



Northern Virginia Astronomy Club

www.novac.com

A Note About the Darkness of Our Local, Night Sky

NOVAC members at star-gazing events like this one are frequently asked about the impact of urban and suburban lighting on the ability to see objects in the night sky.

The short answer is that widespread use of bad outdoor lighting has an extreme impact on the night sky widely known as "light pollution." This is also a waste of energy that is costly to taxpayers and consumers.

Measuring the Impact

Under truly dark conditions the night sky can present the unaided eye with a genuinely spectacular display of several thousands stars as well as planets, visiting comets, the occasional Northern Lights and even a few brighter galaxies and nebulae. In Washington, DC, however, sky glow and direct glare can render over 99 percent of the naked-eye

stars invisible. Even our own galaxy - the Milky Way - becomes an unknown sight. Visible items can be limited to only the Moon and any of the five closest planets that may be above the horizon, along with a couple dozen stars.

One must travel for an hour or more from the Washington beltway to find adequate conditions for viewing galaxies, nebulae and star clusters through a telescope. NOVAC occasionally hosts events in Fauquier (Crockett Park), Loudoun (Franklin Park) and southern Fairfax (Mason Neck Park) counties, so the public can enjoy the heavens. However, even at these locations, 70 to 90 percent of the naked-eye stars remain beyond visibility, and other deep-sky objects lose their brilliance. As the sky approaches more natural conditions, the number of stars visible through telescopes increases dramatically, far into the millions, and deep-sky objects can be seen in greater detail. Some NOVAC members, therefore, will travel four to six hours to some of the last truly dark-sky sites in the eastern United States - in isolated sections of West Virginia and Pennsylvania - to observe under conditions that were once available in their backyards. Meanwhile, much of the general population never realizes that the natural treasure of a star-studded sky exists right above their heads, beyond the glow.

A Problem for More Than Astronomy

Light pollution affects more than the astronomical hobbyist or professionals engaging in scientific discovery. It affects all of us in some way:

- Hazardous glare shining directly in a driver's eye can interfere with the very road safety that highway lighting is intended to provide.
- Glare from security lighting similarly can compromise the ability to see intruders and unsafe situations.
- Boaters in Virginia consider excessive lighting as a safety challenge for navigation along public waterways.
- Neighborhood lights trespassing through bedroom windows are a nuisance and may affect the sleep and health of family members.
- Bright lights from tall buildings and towers can disorient migrating birds and cause them to crash into the structures.
- Artificially lit beach-front property threatens nesting sea turtles. Artificial light disturbs many other forms of wildlife.
- Camping in Virginia's Blue Ridge or beyond becomes less a wilderness experience when artificial light abounds.

NOVAC hopes you enjoyed your visit to this star-gazing event. Whether your experience sparks a passion for astronomy as a hobby or career, or simply brings you some peace and relaxation under the stars after a hectic day, our club also hopes that you will give consideration to the negative effects of excessive and inappropriate outdoor lighting and the ways to deal with this problem. For more information, visit the International Dark-Sky Association (IDA) at 'www.darksky.org' and the Virginia Outdoor Lighting Taskforce (VOLT) at 'www.volt.org'.

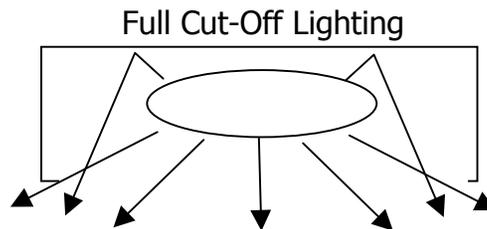


Thanks you for your time.

The Cost of Wasted Light

The harmful lighting mentioned above is also a waste of precious energy resources, because the light is shining beyond its intended coverage. According to research based on satellite imaging, the metropolitan Washington area uses over 40 million kilowatt hours of energy per year in wasted light! Across the nation, 30 percent of outdoor lighting is directed skyward and wastes about \$2 billion annually.

Fortunately, several lighting manufacturers now sell fixtures with recessed lamps that direct light to where it is needed and desired and block it from where it is not. This "full cut-off" approach provides better illumination and visibility with the same or less energy cost. Fixtures like these are available for public and private use. Greater public awareness and concern, however, are crucial to their actual installation.



What Can You Do?

To start, it helps tremendously simply to be aware of the problem. Be attentive when approaching gas stations, convenience stores or fast-food restaurants that appear so brightly lit from a distance to see if they actually help or hinder your ability to see well at night and hence your ability to drive safely. Notice the effect of various highway, security and billboard lighting on your night vision as you pass by. After a short period of time, startling differences between efficient, quality lighting and exposed, over-powering lighting will become evident. Talk about it with others and make them aware as well.

Beyond that, the answer to what you can do naturally depends on you and how active you want to become. When installing or replacing lighting fixtures around your home, select ones that put light only where needed and come on only when needed. Encourage neighbors to do the same. You can support the use of quality lighting by private businesses and contact elected representatives asking them to address the issue.