

A Lighting Ordinance for Ann Arbor

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Michigan Dark Skies

sites.lsa.umich.edu/darkskies

Michigan Dark Skies:

Washtenaw Safe Passage

Detroit Audubon

Michigan Audubon

Sierra Club Huron Valley Group

Sierra Club SE Michigan Group

Washtenaw350

Scenic Michigan

University Lowbrow Astronomers

UM Astronomy



INTERNATIONAL
DARK-SKY
ASSOCIATION

Light Pollution

is wasted light that performs no function or task

Wasted Energy

A satellite view of Earth at night, showing the curvature of the planet and the glow of city lights. The lights are concentrated in the eastern United States and southeastern Canada. The text labels the following cities: Chicago, Indianapolis, Detroit, and Toronto. The lights are a mix of yellow, orange, and white, with some green and blue lights visible in the distance. The background is dark with some stars visible.

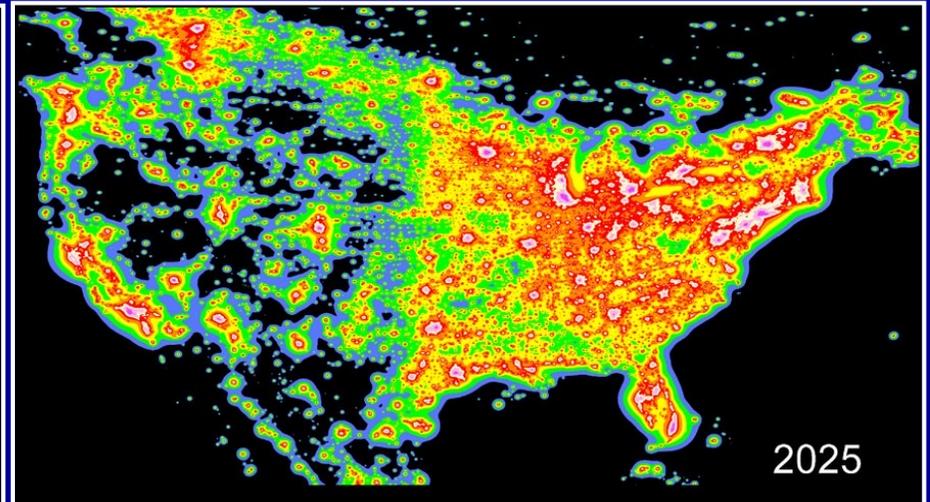
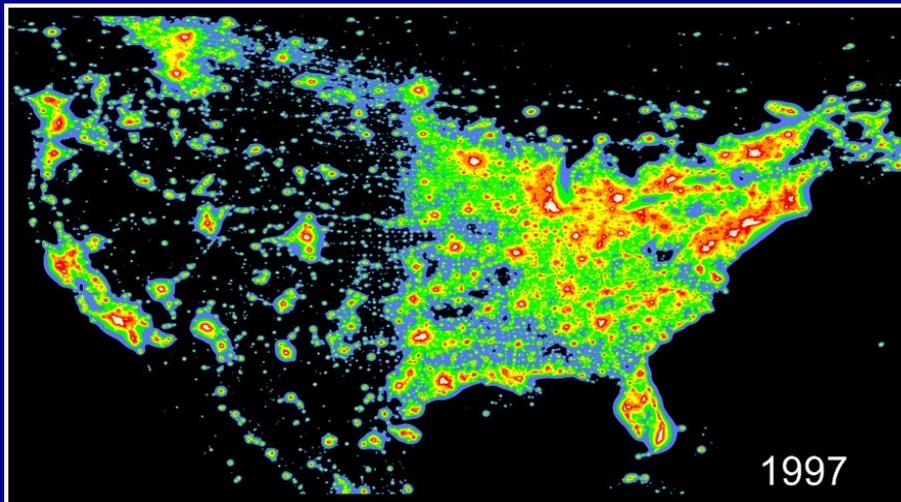
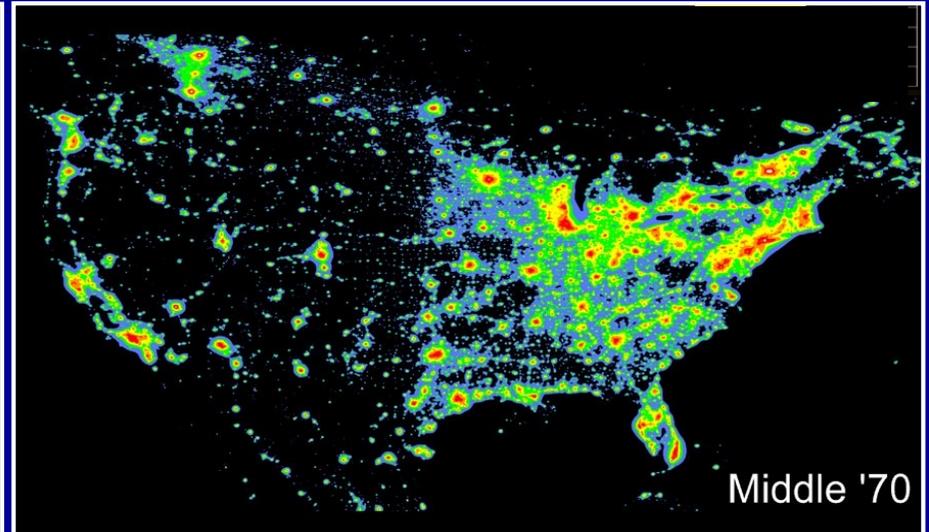
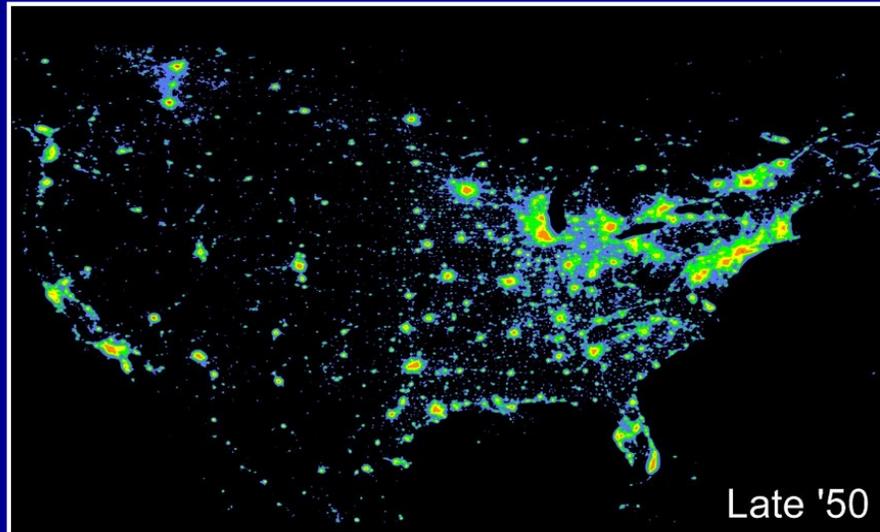
Chicago

