



U.S. Department of Energy
Energy Efficiency and Renewable Energy

What's New with ENERGY STAR® SSL?

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PNNL



**ENERGY STAR Lighting
Partner Meeting**

March 18, 2009



What's ahead...

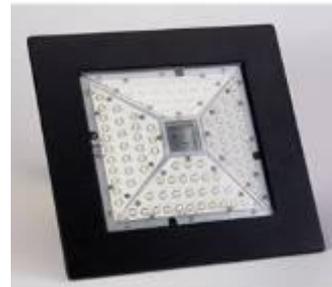
- New Category A Applications
- LED Integral Lamps





Next Category A Applications

- Outdoor area and roadway lighting
- Outdoor area decorative
- Outdoor wall packs
- Parking garage luminaires





Key Issues

- Competing against high-efficiency incumbent technologies
 - HID
 - Linear fluorescent
- Quantifying distribution, uniformity, and application efficacy at luminaire level



Next Steps

- Review outdoor area approach with small group of experts
- Publish draft revised criteria
- Stakeholder review and comment period



Integral LED Lamps – Draft Criteria

- Published Jan 16, 2009
- 1st comment period ended Feb 27
- Anticipate 2nd round of comments following revised draft
- Includes:
 - Omni-directional (A-type)
 - Directional (MR, PAR type)
 - Decorative (candelabra type)
 - Lamps using ANSI bases



Why Now?

- LED lamps will soon compete on most performance parameters
- Urgent need for market guidance because many poor performing products being introduced
- Utilities and others asking for criteria
- Provides targets for manufacturers





Overall Approach

- Products claiming parity with incandescents should perform similarly to lamps they claim to replace
- Should not inhibit innovation; allow for non-standard lamp forms
- Lamps should provide significant energy savings relative to lamps they are intended to replace





Key Unresolved Issues

- Dimming
- Non-standard lamp forms
- Low-voltage MR-16s
- Reliability testing





Key Draft Criteria

- CCT: 2700 K, 3000 K, or 3500 K
- CRI: minimum 80
- Product equivalency claims: if referencing a standard ANSI lamp type, cannot claim higher wattage equivalency than level approved under ENERGY STAR



Omnidirectional Lamp Draft Requirements

- Applies to ANSI lamps: A,G,P,PS,S
- 55 lm/W
- Min. lumens based on claimed equivalency, e.g., 800 lm for 60W
- Intensity distribution: within 0° to 150°, shall not differ more than 10% from mean



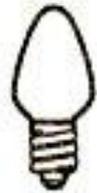


Decorative Lamp Draft Requirements

- Applies to ANSI lamps: B, BA, BT, C, CA, DC, F
- 45 lm/W
- Minimum lumens = target watts x 10
- No intensity distribution requirement



B (Bulged)



C (Conical)



F (Flame)



CA (Conical,
Angular Tip)



