

Below are comments received from members of the International Dark Sky Association and comments related to light shielding:

Concerning LED street lights, I believe fixtures should be fully shielded. Which would make them even more efficient than only a calculation of lumens per watt. Shielding would protect the night sky from light pollution and direct light downward as to not produce glare. John Kruse, Brenham Texas

8/28/2008

To the DOE and EPA:

Kudos on your draft 2009 Energy Star specification calling for full shielding of LED luminaire street lights. While LEDs by themselves will save tremendous amounts of energy, full shielding will also do so, along with greatly minimizing glare and other harmful effects present in most current street lighting. This represents a major advance. Every time I drive on major highways, with their unshielded luminaires, I am saddened at the great waste of energy and source of glare. Your proposed standard, if adopted, will help to ensure a gradual evolution of U.S. highway lighting toward an environmentally- and safety-sensitive design.

Joel Weisberg

Stark Professor of Physics and Astronomy and the Natural Sciences
Carleton College

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Physics and Astronomy Department

1 N. College St.

Carleton College

Northfield, MN 55057

9/8/2008

Greetings,

It is my recommendation and hope that Energy Star proceed to include in its proven energy efficiency program requirements of public LED light fixtures to be fully shielded to effectively reduce light pollution and reduce energy waste.

Light pollution is energy waste on glaring display.

Intelligent lighting design throughout the US will conserve energy; save money; be healthier for its people, birds, animals and plant life; offer safer driving condition with less glare; be a leading example for the world and give us back our Milky Way!

It is perfect that Energy Star is the lucky star to help re-open our beautiful country's window to the stars. I believe we as a nation are becoming increasingly receptive to learning more about conservation and appreciate the benefits and value of our resources. We have proven we are ready for an official good-bye to some of our ways we have gotten used to and reached a time to re-think, re-energize and step into the future.

What was once considered beautiful, brilliant, extravagant lighting is now beginning to be recognized as it should be, a shameful screaming ignorance of wasted tax dollars and energy at a time when we need to conserve. Now what is beautiful is permission by the people to let the cosmic light-show shine for all while we appreciate, conserve and protect our natural resources for today and future generations.

The value of this highlights the important point that light pollution can migrate 200 miles from its source. Individuals/communities/businesses/public policies have both a shared responsibility and benefit to the reduction of light pollution and its energy waste.

I welcome any questions or comment. Thank you.

Sincerely,

Michael Borman
Electrical Engineer
Evansville, Indiana

8/30/2008
Greetings,

It is my recommendation that Energy Star proceed to include in its proven energy efficiency program requirements of public LED light fixtures to be fully shielded to effectively reduce light pollution and reduce energy waste. Light pollution has been demonstrated to hinder astronomical observation, cause species selective growth of trees, and cause sleep disorders of humans.

By directing light downward energy is conserved. For security applications the reduced glare actually improves the effectiveness of discouraging crime.

I rarely take a stand on environmental issues, but this is an example of no added cost to new construction with large positive impact in both energy conservation and light pollution. The reality is that light pollution is the largest ratio of man-made to natural background. Because of this it is our responsibility to understand it and minimize it, in the most cost effective manner.

To see the night skies again could be an awakening for many youths.

I appreciate your efforts and please feel free to contact me if you have any questions or comments.

Best Regards,
Arthur Reed
New Hampshire

8/28/2008

This past summer, I found myself, for the first time in my daughter's nine years of life, in a place where I hoped to show her the night sky in all its glory. Unfortunately, I hadn't planned my vacation dates around skywatching, and so I discovered that the sights I hoped to show her were difficult to see by the light of a gibbous moon.

Imagine a world where we didn't have to carefully plan vacations to see the glories of the night sky! The currently proposed criteria for the full shielding of LED street lights is a step in that direction. I strongly support government acceptance of the criteria.

Thank you,
Kate Norlander
New Brighton, MN

8/28/2008

To: EnergyStar

RE: Qualifying requirements for Government EnergyStar ratings

Requirements on how to direct the light of an EnergyStar-rated product are as important as the typical efficiency calculation of lumens per watt.

Please include how to direct light, in EnergyStar rating requirements.

Including how to direct the light will HELP PEOPLE install their lights. It will HELP PROFESSIONALS know how to design and install lighting for the public.

It will help people be ALERT AND AWARE of how light affects their safety as well as save energy.

Rubie Sanborn Johnson
510 Forsyth Lane #304, Edmonds WA 98020
Home 425-673-1874
Cell 425-478-7828

8/27/2008

Energy Star:

I strongly favor the acceptance of the criteria for the full shielding of LED street lights.

Thank you,

Debra A Scheuerman
206 542 2319 (H)
206 992 3123 (C)

8/27/2008

I would like to encourage DOE to adopt the proposed "Energy Star LED Criteria" including full shielding of LED Street Lights.

Requirements on how to direct the light are as important as the typical efficiency

calculations of Lumens per Watt.
RICHARD ZAJICEK, O.D. rickmzk@gmail.com

8/27/2008

Please take into consideration that direction of lighting is as important in energy savings as lumens/watt. I respectfully ask the commission to follow guidelines recommended by the intl. Dark sky association. Thomas Southall

Sent from my iPhone

8/27/2008

You should adopt the

ENERGY STAR Program Requirements for SSL Luminaires - Category "A" Additions

for both efficiency and light pollution reasons.

Keith Smith

8/27/2008

I'm writing to strongly support the acceptance of the criteria for the full shielding of LED street lights now being considered by Energy Star. Including the requirement for full shielding of LED street lights will save energy by putting it where it is needed while improving light pollution. Please consider lumen distribution as part of a luminaire's efficiency, not just lumens per watt which is an ineffective measure if light does not go where it is needed.

--

Kirk Carter Mona

8/27/2008

Dear Sirs,

Please adopt lighting standards meeting strict guidelines, set by the International Dark Sky Association, which address not only total lumen output, but also shielding and the direction of the light output. Having one without the other is akin to having speed limits without divided highway lanes.

Sincerely,
Grant and Ramona Miller

Grant Miller
1032 Anderson St
Warrensburg MO 64093
660/747-4289
660/441-3775

8/26/2008

The Energy Star LED criteria should be adopted. Thank you!

Bert Moritz
President
Chippewa Valley Astronomical Society

8/26/2008

We strongly request that you accept the requirements for criteria on how light is directed in each luminaire for the new LED street lighting regulation. Distribution of light lumen is equally important as lumen per watt. Why waste energy directing light where it is not needed and polluting the sky worse than it is now.

Thank you for your consideration.

Peter T Peloquin
PO Box 21
Chippewa Falls WI 54729-0021

peloquin@wolfmark.com
Member-Chippewa Valley Astronomical Society

DiscoverNet Internet Services (<http://www.discover-net.net>)
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8/26/2008

Thank you for the opportunity to comment on standards regarding solid state lighting... It appears that rapid progress is being made in this type of lighting and likely within the next decade a great deal of this type of lighting will be instituted.

My particular concern is that the direction of the lighting be adjustable, in both angle and direction, to take into account guarding of light trespass and glare. Solid state

lighting is much more amenable to simple adjustment mechanics as the light sources are smaller and cooler than a lot of other traditional lighting. It is time to incorporate more mechanical adjustability into common fixtures.

Cutoff to the horizontal is desirable but short of requirement for control of street lights into residential yards or residential lighting into streets etc. Making sharp cutoff to property boundaries more easily adjusted would be a big step toward intelligent light use.

In addition considering the often compact source of the light energy visual intensity when looking at the fixture should be considered. Even a small percentage of reflected energy or direct from the source[s] could have very high visual intensity and environmental impact; overall lumens being of less importance in this visual factor.

I am not well versed in the language required to address these issues but know from my own visual experience that they need to be addressed! There is more to proper functional lighting than luminous energy per watt and well designed fixtures can accomplish better lighting with less watts simply by appropriate shielding and dispersal of primary light sources.

Sincerely, premena [Boulder CO]

Dear Energy Star,

The proposed Category "A" Additions to the Program Requirements for Solid State (LED) Lighting Luminaires are excellent and should be adopted. Eatontown, NJ has been successfully controlling light pollution since 1993. The Ordinance not only saves energy, but also reduces glare to significantly improve visibility. The attached article "Controlling light Pollution", was published in in the Jan."08 issue of NJ MUNICIPALITIES Magazine highlights the many benefits of reducing light pollution. All Energy Star Requirements must fully address all of the adverse components of light pollution

Yours Truly,

John Batinsey
Chairman, Eatontown Light Pollution Committee
119 Sand Spring Dr.
Eatontown, NJ 07724

8/26/2008

Hello,

I am writing you in regards to the growing need for energy efficient street lighting implementation and lighting regulations locally and nationally.

With the rising cost of energy nation wide, low cost energy efficient "directed lighting" (especially the emerging L.E.D. type that has longer life), makes perfect sense in its implementation for private use, community and metropolitan street applications.

By the use of top shield light fixtures, and a lower wattage bulb, the produced light is directing downward and sideways, resulting in a more efficient, brighter illumination of the ground and surrounding area. Unshielded lighting sends the light skyward, decreasing the intensity of the illumination of the ground and surrounding area, thus resulting in waste of the energy used. Implementing low energy lighting produces a sound method of effective illumination and a considerable energy costs savings since lower wattage is needed to produce the same illumination that undirected, unshielded light fixtures produce.

The savings rises dramatically often paying for the directed lighting fixtures in a matter of months.

As an amateur astronomer, and a member of the Astronomical League, I have been hosting night observing sessions of the night sky and actively promoting the education of the public as to the need of energy efficient lighting and the protection of the night sky as a valuable natural endangered resource.

Many participants voice a concern about light pollution encroaching on the night sky, not only for the aesthetics of its natural beauty, but also the preserving of the natural nocturnal environment for wild life in the rural areas, as well.

The year of 2009 will be observed globally as the International Year of Astronomy via a global public outreach program.

The ever growing need of the development and implementation of a uniform energy efficient, lower wattage directed lighting regulation and lighting fixtures use will be actively promoted as part of this coordinated public global program. The energy cost savings is and will be a prime

focus of this promotion as well as the preservation of the night skies as an endangered natural resource.

