

Agenda
Tompkins County Council of Governments

Thursday, July 27, 2017 3:00 PM

Scott Heyman Conference Room

- | | |
|--|-------------------------|
| I. Call to Order | B. Goodman |
| II. Greeting/Sign In/Review Agenda | |
| III. Minutes Approval (3:05)
a. June 22, 2017 | |
| IV. Announcement - Energy Expo (3:07) | I. Weiser |
| V. County Administration (3:10)
a. Shared Services Update
b. Discussion of Conversion of Streetlights to LED | J. Mareane
E. Thomas |
| VI. Discussion of EMS Presentation at Last Meeting and Next Steps | |
| VII. Update on Broadband (3:45) | I. Weiser |
| VIII. Discussion of Reserve Fund and Structure of Meetings (3:55)
a. Reserve Fund (bylaws attached)
b. Structure of Meetings | |
| IX. Report from Subcommittees (4:15)
a. Emergency Services Task Force
b. Sustainability Committee: Community Choice Aggregation Work Group and Energy Task Force
c. Transit Services Committee
d. Cable Committee | |
| X. Next Meeting Agenda Items (4:25) | |
| XI. Adjournment | |

Tompkins County Council of Governments
 Regular Meeting Minutes
 Thursday, June 22, 2017 3:00 PM
 Legislature Chambers

Attendance

Attendee Name	Title	Status	Arrived
Irene Weiser	Co-Chair/Town of Caroline	Present	
Bill Goodman	Co-Chair, Town of Ithaca	Present	
Ann Rider	Member, Town of Enfield	Present	
Ric Dietrich	Member, Town of Danby	Present	
Jason Leifer	Member - Town of Dryden	Present	
Michael Murphy	Member, Village of Dryden	Present	
Linda Woodard	Member, Village of Cayuga Heights	Present	
Pat O'Rourke	Member, Village of Lansing	Present	
Rachel Kennedy	Alternate, Village of Trumansburg	Present	
Betty Conger	Member, Village of Groton	Present	
Joe Mareane	County Administrator	Present	
Elizabeth Thomas	Member/Town of Ulysses	Present	
Mark Witmer	Alternate - Town of Caroline	Present	

Guests: Lee Shurtleff, Director, Department of Emergency Response; Brian Wilbur, Retired Fire Chief, City of Ithaca; Kate Supron, Cornell Community Relations; and Nick Reynolds, Ithaca Times

Call to Order

Ms. Weiser, Co-Chair, called the meeting to order at 3:04 p.m.

Minutes Approval

May 25, 2017

RESULT:	ACCEPTED [UNANIMOUS]
MOVER:	Betty Conger, Member, Village of Groton
SECONDER:	Linda Woodard, Member, Village of Cayuga Heights
AYES:	Weiser, Goodman, Rider, Dietrich, Leifer, Murphy, Woodard, O'Rourke, Kennedy, Conger, Thomas

County Administration

Shared Services Update

Mr. Mareane provided an update on sales tax and explained how the additional 1% needs the State's renewal every two years and that approval for renewal has not happened. He spoke of the effects this could have on the County if not approved. Mr. Mareane said this threatens the County with a revenue loss and the largest property tax increase in the history of all counties and recommended municipalities express their displeasure with what is happening in Albany just as the County has. .

Minutes Acceptance: Minutes of Jun 22, 2017 3:00 PM (Minutes Approval)

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Mr. Mareane said the State is looking to counties to find savings locally through shared services. The Shared Services Panel met for the third time last night and the meeting included a public hearing that had a couple speakers and concluded that Tompkins County has already taken on some of the larger shared services including the Health Consortium and 911 Center. He explained the panel is beginning to look at some smaller items that may be included in the County's Plan but some of those items to be included are:

1. The creation of a TCCOG Training Academy;
2. Service Modernization - phase two of the scanning and digitization of records (routine automation through LaserFiche software);
3. Mass Notification System - formerly called reverse 911 where contacts can be made to the public; this may include the a request to the Legislature for the County to purchase a Mass Notification System that can be used by all municipalities.

Mr. Mareane said other potential shared service items that have been discussed include purchasing and buying partnerships for items such as financial software and LED street light conversion and installation. He said Don Barber, Executive Director, Tompkins County Health Consortium, and Consortium member Matt Cook, City Manager, City of Cortland, have approached him regarding the recognition of the Health Benefits Consortium and it being included as a shared services initiative and for the State to match the \$1.7 million in savings. He stated there is a chance it may be included in the Plan.

Mr. Mareane said some additional programs being considered to be included in the Plan are the expansion of geographic information system (GIS) services to more municipalities and heavy equipment repair operation. Other items discussed but are in need of additional review beyond the Plan deadline are the sharing of back-office services and code enforcement. He spoke of the possibility of submitting a Shared Services Plan next year that may include items that have a greater economic impact and will be discussed further by the Shared Services Panel. He plans to have a report to the Legislature by the first of August.

Ms. Weiser inquired if there was only one opportunity to receive matching funding from the State for a Shared Services Plan. Mr. Mareane stated that was correct and explained how the County would either submit a Plan this year for implementation in 2018 or explain plans to submit a Plan in 2018 for implementation in 2019 for a one-time rebate offer.

Following an inquiry from Mr. Goodman, Mr. Mareane stated he heard nothing back from the school districts regarding the this initiative.

Mr. Goodman asked TCCOG members if they have discussed this in their municipalities and if anyone had any further input.

Ms. Thomas spoke of Mr. Mareane providing plans submitted from other counties and the majority of the items in those plans have already been established in Tompkins County. Mr. Goodman stated only half of the counties have submitted plans and other counties he has spoken with are not planning on doing anything until 2018.

Ms. Weiser spoke of a conversation she had with the Department of State and said TCCOG is very highly regarded in those offices and they have high expectations from Tompkins County in regard to submitting a plan.

Cradle to Career report

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Mr. Goodman provided a brief update on Cradle to Career, an effort led by Kirby Edmond from the Dorothy Cotton Institute to assist youth, up to the age 24, to become active and contributing members of the community. A number of representatives from not-for-profit organizations and various social service agencies attend these meetings. The County Youth Services Department has been working on Achieving Youth Results, an initiative to establish goals and benchmarks to know when progress has been made and the desired outcomes have been achieved regarding youth at various developmental stages. Collective impact is being used to monitor the progress and has been used in other communities across the country to synergize the efforts of various organizations to collaborate their efforts. The meetings are held the second Friday of the month in the Cooperative Extension Offices. Once the Cradle to Career has clearly established goals, Mr. Goodman would like to have a Cradle to Career presentation made at a TCCOG meeting.

At a recent TCAT Retreat, Ms. Rider spoke of Workforce Development claims to be struggling with communicating with young adults and career opportunities not involving college. Mr. Goodman stated there was not a representative from TCAT at the meetings but he believes there was a representative in attendance from Workforce Development.

Emergency Medical Services (EMS) Task Force Report

Mr. Shurtleff provided a PowerPoint presentation entitled EMS in Tompkins County that included a detailed description of the increase in services required by the public Countywide over the past few decades and the drastic decline in emergency service volunteers to answer calls for services.

