



# WORKBOOK III

## Grand Renewable Energy Park

*We look forward to the CLC's continued engagement in this project!*

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### CLC Meetings to Date

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<u>Meeting</u>	<u>Status</u>
#1. November 20, 2012 at the McSorley Family Hall, Cayuga	Completed
#2. May 29, 2013 at the New Credit Community Centre, Hagersville	Completed
#3. November 20, 2013 at the Fisherville Community Centre	Completed
#4. TBD	2014

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### KEY CONTACTS:

- Overall project information: Beatrice Ashby, Senior Manager Renewable Energy Approval (Samsung Renewable Energy) 905-501-5663
- Haldimand County: Kris Franklin (Haldimand County) 905-318-5932 ext.6421
- Construction: Garry Kinson, Senior Project Manager (Engineering and Construction) 289-455-1401

The following meeting objectives were met at the November 20th meeting:

- Continue to learn about the Project and construction process
- Continue an open dialogue relating to potential community concerns regarding construction, operation and decommissioning of the Project.

### MEETING AGENDA: MEETING 3

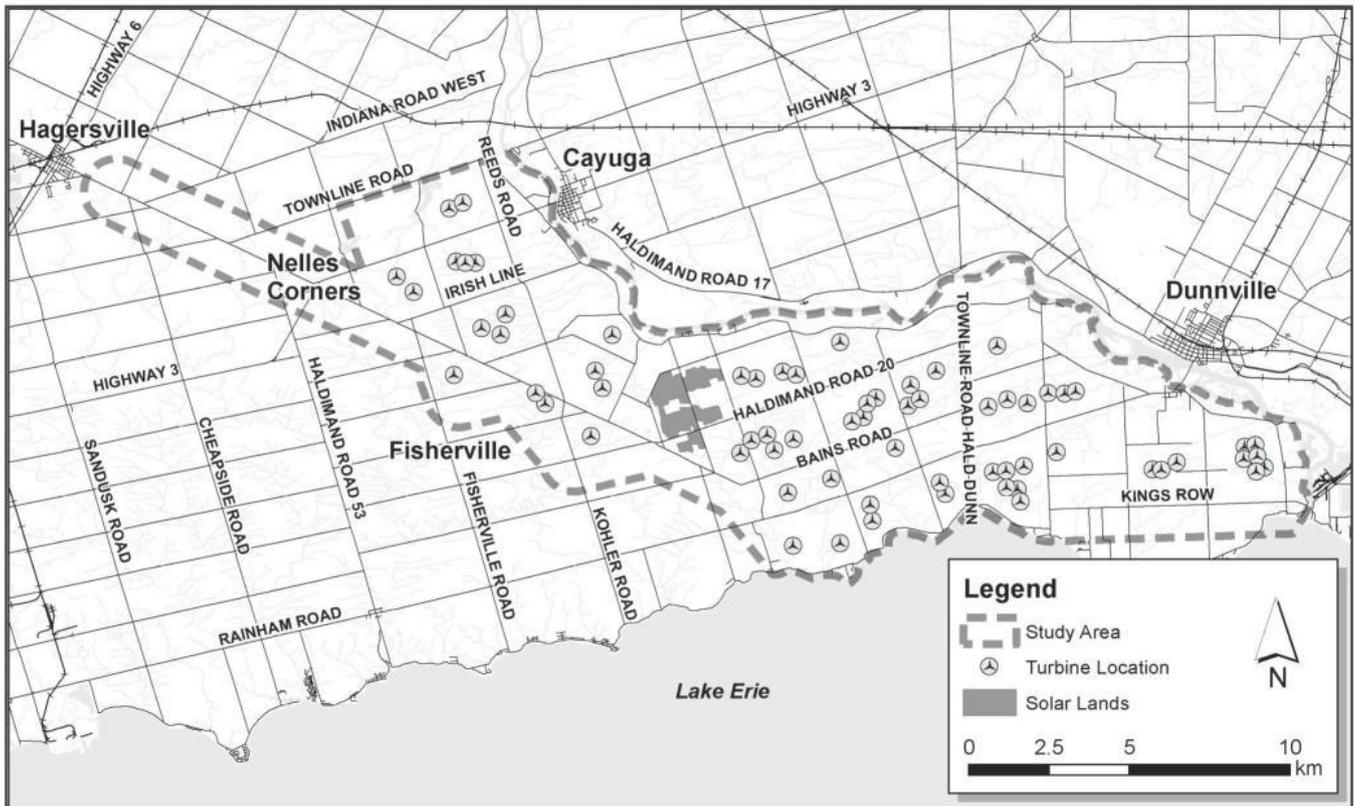
- Introductions and Key Project Contacts
- GREP Project News
- Potential Community Issues
- Communicating During Construction
- Question & Answer Period
- Next Meeting

