Light Pollution: A Personal Case

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Light pollution prevention

Direct the light where it ought to go and prevent it from going where it shouldn't go.

Late last year, a crew turned up here in my street, to replace a corroded street lighting column and replace the old mercury vapour light with an 'energy efficient' LED street fixture, which may well be of lower wattage but is vastly more brilliant with a much wider light spillage than its predecessor was.

As a lighting design engineer, I knew this new installation did not represent a well designed site-specific lighting solution to illuminate public property. It failed to minimise light trespass intrusion beyond the public boundary and it introduced eye-level direct glare which was previously minimised.

The sideways light spillage increased dramatically. When stepping outside our front door we were immediately faced with a blinding glare from a lamp – at eye-level!

My neighbour complained that the back walls of her front bedrooms were being brightly floodlit!

The offending street light.
Note: (i) the visible LED array light source with no control of sideways and even upwards throw of light from the clear dispersion visor; and (ii) the failed first attempt by Endeavour Energy at screening my property with a paint spray can.

I brought it to the attention of Campbelltown Council that, for aesthetic and personal safety reasons, we objected to the intense permanent glare. It would be unreasonable to expect Council to rearrange the street lighting to facilitate my astronomy activities and I had already taken other measures to alleviate glare on my optical equipment by building a portable glare protection shield.

So my complaint related to:

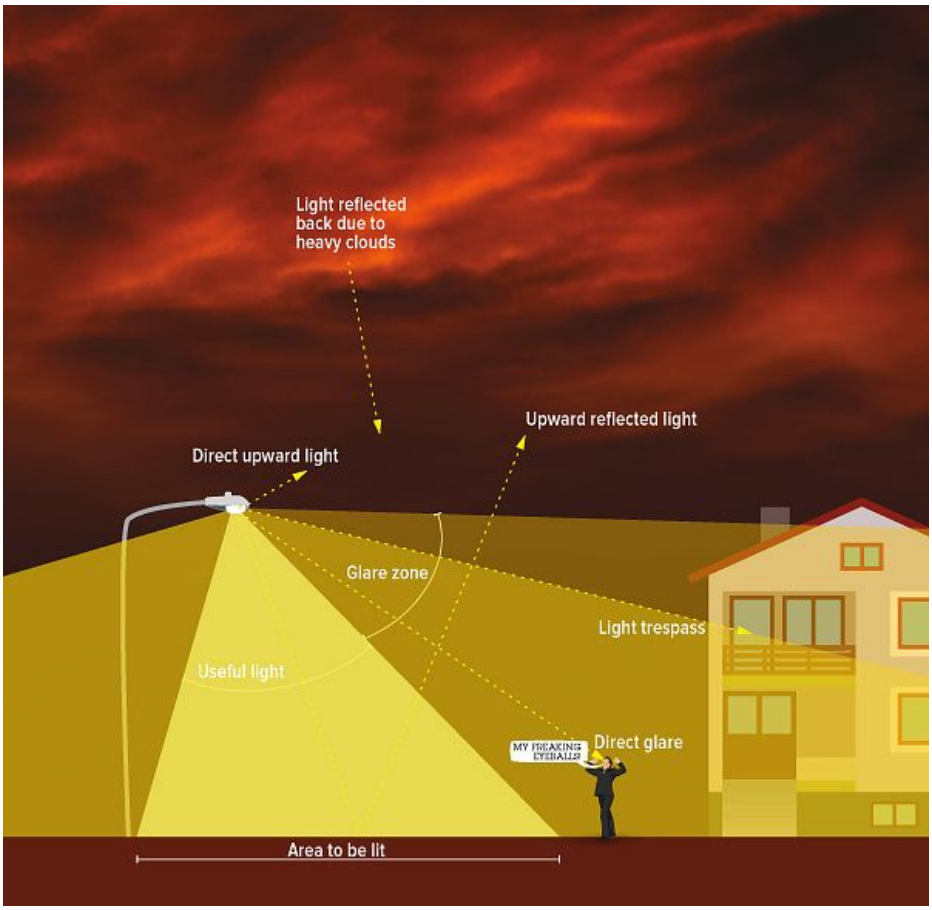
1. excessive light trespass onto my property,
2. Australian Standards were ignored,
3. excessive direct glare from the lighting source,
4. good lighting practice was not followed,
5. the design was not site specific but simply one size fits all.

I made sure that all the arguments in my messages were polite, unemotional, accurate, truthful and well founded.

Later, another crew arrived and sprayed a small amount of dark paint on part of the outside surface of the street light visor. It marginally improved my neighbour's situation but had very little effect on the dazzling glare eye level glare when we stepped out of our front door.

I made two more requests for provision of an adequate glare shield around the street lighting fixture; or some other permanent, effective and acceptable remedial action which would direct the light where it ought to go and prevent it from going where it shouldn't go.

I also asked if I could discuss it with the electrical design engineer responsible for these matters.



My freaking eyeballs……..

The end result was that, after nearly a year, the Endeavour Energy crew came to install a glare reduction collar which reduced the glare considerably, without eliminating it. Whilst still not totally satisfactory, I regarded this as an improvement and decided to let the matter rest.

However, subsequently I spoke with a senior street lighting engineer at Endeavour Energy. He informed me of the legislative requirement to eliminate mercury vapour lighting by 2024. He said that he deals with a lot of complaints about bright lighting (why was I not surprised?) but I found it really weird that he blamed this on the colour temperature of the lamp instead of the dazzle of direct glare.

I tried to discuss glare control and Australian Standards with him but this argument was falling on deaf ears. He incorrectly believed that compliance with codes other than the Australian Street Lighting Standard was not necessary and that the glare issue was a result of the emitted light colour.

As an electrical design engineer, I know that residential street lighting design should carefully direct the light downwards; never be directly spilled towards residences; and always comply with all relevant Australian Standards, not just the Street Lighting Standard.

This experience reinforced my belief that local councils and street lighting installers are insufficiently trained with regard to light pollution, light spillage, glare - and don't know about other Australian Standards which are relevant to the task.

Instead of using one size fits all and spraying light in all directions, local councils and energy supply authorities should be investigating the energy cost savings of well-designed street lighting, where light from all fixtures is directed downwards from well designed fixtures with deep sides, glare control collars and prismatic visors.

Also under consideration should be control devices which dim the lights when they are not needed – but tht's another story.

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Almost my entire working life was spent as an electrical design engineer - first in the UK and then in Australia – designing, specifying and supervising the installation of electrical systems in and around large complex buildings, which would often includ external floodlighting and roadway lighting.