



STAKEHOLDER MEETING 2018

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3ft, 8ft, and 2G11 Base Lamp
Requirements and Testing

Presenter



Dave Ryan
D+R
International

General DLC Development Process

DLC Collects and Aggregates Requests for Development and Revision from All Stakeholders

- Categorize by topic area
- Spec Development (new primary uses)
- Spec Revision (new performance thresholds)
- Policy Development
- Policy Revision

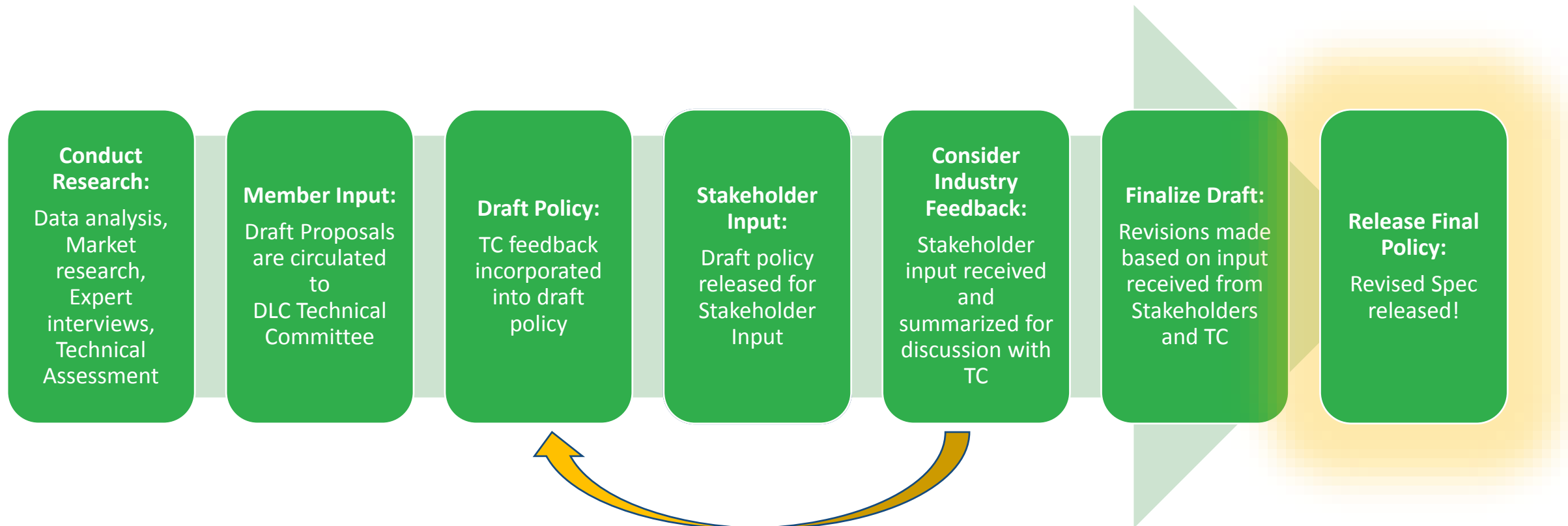
Requests Are Prioritized

- Active review with DLC Membership
- Input from Industry Stakeholders
- DLC capacity
- Alignment with DLC mission

Prioritized Tasks Are Undertaken for Research and Development

- Topic position, objectives, key considerations, and status published on DLC website: <https://www.designlights.org/workplan/>
- All major program changes undergo public comment period through DLC Stakeholder Input Process

Stakeholder Input Is Critical



3-foot, 8-foot, and 2G11 Base Replacement Lamps



3-foot, 8-foot, and 2G11 Base Lamps: Motivation and Background

- New requirements for 3-foot, 8-foot, and 2G11 base replacement LED lamps is a frequent request from both members and industry stakeholders
- As facilities transition from fluorescent to LED technologies, all legacy form factors will need to be accommodated

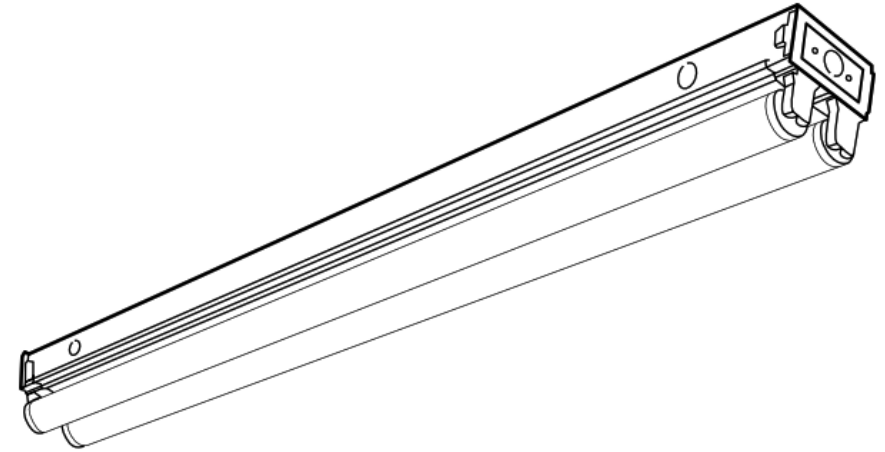


3-foot, 8-foot, and 2G11 Base Lamps: Summary

Lamp Type	3' TLEDs	8' TLEDs	2G11 base
Base	G13	FA8	2G11
Nominal Length	36"	96"	≥20"
Intended Replacement	T8 Fluorescent Lamps (no magnetic ballasts)	T8 or T12 Fluorescent Lamps (no magnetic ballasts)	CFLs intended for troffers
UL Types	UL Types A, B, C, and Dual (AB)		
Ballast Requirement for Type A / AB Testing	0.88 ballast factor, electronic instant start ballast		Existing CFL ballast (see policy for reference list)