Mr. Shurtleff said the Task Force is concerned about not being able to sustain the current situation and stated it will take combined efforts to continue to provide these lifesaving services to the public.

Ms. Kennedy asked why New York State is not in favor of community paramedicine services. Mr. Shurtleff explained those services are being moved from a paramedic (an emergency medical provision) to more of a nursing and proactive employment. This would change the duties and role of paramedics and nurses in the health care system.

Mr. Dietrich asked if home health aides could be provided additional training to become qualified to fill some of the needed rolls. Mr. Shurtleff spoke of the history of home health aides and pointed out they are required to call an ambulance when an individual falls, even at a skilled nursing facility, due to the liability involved. He spoke of limitations of the position of home health aide and agrees there is a need for integration and encouragement for some of the home health remedies to identify these problems and identify them in advance.

Mr. Dietrich requested Mr. Shurtleff's input as to where municipalities should go from here to maintain these services and what can communities do. Mr. Shurtleff stated the EMS Steering Committee has met and is looking at next steps. They are having discussions with an attorney, considered an expert in New York State Law, who provides legal services to a large number of EMS organizations within the County to review the structure of EMS services currently in place. Once that is complete they plan to submit a comprehensive six month report and begin to develop the next steps including bringing in the response community to talk to and reinvigorate volunteerism in Tompkins County. He suggested engaging this topic in a broader public health discussion and see how EMS factors into the health care provisions.

Ms. Weiser reinforced the need for representation from all municipalities on the Task Force in

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order to learn the needs of the entire County and to be able to engage and review current contracts with EMS providers.

Ms. Woodard inquired if this could be included in the Shared Services Plan in order to better serve some of the outlying areas. She stated Cayuga Heights is one community that does not have a problem with volunteerism and serves the Cayuga Heights community well as well as the Towns of Ithaca and Lansing. She believes this is primarily due to the programs involving Cornell University students and further spoke of the possibility of working with Cornell University, Ithaca College, and Tompkins Cortland Community College (TC3) to develop a creative solution and work with students to become EMS volunteers in exchange for a possible break on their student loans. Mr. Shurtleff stated Cayuga Heights is very good role model largely due to its dynamics and proximity and spoke of the possibility of utilizing some of those Emergency Medical Technicians by employing them to supplement some of the volunteer services.

Mr. Shurtleff stated TC3 has a long-standing EMS training program but most students are sent there from specific departments rather than from the student body itself. Committee members spoke of the abundance of training needs and that Tompkins County has the resources that most rural counties do not have.

The PowerPoint presentation will be available on the TCCOG website under the Emergency Medical Services Task Force.

Report from Subcommittees

Ms. Weiser reported the work is continuing to see if Community Choice Aggregation can work for this area.

Energy Task Force:

Ms. Thomas announced the County and Town of Ithaca have been designated as Climate Smart Communities by the State. The Energy Task Force is working on the Climate Smart Communities and the Clean Energy Communities designations and both have possible funding availability. She stated Liz Walker provided a presentation entitled Green Building Knowledge for Local Decision Makers and there will be additional information available to municipal elected officials and building inspectors. Also, Casey Mastro, New York Power Authority, provided information regarding LED Street Lights and the Task Force will be looking more into that.

Transit Services Committee

There was no report.

Cable Committee

Ms. Weiser stated Charter is to be building a larger network in a portion of the County as a portion of the merger between Charter and Time Warner. A few days ago Charter was sanctioned by the Public Service Commission for not maintaining the required number of installations. She said this is not a good start for Charter and New York State has opened a public comment period regarding the sanctions. She encouraged people to comment.

Mr. Dietrich applauded the efforts of the Cable Committee.

Next Meeting Agenda Items

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Ms. Weiser spoke of including discussions regarding the Reserve Fund and the Structure of Meetings at the next meeting.

The Recreation Partnership Agreement discussions with Amie Hendrix will take place at a separate time yet to be determined.

Mr. Goodman stated David Herrick, American Counsel of Engineering Companies, was interested in addressing the Committee and will follow-up with him. Mr. Dietrich suggested Mr. Herrick attend and provide information regarding Storm Water Management. Ms. Woodard further suggested having representatives from the Water Resources Council and the Storm Water Coalition in attendance also to help provide further information.

Ms. Weiser suggested further discussions regarding the steps municipalities can take to improve their greenhouse gas footprint and grant possibilities.

Ms. Weiser said there has been interest in hearing from Building Code Enforcement Officers to share information and discuss demolition of buildings.

Adjournment

The meeting adjourned at 4:34 p.m.

Minutes Acceptance: Minutes of Jun 22, 2017 3:00 PM (Minutes Approval)



Tompkins County Council of Governments

Governor Daniel D. Tompkins Building
Ithaca, NY 14850

Meeting: 07/27/17 03:00 PM
Department: Tompkins County Council of Governments
Category: Land

**REPORT OR DISCUSSION ITEM NO.
(ID # 7179)**

Streetlight conversion

Tompkins County Outside & Indoor Lighting Recommendations

- Considerations for municipalities prior to instituting a LED replacement program
 - Lighting recommendations for residences and businesses
 - Recommendations for families regarding computers and smartphones
- Considerations for Tompkins County Schools regarding take-home laptop computers

Lighting recommendations for Tompkins County are warranted in 2017 due to the rapid advances in lighting technology over the past decade and a broad range of studies now indicating that the "blue" wavelengths¹ in our lights can be detrimental to human health at night as well as in excessive levels at any time. The health impacts span from headaches and fatigue from eye strain, to retinal damage and diseases stemming from circadian rhythm disruption (American Medical Association 2016).

The recent technological advances in lighting largely involve light emitting diodes, commonly called LEDs. This lighting method facilitates a wider range of hues and luminous intensity than have previously existed. LEDs also offer better efficiency and economics over time. Because of these factors a transition to LED lighting has been occurring. These days when we shop for lightbulbs for our home, in addition to LED bulbs that have a similar yellowish hue as the old incandescent bulbs, we also find varieties termed "warm white", "cool white" and "daylight", each with an increasingly higher proportion of blue wavelength output. Similarly for street lights, our old standard orange-hued high pressure sodium lights are in many cases being replaced with more efficient bright white LED streetlights that have substantially higher blue wavelength output. For example, in 2016 Binghamton NY finished transition of its ~2000 orange-hued high pressure sodium street lights to bright white LEDs, greatly increasing the city's blue wavelength output at night. The challenge we face today is that the LED revolution--while more efficient economically—is inadvertently increasing visible blue wavelength emissions at night.

Besides human health impacts, blue wavelength light has also been implicated in a wide range of ecological impacts as well as increased municipal sky glow at night. Minimizing blue wavelength output at night for human health coincidentally decreases these additional deleterious impacts.

