

**SENATE . . . . . No. 1651**

The Commonwealth of Massachusetts

PRESENTED BY:

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

PETITION OF:

NAME:	DISTRICT/ADDRESS:
<i>Cynthia S. Creem</i>	
<i>Sean Garballey</i>	<i>23rd Middlesex</i>
<i>Cory Atkins</i>	<i>14th Middlesex</i>
<i>William N. Brownsberger</i>	
<i>Kenneth J. Donnelly</i>	
<i>Carolyn C. Dykema</i>	<i>8th Middlesex</i>
<i>James B. Eldridge</i>	
<i>Ann-Margaret Ferrante</i>	<i>5th Essex</i>
<i>Jennifer L. Flanagan</i>	
<i>Patricia D. Jehlen</i>	
<i>Thomas M. McGee</i>	<i>Third Essex and Middlesex</i>
<i>Karen E. Spilka</i>	
<i>Benjamin Swan</i>	<i>11th Hampden</i>
<i>Bruce E. Tarr</i>	
<i>Daniel A. Wolf</i>	

**SENATE . . . . . No. 1651**

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By Ms. Creem, a petition (accompanied by bill, Senate, No. 1651) of Cynthia S. Creem, Sean Garballey, Cory Atkins, William N. Brownsberger 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. 1481 OF 2009-2010.]

The Commonwealth of Massachusetts

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**In the Year Two Thousand Eleven**  
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An Act 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, as appearing in the 2008  
2 Official Edition, is hereby amended by adding the following 3 sections:-

3                   Section 37.

4                   As used in sections 38 and 39, the following words shall, unless the context  
5 clearly requires otherwise, have the following meanings:

6                   “Direct light”, light emitted by a lamp, off a reflector, or through a refractor of  
7 a luminaire.

8                   “Foot-candles”, lumens per square foot.

9                   “Fully shielded luminaire”, a luminaire that allows no direct light from the  
10 luminaire above a horizontal plane through the luminaire's lowest light-emitting part, in its  
11 mounted form.

12                   “Illuminance”, the luminous power incident per unit area of a surface, as  
13 measured in lux or foot-candles.

14                   “Lamp”, the component of a luminaire that produces light.

15                   “Light pollution”, exterior artificial light directed, reflected or scattered  
16 upward.

17                   “Light trespass”, light emitted by a luminaire that shines beyond the boundaries  
18 of the property on which the luminaire is located.

19                   “Lumen”, a standard unit of measurement of luminous flux.

20                   “Luminaire”, a complete lighting unit, including a lamp or lamps together with  
21 the parts designed to distribute the light, to position and protect the lamps and to connect the  
22 lamps to the power supply.

23                   “Lux”, lumens per square meter.

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

26                   “Outdoor parking-lot lighting”, permanent outdoor luminaires that illuminate  
27 automotive vehicle parking areas.

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

31                   “Permanent outdoor luminaire”, a fixed luminaire that is outdoors and intended  
32 to be used for 7 days or longer.

33                   “Roadway lighting”, permanent outdoor luminaires intended to illuminate  
34 public roadways for automobiles.

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

37                   Section 38.

38                   (a) No state or municipal funds shall be used to install a new or replacement  
39 permanent outdoor luminaire unless the following conditions are met:

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

42                                   (2) for building-mounted luminaires not intended for roadway or  
43 parking-lot lighting, the luminaire is fully shielded when the rated initial output of its lamp or  
44 lamps is greater than 3500 lumens.

45                                   (3) for luminaires specifically intended to illuminate building  
46 facades, the luminaire is shielded to reduce glare, light trespass, and light pollution to the greatest  
47 extent possible when the rated initial output of its lamp or lamps is greater than 3500 lumens.

48 (4) if a lighting recommendation or regulation applies, only the  
49 illuminance levels required for the intended purpose by these recommendations or regulations  
50 are used.

51 (5) if no lighting recommendation or regulation applies, only the  
52 illuminance levels required for the intended purpose as defined in recognized standards,  
53 including, but not limited to, recommended practices adopted by the Illuminating Engineering  
54 Society (IES), are used;

55 (6) for roadway lighting unassociated with intersections of 2 or  
56 more streets or highways, the Department of Transportation has determined that the purpose of  
57 the lighting installation or replacement cannot be achieved by installation of reflectorized  
58 roadway markers, lines, warnings or informational signs, or other passive means; and  
59 minimization of glare, light pollution and light trespass, and minimization of non-renewable  
60 energy usage, must be considered.

61 (b) This section shall not apply:

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

63 (2) if the outdoor lighting fixture is used temporarily by  
64 emergency personnel requiring additional illumination for emergency procedures or temporarily  
65 used by repair personnel for road repair;

66 (3) to navigational lighting systems at airports and other lighting  
67 necessary for aircraft safety;

68 (4) to special events or situations that may require additional  
69 illumination, including, but not limited to, the illumination of historic structures, monuments, or  
70 flags; provided, however, that all such illumination shall be selected and installed to shield the  
71 lamp used from direct view to the greatest extent possible, and to minimize glare, light pollution  
72 and light trespass; or

73 (5) if a compelling and bona fide operational or safety need  
74 exists that cannot be addressed by any other method.

75 (c) No public utility company shall install or replace a permanent outdoor  
76 luminaire for roadway lighting or parking-lot lighting, if the cost of operating such luminaire is  
77 paid for by state or municipal funds, unless:

78 (1) the new or replacement luminaire is fully shielded;

79 (2) the illuminance levels required for the intended purpose, as  
80 defined in recognized standards, including, but not limited to, recommended practices adopted  
81 by the Illuminating Engineering Society, are met but not exceeded; and

82 (3) the luminaire is designed to maximize energy conservation  
83 and to minimize light pollution, glare and light trespass.

84 (d) The department of energy resources, in consultation with the Department  
85 of Transportation, shall promulgate regulations to implement and enforce this section, including  
86 a system to ensure that the use of state or municipal funds complies with the requirements set  
87 forth herein.

88 (e) No person shall install a new or replacement luminaire on a residential or  
89 commercial property in a manner that creates light trespass or glare on a public right of way  
90 sufficient to visually impair drivers of vehicles on the roadway.

91 Section 39.

92 (a) The Department of Transportation shall:

93 (1) review and update warranting and other criteria for roadway  
94 lighting, to comply with current standards, procedures and accepted best practices;

95 (2) make a study of lighting operational costs, and develop  
96 recommendations on cost reduction through replacement of existing fixtures with lower-wattage,  
97 fully shielded luminaires, and by removal of unnecessary roadway lighting and installation of  
98 passive safety measures where possible;

99 SECTION 2. The department of public utilities shall, subject to its ratemaking  
100 authority, develop a rate for part-night or midnight service for unmetered roadway or parking-lot  
101 lighting to apply to each new electric utility rate case submitted after August 31, 2013.

102 SECTION 3. The Department of Transportation shall issue the first report of  
103 its findings and recommendations as required in Section 39 (a)(2) to the department of energy  
104 resources on or before August 31, 2013, and annually thereafter.

105 SECTION 4. This act shall take effect on November 1, 2012.