In addition to the physical health hazards from the LED lights, street lights and car headlights present additional hazards.

The brightness of the new car headlights needs to be regulated (tail lights too). More than this, an idea was considered in the 1960s that needs to be resurrected.

I recommend the legislature in this or another bill direct and authorize the Department of Transportation to perform a study of requiring that all car headlights and street lights be plane polarized parallel to the road surface, and that all replacement and new car windshields, rear windows, and side view mirrors be vertically plane polarized.

Light reflected off road surfaces is plain polarized horizontally. Requiring lights and windshields be polarized in this way will dramatically reduce the amount of light from on coming and following cars that reaches drivers.

Making this change will substantially increase the safety of night time driving.

On a separate issue, the Department of Environmental Quality should also be directed to study the impacts of LED lighting on plants, insects, animals and particularly birds - in coordination with the Oregon Department of Energy in developing new safe standards for lighting.

Sincerely
Dirk Dunning
dirkdunning@sprintmail.com

> On Feb 11, 2020, at 3:18 PM, Dirk Dunning <dirkdunning@sprintmail.com> wrote:
>
> I am writing to comment on and make recommendations about SB 1530.
>
> I strongly support SB 1530 and immediate actions to dramatically reduce fossil fuel emissions to fight climate change.
>
> As we do that we must as the bill proposes work to protect all Oregonians. There is one aspect of protecting Oregonians that has been completely missed though.
>
> The Bill requires greater energy efficiency in lighting as regards fluorescent lighting. And though that seems an easy thing and a laudable action, it has serious problems that need additional action including changes in the language in the bill.
>
> LED lighting is overwhelmingly based on light emitting diodes that emit an intense blue light at about 452 nanometers wavelength. Much of this light is converted to orange light by being absorbed and re-emitted as orange light by phosphors. The human eye and brain interpret this blue-orange light as being sort of white. No other animal or plant sees light the way we do. And that creates enormous problems for many plants and insects.
>
> More importantly. the intense blue light does two very terrible things. The first and most important is that it bleaches the retina. Most people can tolerate about three hours of exposure to LED light in a day before the bleaching overwhelms the bodies ability to repair the damage. The lights are designed with a safety basis of exposure of 10,000 seconds (2 hours and 47 minutes) per day. This does not count the added blue light exposure and injury from electronic devices.

>
> Almost no one (myself being one exception) limits themselves to less than 3 hours exposure a day. As a consequence, very nearly everyone is being injured by exposure to the lights. Infants, children, people with certain eye diseases or immune disorders, and anyone over 55 years of age are at greatly increased risk. Many of these should NEVER be exposed to LED lights at all.
>
> You likely already know this yourselves by how much you and we all have come to hate the new car headlights. They hurt! They hurt for precisely this same reason. They are damaging our eyes. At night and in the dark,