



Memo to:

Alex Abbruscato, Eversource

From:

Sue Haselhorst, Chad Telarico, DNV

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Copied to: All

Prep. By:

Nick Collins, ERS/DNV

Cannabis ISP Update 1 – Horticultural Lighting Square Footage Definition Update

INTRODUCTION

On February 11, 2021 the Massachusetts Cannabis Control Commission (CCC) published revised regulations (935 CMR 500.000 and 935 CMR 501.000). The revised regulations change the definition of Horticultural Lighting Square Footage (HLSF), which impacts the calculation of Horticultural Lighting Power Density (HLPD).

HLSF DEFINITION PRIOR TO FEBRUARY 11, 2021 REVISIONS

The previous version of 935 CMR 500 and 935 CMR 501 were published on November 1, 2019 and include the following definition for HLSF;

“Horticulture Lighting Square Footage (HLSF) means Canopy.”

Canopy is then defined as,

“Canopy means an area to be calculated in square feet and measured using clearly identifiable boundaries of all areas(s) that will contain mature plants at any point in time,...”

The key words in the above definition of canopy are “mature plants”. The Massachusetts seed-to-sale guide defines “mature” plants as those greater than 8” tall.

CURRENT HLSF DEFINITION BASED ON FEBRUARY 11, 2021 REVISIONS

935 CMR 500 and 501 now define HLSF as:

“Horticulture Lighting Square Footage (HLSF) means an area to be calculated in square feet and measured using clearly identifiable boundaries of all areas(s) that will contain plants at any point in time, at any stage of growth,...”

The key revision in the above definition is the change from the inclusion of only “mature” plant canopy, to all plant canopy “at any stage of growth”.

IMPACT OF HLPD CALCULATIONS

The November 2019 and February 2021 versions of the regulations include the same equation for calculating HLPD;

$$HLPD = \frac{HLE}{HLSF}$$

where;

HLPD = Horticultural lighting power density, watts/sf

HLE = Horticultural lighting equipment, watts

HLSF = Horticultural lighting square footage, sf

HLE is defined in both versions of the regulations as,

“...any lighting equipment (e.g., fixtures, bulbs, ballasts, controls, etc.) that uses energy for the cultivation of plants, at any stage of growth (e.g., germination, cloning/Mother Plants, Propagation, Vegetation, Flowering, and harvest).”

In the November 2019 regulations, there existed an apparent imbalance in the calculation of HLPD, where the connected wattage of the fixtures serving immature plants was to be included, but the canopy area of those immature plants was not to be included.

The February 2021 regulations correct this imbalance by including the HLE and HLSF of all cultivation areas, regardless of stage of growth or plant maturity.

ILLUSTRATIVE IMPACT OF REVISION

The following is based on an actual facility, and the impact on their calculated HLPD. Table 1 summarizes the values and the HLPD result.

Table 1. HLPD Impacts

Metric	Per Nov 2019 Definition	Per Feb 2021 Definition
HLE - watts	1,141,011	1,141,011
HLSF - sf	31,248	32,524
HLPD - watts/sf	37	35

Based on the November 2019 definition, this facility did not meet the maximum allowable HLPD (36 watts/sf). The calculation based on the February 2021 regulations lowered the HLPD by approximately 6%, to 35 watts/sf. The facility would now comply based on the HLPD pathway. As-built lighting plans for four licensed MA cultivation facilities were reviewed to assess the potential impact of the February 2021 revisions. Across the four projects reviewed, HLPD values were reduced 1%-6% because of the inclusion of all plant growth stages in the HLSF definition.

RECOMMENDATION

For all projects, the HLPD calculation should reference the new definition of canopy which includes all stages of plant growth. This revised definition should be noted in the Baseline Repository and promulgated through technical assistance studies. This revised definition should be noted in the Baseline Repository and promulgated through technical assistance studies, savings calculations and in the evaluation of projects.