



HO – Using “Demons in the Light” Film/Video Modules 2021-07-26



Vicious storms are now part of our new reality as climate change roars into action. Increasing amounts of carbon dioxide are pumped into the air as coal and gas power plants produce more electricity and, as a consequence, the earth is heated at an increasing rate. Unfortunately, much of the power produced is used as light waste in our communities. Judicious use of lighting can reduce the production of CO₂ and slow climate change.

Note: Also see other documents on the LEC Web Site for additional information on "Demons," related resources and activities. The "Demons" transcript is important in lieu of taking notes and is available on the "www.Light-EfficientCommunities.Com" web site.

Background - About This Film:

A. Film Characteristics:

Format: 4K - UHD video production (MP4)

Resolution: The film has been shot and edited in 4K format for highest quality.

Availability: This film and related resources are available through <http://www.light-efficientcommunities.com/> and www.YouTube.com

YouTube.com: Note: Choose the highest resolution format and full screen when viewing this film. YouTube.com cuts off part of the picture when viewing in small screen format. Headphones are suggested for best audio quality.

Colour/BW: Colour

Film Length: 30:18 min.

Related Information Length: 2:40 min.

Full Length: 32:58 min.



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Production Date: 2020

Target Audience: anyone with an interest in artificial light and its effects on people, flora, fauna, the night environment and climate change.

Goal: to increase the knowledge and understanding of the threats and costs of the use of artificial light at night and to eliminate or minimize those costs as much as possible.

Reading Level: Grade 8 and above

Producer / Director: Rod E. Mc Connell, B.Ed., M.Ed., P.P.C., S.S.C.

This film is designed as an **overview** which means that it lightly covers the main topics and concepts which can later be handled in greater detail by related media such as video modules, printed handouts, self-education computer programs, web sites, etc..

Due to the breadth of the topic of Light Waste, only an overview can contain the basic information that most people will want and be able to understand. Based on scientific research and findings, the concepts are made simple, straight- forward and readily understood.

Main concepts are presented along with examples so that the viewer understands what light waste is and the many, serious negative consequences of its existence. One can later access related resources of web sites and scientific research documents which are able to treat the subjects in as much greater detail as the learner wishes.

Thus, the problem is presented and

understood. The presenter is then able to provide more information through various related media and ways in which the problems may be solved specific to his/her community's situation.

B. Film Goals:

What was the producer trying to accomplish in terms of the viewer?

1. introduce the concept of light waste
2. increase awareness of the extent of light waste throughout the world
3. identify the types of lighting that are causing the most light waste
4. increase awareness that almost all of the energy currently used to light streets and other areas is wasted as heat
5. increase awareness that most of the light created in a luminaire is also wasted through over-lighting and uncontrolled lighting in a community
6. increased awareness of more efficient LED luminaires, the waste levels of current luminaires, etc.
7. introduce the various types of costs (energy, financial, community costs) associated with the use of artificial lighting
8. introduce how living organisms (humans, flora and fauna) are seriously and sometimes fatally affected by light waste



9. promote the necessity and urgency in getting communities and individuals to control and minimize light waste in order to reduce the various types of costs to the individual, the community, flora, fauna and the night environment

10. link light waste and its effects to the use of carbon fuels by electrical power plants and promote the minimization of carbon fuels for electrical production

11. link light waste to the production of green house gases by power plants and their effects on climate change

12. promote individual and community actions to reduce and eliminate light and resource waste in the community

13. encourage further learning and teaching about light waste, its effects and how it can be eliminated or minimized

14. provide a learning path for those who are interested in pursuing more information about light waste and programs to eliminate or minimize its effects

15 promote increased interest in learning and experimenting in various sciences involving light, lighting and effects

16. promote the concept of "dark skies" and its necessity for a better quality of life and improved health of people, flora, fauna and the night environment

17. promote other learning resources about light waste and its effects

C. Production Goals:

The goals for the production process in making of this film:

1. to complete the film as soon as possible (considering other commitments and the unacceptable lighting situation)

2. to keep production costs as low as possible (considering there was no budget for this film)

3. to avoid "talking face" television and provide real examples to make the concepts more realistic, relevant and impactful

4. to use YouTube.com as a major distributor of the film on a world-wide basis

5. to keep the concepts directly relevant to the knowledge and experiences of most viewers

6. to use little technical language so as to foster greater and easier understanding

7. to use text and visual examples to which the viewer can easily relate with their everyday experiences

8. to provide quality sound, images and video that are relevant to the topics and experiences of the viewer

9. to limit the length of the film to approximately 30 minutes in order to accommodate the limits which most presenters have in making presentations



10. to ensure that viewers have a memorable and valuable learning experience that they will want to use and build on throughout life

11. to ensure that the viewer can quickly and easily find relevant sources of information by referencing the LEC web site

- 6. Flora
- 7. Fauna
- 8. The Night Environment
- 9. Climate Change

D. Film Contents:

The content of the film is divided into 4 major areas; Background, The Problem, Light Waste and Additional Information.