While public education initiatives on this matter should include information promoting awareness of the impact of blue wavelength light at night for outdoor and indoor residential use, further

¹ "blue" wavelengths refers to short wavelength visible light in general and spans from a violet-blue to a green-blue visible color (~380 nanometer to ~500 nanometer wavelengths). For simplicity in this document we refer to this color range as blue wavelengths.

education is necessary to assist the public in becoming aware that luminous personal electronic devices (computer screens, tablets, smart phones) also emit blue wavelength light with potential health impacts. Many operating systems on these devices now include software (or Apps can be added) that can be set to limit the device's blue light emissions at night. As of 2017, the computers Ithaca public schools provide to students for home use do not include such capabilities.

Recommendation for municipalities

1. Transition to LED street lights with low blue wavelength emissions. Even street lights with 3000K CCT² have increased blue wavelength output compared with existing high pressure sodium street lights, which are ~2100K CCT. Ideally, from a human health and ecological impact standpoint, street light conversion to LED would involve the equivalent (or lower) blue light output as that from high pressure sodium (~2100K CCT) streetlights. While street light manufacturers have been promoting 3000K+ CCT varieties, “amber” LED street lights are available that have very low blue wavelength output (<2000K CCT). While these may be not be the most energy efficient LEDs on the market (i.e. ~3% less efficient), there is still a great energy & maintenance savings compared with existing gas discharge or metal halide street lighting.
2. Avoid using metal halide fixtures for street lights or other outdoor lighting. These are typically strong blue wavelength emitters and less efficient than LEDs. (e.g., Ithaca Wal-Mart parking lot)
3. Consider incorporating Dark Sky³ outdoor lighting standards into municipal codes. This includes stipulating that no light be directly emitted horizontal or above the horizontal plane of the light – in other words, all direct light emission should be downward. Dark Sky standards currently call for all outdoor lighting to be no higher than 3000K CCT. Yet 3000K CCT is typically composed of substantial blue light. Municipalities should encourage no greater than 2700K CCT for outdoor lighting, and lower if possible. 2700K CCT is readily commercially available for about the same cost as higher CCT lighting. Luminous intensity (brightness) is another metric that should be stipulated in municipal codes and minimized to the extent possible.

² CCT stands for Correlated Color Temperature and uses the Kelvin temperature scale to roughly indicate spectral content of whitish light. Lower CCT points toward warmer hues (yellowish, orangish) with a lower percentage of blue light while higher CCT points toward cooler hues (greenish, blueish) and higher blue light output.

³ www.darksky.org

4. Consider special outdoor light codes or actions that further reduce blue wavelength emissions for lighting in proximity to natural areas.
5. Schools should consider incorporating automatic night time blue light filters into laptops provided to students for home use.

Recommendations for residential and business lighting

1. Transition to LEDs with 2700K CCT⁴ or lower indoor and outdoor lighting at night. Higher CCT lighting should be considered for indoor lighting during the day to simulate the spectral characteristics of sunlight and help maximize human productivity for businesses. Use Energy Star⁵ rated LEDs that include the “Lighting Facts” label.⁶
2. Municipalities may want to consider incentives for homeowners (and businesses) to encourage transition to <2700 CCT outdoor lighting. These could be as simple as a letter of thanks that includes a waterproof sticker to apply at the doorway to a building.
3. Use software and Apps for automatically minimizing blue wavelength output from computer monitors, tables, and smart phones, etc. at night.
4. Do not use “bug zappers”. These lights have high ultraviolet (UV) and blue wavelength output, kill many useful insects, and attract insects from afar to the vicinity of your residence.
5. Porch, deck, and front door lights with low UV and blue wavelength emissions minimize insect attraction and thereby lead to a more comfortable outdoor experience for people.

Literature cited

American Medical Association. 2016. CSAPH Report 2-A-16. Human and Environmental Effects of Light Emitting Diode (LED) Community Lighting. American Medical Association. http://darksky.org/wp-content/uploads/bsk-pdf-manager/AMA_Report_2016_60.pdf

Further reading

Christensen et al. 2016. Direct Measurements of Smartphone Screen-Time: Relationships with Demographics and Sleep. PLoS One. 2016; 11(11): e0165331. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5102460/>

Holzman D.C. 2010. What’s in a color? The unique human health effect of blue light. Environ Health Perspect [Internet]. 118(1):A22–7. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2831986&tool=pmcentrez&rendertype=abstract>

⁴ See footnote #2.

⁵ <https://www.energystar.gov/>

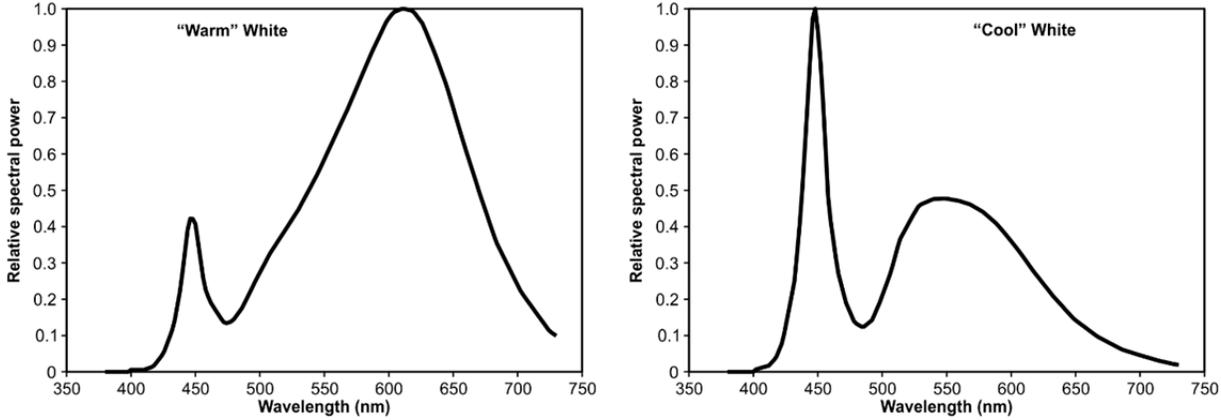
⁶ <http://www.lightingfacts.com/>

Response to the 2016 AMA Report on LED Lighting

June 30, 2016

In response to the American Medical Association (AMA) report "Human and Environmental Effects of Light Emitting Diode (LED) Community Lighting," Mark S. Rea, PhD and Mariana G. Figueiro, PhD of the Lighting Research Center at Rensselaer Polytechnic Institute have prepared the below, which is limited to the effects of indium gallium nitride (In-Ga-N) LED lighting on humans.

Recently the AMA has produced a document cautioning the public about In-Ga-N based LEDs used as sources of illumination both indoors and outdoors. These In-Ga-N LED sources generate short wavelength radiation from a solid state die. Some of that radiation is absorbed by a phosphor that, in turn, reemits long wavelength radiation. Together, the light emitted by the die and the light reemitted by the phosphor appear white to the human eye. Depending upon the relative emissions from the LED package, both the die and the phosphor, the white illumination can appear to have a "warm" tint (yellowish-white) or "cool" tint (bluish-white) or can appear neutral.