Indianapolis

Detroit

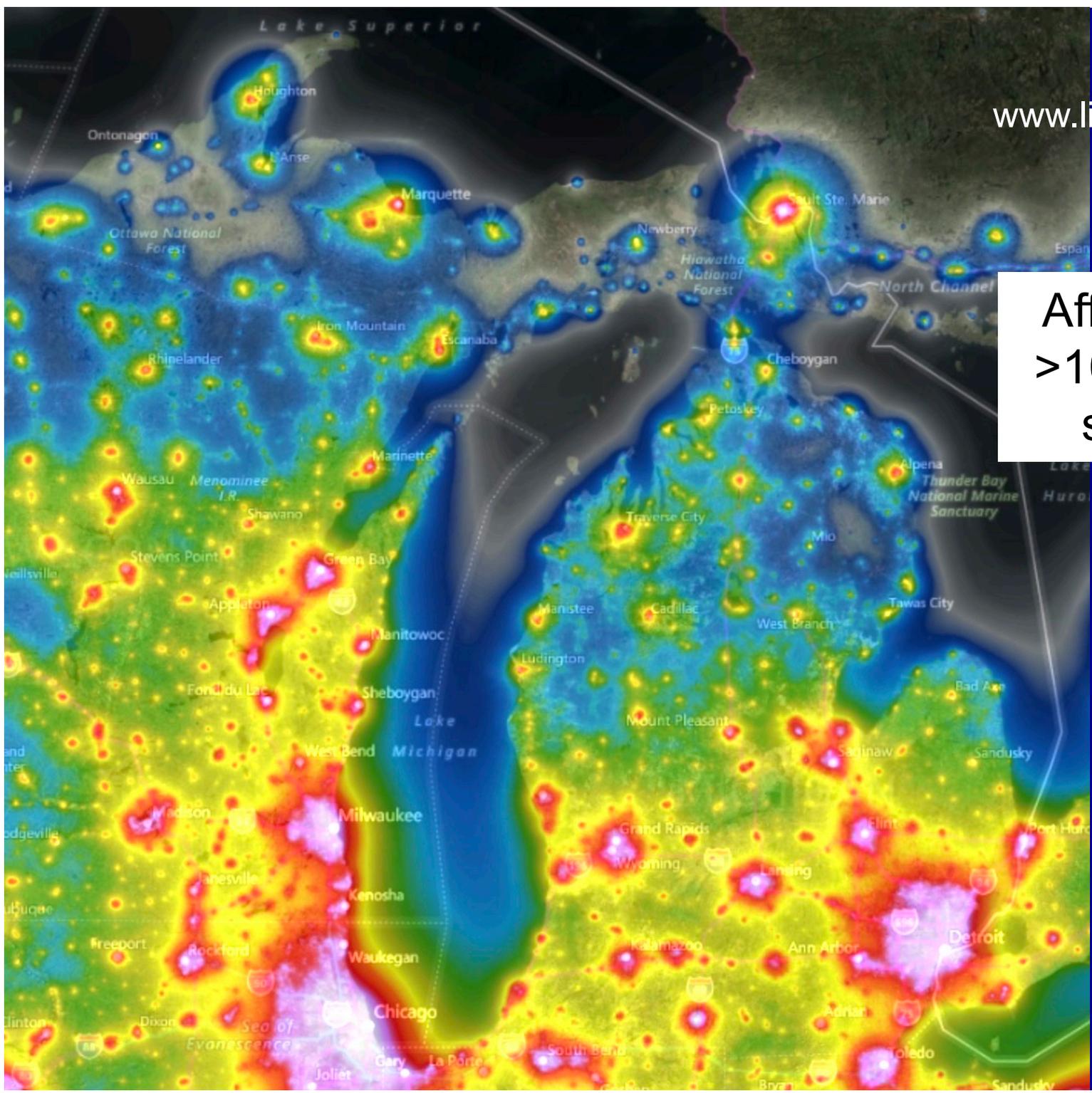
Toronto

Light Pollution is increasing exponentially!



www.lightpollutionmap.info
2015 data

Affected area is
>10x larger than
source area



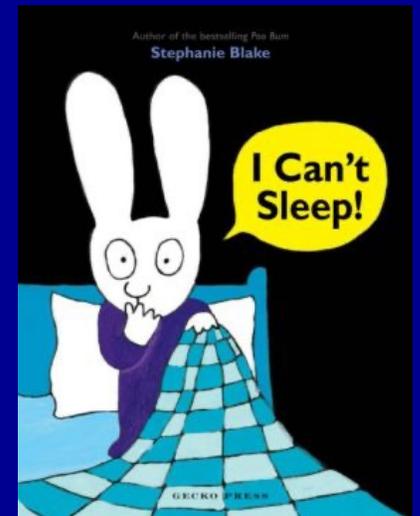
An Environmental Issue

- **Artificial light at night (ALAN)** interferes with wildlife migration, mating, feeding, and sleep.
- Animals and plants live by 24-hr cycle – disrupted by artificial lights.