3-foot Linear Lamps Policy: Summary

- Eligibility:
 - G13 base
 - 36" long
 - UL Type A, B, C, A-B Dual Mode
- Testing
 - Appropriate reference housings: Three-foot, 2-lamp strip fixture
 - Normal (0.88) BF, Instant-Start ballast for UL Type A



8-foot Linear Lamps Policy: Summary

- Eligibility:
 - FA8 base
 - 96" long
 - UL Type A, B, C, A-B Dual Mode
- Testing
 - Appropriate reference housings: Eight-foot, 2-lamp strip fixture
 - Normal (0.88) BF, Instant-Start ballast for UL Type A



8-foot Linear Lamps Policy: Testing

- 8' lamps must be tested inside a reference strip fixture
- Additionally, using a goniophotometer, two 4' lamps with identical construction as half of the 8' lamp must be tested inside a reference strip fixture
 - The results shall be extrapolated to represent an eight-foot strip fixture achieved through multiplying the candela of the four-foot goniophotometer by a scale factor derived from dividing the tested lumen output of the eight-foot strip fixture by that of the four-foot strip fixture as obtained from the integrating sphere.
- Results from both tests must be reported to meet the in-situ requirements

3-foot and 8-foot Policies: Bare

Individual Lamp Criteria

	Two-foot Lamps, T8 replacements	Three-foot Lamps, T8 replacements	Four-foot Lamps, T8 replacements	Eight-foot Lamps, T8 replacements
System Efficacy	$\geq 110 \text{ lm/W}$	$\geq 110 \text{ lm/W}$	$\geq 110 \text{ lm/W}$	$\geq 110 \text{ lm/W}$
Initial Light Output	$\geq 800 \text{ lm}$	$\geq 1,200 \text{ lm}$	$\geq 1,600 \text{ lm}$	$\geq 3,200 \text{ lm}$
Correlated Color Temp. (CCT)	$\leq 5000\text{K}$	$\leq 5000\text{K}$	$\leq 5000\text{K}$	$\leq 5000\text{K}$
Color Rendering Index (CRI)	≥ 80	≥ 80	≥ 80	≥ 80
Power Factor	≥ 0.90	≥ 0.90	≥ 0.90	≥ 0.90
Total Harmonic Distortion	$\leq 20\%$	$\leq 20\%$	$\leq 20\%$	$\leq 20\%$

3-foot and 8-foot Policy: In-situ Criteria

In-situ Criteria		
	Three-foot Lamps, T8 replacements	Eight-foot Lamps, T8 replacements
Luminaire Efficacy	$\geq 100 \text{ lm/W}$	$\geq 100 \text{ lm/W}$
Minimum Initial Luminaire Light Output	2 lamps installed x 2,200 lm	2 lamps installed = 6,000 lm
Distribution Requirements	<u>Zonal Lumen Distribution:</u> $0-60^\circ: \geq 40\%$	<u>Zonal Lumen Distribution:</u> $0-60^\circ: \geq 40\%$
Lumen Maintenance L_{70}	50,000 hours	50,000 hours

2G11 Base Lamps Policy: Summary

- Eligibility:

- 2G11 base
- Nominal Length $\geq 20''$
- UL Types A, B, C, and Dual A/B



- Testing

- Appropriate reference housings: 2G11 versions of existing 2x2 troffer housings
- Testing aligned with existing linear replacement lamp requirements

2G11-base Lamp Policy: Performance Criteria

Lamp Criteria		
	Two-foot Lamps, T8 replacements	2G11 Base Lamps, CFL replacements
System Efficacy	≥ 110 lm/W	≥ 110 lm/W
Initial Light Output	≥ 800 lm	$\geq 1,900$ lm
Correlated Color Temp. (CCT)	≤ 5000 K	≤ 5000 K
Color Rendering Index (CRI)	≥ 80	≥ 80
Power Factor	≥ 0.90	≥ 0.90
Total Harmonic Distortion	$\leq 20\%$	$\leq 20\%$

In-situ Criteria		
	Two-foot Lamps, T8 replacements	2G11 Base Lamps, CFL replacements
Luminaire Efficacy	≥ 100 lm/W	≥ 100 lm/W
Minimum Initial Luminaire Light Output	2 lamps installed = 1,350 lm 3 lamps installed = 2,000 lm 4 lamps installed = 2,700 lm	2 lamps installed = 2,000 lm 3 lamps installed = 2,700 lm
Spacing Criteria	Spacing Criteria: 0-180° = 1.0 - 2.0 90-270° = 1.0 - 2.0 Zonal Lumen Distribution: 0-60°: $\geq 75\%$	Spacing Criteria: 0-180° = 1.0 - 2.0 90-270° = 1.0 - 2.0 Zonal Lumen Distribution: 0-60°: $\geq 75\%$
Lumen Maintenance L ₇₀	50,000 hours	50,000 hours



THANK YOU!

Questions?

info@designlights.org