## HOW DID WE GET HERE?

The Grand Renewable Energy Park (GREP), which consists of the *Grand Renewable Solar Park* and *Grand Renewable Wind Park*, received Renewable Energy Approval (REA) in June 2012 from the Ministry of the Environment (MOE). The wind and solar power cluster, located in Haldimand County, will generate approximately 250 megawatts (MW) of power; 150 MW of wind and 100 MW of solar power.

Approvals for these projects were granted by the MOE subject to several terms and conditions including the establishment of a CLC for the construction, operation, and decommissioning phases of the projects. The formation of the CLC reflects a continuation of positive interaction with the community developed during the approval process, which included public meetings, a project website, presentation to council, project newsletter, and on-site meetings with landowners.

## STUDY AREA



## QUICK REFERENCE

CLC – Community Liaison Committee

MW - Megawatts

GREP – Grand Renewable Energy Park

REA – Renewable Energy Approval

MOE – Ministry of the Environment

SRE – Samsung Renewable Energy

## **PROJECT UPDATE CONTINUED**

# **GREP PROJECT NEWS**

The following comments and questions from the CLC members were answered and discussed:

### **1. Surveys and Permits:**

- Archeological studies for the wind component of the GREP are generally complete with assessment on some sites continuing into 2014.

### **2. Solar & Wind Facility Construction**

Overview of what the community can expect during winter, summer and spring months.

- Construction activities will be ongoing for the next 10—9 months.

#### Wind Facility

- Pouring of foundation and laying down of cables for the wind turbine electrical systems will continue through July 2014.
- The construction of access roads continues and turbines are scheduled to start arriving at the end of January 2014.
- A substation will be built after the turbines are delivered. Two large transformers are scheduled to arrive in June 2014.
- Tentative operation date for the Grand Renewable Wind Park is expected in *September–October 2014*.

#### Solar Facility

- The development process is complete and the CLC can expect construction activity around Winston Road and Haldimand Road 20 with the set up of two laydown areas.
- Installation of the solar component will take place in the first quarter of 2014.
- Construction will be staged on an area by area basis in a counterclockwise process from Meadows Road to Haldimand Road.

## **PROJECT UPDATE CONTINUED**

### **GREP PROJECT NEWS**

#### Traffic Movement

- The CLC members asked about the direction of transport for wind turbine materials. The Project Team informed the CLC that all turbine deliveries are coming from the West; blades (approximately 50 m in length) will come from Tillsonburg. The tower sections will come from Windsor and the Nacelles will come via Naticoke. Lakeshore road was also noted as a priority transport route before cottage residents return and use the road more frequently.
- Truck traffic is expected to subside by the late summer of 2014.
- Trails were noted by the CLC as an important recreational land use, particularly for winter snowmobile and ATV riders. One of the snowmobile trails is close to 50 Road. The Project Team indicated that long term impacts to trails is not expected.

**ACTION ITEM:** Project Team to follow up on the location of trails as they correspond to project areas. Representative (Mike Wilson) from Haldimand area ATV club suggested that a trail map can be shared with the Project Team.

#### Job Opportunities & Construction Materials

- The CLC members asked where materials (e.g. rebar and concrete) are being manufactured. In response, the Project Team stated that rebar and other supplies are manufactured in Ontario and that several workers are local.
- The CLC members wanted to know who was supplying rebar and the Project Team advised that Salit in Hamilton was the supplier.

#### Complaints Management and Hotline

- There are a number of opportunities to obtain information, ask questions or express concerns.
  - Key contacts are noted on the front page of this workbook.
  - Key resources are also provided as web links on the final page of this workbook.