1. Background

How mankind has developed lighting that now poses a major world-wide risk to the health of humans, flora, fauna and the night environment.

2. The Problem

Artificial lighting has created major, serious and sometimes fatal problems for all living things subjected to artificial lighting at night around the world.

3. Light Waste - The Costs

The film is divided into the following topic areas.

- A. Energy Costs
- B. Financial Costs
- C. Community Costs
 - 1. Light Waste
 - 2. Health
 - 3. Culture
 - 4. Education and Research
 - 5. Quality of Life

4. Additional Information

Note: After the end of the film, there are additional information screens directing the viewer to available related resources.

E. Why is There a Need for this Film?

In this initiative there exists the necessity to reduce light waste and its effects and the need to change the attitudes and values of people who use and control artificial light at night. This film is to help enable them to identify, understand and minimize light waste in all they do at home, work and in any other environment. The question is, how can you create an attractive educational program which is going to deliver the essential basic concepts effectively and efficiently at minimal cost at home or in an educational setting?

Media is, of course, an excellent means of transmitting a message and ensuring that the content and concepts presented are consistent and effective. However, most media are very expensive and time consuming to design, develop, produce and distribute. That is why producing appropriate, quality media that is freely and publicly available is so important along with downloading the message then duplicating and distributing it at minimal cost.

A widely-varied combination of backgrounds and talents are required to



produce effective media of high quality.

Also, access to a major, world-wide distributor is vital in order to get information quickly and economically into the hands of people who then have the power to make change and make a difference in the world.

Advocates of better lighting control and use need inexpensive, effective media resources in order to make presentations to city councils, civic groups, educational groups, interested individuals, institutions, etc.. A full colour, moving film is the most attractive multi-media and is often the best way to transmit a set of concepts when followed up with related media (print, web site URL's, etc.)

Until recently, producing a film was a very expensive undertaking. However, high quality cameras of relatively low price have dramatically cut the costs of some parts of production which had formerly been a major stumbling block to creating video/film. This fact, combined with the talents of dedicated, knowledge-able volunteers and certain web sites on the WEB, has made possible the creation of excellent, well produced media which make the efforts of the advocate much more simple and highly cost effective.

“Demons” owes its existence to the rapid changes in technology and volunteer work and the cooperation of companies such as YouTube.com which allow for the quick, free upload/download of films/videos that provide public access to information on almost any topic on a world-wide basis at no cost. In this case, though copyright protected, free downloads, duplication and

distribution rights have been granted to help ensure the information is easily and freely available to any interested party.

F. Producing the Film:

This film is the result of ten years work in the area of light waste and its effects. Having education and backgrounds in sciences, education, media and communications, I saw a shortage of good materials to educate people about light waste and its effects and materials which would assist them in trying to get changes made in their communities.

I began to develop my own light-related materials for use with interested individuals to community councillors. I knew the materials had to provide the concepts quickly, easily and attractively in order to have the impact needed to promote activity on their part.

Also, the materials had to be easy to read, and contain little in the way of technical jargon since many and various technical topics had to be covered.

As well, the materials also had to be based on scientific research and its findings. (Some of the findings were so startling that, at first, they were ridiculed.) Linking artificial lighting at night to effects on living things did not support many of the "common sense" approaches used by those who actually worked in the lighting industries. (Obviously, they were not keeping up with scientific research, were unwilling to acknowledge the problems and findings and unwilling to change.)



(The American Medical Association prepared an excellent listing of scientific research reviewed in preparation for its controversial policy on community lighting. Download the Policy Document from <http://www.light-efficientcommunities.com/>)

I initially prepared a set of print handouts and related materials which I made available on the WEB by starting my own web site. I gathered photos from many spots around our city that showed excessive use of light, light waste and problems created by light waste. These photos were quite effective in obtaining the attention of my city counsellors and others who could now relate them to the waste of light, waste of energy and waste of taxpayers' money.