This solid state lighting technology has, or soon will, displace most other commercially available light sources used for general illumination because they are more energy efficient, have longer life and are more cost effective to own and operate than most other sources of illumination. The concern expressed by the AMA in their report is focused specifically on the short-wavelength emission from these In-Ga-N LED sources as that spectral region might negatively affect, through several modes, human health. Specifically, the following modes are of interest:

- Blue light hazard
- Glare, both disability and discomfort
- Melatonin suppression
- Circadian disruption

To understand the potential risk to human health through each of these modes it is first necessary to characterize the stimulus in terms of its physical properties and then second to relate those stimulus properties to specific, measureable biological outcomes.

Attachment: LRC-Response-to-AMA (7179 : Streetlight conversion)

Physical stimulus characteristics

Any light stimulus can be analyzed into the following physical characteristics.

- Spectrum
- Amount
- Duration
- Spatial distribution
- Timing
- Polarization

Biological response characteristics

Biological responses to light will mirror the physical stimulus conditions. Collectively, the spectral, temporal and absolute sensitivities of the biological system determine exposure. Hysteresis should also be considered due to non-linear changes in the biological system following exposure.

Exposure:

Spectral sensitivity

Temporal integration

Absolute threshold

Hysteresis

What must be known to make predictions

To meaningfully discuss the consequences of light exposure on human biology, and therefore, health, all of the physical characteristics of light as well as the specific biological response to light must be known. For example, the human retina will not respond to very short- (UV) and very long- (IR) wavelength optical radiation, so optical radiation emitted by sources in those regions will have no impact on visual and non-visual neural systems emanating from the retina. Light incident on the retina between the UV and IR bands can obviously evoke both visual and non-visual system responses by the retina, but each of these systems is tuned to different, relatively narrow wavelength bands. Meaningful discussion of the impact of light on human health as affected by optical radiation incident on the retina must therefore be framed in terms of the spectral emission of the light source and whether the spectral sensitivity of the visual or non-visual system is tuned to that emission. The amount and duration of light exposure must also be defined. The spectral emission from a light source might be perfectly tuned to the spectral sensitivity of the biological system, but if the amount and/or duration of light exposure are too low and/or too short, there will be no biological system responses. The timing of exposure is also important. For example, most biological responses to optical radiation, from humans to fungi, are dependent upon time of day. The same light stimulus may produce one effect at one time of day and a different response at another time. Finally, since biological systems are non-linear in their responses, the impact of a given light exposure can be different depending upon previous light exposure conditions. As a common example, melanin in the skin becomes darker with exposure to UV, thereby affecting the

sensitivity of the system to subsequent radiation. Both sensitization and habituation are exhibited by the biological system. Finally, the spatial distribution of light is fundamentally important because all biological materials have optical properties that affect exposure. The cornea and the lens, for example, refract light to bring images to focus on the retina. Although polarization is another important physical characterization of light, it has, unlike insects, a very small effect on human biology.^{1,2}

Summary: Predictions of health consequences from light exposure depend upon an accurate characterization of the physical stimulus as well as the biological response to that stimulus. Without fully defining both the stimulus and the response, nothing meaningful can be stated about the health effects of any light source.

Biological Response Characteristics

Blue light hazard

High radiance, short-wavelength light focused on the retina by the optics of the eye for an extended duration has the *potential* to cause permanent damage to the retina.^{3,4} Diffuse short-wavelength light, as with the blue sky, does not cause damage nor do brief exposures to high radiance sources, as with incandescent filaments in a clear bulb. The American Conference of Governmental and Industrial Hygienists (ACGIH) provide specifications for exposure limits for blue light hazard.⁵ To determine risk, the radiance of the light source (not the irradiance from the light source), the spectral distribution, and the duration of focused exposure on the retina must be known. Unless all of those terms are specified, it is not possible to assess blue light hazard.

Practically, however, the LED package (die + phosphor) can have high radiance in a spectral region that can cause damage. So, by calculation, focused, steady viewing of a 500 mW LED package (≈ 5 W/cm²/sr) for approximately 10 seconds can cause damage. Humans' natural photophobic response to bright light would likely limit focused exposure to much less than a few seconds; however, some individuals may not have the capacity to avert gaze, such as premature infants.

Summary: Notwithstanding certain sub-populations that deserve special attention, blue light hazard from In-Ga-N LEDs is probably not a concern to the majority of the population in most lighting applications due to human's natural photophobic response.³⁻¹¹

Disability and discomfort glare

There are two types of glare, one that can impair visual performance, disability glare, and one that causes an unpleasant sensation, discomfort glare. To determine the magnitudes of disability and discomfort glare, different formulations are necessary. Disability glare depends upon the amount of scattered light from small particles in the eye, but these particles are large enough that scatter is independent of wavelength. Therefore, short-wavelength and long-wavelength light produce the same amount of entopic scatter. Where visual performance (e.g., reading or judging speed and direction of a moving automobile) is important, the deleterious effects of scattered light can be weighted by the conventional photopic luminous efficiency function $[V(\lambda)]$. The well-established Fry (1954) disability glare formulation can be used to assess the impact of the light source in terms of conventional, photopic illuminance at the cornea and the angular distance between the line of sight and the light source.¹² Therefore, assessing the impact of In-Ga-N LED sources on disability

glare would be the same as it would be for any other commercially available light source that might be used indoors or outdoors.

Discomfort glare is, however, much more complicated to assess. Like disability glare, discomfort glare increases with irradiance at the cornea and with reductions in the angular distance between the light source and the line of sight. Unlike disability glare, however, the spectral composition of the light source also influences discomfort glare; sources with relative greater short-wavelength content are seen as producing more discomfort for equal photopic illuminance at the cornea. All other factors being constant, sources dominated by short-wavelengths will produce relatively more discomfort glare than sources dominated by long-wavelengths. For white light sources, this effect is relatively small, relative to changes in corneal irradiance. The apparent size of the luminous element itself also impacts discomfort glare. Again, all other factors being constant, luminous elements larger than about 0.3 degrees of visual angle will produce more discomfort glare than smaller luminous elements. For light sources viewed from a short distance where the luminous element is 0.3 degrees of visual angle or larger, the discomfort-glare-specific spectrally weighted radiance of the light source must also be known to predict discomfort glare.¹³

Summary: In-Ga-N LED sources dominated by short wavelengths can cause relatively greater discomfort than sources dominated by long wavelengths, including “warm” In-Ga-N LED sources, at the same photopic illuminance at the cornea. As with disability glare, however, discomfort glare is mostly determined by the amount and distribution of light entering the eye, not its spectral content.¹²⁻¹⁴