### **3. Overall Project Schedule**

- The CLC members were informed that night time construction may be required over the winter to maintain the project schedule, but that night time construction is unlikely.
- The Project Team advised the CLC that the months of February and March will be the “Half Load Season”. This means that transport on local roads is prohibited by the local municipal authorities. The CLC members can expect construction traffic to stop during these months.

## WHAT'S THE COMMUNITY SAYING?

### QUESTIONS:

What issues have you heard from the community regarding the following project phases? What issues do you anticipate as we move forward?

#### Construction

1. Visibility (berms and fences): the CLC is concerned with the visibility of fences around the solar facility and the overall construction of berms.

Response: Bondfield Solar contractor (Greg Rossetti) clarified that fencing (2.1 metres high with three strands of barb) will be on the inside of berms and that a small portion of chain link fence will be visible from the road. The fence will be set-back from the berms. The berms will be built before the fence is installed. Berms are 6 metres wide and 2 metres high. Excess materials from construction are used to make berms. The CLC members can expect a ground covering of low-growth clover vegetation for the solar component of the GREP.

**ACTION ITEM:** Project team to confirm if hay or soy beans can be grown on the Solar Park.

2. Night-time Visibility (navigational lighting): There is concern in the community about the impact of navigational lights from wind turbines.

Response: the CLC was informed that navigational lights (like other related tower infrastructure) will always be visible from the horizon. However, the Project Team is looking into using shades or collars for the navigational lights so residents close to lighted turbines will not be impacted.

**ACTION ITEM:** Project team provided examples of typical navigational light mitigation measures that are being considered for the Project. (Attached)

3. Grading and impacts to watercourses: the CLC raised a number of questions related to grading and drainage around the project lands.

Response: Approximately 100 small bore holes were sampled by geologists and planners in order to gather information for grading and filling of the solar facility area. Topsoil and drainage slope in the solar facility area is very gradual and does not require a lot of earth moving. In low spots, the Project Team will layer clay and top soil for even grading.

Culverts will be installed for the solar facility and wind facility where required to allow for appropriate drainage. An overall design for the solar facility area was submitted to Haldimand County Council for review. All grading will take place in the third to fourth quarter of 2014.

## WHAT'S THE COMMUNITY SAYING?

### QUESTIONS CONTINUED:

#### Operation/Maintenance

1. Land use post-construction: The CLC questioned whether it would be possible to farm the areas of land located outside of the solar facility (e.g. west of the solar access road).

Response: No lands within the project area are to be used until completion of construction. Local farmers may have access to lands after construction is complete, but depends on individual agreements and arrangements with landowners. Generally, the Project Team does not see any issues with using land after construction is complete.

The CLC was notified that the use of land will need to be further discussed.

It was noted that setbacks from natural features (wetlands/woodlands) have been incorporated into the project design as described in the Renewable Energy Application (REA) for this project.

**ACTION ITEM:** Project Team to review the future use of specific land parcels. Due to construction, any use of land is not possible until the project is complete.

2. Major Road Remediation/upgrades: CLC members expressed concern about roads around the perimeter of the project and their restoration.

Response: Kris Franklin (Haldimand County) clarified that the County will restore roads after construction is complete.

## WHAT'S THE COMMUNITY SAYING?

### QUESTIONS CONTINUED:

3. The CLC is concerned about speeding.

Response: The Project Team ensured the CLC that they have a zero tolerance for speeding and a full health and safety plan that all Project Team workers must abide by.

### Operation/Maintenance

1. Internet and Cable Connections of Residents: Residents are concerned that the turbines will impact internet/cable service that many residents rely on. The CLC members suggested that Samsung erect a communication tower to support and improve internet/cable connection in the area.

Response: The Project Team noted that internet/cable interruptions are not anticipated. It was also noted that a similar concern was expressed for a Wind Project in Chatham-Kent Ontario. It has been observed that constructed wind turbines do not seem to have a negative impact on internet/cable services.