It is my desire that you use your influence to develop and implement such regulations that promote the use and awareness of energy efficient, low wattage shielded lighting and the real cost savings that result from their use.

Please help us protect and preserve the natural splendor of the night skies, and save precious energy as this country moves forward into its progressive future.

Thank you for your kind attention and needed support in these matters.

Sincerely yours,
Michael C. Dziak

8/26/2008

Dear Energy Star:

Please consider the acceptance of the criteria for the full shielding of LED streetlight. It is very important for not only defining the intensity of the light, but also its direction. Shining in any direction except down is a waste of energy and pollutes our sky.

Jim Moore

8/26/2008

I strongly support the proposed specification calling for full shielding of LED luminaires (to deliver 100% of lumens within the 0 to 90 degree zone). As an amateur astronomer, I have a strong personal interest in reducing the light pollution of the night sky. As a concerned citizen, I support the energy conservation benefits of the proposal, and the benefits to human and animal life (less glare and light trespass).

H. Richard Jacobson
Plymouth, Minnesota

8/26/2008

Dear Energy Star,
I reviewed the Proposed Category "A" Additions to the Program Requirements for Solid State Lighting Luminaires. I encourage Energy Star to adopt the document. I especially agree with, and support, the Zonal Lumen Density

Requirements that all light be below 90 degrees on most of the fixtures (except bollards) in the document. This below-90-degree requirement demonstrates efficiency, since all of the light produced by the SSL is directed down where it is useful, rather than above-horizontal where it does no use.

Yours truly,
David Nelson
54 Kempson Place
Metuchen NJ 08840

8/26/2008

Please Pass the Energy Star Legislation. It makes common sense to have this standardized Throughout the nation. Also, our starry night skies are a natural resource. We want them back.

Light Pollution is "wasted light", wasted resources, and wasted energy and wasted money. Lets fix it.

In the category of outdoor outdoor street and public lighting, the guidelines propose that the "Luminaire shall deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone (bilaterally symmetrical)", meeting the International Dark-sky Association's standards for total dark sky compliance. Energy Star's consideration of this standard for LED street lights signals official recognition of the environmentally positive characteristics of fully shielded light fixtures and helps to ensure that future public LED fixtures will be both energy efficient and night sky, star friendly.

Carolyn Edwards
5458 El Carro Lane
Carpinteria, CA 93013
805-684-2551
edwardz11@cox.net

8/26/2008

Sirs

Now is the time to set the guidelines for the emerging outdoor LED lighting industry.

The absolutely most important criterion is that such lights be full cutoff where no more than 2.5% of lumens are allowed between 80 and 90 degrees and zero lumens above 90 degrees.

Such a requirement will not produce glare nor create sky glow. It also minimizes possible light trespass.

You achieve the energy savings of LED's with the added benefit of controlling light pollution.

If LED fixtures are allowed to splay light upwards and sideways, you will perpetuate and worsen light pollution in the USA. You allow the theft of the night sky.

There are also human health concerns. Exposure to light at night lowers melatonin, a hormone that prevents certain cancers from growing. We need the darkness for melatonin production from the pineal gland.

All living things have melatonin rhythms, and light at night interferes with the bio rhythms of ecosystems by suppressing melatonin.

PLEASE, get this industry off on the right foot. Energy Star MUST lead in the effort. The industry will not.

Thank you,
Stephen M Pauley MD
Ketchum, Idaho

8/25/2008

This email pertains to Energy Star criteria for solid state outdoor lighting. I am writing to indicate my support for energy star lighting requirements calling for 100% of all light output to be directed downward. Outdoor lights should be fully shielded. I feel that all outdoor lighting should do this, and certainly any outdoor lighting worthy of energy star certification should meet these requirements.

Requiring light output to be directed 100% downward will help control glare, help reduce skyglow, and (obviously) help assure the light is not wasted by being aimed away from the area intended to be illuminated. I also support the requirement specifying only 10% of the total lumens be delivered in the 80-90% zone for the same reasons.

Thank you for your consideration,
-Dick Locke
The Woodlands, TX

8/25/2008

I have reviewed some draft criteria for LED street lighting with specific interest in conforming to Dark Sky cutoff and IES distribution. As a lighting designer of 30-some years experience I believe it is essential that fixture efficiency is at least as important as lumens/watt efficiency. Fixture efficiency is a function of how the light is controlled and distributed.

On a current military project under design, the Army has retracted its requirement for LED street lighting when presented with the differences in complete lighting packages. Although HID sources are lower output than LED in terms of lumens/watt, an HID cutoff system outperforms LED by a 2:1 margin in terms of fixture quantity.

I am a big fan of using LEDs but for exterior lighting on any scale other than landscape the industry has a long way to go. The draft criteria is a very good step in that direction.

Myron K. Hudson
Douglas Engineering Pacific, Inc.
v 541 482-3938 ext 303
f 541 482-6259

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8/25/2008

In a recent email from International Dark Skies Association, I learned that you will be establishing criteria for LED street lights. I strongly support IDA's recommendations for full cut-off luminaires and other regulations that will make the lighting as efficient as possible by directing the light where it is needed, while at the same time preserving the beauty of our night skies for our enjoyment and fulfillment as citizens of the natural world.

Sincerely,

Katherine Greene
24102 CR 4117
Frankston, TX 75763
kasgreene@flash.net

8/25/2008

I strongly support the proposal to retrofit roadway street lighting to have Dark Sky lighting fixtures. The present light fixtures allow up-lighting to the night sky as well as being wasteful of energy resources and are very costly to operate. More efficient lighting fixtures will be less costly as well as provide light directed to the areas to be illuminated. The replacement of existing fixtures with new fixtures will be initially a large capital outlay, but will

pay for themselves very quickly in lower operating costs in the future. I encourage this legislation.

Kathe Green
Assistant Planner
Carson City Planning Division
2621 Northgate Lane #62
Carson City, NV 89706
(775) 887 2188 x 1010

8/25/2008

Gentlemen,
I would like to emphasize my support for the pending requirements that you have deigned concerning LED lighting luminaire. It is imperative that we do all we can to protect the public, strive for maximum energy efficiency and preserve the night sky at the same time. It is within our technological means design and require that lighting meet IDA standards for total dark sky compliance. Thanks for your consideration,
John D Evelan

8/25/2008

To Whom It May Concern:

I strongly support the proposed guidelines for the full shielding of solid state lighting (LED) luminaire street lights.

Lighting the sky is costly in terms of energy usage. Lighting the sky is harmful to birds and nocturnal animals. Lighting the sky makes observing the stars impossible. Lighting the sky separates humans from the natural environment and deludes us into thinking that we are not a part of the natural environment. Lighting the sky has no objective factors favoring its use.

Please adopt this guidelines.

Michael Pensack
Attorney at law
Executive Director
Illinois Tenants Union
Chicago, IL

8/25/2008

Please include me as one who recognizes that distribution of light is important in any consideration of the efficiency of outdoor lighting. There is nothing efficient about a light fixture that wastes energy by sending light into the sky. Please add this to the government's list of criteria for determining luminaire efficiency.

John A. Grant, Jr.

8/25/2008

As part of the upcoming 2009 Energy Star standards for LED street lights, please include the requirement that all fixtures be "full cutoff" fixtures which direct all light down towards the ground. This makes sure that all the energy used in lighting goes towards useful illumination. The illumination pattern of the luminaire is an important part of overall energy efficiency.

Thanks!
Michael Dubs
mdubs@nc.rr.com

8/25/2008

I am writing to strongly support IDA's recommendation that the proposed standards for LED street lights contain the requirement of full cut off luminaire. Since these types of lights will likely become the wave of the future because of their energy efficiency, now is the time to do it right by incorporating design features that will eliminate light pollution when these fixtures are installed.

The world is awash in wasted light and there is no need for it. DOE's rules can do something to avoid that with this next generation of lighting products and I urge you to make the right choice - the one being advanced by the International Dark Sky Association.

Thank you for your consideration.

Robert A. Burgess, Esq.
Brunswick, Maine

8/24/2008

Greetings,

It is my recommendation and hope that Energy Star proceed to include in its proven energy efficiency program requirements of public LED light fixtures to be fully shielded to effectively reduce light pollution and reduce energy waste. Light pollution is energy waste on glaring display.

Intelligent lighting design throughout the US will conserve energy; save money; be healthier for its people, birds, animals and plant life; offer safer driving condition with less glare; be a leading example for the world and give us back our Milky Way!

It is perfect that Energy Star is the lucky star to help re-open our beautiful country's window to the stars. I believe we as a nation are becoming increasingly receptive to learning more about conservation and appreciate the benefits and value of our resources.

We have proven we are ready for an official good-bye to some of our ways we have gotten used to and reached a time to re-think, re-energize and step into the future.

What was once considered beautiful, brilliant, extravagant lighting is now beginning to be recognized as it should be, a shameful screaming ignorance of wasted tax dollars and energy at a time when we need to conserve. Now what is beautiful is permission by the people to let the cosmic light-show shine for all while we appreciate, conserve and protect our natural resources for today and future generations.

The value of this highlights the important point that light pollution can migrate 200 miles from its source.

Individuals/communities/businesses/public policies have both a shared responsibility and benefit to the reduction of light pollution and its energy waste.

I welcome any questions or comment. Thank you.

Best wishes,
Audrey Fischer
Chicago

8/24/2008

I am writing to comment on the proposed Energy Star criteria for LED street lights. I urge you to include consideration of the direction of the light as part of the efficiency in rating lights. Wasting light by shining it into our eyes or up into the sky is wasting energy, plain and simple. Fully shielded fixtures direct light only where it is needed and so will save energy by reducing the overall amount of light used.

thank you,
M Gaskill
6310 Shoal Creek West
Austin, TX 78757
512/468-0774

8/24/2008

Linda and Lance Sorrows
101 Thad Drive
Lonoke, AR 72086
501-676-2374
lrsorrows@gmail.com

Honorable Samuel W. Bodman,
Secretary U.S. Department of Energy

Honorable Stephen L. Johnson,
Administrator U.S. Environmental Protection Agency
ssl@energystar.gov

Re: ENERGY STAR Program Requirements for Solid State Lighting
Luminaries, Proposed Category "A" Additions

Dear Sir:

I highly encourage the U.S. Department of Energy (DOE), in conjunction with the Environmental Protection Agency (EPA) to accept the proposed Energy Star LED criteria which would benefit countless organizations.