The Nobel Prize in Physiology or Medicine 2017
Jeffrey C. Hall, Michael Rosbash, Michael W. Young

“for their discoveries of molecular mechanisms controlling the circadian rhythm”



Yspi: 1 building, 1 day



H. Trudell

- Birds migrate at night
- Building collisions are #2 cause of bird death
- Up to a billion birds killed annually

FLAP Canada's Annual Bird Display / flap.org
Royal Ontario Museum, 2016

These 2100 birds, recovered by FLAP volunteers, died in window collisions.

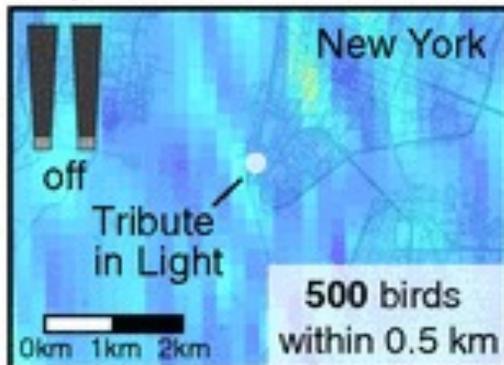


F L A P

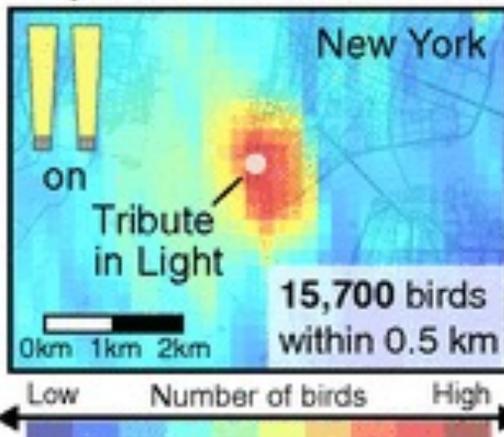
Birds

NYC 9/11 Tribute Lights

B Sept 12, 2015 02:12



C Sept 12, 2015 02:32



- Thousands of birds “trapped”
- Need to turn off for 20-min intervals

Van Doren et al. 2017, PNAS

Birds



General Motors Corp.

- Safe Passage Great Lakes, Detroit Audubon Society
- Washtenaw Safe Passage
- Fatal Light Awareness Program (FLAP), Toronto
- Chicago Lights Out Program

Other Species



- Sea Turtles
- Nocturnal pollinators
- Insects
- Bats
- Fish, incl salmon
- ... and many more

3 Types of Light Pollution:



West Seattle
Bike Connections

Glare

Light Trespass



umichstories.tumblr.com

Sky glow

Blue light = Bad!