**ACTION ITEM:** Project Team to inquire about the impacts of wind turbines on internet and cable connection.

2. Reliability of wind: the CLC was interested in understanding how power is shared and delivered. The Project Team discussed at length the details of power generation and the sharing of power sources across Ontario. The CLC members were encouraged to follow-up with the Independent Electricity System Operator (IESO) website provided in these meeting notes (see "key resources" on the next page).

**Decommissioning:** No questions related to decommissioning were raised by the CLC.

## HOW CAN WE KEEP THE LINES OF COMMUNICATION OPEN?

### COMMUNICATING DURING CONSTRUCTION

#### KEY RESOURCES FOR THE CLC:

- County's resource website with feature video and frequently asked questions: <http://www.haldimandcounty.on.ca/greenenergy.aspx>
- IESO information link for Ontario Energy demands: <http://www.ieso.ca/>
- Project website: <http://www.samsungrenewableenergy.ca/haldimand>

Consultation and communication during construction is important to keep the community informed.

#### CLC Ideas and Responses

Ideas expressed by the CLC and community include:

To date, the Project Team has responded with the following communication and consultation activities:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Provide updates on the project using a monthly column or information notice in a local paper, such as the Sachem Post.</li> <li>• Monthly Newsletter</li> </ul> | <ul style="list-style-type: none"> <li>• Article in the Sachem Post.</li> <li>• Project updates provided on the project website.</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Project hotline, Facebook and/or Twitter to share project information and respond to inquiries.</li> </ul>  | <ul style="list-style-type: none"> <li>• Available via telephone and e-mail to answer questions and concerns.</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Site Office</li> </ul>  | <ul style="list-style-type: none"> <li>• Project website, telephone and e-mail services.</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Presentations to community groups, such as the Dunnville Lions Club, to share information and answer questions.</li> </ul>                                      | <ul style="list-style-type: none"> <li>• Ongoing CLC Meetings</li> <li>• Presentation to Lion's Club</li> <li>• A Landowners Dinner</li> <li>• Groundbreaking Reception</li> </ul> |

## TowerSHADE™ helps you overcome light pollution challenges

From citizens groups to municipal governments to national associations, there is a groundswell of concern about tower siting – concerns that can lead to significant and costly delays in the tower siting process. Light pollution created by FAA-mandated obstruction lighting is one of the most pressing of these concerns.

TowerSHADE™ is the only effective solution on the market today to control nuisance light from tower obstruction lighting. TowerSHADE comes in models that fit most major types of FAA-approved obstruction lighting while still allowing your lighting to meet or exceed all FAA standards.



### Why should TowerSHADE be part of your lighted-tower installation?

- ❖ At a fraction of overall tower building costs, TowerSHADE can save you time and money by providing more flexibility in siting towers and speeding local government approvals
- ❖ As an effective part of your toolkit, TowerSHADE can help prevent objections from municipalities and residents' groups to your tower construction (including in scenic or protected areas)
- ❖ TowerSHADE eliminates 97% of nuisance light within the targeted area while maintaining FAA standards for aerial visibility
- ❖ The patented\* TowerSHADE product line fits all major FAA-approved beacon lights (see other side)
- ❖ TowerSHADE's modular design means that customer orders are filled and shipped without delay
- ❖ Light, durable composite materials and advanced design mean easy installation, long service life and low maintenance – ice does not stick, birds do not nest!
- ❖ Retrofitting existing towers with TowerSHADE is fast and easy as it installs directly onto the base of existing lights

\* Pat. 2197271 Canada; Pat. 5.980.069 USA

“TowerTEX's tower light deflector (TowerSHADE™) has proven itself to be an effective tool for us in resolving municipal concerns about light pollution during the tower siting process. TowerSHADE™ also allows us to locate towers on more cost-effective sites in residential areas.”

James Kennedy  
Manager, Real Estate and Government Affairs, Telus

### TowerSHADE's composite advantage

At the core of TowerSHADE and all TowerTEX products is the use of advanced composite materials called Fiber Reinforced Plastics (FRP), like those used in the aerospace industry.