Since many people prefer to watch films/video instead of reading, I began to develop my idea of creating a film which would bring the same concepts across but in a fashion that would please the eye and encourage the mind to think and react to the issues involved.

I began to not only shoot relevant stills but also video to supplement the existing printed materials. Many facets of my background were indeed coming in handy in order to get top quality video segments and weave them into short videos that concentrated on certain aspects of light waste. These "video modules" were then uploaded to YouTube.com for distribution to anyone interested. My web site also took care of the usual printed materials and a "Quick Course" in light waste and pollution was eventually developed. Relevant documents were also collected and made available.

Using "Demons in the Light" for educational purposes:

The prime objective for the creation of this film is to assist those who need learning/teaching materials to assist them in self-education and the education of others ranging from individuals to small groups to formal institutions and conferences, etc..

A. Personal Education:

Most people will ask the question "Why should I be interested in light waste, trespass, glare or light pollution?" Indeed, most people will not recognize some or all of the words above as having any significance in their lives.

However, knowing these words and understanding them in a lighting, energy and environmental context will extend one's knowledge to many new realms, most of which will affect the individual to a greater or lesser degree. Most people do not understand that the light they use and abuse may be affecting them in many ways: financial, energy use/abuse, personal health and well-being, the environment in which he/she lives, his/her value system, flora and fauna, etc., etc..

Learning about light waste and its effects can encourage one to make simple changes in the way in which he/she uses light on a personal level. It may also incite one to become involved in an organized movement to make changes to improve lighting in many facets of the local community or even on a provincial or federal basis.



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"Demons" attempts to provide an overview of the many areas of our lives that are affected by our use and abuse of light. In the process, it also seeks to change attitudes and values about light and its effects on every facet of our lives.

In the space of half an hour "Demons" should definitely answer the question of "Why should I be interested in light waste?"

There are many questions which will undoubtedly follow from the information provided in the film.

Choose a time to view the film when you are not going to be interrupted. Make yourself comfortable with a pen and notebook to record any further questions or comments you may have. Remember that you can pause the film at any point or reverse to a previous point to ensure you understand the commentary. Once finished, review your notes and add others as desired. Particularly, note the minute or so of notes at the end of the film after the credits. Keep the notes and notebook and use it as you go through the “Quick Course” in the LEC Web Site.

The next step is to go to the LEC Web Site and familiarize yourself with its content. On the first pass, I would recommend that you slowly flip through the site noting the content of the various sections and the related media linked to each section. These related media can then be accessed as you go through the section and read and printed as desired.

(Remember, there is no charge for this information. It may be downloaded,

duplicated and distributed as needed without charge though copyright is retained and all items must remain in the original form without alteration.)

Once having completed the initial perusal, users would typically work through the site, familiarizing themselves with light-related concepts and materials then using those materials to further educate themselves and others.

Users are encouraged to delve further into the topics, particularly as they pertain to the local situation. Contacting the local lighting authority and city council members with questions about local lighting and city policies is greatly encouraged.

"Demons" is a film that has a wide scope which incites one to undertake further research in his/her particular topics of interest then form a plan of action involving the reduction of light waste on at least a personal basis if not further.

An on-going randomized evaluation of "Demons" by viewers of various ages (15-76), educational levels, lifestyles and backgrounds has given "Demons" an approval rating over 90% plus! Of the survey responders, the following percentages said 'YES' to each of the following important questions. Thus, "Demons" met most extremely important goals through this film.



"Demons in the Light"

- Evaluation Results:

D. Impact:

1. [100%] Yes [] No Do you feel that the film had an impact on you?

2. [100 %] Yes [] No Do you feel that the film has increased your attitudes against artificial lighting waste at night?

3. [100 %] Yes [] No Do you now feel a greater urgency to eliminate or minimize light waste and pollution in your community?

4. [91%] Yes [9] No Are you now more willing to take some action to eliminate light waste?

5. [100%] Yes [] No As a result of seeing the film, do you now feel that your municipal council should take action to eliminate or minimize light waste and pollution in your community?)

(A copy of the survey may be downloaded from the LEC Web Site, completed and forwarded by e-mail to my e-ddress. This would be greatly appreciated.)

Note that this set of survey questions were specifically targeted to get information on the impact of the film and change in attitudes and values of the user, if any.