As everyone knows, requirements on how to direct light are as important as the typical efficiency calculation of lumen's per watt. I, along with countless others across the nation, strongly favor the acceptance of the criteria for the full shielding of LED street lights. Energy Star is known as the most widely recognized energy efficiency program in America set to save money and reduce environmental impact through energy efficient products and practices.

Those products and practices will recover our dark sky's to benefit us as amateur astronomers and Eco friendly environmentalists alike. Due to serious light pollution in some areas there are some people that have never seen the Milky Way; the center of our galaxy in all it's wondrous glory, something each of us as human beings should be able to view in all its splendor.

Sincerely,
Linda and Lance Sorrows

8/24/2008

Honorable Samuel W. Bodman,
Secretary

U.S. Department of Energy

Honorable Stephen Johnson, Administrator

U.S. Environmental
Protection Agency

Dear Sir:

We strongly urge that the U.S. Department of Energy and the U.S.

Environmental Protection Agency adopt the proposed inclusion of specifications which call for full shielding of solid state lighting (LED) luminaire street lights in the proposed criteria for the federal efficiency program ENERGY STAR. If adopted, these requirements will have a major positive impact on the

environment while providing safe and efficient security lighting on America's streets.

As amateur astronomers we are saddened by the loss of dark skies to light pollution which decrease the visibility of the stars and Milky Way. The shielding of LED luminaire street lights called for by the proposed specifications will go far in preserving both the beauty and the science of the night time sky for ours and future generations. We are also excited by the prospect that the adoption of the full shielding specifications for LED street lights will save energy and avoid greenhouse gas emissions.

Sincerely,
James & Kathleen Fisher

8/24/2008

I fully support the proposed standards that In the category of outdoor pole/arm mounted area and roadway luminaires (outdoor street and public lighting), the guidelines propose that the "Luminaire shall deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone (bilaterally symmetrical)."

As an astronomer and more importantly as a grandmother, I support all efforts to save energy and to save for the future generations the view of the night sky.

Thank you for your efforts.

Laura A. Cotts
332 S. 200 W.
Cedar city, UT 84720

8/24/2008

dear doe:

how light is directed is just as important as energy efficiency. please keep this in mind and help us save energy and our dark skies.

john dinella

8/24/2008

Ladies and Gentlemen:

I am writing as a concerned citizen to encourage you to include strict specifications calling for the full shielding of solid state lighting (LED) street lights in the proposed criteria for the regulations established under the Federal Energy Star program. Doing so will be consistent with the basic goals of the Energy Star program - to promote the most efficient use of energy by products used in the United States.

It seems obvious, but none the less worth pointing out, that regulations regarding the most efficient use of energy by any device must include adopting criteria directing the maximum amount of energy towards the intended use - focusing it so that the device uses the smallest amount of energy to produce the desired results. This method of expressing efficiency is as important to achieving the best overall efficient use of energy as the more usual calculations involving watts consumed vs. lumens generated. Every photon that is escapes into the night sky is not helping the people on the ground see clearly, and is doing great harm to the study of the universe by scientist of many disciplines in countries around the world.

Sincerely,

Jerry Adams
Goleta, California
Member, the International Dark Sky Association

8/24/2008

I am writing about the SSL luminaires requirements posted at http://www.drintl.com/temp/ENERGY_STAR_Cat_A_Additions_final.pdf.

As a member of the International Dark Sky Association (IDA), I agree with the IDA position that requirements on how to direct the light are as important as the typical efficiency calculation of lumens per watt. I support those requirements that are intended to prevent skyglow. Please consider these comments when you finalize the requirements.

Yours sincerely, Mark

Mark A. Hanning-Lee, Ph.D.
1362 Walnut Ave. Apt. # 101
Tustin CA 92780-8218
Tel. 714-734-5879
markhl@prodigy.net

8/24/2008

I would like to express my support to new standards being considered for energy efficient street lighting that would direct light toward the ground, and not into the sky, in accordance with International Dark-Sky Association standards.

As resident of a large urban area, I believe light pollution degrades the nighttime atmosphere in cities and also wastes energy.

I'm pleased to see the DOE and EPA considering such progressive technology.

Sincerely,

David Andrew Barry
Houston, TX

8/24/2008

Hi I am a member of the International Dark Sky Association and I would like to comment on this article that I received in a recent newsletter from the IDA:

"

Proposed *Energy Star* LED Street Light Criteria Promote Dark Skies

The International Dark-Sky Association is pleased to announce the inclusion of specifications calling for the full shielding of solid state lighting (LED) luminaire street lights in the proposed criteria for the federal efficiency program **Energy Star**. If passed, the pending requirements, released August 20, 2008 by the U.S. Department of Energy (DOE), in conjunction with the Environmental Protection Agency (EPA), will have a major impact on the design and marketability of all future LED street lights. These criteria are the result of input gathered at a series of DOE sponsored workshops held in Phoenix, Arizona; Atlanta, Georgia; and most recently in Portland, Oregon in July. During his participation in the workshops, IDA Technical Advisor Pete Strasser spoke repeatedly with DOE officials to emphasize the necessity of a fully shielded luminaire design.

In the category of outdoor pole/arm mounted area and roadway luminaires (outdoor street and public lighting), the guidelines propose that the "Luminaire shall deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone (bilaterally symmetrical)." In lay terms, these specifications mean that **the requirements for how the light is directed in each luminaire meet IDA standards for total dark sky compliance**. Energy Star's consideration of this standard for LED street lights signals official recognition of the environmentally positive capabilities of fully shielded light fixtures and helps to ensure that future public LED fixtures will be both energy efficient and dark sky friendly."

Energy Star: the requirements on how to direct the light are as important as the typical efficiency calculation of lumens per watt. Will you please confirm this efficiency requirement with the DOE?

Thank you very much,
Diane Ditrick

8/24/2008

An important element of efficiency is having the light go where it is needed and nowhere else. Please make sure to include full cutoff as a criterion for energy efficiency in streetlights, LED or otherwise.

Steve Willner [swillner@nhcc.net]

8/24/2008

To Whom It May Concern,

In reference to ENERGY STAR® Program Requirements for Solid State Lighting Luminaires, Proposed Category "A" Additions:

I am always happy to see lumen distribution better addressed, especially regarding the proposed full shielding of LED street lights.

I am a citizen who once regularly benefited from the clear night sky. I remember it well from my childhood, and I miss it (as do many others).

Thanks,

H Whelchel

8/23/2008

Dear Energy Star,

Please enact the proposed criteria for full shielding of solid state lighting (LED) luminaire street lights. Most cities and also rural areas are now polluted with so much light that (1) night skies cannot be enjoyed, (2) sleep quality is poorer, and (3) cancers due to low melatonin are on the rise. The more stringent the regulations about outdoor lighting, the better for population health and connection with a natural resource that remains untainted, the beauty of the skies. With increasing light pollution, a measure of humanity is lost.

Sincerely,

Karen L. Miller

682 18th Avenue

Salt Lake City, Utah 84103

8/23/2008

Requirements on how to direct the light are as important as the typical efficiency calculation of lumens per watt. **Protect our dark skies!!!**

Paul Phillips [telescope2012@yahoo.com]

8/23/2008

Thank you for considering LED street lighting as a way to reduce energy costs. However, as a resident of the Arizona desert and an avid amateur astronomer, I strongly favor approval for the full shielding of these lights, so they are directed down where they are

needed not past ninety degrees. This not only cuts light pollution, but reduces energy waste.

Sincerely,
B. Lanier

8/23/2008

Dear Sir or Madame,

I wish to express my unequivocal support for the adoption of requirements that efficiently direct lighting as part of the Energy Star standard. As I am sure most in this business already know, the optimized energy efficiency by using less lumens for a given area is just as much a part of the efficiency equation as is simply measuring lumens/watt.

Sincerely,

Jack Blanton

Jack Blanton, Professor
Skidaway Institute of Oceanography
10 Ocean Science Circle
Savannah, GA 31411

8/23/2008

Dear Energy Star:

We are writing to express our encouragement to you to make your new requirements on how to direct light as important as the typical efficiency calculation of lumens per watt. We strongly favor the acceptance of the criteria for the full shielding of LED street lights.

Best regards,

Dr. Douglas King
The Madison Group

8/23/2008

Please take care of our night skies and pass this initiative!

It will readily help wildlife and people both directly and indirectly.

Sincerely,

Theresa Rosik-Geurts
Green Bay, WI

8/23/2008

Focusing street lights is as important as limiting their power requirements. Please support energy star.

Thank you.

Rob Lund
Homer, Alaska

8/23/2008

Dear Colleagues,

I am writing in connection to the proposed standards for LED outdoor lighting that are in a 60-day public review before they are officially adopted as 2009 Energy Star criteria. These criteria are beneficial and amount to a breakthrough for energy efficiency, so I urge you to adopt them.

These criteria are the ones posted at:

<http://www.drintl.com/temp/ENERGY STAR Cat A Additions final.pdf>

It is every bit as important to provide requirements on how to sensibly direct the light, as to only consider the typical efficiency calculation of lumens per watt.

Thank you for your efforts.

--Robert Stencel

Denver, Colorado

8/23/2008

I support the requirements for full shielding for outdoor and street lights, such that 100% of light is directed at 0-90 degrees.

Thank you

Thomas Mutton

8/23/2008

Dear EnergyStar,

I fully support and encourage you to adopt the light distribution requirements as part of your criteria for street lighting. The street lights in my neighborhood do not meet the proposed light distribution guidelines and light up our bedrooms at night, even from as far as ½ of a mile away.