TowerTEX's FRPs are sophisticated and environment-friendly. The unique patented design and advanced manufacturing techniques give TowerSHADE the following advantages:

- ❖ Low environmental impact – the expected product lifetime is double that of stainless steel
- ❖ 25% of the weight of stainless steel (cheaper transportation and easier installation)
- ❖ Low maintenance due to FRPs. No corrosion, de-icing or snow accumulation problems
- ❖ The unique, patented design discourages birds from building their nests in the product

### TowerSHADE is catching on!

Leaders in the telecommunications and tower industries such as Rogers, Bell Mobility, Telus, Advanced Towers, Westtower and Skyward are already using TowerSHADE to overcome siting objections due to light pollution.

Here are just a few of the hundreds of communities that have addressed light pollution issues with municipal ordinances:

Decatur, Opelika, Athens – Alabama; Johnston County, Stokes County, Person County, Catawba County – North Carolina; Kinderhook, Mt. Vernon, Ossining – New York; Ebro, Neptune Beach, Gretna, Midway, Liberty County – Florida; Walkersville, Maryland; Saluda County, SC; Shenango, Jefferson, Findley, Fairview – Pennsylvania; Rio Rancho, New Mexico.

Hundreds more towns and more than half of all states across the US, including Alabama, Colorado, Connecticut, Florida, Maine, Massachusetts, New Mexico, North Carolina, Pennsylvania, South Carolina, Texas and Vermont are currently developing or reviewing light pollution legislation.

In Canada, TowerSHADE is already being used effectively in over twenty counties and municipalities, including Brockville, Owen Sound and Muskoka in Ontario and North Hatley, Quebec.

Reduces nuisance light by 97% within a 2-mile diameter (based on light placed atop a 250-foot tower)



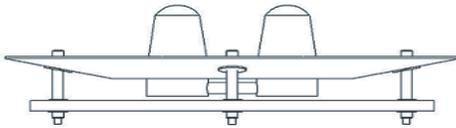
TowerSHADE™ has been lab-tested and upholds FAA specifications on most major FAA-certified obstruction lighting systems

## TowerSHADE Models

### TSO-3-1 Low Intensity Steady Burning Red Obstruction Light

FAA Type: L-810 (Red)

ICAO Type: Low Intensity Obstacle Light



### TS-5-1 Medium Intensity White Lighting

FAA Type: L-864(Red)/L-865 (White)

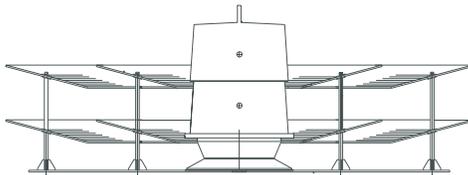
ICAO Type: Medium Intensity Obstacle Light



### TS-5-2 Medium Intensity Dual Lighting System (Flashing)

FAA Type: L-864/L-865 (Red/White)

ICAO Type: Medium Intensity Obstacle Light



## TowerTEX

Putting composites to work for the telecom and energy industries

TowerTEX is a leader in the field of sophisticated engineered composites using advanced manufacturing techniques. TowerTEX designs, manufactures and markets structural towers and related products for the telecommunications and energy industries.

The TowerTEX team brings together decades of experience in telecom infrastructure, power transmission, and composite engineering.

TowerTEX takes full advantage of its strategic alliances with leading universities and research centers. This combination of real-world experience and research horsepower has positioned TowerTEX as the industry's most advanced tower solution provider.



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www.towertex.com  
info@towertex.com

TWR/Orga Community Friendly Lighting Solution Information.