These results are directly related to the goals and objectives of the film and indicate that the film was highly successful in these areas of prime concern.

B. Group Presentations:

Although "Demons" may be used very effectively in a personal educational setting, group presentations will also benefit substantially from its use as an introduction into this topic.

1. Formal Presentations

Formal presentations are often limited to an hour. "Demons" was designed to be 1/2 hour long to provide the main concepts in light waste without tedious detail. It was designed as well to emphasize the importance of reducing light waste to promote the prevention or minimization of serious negative effects.

Thus, the "Demons" film may be used as an excellent introduction to the concept of light waste and those effects. After the film has finished, a discussion on light waste and possible remedies may be held along with ideas for further research, involvement and actions.

If time permits, video modules from the set on YouTube.com may also be shown which, along with available documents, will provide more details for a specific area of interest. Presenters should allow sufficient time for an in-depth discussion of the film and its implications.

The film may certainly well serve as an incentive for a group to form to minimize light waste within a company, organization, community or city. Educating people belonging to this group is of prime



importance for its success as they will, without doubt, be queried about their understanding of light waste and its effects as well as solutions.

(Any presenter wishing to use the video modules and other materials should thoroughly familiarize themselves with the materials before use!)

Presenters are reminded that they should ensure their audience members know where and how to locate the information they need via the LEC website. (Again, although these resources are copyrighted, they may be downloaded, duplicated and distributed freely without charge.)

A typical presentation may follow the format below:

1. Presenter introduced to the audience
2. Presenter introduces "Demons"
3. Run the "Demons" film
4. Re-iteration of the main concepts covered in the film
5. Related resources revealed
6. What concerns the group or organization?
7. The goals and objectives of the presenter's organization relative to light waste and the community
8. Questions from the audience
9. Discussion
10. Speaker Evaluation
11. Presenter contact information
12. Adjournment

2. An Excellent Presentation Alternative:

As an excellent alternative, presenters may prefer to use a 3-step presentation system

consisting of

1. a pre-presentation information package
2. the presentation itself
3. post-presentation activities

1. A. The Pre-Presentation Information Package:

The goal here is to educate the attendees, to a certain degree, pre-presentation so that the time actually together is primarily spent interacting in a variety of ways, clarifying concepts and ensuring understanding of the materials, concepts, concerns, goals and objectives as well as possible planning for any future activities.

Approximately a month in advance, an information package is sent to each attendee or it may be downloaded from a conference or other web site. This should be organized well in advance to ensure that all attendees know of the package and what they are expected to complete in specific tasks prior to the presentation. This would consist of goals and objectives of the presentation, some background materials, a listing and location of other resources to review prior to the presentation and possibly some related activities around the home, work and community. It should be clearly stated that attendees are expected to complete certain activities on their own if that is to be the case. This should include viewing the "Demons" film where attendees view the film, make notes, etc for discussion at the presentation itself.

In this case, attendees may view "Demons" on YouTube.com and possibly some video modules as well as specific documents from the LEC web site. A necessary activity here



may be completing the "Quick Course" on lighting on the LEC web site.

Attendees should then come to the presentation having a basic understanding of the main concepts and be able to carry on informed discussions about the chosen topics.

This approach, if done properly, usually results in a more positive attitude towards the presenter's goals.

b. The Presentation:

The 3-step approach allows more time to be spent on interaction, discussing the topic and emphasizing important points as well as answering specific questions. It also allows more time for proposing and defining future activities, their organization, goals and objectives, approaches, resources, etc..

The presenter must formulate specific goals and objectives, approaches and treatments for his/her presentation, keeping in mind what should have been learned in the pre-presentation section and the goals and activities of the post-presentation as well.

c. Post-Presentation Activities:

Most presenters fail to seriously think about what activities the attendees should undertake after the presentation that will further consolidate the learning and concepts presented leading to specific actions that should be taken.

