

b. CONSIDERATION OF BILL NO. 2021-2. ADOPTION OF ORDINANCE NO. 2021-____. (Ma Webber, Councilor Lindell and Councilor Rivera)

An Ordinance Approving Global Management Performance Contract with Dalkia Energy Solutions, LLC, Subject to City Council Approval of a Separate Financing Transaction to Finance the Cost of the Global Management Performance Contract. (Brad Fluetsch, City of Santa Fe Cash and Investment Manager, bjfluetsch@santafenm.gov, 955-6885)

COMMITTEE REVIEW:

Public Works and Utilities Committee: 01/25/21

Governing Body (Request to Publish): 01/27/21

Finance Committee: 02/15/21

Governing Body (Public Hearing): 02/24/21

Name: John Urbanowski

Comment - 02/23/2021 11:56 AM: (No Vote)

Santa Fe is a very special place. It is for this reason that the City Council should delay the vote on the LED retrofit until all the facts are available and all the stake holders have been heard.

The facts. The lighting technology of today is much more complex than in times past. The American Medical Association has weighed in on the color temperature of street lighting regarding warmer (reddish 2000-3000 degrees Kelvin) or cooler systems (blueish 4000- 6000 degrees Kelvin). Why? These light colors effect the melatonin cycle of animals (including humans). The bluer colors suppress melatonin and thus suppress sleep and healthy sleep patterns.

Dimmer, warmer colors enhance the sleep cycle. It is known that poor sleep is a contributing factor to poor health. At least one major city had to replace many street lights as citizens became aware of this issue.

Other physiological effects need to be evaluated. The LED lights are in most cases very concentrated sources of light. The brightness of these lights in a small source area produces glare that can border on the disabling (i.e. obscuring vision) or at least discomfort. A sophisticated, on site, physical mock up is the common way to evaluate this problem; that is a trial installation with multiple fixtures installed. Calling a light "full cutoff" does not guarantee a solution to this problem. Actually the term "full cutoff" has been banished from the technical classification and much more sophisticated evaluations are now in use by lighting professionals, such as the BUG rating (Backlight, Up light, Glare). These technical evaluations are endorsed by the Illuminating Engineering Society (IESNA) and the International Dark Skies Association (IDA).

The ordinary driver on our streets requires safe lighting. The codes for each type of road as prescribed by ANSI must be met unless the city is willing to accept the potential liability of a serious accident in a non-compliant lighting system. These determinations and calculations require the well informed design by a professional, independent licensed engineer. Independence is key in this circumstance and not merely the suggestions of the contractor selling the equipment.

Name: Galen Gisler

Comment - 02/23/2021 07:29 PM: (Against)

Honorable Mayor and Councillors:

While I applaud the desire of the City of Santa Fe to move forward with new LED luminaires appropriately shielded, the proposal by Dalkia Energy Solutions is seriously flawed and must be rejected as it stands. Dalkia Energy Solutions intends to replace the luminaires now in use by LEDs with correlated color temperatures of 3000 K for most streets and 4000 K for some main thoroughfares. These high color temperatures run counter to the advice of the American Medical Association, as detrimental to the health of humans and wildlife. The International Dark-Sky Association also advises against color temperatures as high as these, as prejudicial to the enjoyment of the glorious night skies that we in New Mexico have been privileged to enjoy. Valles Caldera National Preserve has recently been certified as an International Dark Sky Park, joining Chaco Canyon NHP, Capulin Volcano NM, and Fort Union NM in our vicinity. Cities in our region that are sensitive to the protection of the night sky, like Tucson, Flagstaff, and Moab, have forbidden the installation of street lights with color temperatures greater than 2700 K. Before Santa Fe undertakes a significant relamping project, I would encourage you to visit those cities, speak with their governing bodies, and learn how they have accomplished safety goals without sacrificing the night.

I live in Los Alamos, and am part of a group that is encouraging Los Alamos County to adopt a new lighting ordinance similar to those of dark-sky-sensitive communities like the cities just mentioned. If we succeed, we will push to be recognized as a Dark-Sky Community ourselves. With Santa Fe adopting a similarly modern lighting ordinance, we could form a Dark-Sky Corridor across our part of Northern New Mexico, stretching from Chaco Canyon to Capulin Volcano.

But please don't set a bad example for Los Alamos and other communities in our region. Reject the idea of relamping with 3000 K and 4000 K color temperature luminaires. There are alternatives on the market with color temperatures of 2200 K to 2700 K. At proper illuminance levels, determined at install time by lumen outputs and spacing, these promote safety. The RP-8-18 standards of the Illumination Engineering Society show how this can be done.