Melatonin suppression

Melatonin is a hormone that signals “darkness” to the body; it is produced at night and in darkness. Retinal exposure to light during the nighttime can suppress melatonin synthesis by the pineal gland in the brain, potentially disrupting physiological processes timed to occur at night. “Darkness” is a relative term, however. Humans have a high threshold to retinal light exposure for suppressing melatonin at night.^{15, 16} Well below this threshold (approximately 30 lux at the cornea from white light for 30 minutes), both rods and cones in the retina provide adequate visual information to humans for navigation, social interactions and even reading printed materials.¹⁷ Nevertheless, the spectral sensitivity of melatonin suppression is dominated by short wavelengths,¹⁸⁻²⁴ so conventional means of measuring light exposure based upon the photopic luminous efficiency function (i.e., for visual performance) can underestimate the potential impact of In-Ga-N LED sources for suppressing melatonin at night. Light sources used for domestic and roadway lighting have traditionally been sources dominated by long-wavelengths, so the impact of In-Ga-N LED sources on melatonin suppression could, in principle, be of concern. New photometric instruments along with insights into the mechanisms underlying phototransduction by the retina as it affects melatonin suppression have been developed.^{20, 25} Thus, it is now possible to measure and to quantify the impact of light exposure from any spectral irradiance distribution on nocturnal melatonin suppression in humans. These developments have, for example, provided insight into the impact of self-luminous displays on nocturnal melatonin suppression.²⁶⁻²⁸

It should be noted that melatonin appears to have an oncostatic effect on cancer proliferation. Blask and colleagues have shown that melatonin limits tumor progression in nocturnal rodents.^{29, 30} The amount and the spectrum of light as they affect nocturnal rodents are quite different than they are for humans, however. Mice are between 3000 to 10000 times more sensitive to light as it

affects melatonin synthesis at night.³¹ Therefore, care must be given to any extrapolations from studies of melatonin suppression in nocturnal rodents to those in humans, particularly with regard to both visual and circadian phototransduction.

Summary: In-Ga-N LED sources dominated by short wavelengths have greater potential for suppressing the hormone melatonin at night than sodium-based sources commonly used outdoors. However, the amount and the duration of exposure need to be specified before it can be stated that In-Ga-N LED sources affect melatonin suppression at night.

Circadian disruption

Physiology and behavior of all vertebrates on Earth, including humans, are regulated by the 24-hour light-dark cycle incident on the retina. Disruption of that natural rhythm, either by rapid travel across time zones, or by aperiodic or highly variable exposures to light and dark at the wrong time, can cause disruption of physiology and behavior.³²⁻³⁸ Epidemiological evidence suggests that humans performing rotating shift work are subject to a wide range of serious maladies from breast cancer to cardiovascular disease.³⁹⁻⁴⁵ Melatonin suppression at night is undoubtedly an important part of circadian disruption, but it is not synonymous with circadian disruption. Staying awake in dim light at night or limited exposure to light during the day can also be disruptive to physiology and behavior, even though there is no effect of the light on melatonin concentrations. These disruptive social-behavioral effects may or may not be associated with nocturnal melatonin suppression.⁴⁶⁻⁴⁹

Much less is known about the spectral and absolute sensitivities to light as they affect circadian disruption. However, limited studies with red light exposures, which cannot suppress nocturnal melatonin synthesis, have shown that circadian-regulated physiology and behavior are affected.^{50,51} Again, therefore, it is quite possible that the negative impacts on human health by performing rotating shift work may only have a limited relationship to nocturnal melatonin suppression.

Summary: Until more is known about the effects of long-wavelength light exposure (amount, spectrum, duration) on circadian disruption, it is inappropriate to single out short-wavelength radiation from In-Ga-N LED sources as a causative factor in modern maladies.

The use and misuse of metrics

Lighting metrics have been developed and commonly used to predict biological responses to physical characteristics. Metrics are intended to be short-hand simplifications for characterizing a *particular* stimulus-response relationship. Correlated color temperature (CCT) for example is a simplification of the light source spectral power distribution (SPD) to represent how people will see the tint of illumination from that source (i.e., “warm” or “cool”). The CCT metric ignores nearly all of the important factors associated with light exposure (amount, duration, timing) and is only relevant to a single biological response (perceived tint of illumination). Therefore, CCT should never be used to characterize light as a stimulus for, say, blue light hazard. As a further example, the non-linear response of the human circadian system to white light indicates that for the same corneal photopic illuminance and depending on the SPD of the source, a 3500 K source can produce greater melatonin suppression than a 5000 K source.^{52,53} In general then, it is erroneous and misleading to use a metric developed for one purpose and then apply it to another purpose, particularly with regard to the impact of light on human health.

Overall summary

The public is becoming more aware of the role that light can play in our lives and has become sensitized to the impact that light may have on health. The development of In-Ga-N based LED light source technology has increased the social benefits of lighting by lowering its environmental and financial costs. It is nevertheless natural and appropriate for the AMA to question these advances in LED technology as they might negatively affect human health. Raising awareness is not enough, however. Professional responsibility must include rational and balanced discourse, whereby scientific and technical understanding lends insight into the social benefits as well as the social costs of In-Ga-N technology. The foundations for this discourse must rely upon a complete characterization of the physical stimulus as it affects a specific biological response. Misapplication of metrics, such as CCT, combining just one aspect of the physical stimulus with just one type of biological response, must be strenuously avoided. The present document attempts to draw attention to this problem of misapplying short-hand metrics to the topic of light and health and to provide the reader with published information that should inform rational discourse.

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Lori A. Cole
Manager – Regulatory and Tariffs

December 15, 2016

VIA ELECTRONIC FILING

Honorable Kathleen H. Burgess, Secretary
New York State Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

Re: Case 15-E-0283 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of New York State Electric & Gas Corporation for Electric Service

Case 15-E-0285 – Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Rochester Gas and Electric Corporation for Electric Service

Dear Secretary Burgess:

New York State Electric & Gas Corporation (“NYSEG”) and Rochester Gas and Electric Corporation (“RG&E”) (together the “Companies”), subsidiaries of Avangrid, Inc. (“AVANGRID”), hereby submit the enclosed tariff leaves in compliance with the New York State Public Service Commission’s (the “Commission”) Order Approving Electric and Gas Rate Plans in Accord with Joint Proposal, issued and effective June 15, 2016 (the “Order”), in the above referenced proceedings. These tariff leaves are transmitted for filing in compliance as identified herein and in accordance with the requirements of Appendix 7-H (electronic tariff filing system) to the Commission’s Codes, Rules and Regulations (16 NYCRR Appendix 7-H).

Below are the revised tariff leaves to become effective May 1, 2017.

NYSEG P.S.C. No. 121 - Electric

Leaf 4, Revision 4
Leaf 7, Revision 5
Leaf 43, Revision 16
Leaf 57, Revision 16
Leaf 60, Revision 5
Leaf 61.3, Revision 0

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RGE P.S.C. No. 18 - Electric

Leaf 27, Revision 14
Leaf 28, Revision 12
Leaf 29, Revision 13
Leaf 32, Revision 1
Leaf 36.2, Revision 0

Purpose of Filing

The Companies are filing tariff amendments in compliance with the Order to offer Company-owned light-emitting diode (“LED”) street lighting options for customers served under NYSEG Service Classification No. 3 and RG&E Service Classification No. 1.