In addition, the efficient distribution of all of the light will allow the fixture to fully light the intended area while using less energy, thus contributing to a greener environment. Please adopt the light distribution criteria for the sake of our local and global environment.

Greg Swisher

8/23/2008

To Whom It May Concern:

I encourage the DOE to confirm the proposed criteria that address both the efficiency and how street lights are directed. An "efficient" street light that is not directed towards the ground is a waste of energy. There is no point in lighting up the underside of airplanes flying at 30,000 feet!

I have an industrial engineering degree from Purdue University and a MBA from the University of Michigan.

Thank you for your time.

Do not hesitate to contact me if you have any questions.

David Kaufmann, C.P.A.

Highlands Ranch, CO

Home: 303.470.7852

Work: 303.796.7780

8/23/2008

Dear Energy Star:

I wish to note my support of the pending lighting requirements that state "Luminaire shall deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone (bilaterally symmetrical)."

There are a great number of excellent reasons to enact such a requirement. These have been elucidated in your recent hearings by the representatives of the International Dark Sky Association. Thus, the requirements on how to direct the light are as important as the typical efficiency calculation of lumens per watt.

Sincerely,
Barry B. Wolfe, Ph.D.
Professor of Pharmacology
Georgetown University
(Resident of the State of Maryland)

8/23/2008

I strongly favor the acceptance of the criteria for the full shielding of LED street lights. This will not only protect the environment but save energy as well. Thank you for your consideration of this very important issue.

Margaret M. Centabar
713 Pease Lane
West Islip, NY 11795

8/23/2008

Sirs:

In the upcoming legislation regarding lighting.

Please pay special attention to the direction of any new requirements for lighting. As a homeowner who has had to buy blackout curtains for my three bedrooms....at considerable cost...I hope you will address light trespass. Whether that means mounting fixtures lower, or a specific aiming technology, I leave to the experts. However, it seems unfair that I have to spend so much money to protect myself from glaring lights aimed at me like spotlights. Do you agree?

Sincerely,
Sue Wheatley, 936-582-6684

8/23/2008

Dear Sirs/Madams,

I would like to voice my support of the proposed Energy Star LED Streetlights criteria. The distribution of the light down to where it is useful to the pedestrian or car driver, should be at least as important as a lumen/watt criteria, since even efficiently produced light that does not illuminate anything but the sky is still wasted light and energy. Thank you for working with the International Dark Sky association to come up with these sky friendly criteria.

Sincerely,
James Bonser

Psalms 19:1 The heavens declare the glory of God;
the skies proclaim the work of his hands.

8/23/2008

To whom it may concern,

I support the proposed Energy Star standards for pole mounted streetlights and area lights. Lumens per watt is important, but so is the assurance that the lumens will be projected down to the ground where they will be useful. Sincerely, Steven Plotnick, plotnick@hvc.rr.com
18 Cramer Rd.
Rhinebeck, N.Y. 12572

8/23/2008

To whom it may concern:

As an amateur astronomer and a member of the International Dark Sky Association, I support the following statement that was included in a special bulletin that I received from the IDA.

"The International Dark-Sky Association is pleased to announce the inclusion of specifications calling for the full shielding of solid state lighting (LED) luminaire street lights in the proposed criteria for the federal efficiency program *Energy Star*."

The requirement of full shielding to outdoor street and public lighting that states "**a maximum of 10% of the total lumens delivered within the 80°-90° zone**" is just as important as any other aspect of the proposal.

I live approximately four miles to the North of the city of Forsyth, Georgia. Interstate Highway 75 runs directly through the town. In a four mile stretch of this highway there are approximately 200 pole mounted lights along the Northbound - Southbound lane dividers. The "skyglow" that is created by these lights nearly obscures the view of the Southern sky at night when viewed from my location. All my efforts to seek a remedy to this problem have been unsuccessful.

Not only is this an extreme annoyance to me, it is a terrible waste of energy. In addition to this, Monroe County, Ga., has an elevated level of air pollution generated by an electrical power generation facility located within the county. This facility is Georgia Power's Plant Scherer. The installation of more efficient lighting along this corridor of the highway would probably reduce the level of air pollution in addition to the level of light pollution in the area.

Although these proposals will probably only apply to "new" installations, I would like to see them applied as more of an "upgrade" encouraging the replacement of these old inefficient devices at the earliest opportunity.

Thank you for allowing me to add my thoughts on this proposal.

Sincerely,
Stephen T. Bentley
Forsyth, Ga. 31029

8/23/2008

Please take every opportunity to ensure, through the development and promulgation of standards, that all lighting of every kind intended for outdoor use be designed such that all of the direct light emitted from any fixture remains on the property on which the fixture is installed. In other words, that the element from which the light emits is not visible from any point off of the property on which it is installed.

Full-cutoff fixtures are a good start, but fixtures such as "wall-packs" and the typical two- or three-lamp "security lights" that utilize outdoor floods and that are physically impossible to be aimed straight down and that do not include shields should be banned altogether. Study after study indicate that they are counter-productive for safety and security and they are a major source of light pollution and irritation for neighbors, not to mention having the potential for being energy-inefficient. Better, more effective and efficient designs are easily possible, but it will take leadership to cause the change.

Thank you for considering my opinion and for the important work done by your agency.
Jeff Beauchamp [jeff@datalign.com]

8/23/2008

Please support the incorporation of ENERGY STAR PROGRAM standards into any and all legislation regarding outdoor street lighting and lighted advertising.

It is simple good sense. It saves money (electricity) in significant amounts and preserves a more natural environment. Do support this, not only for people who enjoy using telescopes, but also for people in general. I have friends who are in shock when they happen to see our galaxy, the Milky Way, under less light-polluted skies here near the Chesapeake Bay.

Thanks for thinking.
Claiborne, Md.

Paul S. Moorhead of

8/23/2008

To whom it may concern:

I am strongly in favor of the proposed law to shield the LED streetlights. My wife and I like to walk in the evening, and our eyes tire of being blinded by old fashioned street light glare. We live in an area of heavy light pollution and treasure the times we can see the Milky Way out in the country. Shielding the new street lights will take us toward the goal of a dark nighttime sky for us city dwellers.

David Barry

8/23/2008

Sirs,

I would urge that the new standard include the criteria on where the lighting is directed as well as the efficiency. Too many of our cities are a glow that wipes out the natural view of the night sky.

We need to reverse this trend so the next generation can actually see the stars and take and interests in the smart and judicious application of science and technology to solve our many environmental and energy challenges. I would have never pursued science as a career if I hadn't seen the wonder of the night sky!

Rowland Augustus

8/23/2008

This email is in support of the new energy requirements for outdoor lighting to conform to the International Dark Sky Association recommendations that "outdoor pole/arm mounted area and roadway luminaires (outdoor street and public lighting), shall deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone (bilaterally symmetrical)."

As an amateur astronomer the dark sky is all important, and will be a legacy we can pass on to our children.

Thank you!
Dan Muller
Madison WI

8/23/2008

I have read the proposed requirements for Energy Star Program Requirements for LED street lights. I am strongly in favor of the new standards. It makes no sense in this day and age to use electricity to generate any light that is not directed downward, where it is needed. The new standards will save money, reduce greenhouse gas emissions, provide better illumination for our streets, and provide darker skies for all to enjoy.

Gerald H. Newsom

8/23/2008

As someone who has become increasingly dismayed by the overuse of night lighting, I fully support the inclusion of specifications calling for the full shielding of solid state lighting (LED) luminaire street lights in the proposed 2009 Energy Star criteria. Please do not let these proposed specifications be dropped.

The enjoyment of the night sky is something that should be preserved for all. It is tragic that so many people living in major population areas have lost that ability. It is my hope that in time, we can eliminate many wasteful or unnecessary sources of light pollution across this country and restore dark night skies for all to see!

David Coe
Hampton Falls, NH

8/23/2008

Dear Sirs,

Requirements on how to direct light are as important as the typical efficiency calculation of lumens per watt. I strongly favor the acceptance of the criteria for the full shielding of LED street lights.

I strongly encourage the DOE to adopt the proposed Energy Star LED criteria.

Sincerely,

David Adriance
9 Galen Street
Suite 217
Watertown, MA

8/23/2008

I would like to urge the DOE to include the direction of lighting as well as the intensity of lighting when awarding energy star ratings for lights. I believe all lights used for public lighting should be fully shielded to protect the night sky and to save energy.

Thanks for considering my input. I am an avid star gazer and I love the star filled night. I would like my grandchildren to be able to see the night sky I grew up with.

William Schneider DC

PDX

8/23/2008

The Green Building Program and public works engineers of the City of Dallas, Texas are working on ways to conserve energy, one of which is to eventually change over to LED streetlights. Specifications calling for the full shielding of solid state lighting (LED) luminaire street lights *definitely* should be included in the proposed criteria for the federal efficiency program **Energy Star!**

Requirements on how to direct the light (as well as when and how much) are as important as the typical efficiency calculation of lumens per watt.

Julie Schaar, Dallas

Founder, Texas IDA, section of the International Dark-sky Association

8/30/2008

I strongly favor the acceptance of the criteria for the full shielding of LED street lights. As a long time member of the International Dark Sky Association, I have advocated full shielding of street lighting and parking lot lighting in many communities in Texas. It is now time for the federal government to get behind this program for its energy savings and protection of our night sky.

Thank you.

Albert Hausser

San Antonio, Texas

8/22/2008

Hello,

I'm writing in support of making sure that any new energy star lighting standards for outdoor lighting include regulations that help prevent light pollution by directing the light down instead of out and up.

Please help protect our night sky by making sure that new lights are dark sky friendly.

thank you,

Ken Coates

3902 Paseo Grande

Moraga, CA 94556

ken@betacygni.com

8/22/2008

I urge adoption of the full shielding of LED luminaire street lights in the criteria for the Energy Star program. Holding total lumens delivered within the 80°- 90° zone to less than 10% will greatly reduce energy wasted to upward-scattered light, and help us reclaim the night skies so many of us treasure.