**L450 Minimized Light Output below Zero Degrees**

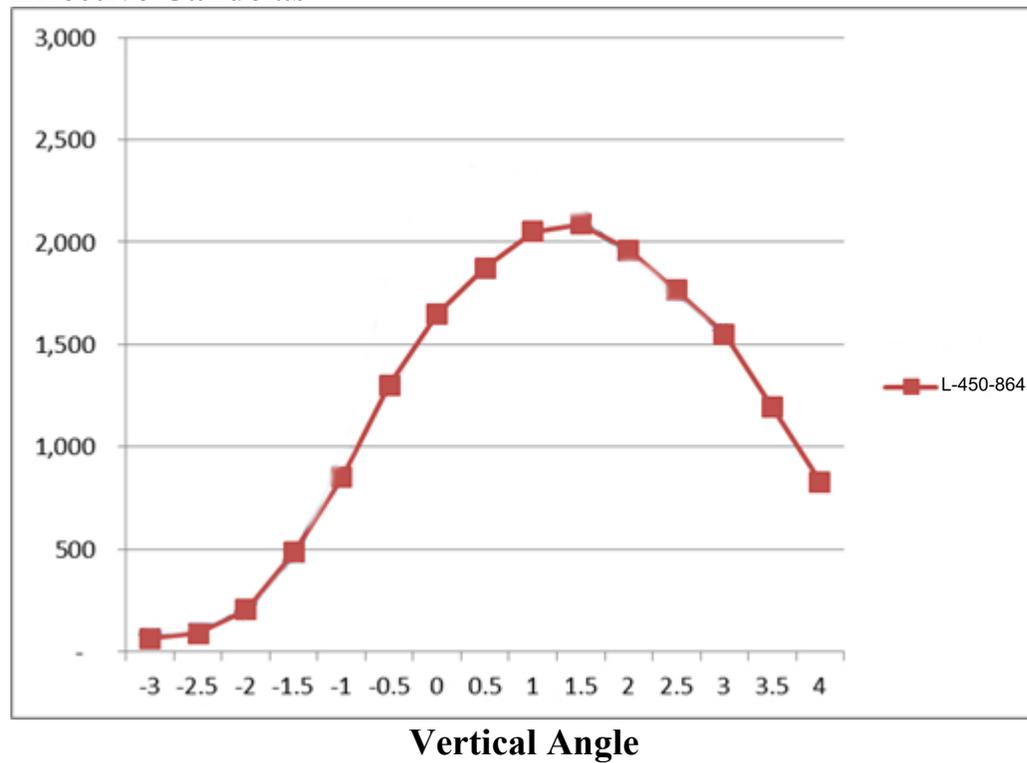
All Obstruction Lighting manufacturers that offer product for sale in the USA must meet the design requirements of Federal Aviation Administration (FAA) Advisory Circular AC150-5345-43G, Specification for Obstruction Lighting Equipment. In addition we also must meet the design requirements of the International Civil Aviation Organization, Annex 14, Volume 1 as these products are utilized throughout the world. The operation characteristics beam pattern, beam intensity, flash rates and other operation requirements are specified for all Lighting Systems installed on obstructions over 150 feet above ground level by both of these organizations. In the USA the FAA recommends the proper lighting configuration (FAA Type and quantity) for each and every obstruction over 150 feet through the FAA Determination process for new construction or alterations as required in Advisory Circular AC70/7460-1K. The lighting requirements increase for conspicuity the closer you are to an airport or area of aircraft activity.

The Orga L864 Red Medium Intensity LED Beacons are designed to specific requirements of the AC150-5345-43G as well as Annex 14 Volume 1. The Orga L450-864(G) and L450-864/865(G) have a 3° main beam pattern that is achieved by using Proprietary Optical Technology in combination with high performance LED's. The main light output beam pattern is from 0° to +3° and has a peak effective intensity of 2,000 Candela at +1.5° and minimum effective intensity of 1500 Candela at +3°. Below 0° the light output is minimized and continues to drop to 70-80 Candela or 7.43 foot candle at -3°. These photometrics are tested and verified by Intertek(ETL) Testing Laboratories (the FAA's and ICAO's independent 3<sup>rd</sup> party certifier). All manufacturers must meet these requirements in order for their product to be FAA and/or ICAO certified.

The Orga L450-864(G) and L450-864/865(G) Proprietary Optical Technology incorporates the sharpest cutoff angles allowed by the FAA and ICAO to minimize ground scatter. This system has proven to be the most community friendly available with over 50,000 systems installed Worldwide. The rare calls received regarding light pollution are based on the fact that a community is not used to seeing any lights at all on the horizon. They are typically more curious about them than irritated, since they are now seeing several synchronized lighting systems where none previously existed.