A list of activities should be provided which provides enrichment of the topics discussed, contact information for the presenter or

organization which he/she represents, worthwhile activities which will reinforce what has been learned such as:

- forming a working group which will analyze the local situation and prepare recommendations for further action
- locating local resources which can be applied to local lighting problems
- developing a list of local organizations which have similar concerns about pollution of the local environment
- developing contacts and relationships with these organizations
- doing a home audit of light wasting luminaires, changing them out, etc..
- evaluating light waste in the neighbourhood
- locating spots of over-lighting and light waste
- finding examples of bad and good lighting in the neighbourhood, if possible
- preparing a computer-based photo scrap book of the community lighting at this time
- talking with their neighbours, counsellors, etc. about light waste, its costs, effects and solutions, etc.
- forming a local organization to prevent, minimize or eliminate waste light throughout the neighbourhood, community, etc.
- plans to educate the community about light waste, its costs, effects, elimination or minimization, etc. through existing organizations, if possible
- invite a local astronomy group to hold a “Star Night” and to help educate the public about astronomy, light waste and pollution. Invite members of this group to join the LEC group as well.
- invite representatives from nature conservation groups to discuss common



- goals and objectives and how they may be better achieved through common actions
- contact local media to create articles or video segments on the group's concerns and activities as well as lighting problems in the community
- 'adopt' a local municipal politician(s) and invite him/her to work with the group to get policy changes made regarding lighting. Provide him/her with a LEC information package, LEC resources via the Web and invites to meetings, etc.

This list is only a very limited short list of actions that can be undertaken in the post-presentation phase. However, here is where creativity can run rampant and a variety of approaches can lead to attaining the same goals.

Of prime importance is that the audience is familiar with the problems, concepts, resources and solutions available. From the web site they may be downloaded and used to facilitate their own learning and/or the teaching of their audiences. As can be seen from the above list, there are many real, meaningful, valuable activities that can be undertaken by individuals or groups working toward the same goals.

H. Related Resources:

You may wish to hunt for more information on light waste, trespass, glare and pollution through a variety of means:

- use the search function on the Web (the best source by far)
- print media (books, pamphlets, documents, etc.)
- video/film media including YouTube.com)

- organizations with like interests (nature conservation, taxpayers' associations, etc.)
- human resources - people with an interest in this area or some parts thereof

1. *Light-EfficientCommunities.com*

This web site is the hub for information and media on light waste, trespass, glare and pollution along with recommendations as to how to choose LEC-Compliant lighting, etc..

Included, as well, is the "Short Course" on the above lighting factors which is accompanied by links to relevant documents and videos on the various subjects covered.

Direct links to related "Demons" videos on YouTube.com are also available on the LEC web site.

2. *YouTube.com*

Use the search box on YouTube.com to locate "Light-Efficient Communities". There are approximately a dozen videos which provide more detailed information on specific topics covered in the "Demons" film.

3. *The American Medical Association*

The AMA undertook a thorough review of research involving artificial lighting and its effects on the community, its people, other living things and the night environment. The results were, in many cases, shocking. This then resulted in a policy which communities should consider in planning light control in



their communities. Refer to the policies which was derived from this research and an extensive listing of research and its results by downloading the AMA reports from www.Light-EfficientCommunities.com

4. *The International Dark Sky Association (IDA)*

This association is primarily concerned with the creation of dark sky preserves and protecting dark skies throughout the world. This organization has a membership structure and may be contacted through its web site at: www.darksky.org

5. *Local Astronomical Clubs and Associations*

In Canada, the Royal Astronomical Society of Canada (RASC) has chapters in most large cities. (Go to the web site at: www.RASC.ca) Some communities have their own organizations. Each Society may have a "Light Abatement Director" who may assist you. Consult your local community's organizations directory and the Web for assistance.

6. *Local Institutes of Learning* such as colleges and universities have organizations to promote learning in various areas and professional human resources to assist you. Contact the faculty which will best be able to answer your questions.

7. *Local Scientific Organizations* with an interest in human, flora, fauna and night environment health and welfare.

8. *Local museums and such institutions* with an interest in biological, physical

sciences, etc. Check your local directory for listings and contact information.

9. *Your local library*

Your local librarian may have some suggestions of various media available there or elsewhere to search.

Notes:

When using media in a teaching situation always ensure that the equipment is in perfect running condition or employ someone who knows how to run it properly.

Ensure that you have an extra copy of the material you are going to use as video or computer-based media. One never knows when a piece of software is going to develop a glitch.

Know and use the video or other controls for the media you are using in order to get the full advantage that this media offers. Fast forward, pause, reverse, loop and other functions can be great aids when teaching.

Determine how your media are going to complement each other so that a learning path is built which makes it far more interesting and informative for your audience. There are print and video media on the LEC web site which complement each other.

Consider people as learning resources as well. Many people have considerable expertise which can assist you in your learning, teaching and activist roles.