Michael Moe
Irvine, California

8/22/2008

I ask you to please accept the recommendations for the new LED streetlights to have 100% of the lumens be between 0 and 90 degrees with a maximum of 10% of them between 80 and 90 degrees. LED lights can be very bright and would cause incredible glare (just as the green LED lights in traffic signals do now) if they were not limited. Personally they would also cause light trespass into the sleeping areas of my home.

Even though LEDs are very energy efficient it would be wasteful to direct them other than where they would be used. They are used on the ground not in the air.

I thank you for your consideration of my request that "the inclusion of specifications calling for the full shielding of solid state lighting (LED) luminaire street lights in the proposed criteria for the federal efficiency program Energy Star" be included in the 2009 Energy Star criteria.

Sincerely,

Margaret Holohan

8/22/2008

When considering luminaire design criteria for the EnergyStar program this should be kept in mind:

WHY SHINE LIGHT UP IN THE AIR?

Be sure to include directional as well as brightness/efficiency criteria!!!

Thanks

**John Sanford
Starhome Observatory**

22 Aug 08, 20:16 EDT

To Energy-conscious U.S. Government Officials:

It is a non-issue that the world, and particularly our America, have reached a status of nearly wild, open-loop energy consumption. We may be entering a state of irreversible crisis, where virtually any practical and reasonable measures to reduce energy use, implemented on large scale, will benefit all inhabitants of our finite Earth with its limited resources.

As an amateur astronomer, I see the exponential use of night lighting in wasteful ways not only encroaching upon access to the treasures of the heavens, but also aggravating our run-away energy requirements. I grew up on a farm before rural electrification when the truly dark night sky captured my youthful imagination. I spent my professional career with NASA; images of the night-lighted Earth as seen from spacecraft show massive increases of light world-wide, over only a few decades. It can be stated categorically that light seen from space is contributing little, if anything, to its intended purposes on Earth. This phenomenon must not only concern the minority of human beings who vocationally or avocationally view the sky, but also all souls and nations who reside on this planet.

I have been a member of the International Dark-Sky Association (IDA) for some years and fully espouse its objectives, philosophy, and activities. I think IDA goes far beyond self-interest and that their principles applied through public policy and regulation, by smart engineering, and for educated/concerned citizens, could materially modify the present irrational mode of night lighting.

Someone has to accept the challenge and begin. Why not America?

Thanks for your attention,
Wyckliffe Hoffler, MD
Titusville, FL

8/22/2008

Hello,

All outdoor light should be properly directed, to minimize energy waste and light pollution. This is especially important with LEDs, because they are so bright and directional. As LEDs become more and more the choice because of their efficiency, it is essential to ensure that Energy Star include requirements on how to direct LED light. Such requirements are as crucial as those that enter in the calculation of efficiency of lights in lumens per watt.

Please confirm the proposed standards for LED light to be adopted as
2009 Energy Star criteria.

Best regards,
Emilio E. Falco, PhD, Astronomer
F. L. Whipple Observatory
670 Mt. Hopkins Rd.
Amado, AZ 85645

8/22/2008

To Whom It May Concern,

I am sorry I missed the workshops held in Phoenix, Arizona; Atlanta, Georgia and Portland, Oregon that discussed the (development of the criteria) for the LED "luminaire" design for outdoor lighting. This design will not only be one of the most efficient outdoor lighting methods, saving additional energy over and above what the LED lighting will provide, but will also reduce, by a significant amount, the "stray light" that is otherwise produced by today's pole lighting.

As a proponent of both energy efficiency and the reduction of the environmental impact of developing technologies I see this as a big step in the right direction for future lighting systems in this country.

Larry Cole
Glen Ellyn, IL
email: unixorn42@sbcglobal.net

8/22/2008

As a member of the International Dark Skies Association, I support the efficiency requirement for Energy Star qualified street lighting to be fully shielded and to have luminaire distribution with 80% in the center.

Thank you.

Jane Mootz

8/22/2008

I want to express my support for the proposed energy efficiency criteria which would specify that LED street lights deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone.

Whenever I fly across the country at night, I wonder at the amount of light from towns and cities which is directed into the night skies and completely wasted. Over time, this regulation will significantly reduce that waste, with the added benefit of restoring dark skies to parts of the country.

Bob Woodbury

8/22/2008

I strongly favor the acceptance of the criteria for the full shielding of LED street lights.

Please confirm this breakthrough efficiency requirement.

This will ensure that future public LED fixtures will be both energy efficient and dark sky friendly.

Thank you.

Ronald W. Kohl
Farview Lane
Lakewood, NY 14750-9653
[http://home.alltel.net/ronccd/
ronccd@alltel.net](http://home.alltel.net/ronccd/ronccd@alltel.net)

8/22/2008

Requirements on how to direct the light are as important as the typical efficiency calculation of lumens per watt.

Sincerely,
Carroll Nast

8/29/2008

I support the full shielding of LED fixtures as an important part of Energy Star criteria. If all the light stays on the ground, producing less light will achieve the desired illumination.

Sincerely,

Carroll Nast

8/22/2008

I was pleased to read, in the latest International Dark-Sky Association Special Bulletin, of the Proposed Energy Star LED Street Light Criteria that will Promote Dark Skies. The current waste of electricity in lighting up the night sky, and the misguided attempts to make places safer by improper use of lighting must come to an end. It would be wonderful if my granddaughter would be able to see the Milky Way, and wonder about it, from Long Island. The magic in a Child in seeing the night sky in all its glory, as our ancestors did, will translate into more science interest, IMHO. Don't hold them back.

B_E [beig@optonline.net]

8/22/2008

Hello,

I understand that there is a Proposed Energy Star LED Street Light Criteria, to the effect that the "Luminaire shall deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone (bilaterally symmetrical)."

I am writing to support that proposal, which recognizes that the angular distribution of light from a luminaire is part of the luminaire's efficiency (it is not just about lumens per watt).

Public benefits include increased lighting efficiency, and preservation of night skies.

Thank you.

Scott Scheirman

9/13/2008

I strongly encourage the managers of the Energy Star program to adopt the International Darksky Association's request for equal weighting of luminous efficiency with directional output in precisely the form suggested by the IDA.

Thank You.

Dan Taylor

9/10/2008

To whom it may concern,

I am writing to encourage the inclusion of full shielding for LED streetlights in the Energy Star criteria.

(from the August 20 proposed criteria) "Luminaire shall deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone (bilaterally symmetrical)."

The adoption of the above criterion will not only improve the energy efficiency of the LED streetlights, but will also reduce light pollution in our dark night skies. Please confirm this efficiency requirement.

Sincerely,

John Hill

9/9/2008

This comment is with regard to the pending DOE / EPA regulations now open for public comment which will address the requirements for denoting LED streetlights as Energy Star efficient.

I support the proposals of the International Dark Sky Association to incorporate into these regulations a requirement that mandates full-cutoff luminaires that direct the light downward. The manner in which light is directed is as important as the traditional calculation of efficiency based on lumens per watt. If these regulations are adopted with the mandate for full shielding of the luminaire, government policy will be aligned on behalf of greater efficiency, life cycle savings to municipalities, and preservation of a vanishing natural resource - the enjoyment of the night sky.

Sincerely,

Eric Buehrens

9/9/2008

Accolades, accolades, accolades!! Keep the lights down, (both energy wise and sky wise) to reduce our energy consumption and save the beauty of the night skies for this and future generations.

Thank you.

9/8/2008

To: Energy Star Requirements Team

I was pleased to read, in the latest International Dark-Sky Association Bulletin, of the Proposed Energy Star LED Street Light Criteria, with full shielding, that will Promote Dark Skies. The current waste of electricity in lighting up the night sky, and the misguided attempts to make places safer by improper use of lighting must come to an end.

It would be wonderful if my granddaughter would be able to see the Milky Way, and wonder about it, from Long Island. The magic in a Child in seeing the night sky, in all its glory, as our ancestors did, will translate into more science interest, IMHO. Don't hold them back.

Best wishes,

Barry Eig

9/8/2008

The pending requirements, released August 20, 2008 by the U.S. Department of Energy (DOE), in conjunction with the Environmental Protection Agency (EPA), will have a major impact on the design and marketability of all future LED street lights. The guidelines propose that the "Luminaire shall deliver 100% of total lumens within the 0°- 90° zone, with a maximum of 10% of total lumens delivered within the 80°- 90° zone (bilaterally symmetrical)." Energy Star's consideration of this standard for LED street lights signals official recognition of the environmentally positive capabilities of fully shielded light fixtures and helps to ensure that future public LED fixtures will be both energy efficient and dark sky friendly. Requirements on how to direct the light are as important as the typical efficiency calculation of lumens per watt. It is encouraging to see that the DOE recognizes lumen distribution as part of a luminaire's efficiency, not just lumens per watt.

Henry N. Raymond

9/7/2008

Implementation of LED lighting Technology is needed to address our energy crisis in US and abroad. Household and industrial lighting, heating and cooling uses more energy than road vehicles by a factor of 3! I highly endorse the rapid conversion to LED lighting to reduce our carbon footprint and return our cities to sky friendly environments.

Paul H. Guttman, M.D.
Founder, Space Science for Schools, Inc.
930 Tahoe Blvd. #802-520
Incline Village, NV 89451
pguttman@ss4s.org

9/4/2008

Dear staff:

We have read the Energy Star proposed criteria for LED street lights and support the inclusion of lumen distribution in the guidelines, "Luminaire shall deliver 100% of total lumens within the 0-90 degree zone." It is critical that this new, very energy efficient luminaire technology for street lights be totally dark sky compliant to protect individuals and neighborhoods from nighttime light trespass into residences and commercial buildings and to protect wildlife.

Save Our Stars Committee, Women's Environmental Watch Nancy Emerson,
Chairperson
2106 Creekside Drive
Solvang CA 93463

9/3/2008

To energy-conscious and resource-conserving U.S. Government Officials:

We all agree that the world, and particularly America, has reached a status of nearly wild, open-loop energy consumption. We may be entering a state of irreversible crisis, unless all practical and reasonable measures to reduce energy use are implemented on large scale. This phenomenon of energy wasting concerns all souls and nations who reside on this planet.