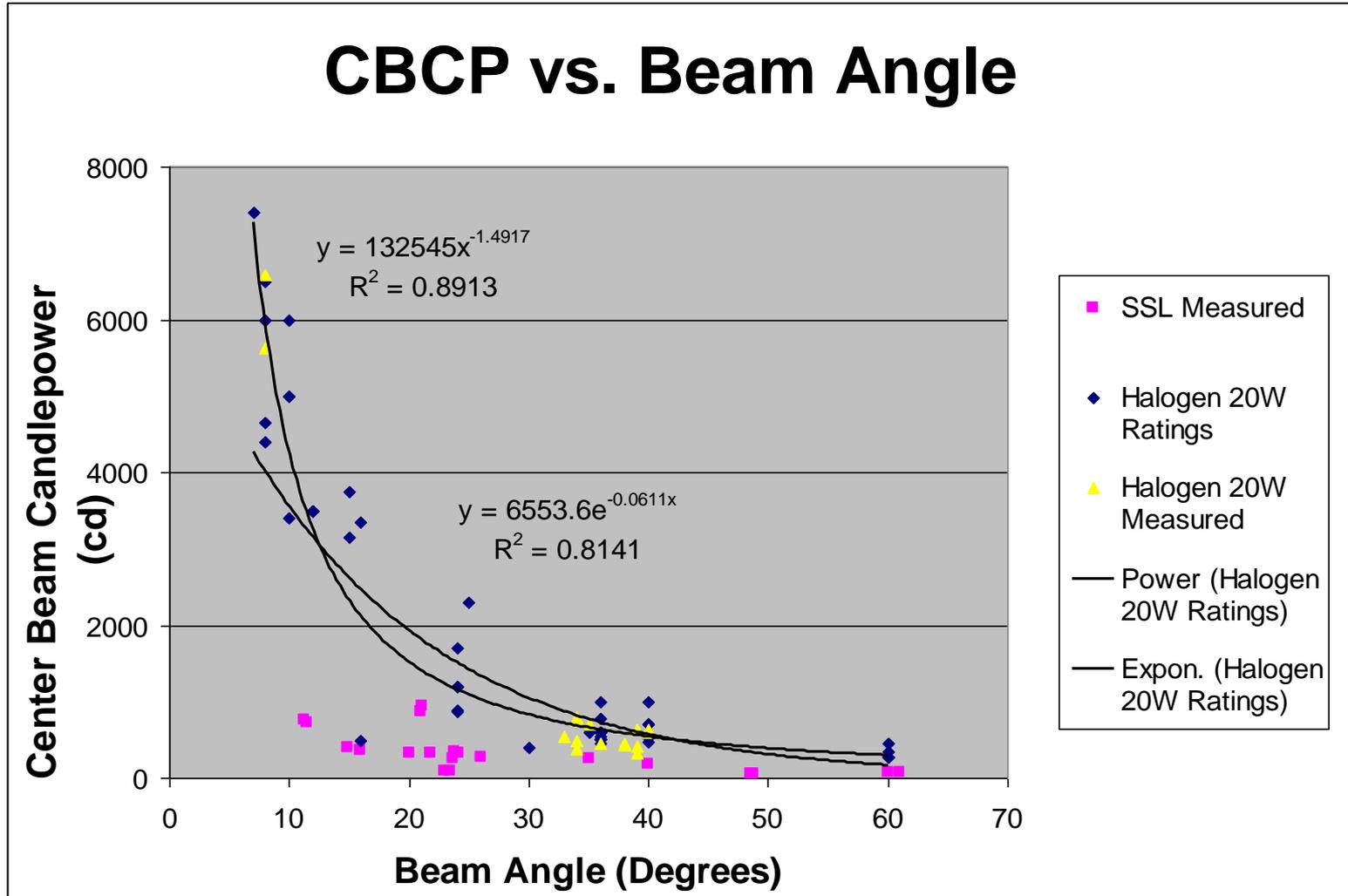
Directional Lamp Draft Requirements

- ANSI lamps: BR,ER,K,MR,PAR,R
- Diameters: MR16, PAR16, PAR20, PAR30S, PAR30L, PAR38
- 45 lm/W
- PAR and MR16 center beam intensity: based on statistical analysis of incandescent/halogen lamps
- Min. lumens = target wattage x 10



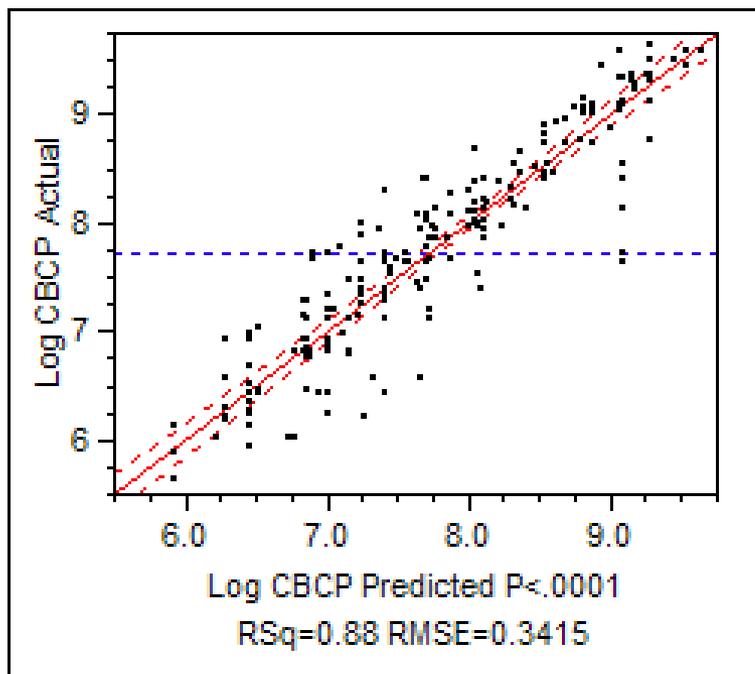


CBCP vs. Beam Angle





Statistical Analysis of Incan/Halogen → Tool for Determining Min. CBCP

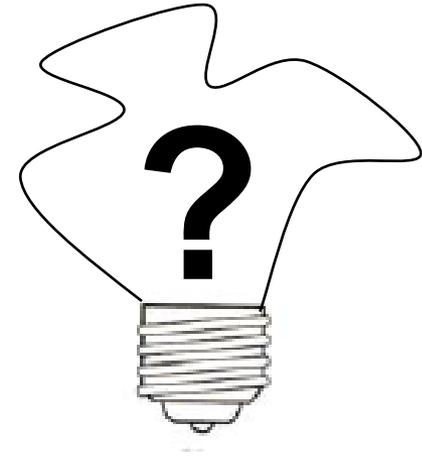


- Inputs: target beam angle & wattage
- Output: predicted CBCP
- Min. required CBCP is 2σ below predicted value of model



Non-Standard Lamp Forms

- 55 lm/w
- Minimum lumens = 400
- Other requirements TBD
- Seeking stakeholder input





Comments

- Received from 26 organizations
 - 20 manufacturers + NEMA/NGLIA
 - 1 utility + CEE sponsors
 - 3 consultants
 - 1 federal agency
- Dimming phase in
- More CCTs
- Efficacy levels not achievable yet



Next Steps

- Reviewing stakeholder comments now
- 2nd draft ~ April 2009
- Webcast – May 19
- Final criteria ~ July 2009





Questions?

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