Respectfully,

Galen Gisler
4730 Sandia Drive
Los Alamos NM 87544
galengisler@mac.com

Name: George Jones

Comment - 02/24/2021 09:19 AM: (For)

This comment concerns a proposed amendment by Councilor Garcia regarding the changes to be made to city street lighting.

I would like to reference a "My View" article in Tuesday's Santa Fe New Mexican written by Galen Gisler. Like Mr. Gisler I have been an amateur astronomer since my childhood. In 1997 my wife and I bought a house on the east side that we live in today and I have noticed over the years a definite degradation of the beauty of the night skies from our house. Mr. Gisler cites a recommendation from the International Dark-Sky Association for street lighting with color temperature of 2700K or less and another recommendation from the American Medical Association for 3000K or less outdoor installations including roadways.

I therefore support Councilor Garcia's amendment to the bill under consideration.

George Jones

Name: Sam Finn

Comment - 02/24/2021 10:10 AM: (Against)

Dear Mr. Mayor and Councilors:

While recognizing the important benefits associated with LED lighting, I urge you to delay acting on this proposal in its present form.

- * The 3000 – 4000 K color temperature of the proposed lighting has been noted to have serious health effects, leading to a (rare) warning and recommendation from the AMA that outdoor street and roadway lighting be held to lower than 3000 K as an upper limit.
- * Highway safety experts have long noted that high CCT lighting increases roadway glare, and that low (2200 - 2700 K) lighting is preferred for its superior penetrating ability through dust and other particulates.
- * The color temperature of the proposed lighting is also documented, by the US Naval Observatory, the National Optical Astronomical Observatory, and the American Astronomical Society, to seriously degrade the night sky environment for everything from casual stargazing to amateur astronomy.
- * A number of cities that installed higher CCT lighting have been compelled, by resident complaints, to retrofit lower temperature alternatives at a not inconsiderable expense.

No case has been made for choosing the high CCT lighting in this proposal relative to lower temperature (2200 – 2700 K) lighting. Several representations made to you to justify this proposal – such as non-existent NMDOT "requirements", or denial of effects on the night sky environment – have been shown to be false. The lower temperature LED lighting alternatives are no more expensive than the higher temperature lights in the current proposal, no less available, no less reliable, and avoid all the public health and safety, and night sky environment issue that the higher CCT lighting causes.

I urge you to delay this decision until you have in hand solid and verified facts on the lower temperature lighting alternatives and can make an informed judgement.

Thank you for your time and your efforts to get this decision right.

Sincerely,

Sam Finn
29 Quedo Rd.

Name: Peter Lipscomb

Comment - 02/24/2021 10:45 AM: (Against)

I am excited the city wants to replace our current, outdated roadway lighting. We all want to save money and be energy efficient. However, the current lighting implementation plan threatens to overshoot the best practices recommended for this kind of project.

The city has a great opportunity to demonstrate responsible leadership with respect to the street lighting retrofit. Rather than follow the pack and do what has been done in other cities, Santa Fe should practice due diligence and get more fully informed about potentially expensive consequences when poor choices are made for projects of this nature.

Correlated color temperatures at 3000K and 4000K will produce a higher level of blue light output than lower Kelvin ratings. The diagram released by the city spokesperson is misleading as it only addresses Kelvin scale. If Kelvin is the skin, correlated color temperature is the guts.

Others and I have looked for any document that states NMDOT requires 4000K for roadway lighting. So far, we haven't been able to confirm this is the case.

Much of the current plan seems based upon vendor-driven specs and cites an obscure industry trade magazine from Western Australia to justify 4000K.

I request the city postpone approval for contracts with Dalkia, allow time for a comprehensive review of the plan, and seek recommendations from an independent source. Consider hiring a PE who specializes in roadway lighting for urban settings, form an advisory group like the tourism recovery group, and provide opportunities for city staff and elected officials to learn about sensible lighting practices.

Let's take the time to get this right.

Respectfully,

Peter Lipscomb

Name: Albert Shultz

Comment - 02/24/2021 11:26 AM: (Against)

Do NOT approve the ordinance for the Dalkia GMPC.

The intent of replacing City streetlights with high-efficiency LED "smart" lights is very good. The problem is the specified correlated color temperature (CCT) of 4000K. This type of light has a blue-white color and will aggravate night sky light pollution even when shielding is employed. It likely also will be harmful to wildlife and human health. There are alternative LED types that can avoid this problem, and still conserve money and energy.