Moreover, as an amateur astronomer, I see the exponential use of night lighting in wasteful ways not only aggravating our run-away energy requirements, but also encroaching upon access to the treasures of the heavens. The disappearance of the night sky from almost every corner of the U.S. has had a huge impact on amateur and professional astronomers alike. The loss has affected everyday Americans who wish they knew more about the night sky, but can't really see much so the treasure is lost to them. It is too late for many of our children; the shame is, they have been born with light pollution so they won't even know what they're missing.

My family has owned a lakeside cabin in the Monadnock region of southwest New Hampshire since 1938. For 80 years(!) my grandparents, parents, and my generation were able to enjoy the truly dark night sky at our wonderful rural vacation spot. The sight of the Milky Way and watching meteors every summer captured my youthful imagination and inspired me to obtain my master's degree in astronomy. In 2006 I was hired at my dream job as as managing editor of Sky & Telescope magazine, only to be laid off 8 months later because of declining magazine sales and interest in astronomy (that franchise will be lucky to survive the recent dessimation of its staff). Alas, now the growing glare from streetlights near our vacation home (not to mention our suburban home in MA) means that my 12-year-old son really can't experience what I did as a child just 30 years ago.

This loss of one of our greatest unsung natural resources has affected me to a devastating degree, from the loss of my dream job for a company that suffered financially from it, and from the heartbreak of what's happened to the sky over our vacation home--I honestly feel many times that light pollution has ruined my life. If that sounds dramatic, so be it. It's absolutely a tragedy. We all have our loves, and the night sky WAS one of mine. We can't control population growth. But we can set in place guidelines for utility companies, public policies, and federal

and state regulations, that limit the shameful waste of light and energy.

I have been a member of the International Dark-Sky Association (IDA) for some years and fully espouse its objectives, philosophy, and activities. I think IDA goes far beyond self-interest and that their principles, if applied through public policy and regulation via smart engineering and the advocacy of educated/concerned citizens, could materially modify the present irrational mode of night lighting.

Someone has to accept the challenge and begin. Why not America? We have an opportunity in front of us with the advent of solid-state lighting illumination. Please, please give your support to the IDA's call for the full shielding of LED fixtures as an important part of Energy Star criteria for solid-state lighting illumination.

Thanks for your attention,

Valerie Celeste Coffey
Boxborough, MA
Technology editor and citizen

9/3/2008

Dear Sirs, I am writing to ask that you please follow the International Dark Sky Association specifications in determining the criteria for street lights in the Energy Star program. I wish to see the stars again from my suburban home as I did as a child. Thank you, Ann-Douglas Tycer, 1004 Gracelawn Ct., Brentwood, TN 37027.

9/3/2008

I support full shielding lighting,
Joanne Hailey
johailey@ecity.net

9/3/2008

I support the full shielding of LED fixtures as an important part of Energy Star criteria. Please help protect our dark skies, encourage energy savings and reduce oil imports. It's a total winner! Please get the message out to local governments as the decisions they make now will affect the next decade.

Thank you,

Michal Hathaway
2217 Miami Trail
West Lafayette, IN

To whom it may concern at Energystar,
Proposed requirements of the federal energy saving program (Energy Star) calling for solid state lighting (LED) public light fixtures to direct all illumination to 90 degrees or below, meeting the IDA definition of full shielding, is a very important step forward. I want the US DOE to know that I support the full shielding of LED fixtures as an important part of Energy Star criteria and that it will improve protection of the night sky, protect animals that are active in the night, AND reduce energy demands.

Thank you
Dale Scott
Bellevue, WA
Dscott6853@msn.com

9/2/2008

I want to let you know that I support the new proposal that public light fixtures shield light by directing it 90 degrees or below. This is a HUGE step forward because it:

- 1) increases lighting efficiency and saves energy by directing light where it is most needed
- 2) reduces light pollution's interference allowing more people to enjoy the night sky (including amateur and professional astronomers)
- 3) reduces interference with migratory, and other nocturnal animals.

Craig Scull
Secretary
San Jose Astronomy Association

9/2/2008

Thank you for the leadership you've demonstrated again!

Dear Department of Energy,

I'm so proud of you and the recent recommendation to direct all new public LED Lighting downward. LED lighting is by nature directional. This is a great combination of a technology being capable of making a profound change for the better and an astute and timely recommendation to harness that technology as implemented for efficiency.

The reduced glare that results from these downward directed photons will help older citizens like me to be better able to drive at night. Since there is an increasing amount of us boomers that will benefit directly, I applaud your contribution to our society as a whole.

It's also a darn shame that light leaking upward has caused essentially all university research observatories (MIT in Westford is closest to me) in urban and suburban settings to scale back, shutter, and offshore their astronomy research programs over the past 30 years due to increasingly brighter and energy wasteful night lighting of our homes, businesses and public settings. Having recently returned from my son's home in Western Massachusetts where the skies were filled with stars and I could see the Milky Way belt, it would be truly wonderful to be able to see this kind of beauty from my more urban Eastern Massachusetts home.

With your direction, perhaps the future generation can! Thank you sincerely for the leadership you've shown in this policy direction.

George Paquin, CFP

2 Pendleton Road

Chelmsford, MA 01824

9/2/2008

As a member of the International Dark Sky Association, I would like to express my support for legislation requiring the full shielding of LED fixtures as an important part of Energy Star criteria. I am engineer at

Lexmark International in Lexington Kentucky, and encourage you to take the necessary action to put these regulation in place as a means of improving energy efficiency and the usefulness of lighting systems.

Thank You

Byron V Bell
859-232-4538
859-232-2177 (fax)

9/2/2008

Greetings,

It is my recommendation and hope that Energy Star proceed to include in its proven energy efficiency program requirements of public LED light fixtures to be fully shielded to effectively reduce light pollution and reduce energy waste. Light pollution is energy waste on glaring display.

Intelligent lighting design throughout the US will conserve energy; save money; be healthier for its people, birds, animals and plant life; offer safer driving condition with less glare; be a leading example for the world and give us back our Milky Way.

I applaud DOE's proposal that incorporates this provision into its Energy Star requirements. Please be sure to keep this low-cost, sensible provision when the proposal is accepted.

Thank you,

Alex Keally
Boston, MA

9/2/2008

Re: Street Lights

I strongly support the acceptance of the criteria for the full shielding of LED street lights.

Jean Knecht

9/2/2008

Dear Sir or Madam,

I encourage you to include strict specifications calling for the full shielding of solid state lighting (LED) street lights in the proposed criteria for the regulations established under the Federal Energy Star program. Doing so will be consistent with the basic goals of the Energy Star program to promote the most efficient use of energy by products used in the United States.

Glare and inefficient lighting are energy wasters with impact on health and the environment. I applaud your efforts in this regard.

Sincerely,
John Gallagher
Lyme, NH

9/2/2008

Dear Madam or Sir:

Let's keep the light from exterior lighting fixtures where it belongs: lighting the objects belonging to the owner of the light fixture...not the things belonging to others and not the sky which is there for all of us to enjoy.

Larry Shaper
Thetford, VT

9/2/2008

I understand that proposed changes to the energy star certification program for LED street lights would require that the fixtures be full cutoff.

I think that in light of the continuing spread of light pollution... and the incredible waste of money and resources that this causes... that it is imperative that this requirement be added.

LED street lights need to be full cutoff.

Anthony Arrigo

9/1/2008

I absolutely support the full shielding of LED fixtures 100%
Sue Schultheis

9/1/2008

This citizen applauds the Department of Energy's stipulations for full-shielded outdoor lighting in the new Energy Star standard. This will not only improve energy efficiency, but decrease light pollution, decrease light trespass, and improve security across the country. I am a strong advocate of this standard and encourage the wholesale adoption of this standard.

Regards,

Paul Kavitz

9/1/2008

To: Department of Energy

Subject: Comments on Proposed Program Requirements for Solid State Lighting Luminaries

I would like to express my support for this proposed program especially the portion that addresses the issue of limiting the direction of the lumination to the 0-90° zone. Non-directed (unshielded) fixtures that have been in use since the late 1940s waste much of their light and thus energy by allowing light above 90° where it rarely provides any useful function.

//
Ed Stewart, Website: www.skymtn.com, Email: stargazer@skymtn.com

September 1, 2008

From: Dark Skies, Inc.
PO Box 634
Westcliffe, CO 81252

To: Department of Energy

Subject: Comments on Proposed Program Requirements for Solid State Lighting Luminaires

On behalf of the approximately 150 contributors to Dark Skies, Inc. of Custer County and the Wet Mountain Valley (Colorado) I would like to express support for the proposed Energy Star LED Street Light Criteria. Besides supporting the energy savings criteria in the proposed program, we specifically strongly favor the section that states "Luminaire shall deliver 100% of total lumens within the 0-90 degree zone, with a maximum of 10% of total lumens delivered within the 80-90 degree zone (bilaterally symmetrical)."

Besides saving energy this proposal recognizes the environmentally positive aspects of fully shielded light fixtures and will help ensure that future public LED fixtures will be both energy efficient and dark sky friendly.

Support for this proposal was approved unanimously by the Dark Skies, Inc. Board of Directors at our meeting on August 26, 2008.

/s/ Steven R. Linderer
Chairperson, Dark Skies, Inc.

9/1/2008

please support use of proper night sky protection with the use of full cutoff sheilding for light fixtues. I support the energy star program for the fixing of our night skies

Rick Thompson

9/1/2008

It is encouraging to see that the DOE recognizes lumen distribution as part of a luminaire's efficiency, not just lumens per watt.

In addition to efficiency and energy savings, the aesthetic considerations of properly directed light are not only enormous, they are literally astronomical!

Preservation of darkness in the night sky is beneficial to numerous species of birds, insects and other animals.

Preventing the glare caused by unshielded lights into the eyes of those they are supposed to be helping would be a great benefit.

Say YES to lighting up roadways and pathways. Say NO to making the night sky a murky, washed out, uninspiring imitation of the day.

Save us from ignorant earth wreckers! Make shielded lighting the law.

Thank you
Helen Curtis

9/1/2008

Gentlemen,

I support the full-cutoff shielding of LED outdoor fixtures as an important part of Energy Star criteria.