Background

The Companies agreed in the Joint Proposal approved by the Order to make a tariff filing within six months of the issuance of the Order to offer Company-owned LED street lighting options.¹ The six month timeframe was necessary to assess customer interest and evaluate LED lighting options to determine adequate replacements for current street lighting luminaires.

To assess customer interest in LED street lighting options, the Companies administered an electronic survey to 580 municipalities within the Companies’ service territories. The survey sought input on general interest in LED street lights, as well as feedback on topics such as lighting type, quality, and the importance of additional features (e.g., dimming).

Proposed Offerings

The Companies are proposing to amend their tariff schedules by offering the following four LED street lighting options that meet the Companies’ standards, at a color temperature of 4,000 Kelvin:

- 3,000 lumen
- 6,300 lumen
- 10,000 lumen
- 15,000 lumen

The four options were selected based upon the Companies’ review of existing Company-owned street light luminaires, the responses to the customer survey, other utility LED street light programs, and discussions with United Illuminating Company, an AVANGRID subsidiary, regarding their experience with LED conversions.² The Companies also installed a small sampling of lights on their own system to assess compatibility and lumen output.

The proposed options would replace the 50, 70, 100, 150, 175, 250, and 400 watt Cobrahead luminaires that the Companies currently offer, which represent approximately 90,000, or 80%, of Company-owned street lights.

Rates

The Companies used similar assumptions in developing the rates for each of the four LED options. A fixed charge methodology is used to determine the annual cost of providing

¹ The Companies’ Joint Proposal, Appendix W, page 9.

² United Illuminating Company currently offers LED service throughout its service area as set forth in its tariff schedule C.P.U.C.A No. 860.

service over the assumed book life. The costs that were incorporated into the development of the rates include depreciation, cost of capital, estimated installation costs, estimated maintenance costs, and taxes. The annual fixed charges were levelized to an annual revenue requirement, which was used to calculate the monthly rates to be charged to customers. Further details regarding the rate development may be found in Attachment 1.

Attachment 2 provides a comparison of the estimated savings of the proposed LED options as compared to the current non-LED cobra head offerings for each Company. The comparison is computed by taking the difference in delivery rates, estimated supply charges and estimated surcharges between the LED and non-LED lights. Savings are estimated to be available for several of the LED lamp options.

In accordance with the Companies' Joint Proposal approved by the Order, the Companies will be filing tariff provisions by March 31, 2017 to implement a Revenue Decoupling Mechanism ("RDM") commencing in Rate Year 2 (i.e., May 1, 2017), applicable to all Service Classifications within their street lighting tariff schedules.³ The RDM will be contingent upon Commission approval of LED street light offerings being effective at the start of Rate Year 2.

Implementation

The replacement of current non-LED street light luminaires in the Companies' service territories will be a considerable undertaking from a resource and logistics perspective. The implementation plan that NYSEG and RG&E are proposing will allow for conversions in an efficient and timely manner. Most of the major municipalities served by the Companies do not take service under the Company-owned street light tariffs, and the majority of the remaining municipalities are smaller-sized diverse municipalities spread over a large service territory.⁴ Therefore, NYSEG and RG&E are proposing that the Companies' obligation to install/replace non-LED street light luminaires with LED street lights in any annual period shall be limited to no more than 15% of the Companies' currently installed street light luminaires. The Companies intend to install or replace its non-LED street light luminaires with LED street lights on a first-come, first-served basis at the Companies' discretion, while also taking geographical location into consideration to ensure an efficient and coordinated conversion and installation of LEDs.

The customer must commit to converting no less than 20% of their currently installed street light luminaires, or a minimum of 100 luminaires, whichever is greater, per bill account in an annual period. The lights must be contained in a single contiguous geographic area. Each municipality is responsible for the design of their system, and must agree to compensate the Companies for the remaining book value of the lights being replaced. The remaining book value of the lights being replaced will be determined by the Companies and will be based on the municipality's currently installed luminaires. The Companies will require a one-time up-front payment for the remaining book value of the lights being replaced; however, if any municipalities are interested in financing conversion costs, the New York Green Bank staff can be made available to discuss financing opportunities.

Newspaper Publication

The Companies request that the requirements of Section 66(12)(b) of the New York Public Service Law and 16 NYCRR Section 720-8.1 as to newspaper publication be waived as

³ Pursuant to Ordering Clause No. 5 of the Order, the Companies are required to submit tariff revisions to effectuate Rate Year 2 changes on not less than 30 days' notice.

⁴ Most of the large municipalities in the Companies' service territories have purchased their street lighting systems and are served under customer-owned lighting or energy-only service classes.

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these revisions only affect municipal customers, and the Companies will notify all effected customers directly via electronic mail. These revisions do not constitute a “major change” under New York Public Service Law Section 66(12)(c).

State Administrative Procedures Act Notices are enclosed for publication in the State Bulletin.

Conclusion

As stated above, the Companies assessed interest from municipalities in LED street lighting, and the proposed options are comparable replacements for the majority of the street light luminaires currently in use. The Companies will evaluate additional LED options in the future based on further input from customers.

Company Contacts

If you have any questions related to this filing, please contact Kelly Dietrick at 585.724.8135 or me at 607.762.8710.

Respectfully Submitted,



Lori A. Cole
Manager – Regulatory and Tariffs
Rates and Regulatory Economics Dept.

Enclosures

Attachment: LETT 2016-012-15 NYSEG_RGE LED Street Lights (7179 : Streetlight conversion)

**New York State Gas & Electric Corporation and Rochester Gas and Electric Corporation
Rate Development for Company-Owned Light Emitting Diode (“LED”) Cobra Head Street Lights**

New York State Public Service Commission’s (the “Commission”) Order Approving Electric and Gas Rate Plans in Accord with Joint Proposal, issued and effective June 15, 2016 (the “Order”) in Cases 15-E-0283 and 15-E-0285.

Methodology:

The Companies utilized a fixed charge methodology to determine the annual cost of providing service over the assumed book life. The costs incorporated in the development of the rates include depreciation, cost of capital, estimated maintenance costs, and taxes. The annual fixed charges are levelized to an annual revenue requirement used to calculate monthly rates to be charged to customers.

Four cobra head LED options will be offered to replace the current cobra head options.

The Companies developed rates using the fixed charge methodology for the new LED cobra head lights as well as for the replacement of the currently offered high pressure sodium cobra head light. The current cost of a head replacement was used for both rate calculations. The difference between the rate of the LED option and the high pressure sodium option was added to the rate of current light offerings to determine the rate for the new LED offerings.

Assumptions:

The following assumptions were made in the development of the monthly rates:

- Material costs – Four manufacturer’s quotes for the LED heads were obtained. One manufacturer offered a 10-year replacement warranty on the LED heads. The price quotes from this manufacturer were used to develop the LED rates. Sales tax and overhead costs were then applied.
- Installation costs – For NYSEG, the labor costs per light were estimated assuming a two man crew with an average installation time of a half hour. Overheads costs were then applied.

For RG&E, an estimate of the Company’s lighting contractor’s costs was assumed and then overheads were applied.