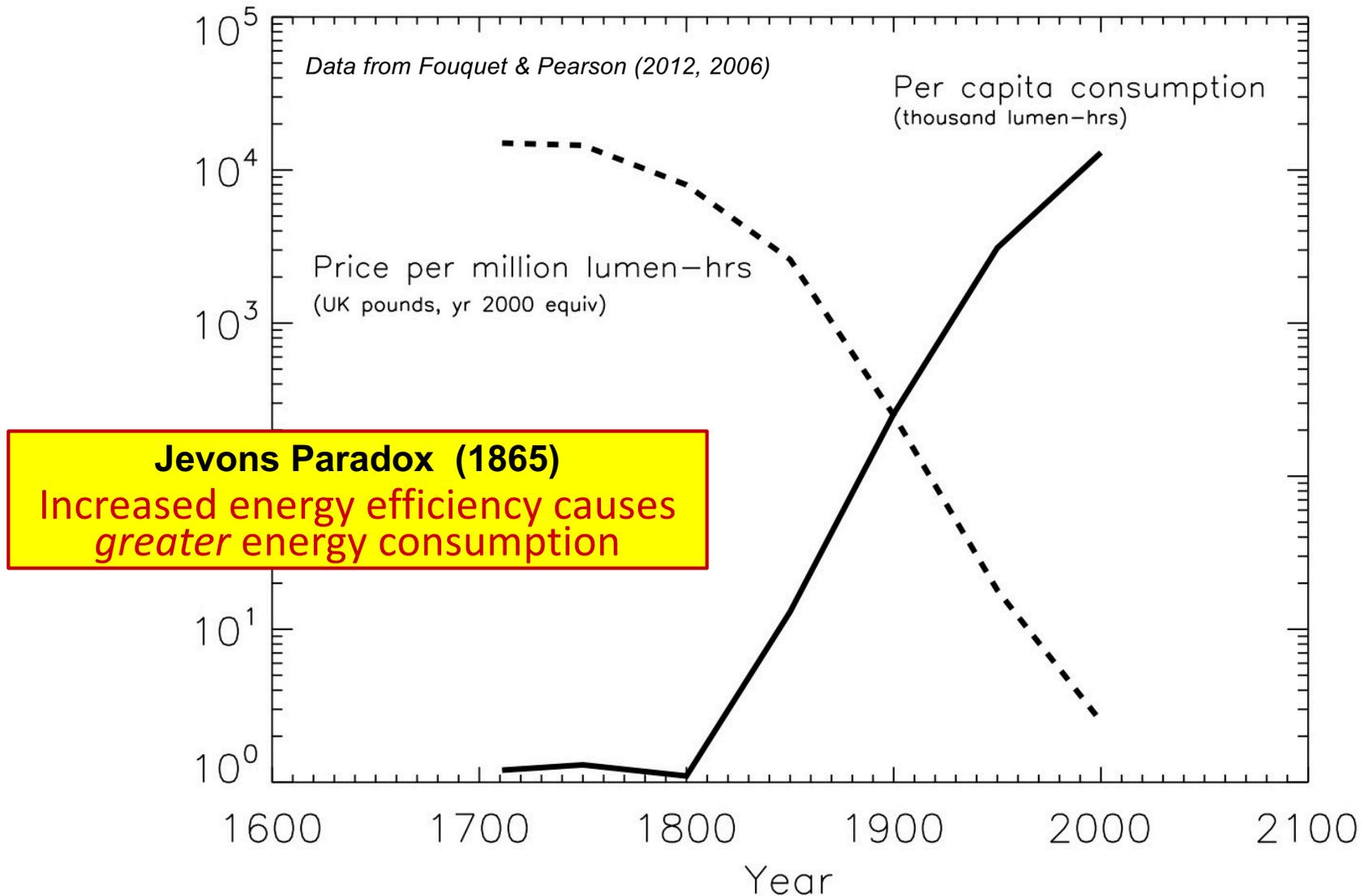
- Blue light scatters more strongly
- More disability glare, vision problems
- Blue destroys night vision **more than red**

It is estimated that white LED lamps have five times greater impact on circadian sleep rhythms than conventional street lamps.

--- **American Medical Association**, June 14, 2016

Will LEDs save energy?

Legislation imperative to realize conservation!



Easy Solutions!

Light only:

- What is needed
- No more than needed
- When needed
- No bluer than needed

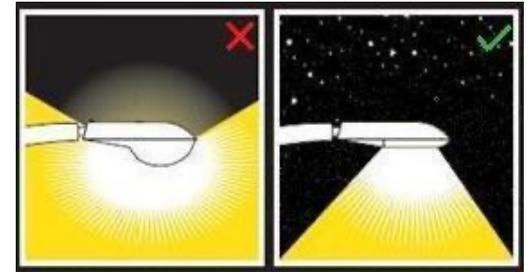


PURE *M*ICHIGAN®

Draft Ann Arbor Lighting Ordinance

A2LO Joint Working Group:
Energy Commission, Planning Commission, MIDS, IDA

1. Warm colors (CCT < 3000 K)
2. No light trespass at property line
3. Fixtures fully shielded
4. Curfew
5. Brightness limits on façade, canopy, and parking lot lighting
6. Amortization



Seeking Environmental
Commission endorsement

-- Thank you!