However, to protect seniors, especially drivers, there should also be veiling glare criteria added to the specifications to prevent glare disability among older citizens.

This should be a metric added that determines the output Lumens per Sq. mm. Most LED's require a microlens disperser to minimize glare.

Paul A. Valleli
Optical Engineer, retired.

9/1/2008

I support the full shielding of LED fixtures as an important part of Energy Star criteria.

Thank you,
C. Darden

9/1/2008

To the US DOE,

I support the full shielding of LED fixtures as an important part of Energy Star criteria.

Mike Schroeder
100 N Primrose Point
Sedona, AZ 8633

8/31/2008

To Whom It May Concern,

I want you to know that I fully support the specifications calling for full shielding of LED luminaire street lights

in the proposed criteria for the federal program Energy Star. This will not only allow for the saving of energy by the use of lower wattage light bulbs, it will help preserve or restore the night sky for star gazers and nocturnal wildlife, and will increase security by reducing or preventing glare.

Thank you for your consideration of this proposal.

Sincerely,
Laura Graham, Virginia Section Leader, International Darksky Association

8/31/2008

The regulation on full shielding for LED lighting is in the best interests of keeping our night sky visible. Please accept my support on this issue.

Jenifer Goetz 16801

8/31/2008

I fully support and strongly urge the full shielding of LED fixtures as part of the Energy Star program. This program needs to be continually strengthened and updated to take full advantage of new research and products. I struggle every night with the light pollution from a building near me and would appreciate some help in my requests for more sensitive and effective night lighting. Thank you. Mary Blum Rusk blumrusk@aol.com

I am writing to encourage you to adopt the draft proposal for full shielding of solid state lighting luminaire street lights.

With the recent announced concerns about the decrease in lightning bugs around the world due to light pollution, there is no better time to make the move to encourage change in the way we light our streets and cities. It is about time our government authorities realize they must lead the way to protect the world that we all live in.

One of those means is to reduce light pollution, and this draft proposal would help in that effort.

Eileen Faust
bertef@hotmail.com
401 N. Charlotte St.
Pottstown, PA 19464

8/31/2008

I am in great favor of the evolving LED standards which, I understand, require downward facing fixtures and will result in no sideways or upward light loss. Light pollution is a serious problem, in my view, and anything which will reduce it has my support.

Thanks for reading.
HARRY WYETH

8/31/2008

I am very supportive of the proposed regulations under the Federal Energy Star program for full shielding of LED public night lighting of all kinds.. The blight of urban light pollution has robbed us of one of our greatest natural resources--the beauty of a truly dark night sky!

This is not just an issue advocated by stargazers. Deliterious effects on wildlife of many kinds has been demonstrated due to the increasing brightness of the night, and medical studies have also indicated that continual exposure to light affects healthy sleep patterns in humans as well. There is also the issue of light trespass from adjoining properties with glaring lights, and the safety issues this kind of lighting presents to motorists.

In short, this is a win-win situation for everyone. reducing nighttime glare and lighting will save energy, provide safer and more aesthetically lit properties, and return the magnificent vistas of dark, starry nights to us, our children and grandchildren. Please do all that is possible to promote and require full shielding of all public LED light fixtures for the benefit of all of us ASAP!!

Thank you!!
John Buting
Ridgway, CO 81432

8/30/2008

To whom it may concern,
The thought that it could become a law to make sure street lights only directed light 90 degrees and lower would change my life considerably. Light shines into my living room window from a street lamp a story below me. At other locations, when I am a building at night, trying to look outside I am usually greeted with blinding light in my eyes. I am so excited about this law I can't tell you. I will think about every day until I hear it is passed.
And do I need to tell you about the energy saved? I assume not. That information is becoming more and more widespread; good news to anyone interested in conservation.
Thank you thank you thank you for considering this momentous passage.

Sincerely,
Janna Wachter
Seattle Washington

8/30/2008

To Agency Representatives:

Bad outdoor lighting has become such an issue that I became involved several years ago with Dark Sky. Having become disabled from medical issues and subsequently financially devastated, the bright lights at night in my community became more than an astronomy issue. I had already given up my 25 year hobby of amateur astronomy when I had to sell my new home and move to this supposed country-like community. The problem is certain builders install the cheapest outdoor fixture they can, and for some reason people think they are bound to utilize such, without regard to the detriment such bright light causes to the health of humans as well as plants and animals. To add insult to injury, the power company offers residential streetlights for a nominal monthly fee, but for some strange reason, the same lights are used on major highways! Nearly 2 years ago I was granted a 5 minute presentation to our county commissioners as a concerned citizen about all the wasted light NASA observes during spaceflights-billions of dollars worth, as well as the harm caused to living beings, and was virtually laughed off the podium. I was told by an official, "a homeowner has the right to install any light on his property as he sees fit." (but a taxpaying homeowner has no reprieve from the harm of such) These officials could not comprehend how bright light at night could disrupt one's sleep to the point of being unable to work. One neighbor told me to just buy room darkening shades-

"but it is also about having privacy on my own property without my whole patio lit up by your light," I replied. I have been insulted, as I have spent hundreds of dollars to cover my windows to no avail-regardless of what I have done, some of these lights are angled so high they emanate around the hardware for shades/curtains or the rounded frame of the window and light bounces off my ceilings, and in some areas reflect off of household fixtures and my home becomes lit up inside with darkening shades, to the point I could read large print. People don't remember what they learned in basic biology about the rods and cones of the eye-that as the night wears on and one's eyes have acclimatized to the dark, that any light at all is bright by 4-5 in the AM. My health is failing, and with the bright light/cancer connection (the body cannot repair itself without total darkness), I will file a lawsuit against governing agencies if I someday develop cancer.

In recent years I have discovered I am not the only one suffering, and that there are others out there with the wisdom and intellect to perceive the whole picture of the detriment to the environment. I implore you to implement change, even one small step at a time.

Winnie McDavid
Ocala, Florida 34472
(352) 680-0123 or cell#
(352) 362-1266

8/30/2008

I am writing to express my support for full shielding of public light fixtures. Our health and the health of our ecosystems rely on natural darkness, and we should all have the joy of seeing the stars and planets.

Thank you for your efforts in energy conservation as well as protecting and restoring our night skies.

Sincerely,
Tamara Williams
211 San Carlos Avenue
El Cerrito, CA 94530

8/30/2008

To whom it may concern:

As a voter and concerned citizen I fully support the installation and full shielding of LED fixtures as an important part of Energy Star criteria to reduce our foreign energy needs and help preserve the natural night sky for all to enjoy.

David Maness
354 South Berkshire Cove
Cordova, TN 38018

8/30/2008

Dear Sir/Madam;

A brief email to voice my support for the federal energy saving program "Energy Star" for solid state lighting (LED) public light fixtures to direct all illumination to 90 degrees or below.

Thank you;
Mark Abernathy

8/30/2008

Regarding the proposed ENERGY STAR Program Requirements for Solid State Lighting Luminaires, the inclusion of the "full cutoff" or "full shielding" requirement is very important. As our nation's streetlights are replaced over time, this requirement could mean the difference between starry skies, and our current state of affairs: washed-out, starless skies over our cities and suburbs. Sky glow is a certainly a disaster of aesthetics and wasted energy, but increasingly, it appears that it is a disaster for certain wildlife too. Communities want to make the right decisions regarding street lighting, and they will look to the Energy Star endorsement for guidance. It is important that this endorsement reflect the serious negative impact of light thrown into the sky.

Tim Largy
49 Jay Street
Cambridge, MA 02139

8/30/2008

I support full cutoff shields for all lighting as well as not overlighting for the conservation of energy as well as preservation of our natural environment.

Thank you.
Ron Brown
34 West Lake Dr.
Kokomo, IN 46901

rebrown01@aol.com
(765) 883-5742

8/30/2008

Dear Energy Star Program Administrators:

I am writing as a concerned citizen to encourage you to include strict specifications calling for the full shielding of solid state lighting (LED) street lights in the proposed criteria for the regulations established under the Federal Energy Star program. Doing so will be consistent with the basic goals of the Energy Star program – to promote the most efficient use of energy by products used in the United States.

It seems obvious, but none the less worth pointing out, that regulations regarding the most efficient use of energy by any device must include adopting criteria directing the maximum amount of energy towards the intended use – focusing it so that the device uses the smallest amount of energy to produce the desired results. This method of expressing efficiency is as important to achieving the best overall efficient use of energy as the more usual calculations involving watts consumed vs. lumens generated.

Every photon that is escapes into the night sky is not helping the people on the ground see clearly, and is doing a great disservice to the study of the universe, by backyard students, backyard astronomers and scientists of many disciplines, in countries around the world.

Sincerely,
Amal Chaudhuri
Orient, NY

8/30/2008

I salute you on your tentative decision to require that LED streetlights direct all lumens below the horizontal and that limits also be placed on lumens emitted in the "glare zone" of 80 to 90 degrees.

Light directed above the horizontal contributes nothing to a streetlight's job of illuminating the roadway below; it is simply wasted energy. Light in the "glare zone" undermines the streetlight's purpose by making it more difficult to see the road ahead.

I urge you to make these tentative requirements a permanent part of the Energy Star program.

Gail Clyma
New York

8/30/2008

As an amateur astronomer and a victim of illuminated night skies, I strongly favor full cut off outdoor light fixtures that keep the clouds and skies dark.

I strongly support the proposed 90 degree energy star light fixture standard.

**W. Banks Anderson, Jr.
Durham, NC**

8/30/2008

To the Energy Start Program:

It is my hope that you will maintain the proposed requirement to require FULL SHIELDING on SolidState Lighting (LED). The downward directing of light both saves energy, reduces glare, and protects the night sky.

Excessive lighting is light pollution, not only of the night sky, but even of adjacent property.

The Energy Star program is a excellent way to raise public awareness of the harm of excessive lighting: besides wasted energy, it creates glare, sharp shadows (not a safety attribute), and pollutes the night sky.

Thank you for this great advance for the public good.