- Depreciation – A book depreciation of 29 years and a tax depreciation of 20 years was used to develop the rates for both the new LED heads and the high pressure sodium heads for the current light offerings. The Companies did not include any costs for the removal of the current lights.
- Taxes – A federal and state income tax rate of 39.225% was used.

A property tax estimate was based on a percentage of 2015 property tax expense as compared to average gross plant less general plant.

- Operation and Maintenance - A maintenance expense estimate was based on a percentage of 2015 street lighting expense and a general plant allocation as compared to average distribution plant. One hundred percent of this percentage was applied to the current light calculations and 20% of this percentage was applied to the LED lights.
- Capital structure – The cost of capital reflects a common equity ratio of 48% and return on equity of 9% per the second year of the Companies’ current rate plans.

LED Wattage	Lumens	Replaces Non-LED Options	Non-LED Billing Watts	Average Decrease in Kilowatt-hours per Month	NYSEG LED Cobra Monthly Rate	NYSEG Current Cobra Options Monthly Rate	Fixture Estimated Cost/(Benefits)	Delivery Charge (per kWh) Estimated Cost/(Benefits)	Estimated Surcharges/NBC Estimated Cost/(Benefits)	Estimated Supply Estimated Cost/(Benefits)	Estimated Cost/(Benefits) per Lamp
34	3,000	100 Watt Incan	130	34	\$ 7.56	\$ 6.01	\$ 1.55	\$ (0.96)	\$ (0.28)	\$ (1.33)	\$ (1.02)
34	3,000	50 Watt HPS	58	8	\$ 7.56	\$ 7.79	\$ (0.23)	\$ (0.24)	\$ (0.07)	\$ (0.33)	\$ (0.87)
34	3,000	70 Watt HPS	83	17	\$ 7.56	\$ 7.79	\$ (0.23)	\$ (0.49)	\$ (0.14)	\$ (0.68)	\$ (1.54)
34	3,000	70 Watt MH	95	21	\$ 7.56	\$ 4.76	\$ 2.79	\$ (0.61)	\$ (0.18)	\$ (0.84)	\$ 1.16
34	3,000	100 Watt HPS	117	29	\$ 7.56	\$ 7.79	\$ (0.23)	\$ (0.83)	\$ (0.24)	\$ (1.15)	\$ (2.45)
34	3,000	100 Watt MH	120	30	\$ 7.56	\$ 4.76	\$ 2.79	\$ (0.86)	\$ (0.25)	\$ (1.19)	\$ 0.50
34	3,000	100 Watt MV	127	33	\$ 7.56	\$ 4.25	\$ 3.31	\$ (0.93)	\$ (0.27)	\$ (1.28)	\$ 0.82
66	6,300	150 Watt HPS	171	37	\$ 8.49	\$ 7.79	\$ 0.71	\$ (1.05)	\$ (0.31)	\$ (1.45)	\$ (2.10)
66	6,300	175 Watt MH	210	50	\$ 8.49	\$ 4.68	\$ 3.81	\$ (1.44)	\$ (0.42)	\$ (1.99)	\$ (0.04)
66	6,300	175 Watt MV	210	50	\$ 8.49	\$ 4.25	\$ 4.25	\$ (1.44)	\$ (0.42)	\$ (1.99)	\$ 0.40
113	10,000	250 Watt HPS	313	70	\$ 8.38	\$ 7.79	\$ 0.60	\$ (2.00)	\$ (0.59)	\$ (2.76)	\$ (4.75)
113	10,000	250 Watt MH	313	70	\$ 8.38	\$ 15.16	\$ (6.78)	\$ (2.00)	\$ (0.59)	\$ (2.76)	\$ (12.12)
113	10,000	250 Watt MV	292	63	\$ 8.38	\$ 4.44	\$ 3.94	\$ (1.79)	\$ (0.52)	\$ (2.47)	\$ (0.84)
166	15,000	400 Watt HPS	486	112	\$ 12.31	\$ 8.23	\$ 4.08	\$ (3.20)	\$ (0.94)	\$ (4.42)	\$ (4.47)
166	15,000	400 Watt MH	486	112	\$ 12.31	\$ 15.16	\$ (2.85)	\$ (3.20)	\$ (0.94)	\$ (4.42)	\$ (11.40)
166	15,000	400 Watt MV	460	103	\$ 12.31	\$ 4.51	\$ 7.80	\$ (2.94)	\$ (0.86)	\$ (4.06)	\$ (0.06)

Assumptions:

Average monthly hours	350
Delivery rate (per kWh)	\$ 0.028540
Surcharge rates	
Transition charge	\$ 0.000137
Reliability support svcs. chg.	\$ 0.001411
NY state assessment	\$ 0.000987
SBC charge	\$ 0.005836
	<u>\$ 0.008371</u>
Supply rates	
Variable supply charge	\$ 0.034662
Merchant function charge	\$ 0.004810
	<u>\$ 0.039472</u>

Attachment: LETT 2016-012-15 NYSEG_RGE LED Street Lights (7179 : Streetlight conversion)

Rochester Gas and Electric Corporation
LED Rates Compared to Current Cobra Head Lamp Offerings

Attachment 2
Schedule 2

LED Wattage	Lumens	Replaces Non-LED Options	Non-LED Billing Watts	Average Decrease in Kilowatthours per Month	RG&E LED Cobra Monthly Rate	RG&E Current Cobra Options Monthly Rate	Lamp Estimated Cost/(Benefits)	Estimated Surcharges/NBC Estimated Cost/(Benefits)	Estimated Supply Estimated Cost/(Benefits)	Estimated Cost/(Benefits) per Lamp
34	3,000	100 Watt Incan	116	29	\$ 2.78961	\$ 5.00707	\$ (2.22)	\$ (0.32)	\$ (1.02)	\$ (3.56)
34	3,000	50 Watt HPS	58	8	\$ 2.78961	\$ 1.35087	\$ 1.44	\$ (0.09)	\$ (0.30)	\$ 1.05
34	3,000	70 Watt HPS	81	16	\$ 2.78961	\$ 1.74397	\$ 1.05	\$ (0.19)	\$ (0.58)	\$ 0.28
34	3,000	70 Watt MH	95	21	\$ 2.78961	\$ 3.03650	\$ (0.25)	\$ (0.24)	\$ (0.76)	\$ (1.25)
34	3,000	100 Watt HPS	116	29	\$ 2.78961	\$ 2.34396	\$ 0.45	\$ (0.32)	\$ (1.02)	\$ (0.90)
34	3,000	100 Watt MH	130	34	\$ 2.78961	\$ 3.00362	\$ (0.21)	\$ (0.38)	\$ (1.19)	\$ (1.79)
34	3,000	100 Watt MV	133	35	\$ 2.78961	\$ 2.94013	\$ (0.15)	\$ (0.39)	\$ (1.23)	\$ (1.77)
66	6,300	150 Watt HPS	171	37	\$ 5.31661	\$ 3.28976	\$ 2.03	\$ (0.41)	\$ (1.31)	\$ 0.31
66	6,300	175 Watt MH	210	50	\$ 5.31661	\$ 2.89083	\$ 2.43	\$ (0.57)	\$ (1.79)	\$ 0.07
66	6,300	175 Watt MV	210	50	\$ 5.31661	\$ 4.24947	\$ 1.07	\$ (0.57)	\$ (1.79)	\$ (1.29)
113	10,000	250 Watt HPS	290	62	\$ 8.26851	\$ 5.51141	\$ 2.76	\$ (0.70)	\$ (2.20)	\$ (0.14)
113	10,000	250 Watt MH	300	65	\$ 8.26851	\$ 2.89436	\$ 5.37	\$ (0.74)	\$ (2.33)	\$ 2.31
113	10,000	250 Watt MV	300	65	\$ 8.26851	\$ 5.64947	\$ 2.62	\$ (0.74)	\$ (2.33)	\$ (0.44)
166	15,000	400 Watt HPS	460	103	\$ 13.75454	\$ 8.24538	\$ 5.51	\$ (1.16)	\$ (3.66)	\$ 0.69
166	15,000	400 Watt MH	460	103	\$ 13.75454	\$ 2.89436	\$ 10.86	\$ (1.16)	\$ (3.66)	\$ 6.04
166	15,000	400 Watt MV	460	103	\$ 13.75454	\$ 8.57456	\$ 5.18	\$ (1.16)	\$ (3.66)	\$ 0.36