**L450-864(G) Vertical Light Beam Photometric Chart  
as Certified by Intertek(ETL) Testing Laboratories**

**Effective Candelas**



**L450-864(G) Visual Vertical Beam Width Confirmation**

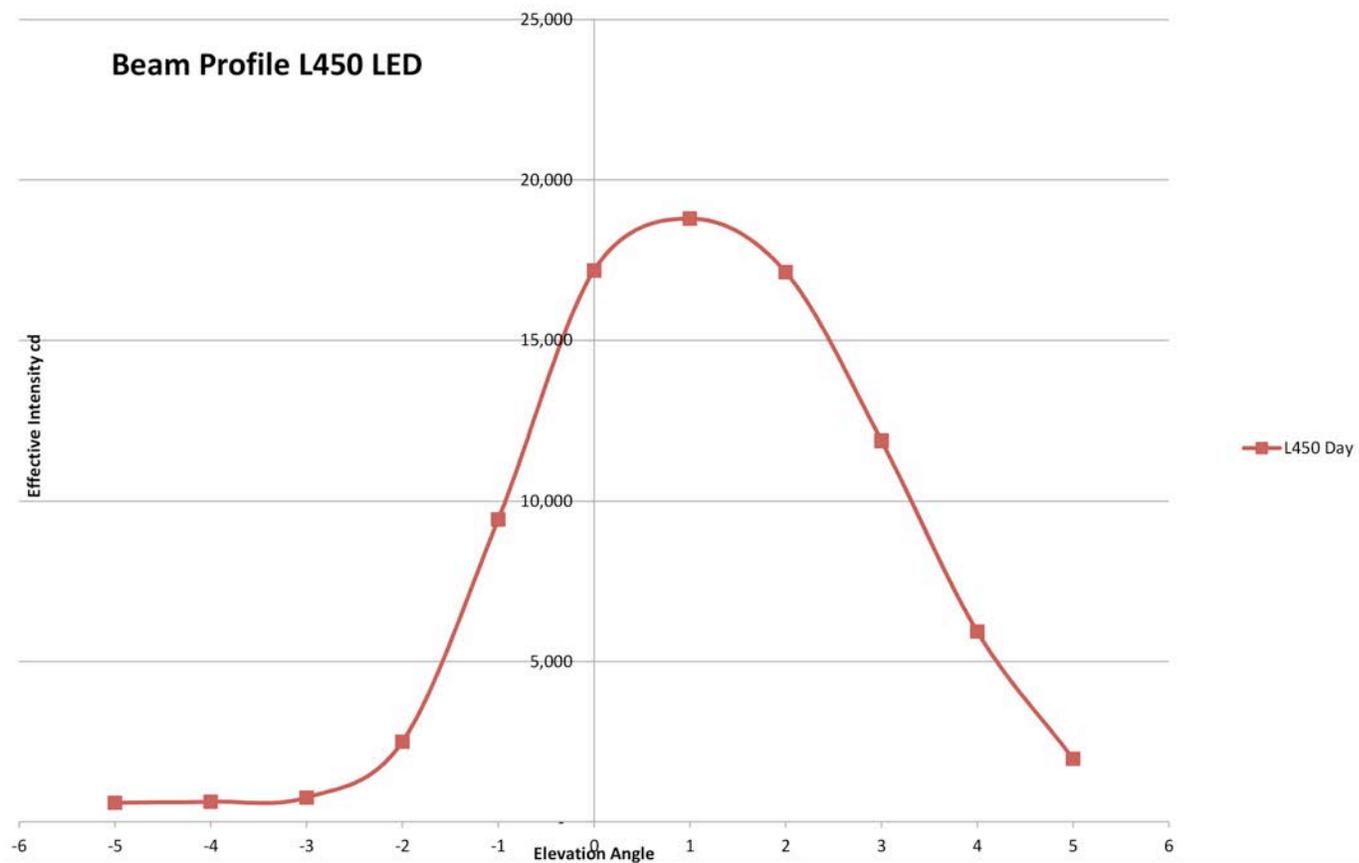


**L450-864(G) Visual Vertical Beam Width Confirmation**



**L450-865(G) Vertical Light Beam Photometric Chart  
as Certified by Intertek(ETL) Testing Laboratories**

**Effective Candelas**



**Vertical Angle**

**L450-865(G) Visual Vertical Beam Width Confirmation**

