <i>1st Middlesex</i>                              | <i>2/1/2019</i>  |
| <i>James B. Eldridge</i>       | <i>Middlesex and Worcester</i>                    | <i>11/6/2019</i> |
| <i>Natalie M. Blais</i>        | <i>1st Franklin</i>                               | <i>1/7/2020</i>  |

**SENATE . . . . . No. 1937**

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By Ms. Creem, a petition (accompanied by bill, Senate, No. 1937) of Cynthia Stone Creem, Jennifer E. Benson, William N. Brownsberger, Adam G. Hinds and other members of the General Court for legislation to promote energy efficient lighting, conserve energy, regulate outdoor night lighting, and reduce light pollution. Telecommunications, Utilities and Energy.

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[SIMILAR MATTER FILED IN PREVIOUS SESSION  
SEE SENATE, NO. 1833 OF 2017-2018.]

**The Commonwealth of Massachusetts**

—————  
**In the One Hundred and Ninety-First General Court  
(2019-2020)**  
—————

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:*

1           SECTION 1. Chapter 85 of the General Laws is hereby amended by adding the following  
2 section:

3           Section 38. (a) As used in this section, the following words shall have the following  
4 meanings unless the context clearly requires otherwise:

5           “Correlated color temperature”, the apparent hue of the light emitted by a fixture,  
6 expressed in kelvins.

7           “Direct light”, light emitted by a fixture, whether from the light source or a reflector or  
8 through a refractor.

9           “Façade lighting”, a permanent outdoor fixture that is specifically intended to illuminate  
10 the exterior surface of a building or structure.

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

14           “Fixture lumens”, total lumens emitted by a fixture.

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

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

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

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

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

22           “Municipal funds”, bond revenues or money appropriated or allocated by the governing  
23 body of a town or city within the Commonwealth.

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

27           “Parking-lot lighting”, a permanent outdoor fixture specifically intended to illuminate an  
28 uncovered vehicle-parking area.

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

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

34 “Roadway lighting”, a permanent outdoor fixture specifically intended to illuminate a  
35 public roadway.

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

38 “State funds”, bond revenues or money appropriated or allocated by the general court.

39 (b) State or municipal funds shall not be used to install a new permanent outdoor fixture  
40 or to pay for the cost of operating a new permanent outdoor fixture unless:

41 (i) for roadway lighting or parking-lot lighting, whether mounted to poles, buildings or  
42 other structures and the fixture is fully shielded.

43 (ii) for a building-mounted fixture not specifically intended for roadway lighting,  
44 parking-lot lighting or façade lighting and the fixture is fully shielded when its initial fixture  
45 lumens is greater than 2000 lumens;

46 (iii) for façade lighting and the fixture is shielded to reduce glare, sky glow and light  
47 trespass to the greatest extent possible;

48 (iv) for an ornamental roadway lighting fixture and the fixture emits not more than 700  
49 lumens above a horizontal plane through the fixture's lowest light-emitting part;

50 (v) the light emitted by the fixture has a correlated color temperature that is not greater  
51 than 3000 kelvins; and

52 (vi) for roadway lighting unassociated with intersections of 2 or more streets or  
53 highways, the Massachusetts Department of Transportation has determined that the purpose of  
54 the fixture installation cannot be achieved by installation of a reflectorized roadway marker, line,  
55 warning or informational sign or other passive means.

56 (c) This section shall not apply: (i) if it is preempted by federal law; (ii) if the outdoor  
57 lighting fixture is used temporarily for an emergency procedure or road repair; (iii) to  
58 navigational and other lighting systems necessary for aviation and nautical safety; (iv) to lighting  
59 for an athletic playing area; provided, however, that a fixture used therefor shall be selected and  
60 installed so as to minimize glare, light trespass and sky glow outside the athletic playing area; (v)  
61 if a compelling and bona fide safety or security need exists that cannot be addressed by another  
62 reasonable method; (vi) to the replacement of a previously installed permanent outdoor fixture  
63 that is destroyed, damaged or inoperative, has experienced electrical failure due to failed  
64 components, or requires standard maintenance; (vii) to lighting intended for a tunnel or roadway  
65 underpass; or (viii) to a special event or situation that might require additional illumination  
66 including, but not limited to, the illumination of a historic structure, monument or flag; provided,  
67 however, that the illumination shall be selected and installed to minimize glare, light trespass and  
68 sky glow to the greatest extent possible.

69 (d) The Massachusetts Department of Energy Resources, in consultation with the  
70 Massachusetts Department of Transportation, shall develop and promulgate regulations to  
71 implement and enforce this section. The regulations shall include a system to ensure that the use  
72 of state or municipal funds, including, but not limited to, operating costs for new permanent  
73 outdoor fixtures for roadway lighting or parking-lot lighting installed by electric distribution  
74 companies and municipal aggregators, comply with this section.

75 SECTION 2. The Massachusetts Department of Energy Resources shall promulgate  
76 guidelines for illumination by new permanent outdoor fixtures for applications under section 38  
77 of chapter 85 such that the illuminance levels required for the intended purpose as defined in the  
78 most recent edition of The Lighting Handbook published by the Illuminating Engineering  
79 Society shall be used; provided, however, that if a municipal or county ordinance or regulation  
80 specifies a different illuminance level, the illuminance level required for the intended purpose by  
81 the ordinance or regulation may be used.

82 SECTION 3. The Massachusetts Department of Transportation shall review and issue a  
83 report on roadway lighting and lighting operational costs. The report shall include a review of  
84 warranting and other criteria for roadway lighting and an analysis of lighting operational costs; a  
85 review of roadway lighting's impact on human health, human safety, and environmental impact;  
86 actions taken by the department to comply with current standards; procedures and accepted best  
87 practices relative to roadway lighting; and a plan to reduce lighting operational costs through the  
88 replacement of existing high-wattage, unshielded fixtures with lower-wattage, fully shielded  
89 fixtures and the replacement of unnecessary roadway lighting with the installation of passive  
90 safety measures. The department shall issue its report to the department of energy resources and  
91 the clerks of senate and the house of representatives not later than January 1, 2020.

92 SECTION 4. The Massachusetts Department of Public Utilities shall, subject to its  
93 ratemaking authority:

94 (a) develop a rate for part-night service, dimming and controls-operated fixtures for  
95 unmetered roadway or parking-lot lighting.

96 (b) develop a rate for unmetered roadway or parking-lot lighting utilizing less than 25  
97 watts of electricity.

98 SECTION 5. Sections 1 and 2 shall take effect on July 1, 2020.