Assumptions:

Average monthly hours	350
Surcharge rates	
Transition charge	\$ 0.000131
Reliability support svcs. chg.	\$ 0.003605
NY state assessment	\$ 0.001120
SBC charge	\$ 0.006417
	<u>\$ 0.011273</u>
Supply rates	
Variable supply charge	\$ 0.031358
Merchant function charge	\$ 0.004169
	<u>\$ 0.035528</u>

Attachment: LETT 2016-012-15 NYSEG_RGE LED Street Lights (7179 : Streetlight conversion)



Tompkins County Council of Governments

Governor Daniel D. Tompkins Building
Ithaca, NY 14850

Meeting: 07/27/17 03:00 PM
Department: Legislature Office
Category: Fiscal
Functional Category:

SCHEDULED

INFORMATION ITEM (NO DISCUSSION INTENDED) NO.

DOC ID: 7100

TCCOG Bylaws (reference information for Reserve Fund discussion)

Tompkins County Council of Governments Bylaws
Amended 9/22/2016

I. Name

The name of the organization shall be the Tompkins County Council of Governments (TCCOG).

II. Purpose

TCCOG is an association of local governments within Tompkins County, organized to provide a forum for discussion and negotiation leading to agreements for more efficient and fiscally responsible delivery of government services.

The goals include: expanding cooperation among taxing entities and resolving duplication of services, improving communication among local governments in Tompkins County and improving involvement with School Districts.

TCCOG may seek, allocate and administer appropriate funding from local, state, federal and private sources, including various grants, to support the accomplishment of the goals.

Agenda items should reflect actionable items for local governments, or topics applicable to the health, safety and welfare of residents within Tompkins County.

III. Membership

A. Designated Members:

Each Municipality shall select an elected official as a designated representative/member.

All other elected officials are welcome to attend and participate in the discussions.

B. Alternate Members:

Each municipality shall select an Alternate Member to attend if the Designated Member is unavailable. The Alternate Member may, or may not, be an elected official.

Each municipal Clerk shall provide TCCOG with a certified copy of a resolution appointing its Designated Member and Alternate Member and the term for which the individual(s) are being appointed.

IV. Voting

A. Designated Members:

The Designated Member from each municipality shall exercise voting rights on behalf of that municipality at TCCOG meetings.

B. Alternate Members:

In the absence of the Designated Member, the Alternate Member shall exercise voting rights on behalf of that municipality at TCCOG meetings. Only one vote is allowed per municipality.

All other elected officials are welcome to attend and participate in the discussions, but may not vote unless they become the Designated or Alternate member.

V. Officers

The officers of the TCCOG will be two Co-Chairs-one being the Primary Chair and the other the Secondary Chair-and a Vice Chair.

A. Nomination and Election of Officers

Officers will be nominated by TCCOG from among its Designated or Alternate members and approved by a majority vote of those present, in person.

B. Term

The term of officers shall be for three years total. Officers will be elected to serve
in year one as Vice Chair,
in year two as Secondary Chair and
in year 3 as Primary Chair,

based on the calendar year, beginning on January 1 after the term of the Primary Chair expires. As the term for Primary Chair expires, the Secondary Chair shall become the Primary Chair, the Vice Chair shall become the Secondary-Chair, and a new Vice Chair elected.

C. Vacancies

Should a vacancy occur in any office of TCCOG, the Council will elect a replacement from among its members, and approved by a majority vote of those present in person, to fill out the remainder of the term of the Co-Chair or Vice Chair.

A vacancy occurs only upon the receipt of a letter of resignation or conclusion of a member's term as an elected official.

D. Duties

The officers of the TCCOG shall undertake the duties commonly associated with their positions. The Co-Chairs shall set agendas and preside over Council meetings, with the Primary Chair having the ultimate responsibility for both. In the absence of both Co-Chairs, the Vice Chair shall preside.

E. Support to the Council

The County Administrator will continue to provide staff support and assistance to the Council. The staff support shall include minutes and agendas as well as special projects as needed. The County Administrator must approve special project support.

VI. Meetings

Meetings will be held monthly at an established date and time in a County building that is centrally located within the County. The first meeting of the year shall be an organizational meeting. Meetings shall be open to the public.

A. Quorum

A quorum shall consist of a majority of the membership.

B. Voting:

Each municipality shall have one (1) vote cast by their Designated Member or Alternate, in the absence of the Designated Member. Decisions are based on a majority vote of those present at the meeting, if a quorum is present.

No municipality is bound to participate in the majority decision of the Council.

C. Participation by TCCOG Members

The person chairing the TCCOG meeting shall call the meeting to order and chair the meeting. Members should raise their hand when they would like to speak and wait until acknowledged by the Chair. The Chair may allow more informal discussion.

D. Participation by Individuals Outside TCCOG

Participation by the public will be at the discretion of the person chairing the TCCOG meeting, but is not normally permitted.

VII. Funding Reserve

Resolution No. 3 adopted on November 18, 2010 created a funding reserve to provide a modest source

of one-time funding for projects that are of mutual benefit to the majority of municipalities within TCCOG, and that serve the broadest interests of all members.

- A. Voluntary Contribution:** A voluntary contribution should be set on an annual basis with a periodic evaluation of need for additional funds.
- B. Requests for use of Funds:** Proposals to appropriate funds must be received by TCCOG Board at least one week prior to a TCCOG meeting.
- C. Approval of Funds:** Appropriation of TCCOG reserve funds shall be made based by a 2/3 majority vote of those attending the TCCOG meeting where the proposal is being presented and discussed.

VIII. Bylaws

Bylaws may be adopted or amended by a two thirds (2/3) vote of constituent members in person. There must be advance notification of changes given before a vote.