James Fillmore
760 N. Thornton St.
Post Falls, Idaho 83854

8/30/2008

Please set the standard so that all highway lighting is directed below the horizontal. Highway lighting is supposed to light the highway; anything else is waste. By the same token, lights on highway signs are supposed to light the signs, not the sky. Shining directly into the sky or reflecting up to the sky achieves the same things--destruction of the night sky and waste of electrical power.

Thank you,

David Campbell

=====
David P. Campbell, Ph.D.
4840 Gentry Lane
Carson City, NV 89701

Home: 775.883.8458
Fax: 810.277.2759
Cell: 775.225.4252

8/30/2008

I would like to encourage the acceptance of the proposed LED lighting and full shielding. These regulations appear to solve at least two important problems: energy savings and saving of the view of the night sky. In my opinion, having the ability to see the universe beyond Earth is one of the fundamental human rights along with clean air and clean water. As a professor of astronomy at the University of Kansas for 36 years, I have seen students turned on to science because they were able to see the stars in the dark skies of western Kansas. The three astronauts who came from Kansas were excited by the skies they grew up with and the rest is history. No one is not awed when a clear sky is viewed at night, and when they look through a small telescope at a planet, double star, gas cloud, star cluster or galaxy, they are transported mentally and intellectually to a new place. Future generations will, because of this proposed ordinance, be able to see much more than they otherwise would. More students will be turned-on to science, which is crucially important to our future in the global economy. Thus, please pass the ordinance as proposed.

Sincerely,

Stephen J. Shawl
Professor, Physics and Astronomy
University of Kansas
Lawrence, KS 66045

8/29/2008

I endorse efforts to insure full shielding as part of Energy Star to specifically address the problem of light pollution.

Donald Schluter
14320 Sequoia Road
Canyon Country, CA 91387-6201

8/29/2008

I am writing to express my support for full shielding of LED fixtures as a requirement of the Energy Star program. This will not only promote energy savings by directing light downward where it is needed, it will also eliminate safety concerns from glare.

John Weber
Park Forest IL

8/29/2008

I support requiring solid state public outdoor lighting fixtures to direct all illumination at 90 degrees or below. By directing light down where it's needed instead of up where it's not needed:

- useful lighting is enhanced
- energy is saved
- there's a net cost savings
- skyglow (light pollution) that obscures the night sky is reduced

Thank you!

Stu Goldstein, MD

8/29/2008

We know Energy Star is doing it's job in trying to conserve energy through the use of appliances, but is there anything more Energy Star can do to raise consciousness about the ridiculous amount of light we shine into the night? It has become hard to see the stars if you live within 25 miles of a city. People have street light mania and for some reason feel the need to light up skyscrapers throughout the night. Safety above the 2nd floor and definition for airline traffic are not valid excuses.

Thank you,
Meg and Brooks Robbins
Hingham, MA 02043

8/29/2008

I'm thrilled at the prospect of requiring full shielding of LED fixtures for public lights.

I lead an elementary school astronomy gathering at the neighborhood public school and the skies have been deteriorating over the last seven years I've been running the sessions. Not only will full shielding help save money and energy, it will improve our skies, which are an inspiration for all.

Thank you,
Allen Feinstein
Arlington, MA

8/29/2008

I wanted to voice my support the "full shielding" of LED fixtures as an important part of Energy Star criteria. I think that this will help keep the light on the ground where it belongs and will decrease the amount of lighting needed in virtually all lighting situations.

Thank You for your time and consideration,
Anthony G. Sanchez
Golden, Colorado, USA

8/29/2008

Hello,
Just wanted to say I support the inclusion of shielding in the energystar recommendations. Light going into the sky doesn't help anyone. Thanks for your consideration.

Nessie Van Loan
San Francisco

8/29/2008

Ladies and Gentlemen:

I am writing as a concerned citizen to encourage you to include strict specifications calling for the full shielding of solid state lighting (LED) street lights in the proposed criteria for the regulations established under the Federal Energy Star program.

Jerry Chern, Buffalo Grove, Illinois

8/29/2008

Greetings,

It is my recommendation and hope that Energy Star proceed to include in its proven energy efficiency program requirements of public LED light fixtures to be fully shielded to effectively reduce light pollution and reduce energy waste. Light pollution is energy waste on glaring display.

Intelligent lighting design throughout the US will conserve energy; save money; be healthier for its people, birds, animals and plant life; offer safer driving condition with less glare; be a leading example for the world and give us back our Milky Way!

It is perfect that Energy Star is the lucky star to help re-open our beautiful country's window to the stars. I believe we as a nation are becoming increasingly receptive to learning more about conservation and appreciate the benefits and value of our resources. We have proven we are ready for an official good-bye to some of our ways we have gotten used to and reached a time to re-think, re-energize and step into the future.

What was once considered beautiful, brilliant, extravagant lighting is now beginning to be recognized as it should be, a shameful screaming ignorance of wasted tax dollars and energy at a time when we need to conserve. Now what is beautiful is permission by the people to let the cosmic light-show shine for all while we appreciate, conserve and protect our natural resources for today and future generations.

The value of this highlights the important point that light pollution can migrate 200 miles from its source. Individuals/communities/businesses/public policies have both a shared responsibility and benefit to the reduction of light pollution and its energy waste.

Thank you.

Leonard J. Marek

3910 Pine Forest Drive

Parma, OH 44134

Member, the International Dark Sky Association

8/29/2008

Dear Sir or Madam,

In formulating Energy Star standards for Outdoor LED lighting, it is imperative to take into account how the fixture distributes lumens to the ground, and not just focus on the amount of lumens created per watt. What should be obvious, but often is not, is that any light that is not directed to the ground represents wasted energy. Energy = light, and light = energy. Furthermore, light that is not directed toward the ground can be counterproductive in helping people see at night, because of the glare that is created. People are then prone to deal with the increased glare by adding more light in a never ending vicious cycle of light and energy waste.

This quote from the first roadway manual ever written, by the Holophane Glass Company in 1918, summarizes the issue better than I could: "It is very important to see to it that the street lighting system produces an effect which surrounds the eyes of those using the streets with conditions under which the eye is free to perform its functions properly. **Any system which fails in the respect is extravagant - no matter how efficient the lamps**, nor how efficiently the light may be directed upon the street surfaces or objects. Glare serves to seriously reduce the discerning power of the eye". (emphasis mine)

It is a historical tragedy that as lighting sources became ever more efficient over the past half century, much of the potential energy savings resulting from those efficiencies were lost because lighting engineers forgot the wisdom of their early teachers. It is well past time to reclaim that wisdom. Thank you for your efforts.

Sincerely,
Keith J. Krueger
11181 E. Peralta Canyon Dr.
Gold Canyon, AZ 85218

8/29/2008

I support the full shielding of LED fixtures as a most important part of Energy Star criteria. This directs the light and energy down where it is needed, and mitigates annoying glare, light trespass and light pollution.

Bernard Arghiere
853 New Haw Creek Road | Asheville, NC 28805-1120
Home phone: 828-505-1666 | Cell phone: 828-231-6714
E-mail: BArghiere@charter.net

8/29/2008

I support the full shielding of public outdoor LED fixtures to fulfill Energy Star criteria.

Please do all you can to enact this important step to protect our views of the dark and starry skies at night.

Thank you.

Adrienne Mayor
415 Harrison St
Bozeman MT 59715

8/29/2008

Ladies and Gentlemen:

I am writing as a concerned citizen to encourage you to include strict specifications calling for the full shielding of solid state lighting (LED) street lights in the proposed criteria for the regulations established under the Federal Energy Star program. Doing so will be consistent with the basic goals of the Energy Star program – to promote the most efficient use of energy by products used in the United States.

It seems obvious, but none the less worth pointing out, that regulations regarding the most efficient use of energy by any device must include adopting criteria directing the maximum amount of energy towards the intended use – focusing it so that the device uses the smallest amount of energy to produce the desired results. This method of expressing efficiency is as important to achieving the best overall efficient use of energy as the more usual calculations involving watts consumed vs. lumens generated. Every photon that is escapes into the night sky is not helping the people on the ground see clearly, and is doing great harm to the study of the universe by scientist of many disciplines in countries around the world.

Sincerely,

Mark Vozar
Bedford, Texas

8/29/2008

Greetings,

I wish to voice my support for adding the full shielding of LED outdoor light fixtures to the Energy Star standard. I strongly believe that protection of our night time sky against light pollution is an important part of overall environmental stewardship.

Thank you,
Alex Free

8/29/2008

I fully support the use of downward-directed light fixtures in all public places. The proposed rule for LED fixtures should also be applied to other forms of outdoor lighting. Spilling of light up into the sky wastes energy and pollutes our skies.

Bert Katzung
65 Knoll Rd
San Rafael, CA 94901
415-456-5812

Ladies and Gentlemen:

I strongly support the provision for full shielding of LED fixtures as an important part of Energy Star criteria.

--

Rick Kang (in Eugene) rkang@efn.org
Pine Mountain Observatory Outreach
<http://oregonsky.org>
August 29, 2008

8/29/2008

Last week, the proposed requirements of the federal energy saving program Energy Star called for solid state lighting (LED) public light fixtures to direct all illumination to 90 degrees or below, meeting the IDA definition of full shielding.

This is a huge step forward for protection of the night.

I strongly urge the US DOE to support the full shielding of LED fixtures [as well as all outside lighting fixtures] as an important part of Energy Star criteria.

Thomaas A. D'Angelo

8/29/2008

I am most encouraged by the DOE proposal for the Energy Star program to require lighting be restricted to 90 degrees and lower. This will go far to reduce energy waste and other negative consequences of poor lighting design.

Thank you,
Dennis

Dennis Hoofnagle
201 Bayside Place
Bellingham, WA 98225
astrohoof@comcast.net
360-676-9530
360-820-4863 Cell

8/29/2008

To whom it may concern,

I am writing to support the full shielding of LED light fixtures as part of the Energy Star criteria. This will promote safe and efficient lighting, while minimizing hazardous glare. As a bonus, it will help keep the stars visible for our enjoyment!

Sincerely,
Miriam I. Krauss, Ph.D.