Some have alleged that NMDOT requires highway LEDs to be 4000K. I have asked for an explanation of this and have not received one. The only apparent source is on p. 898 of the 2019 NMDOT Standard Specifications for Highway and Bridge Construction. However, this pertains to new road construction, so it may not apply here. A 2020 update to the NMDOT Design Manual has no restrictions on CCT. In any case, the use of 4000K LEDs is clearly not a dark-sky-friendly choice, as indicated by the International Dark Sky Association (IDA). Some municipalities have replaced 4000K lights after receiving complaints about the harshness. Some are using 2700K or even 2200K, which are closer in color to the original high-pressure sodium lights that Santa Fe is looking to replace, but as LEDs yield cost and energy savings.

I hope the Governing Body will take this opportunity to pause the streetlight replacement, to allow DPW to examine the options available for lower-CCT LED fixtures. I'm sure many citizens and experts are willing to help if given the chance. It is important for Santa Fe to make a good choice. This is a chance to lead by example in protecting our environment.

Name: Ollie Eisman

Comment - 02/24/2021 11:44 AM: (Against)

I urge the City to either secure a guarantee that all new LED lighting adheres to a color temperature of 2700K or cancel this project. The American Medical Association (AMA) has issued a statement that warns of negative health impacts when using lights with color temperatures over 3000K.

*A white LED at CT 4,000 K contains a high level (over 30%) of short wavelength, blue light. These overly blue harsh lights are damaging to the environment and have adverse human health effects. In some locations where they were installed, such as the city of Davis, California, residents demanded a complete replacement of these high CT street lights for lower CCT lighting. **Cities that have followed the AMA recommendations and adopted 3,000 K or 2,700 K have seen much greater acceptance of LED lighting, and with much lower blue content which is better for human and environmental health, and reduces glare and is thus safer for driving.***

The AMA has made three recommendations in its policy statement: First, the AMA supports a "proper conversion to community based Light Emitting Diode (LED) lighting, which reduces energy consumption and decreases the use of fossil fuels." Second, the AMA "encourage[s] minimizing and controlling blue-rich environmental lighting by using the lowest emission of blue light possible to reduce glare." Third, the AMA "encourage[s] the use of 3,000 K or lower lighting for outdoor installations such as roadways. All LED lighting should be properly shielded to minimize glare and detrimental human and environmental effects, and consideration should be given to utilize the ability of LED lighting to be dimmed for off-peak time periods."

Source: <https://ui.adsabs.harvard.edu/abs/2018JAVSO..46..193M/abstract>

Thank you,
Ollie Eisman
3600 Cerrillos Rd. #1006A
Santa Fe, NM 87507

Name: Stefanie Beninato

Comment - 02/24/2021 11:53 AM: (No Vote)

NEEDS MORE STUDY BEFORE VOTE

NEW LIGHTS GENERALLY

I am opposed to more remote monitoring with increased EMF emissions. And where does the tech live? In Dallas or some other remote location when the city needs an immediate response? Third party contracts do not seem like they have worked well in the past and only gives the administration another scapegoat when something goes wrong.

I think the Council should postpone decisions until it adequately thinks through public comment about not only the amount of light coming from the street lights but the color on the color spectrum of the street lights so that it will have minimal impact on the dark skies many of us want to enjoy. I have at least 4 street lights that affect the light in my home—some are over 200 ft from me on the next block or at near the commercial area again about a block or more away. I would like to have darkness in my own home.

Name: Rixon Reed

Comment - 02/24/2021 12:56 PM: (Against)

Please vote against the change over of the street light system to LEDs. As an astronomer, I value the night sky as an extraordinary natural resource. The LED lights in this plan are too blue and too bright. Even though the fixtures that house these lights point down (which is a great improvement), the lights are still so bright that they will increase the light pollution we already have.

Please consider having Santa Fe, join Flagstaff and Tucson and leaders in the preservation of dark skies above our cities.

Here are two great articles about two model cities for better street lighting, Flagstaff and Tucson.

<https://arstechnica.com/science/2019/10/how-flagstaff-arizona-switched-to-leds-without-giving-astronomers-a-headache/?comments=1>

<https://www.darksky.org/nights-over-tucson/>

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<https://www.nationalgeographic.com/science/article/nights-are-getting-brighter-earth-paying-the-price-light-pollution-dark-skies>

Thank you.

Rixon Reed

photo-eye Founder/Director