

**Special Meeting Agenda**  
**Tolland Green Historic District Commission**  
**21 Tolland Green, Tolland, Connecticut**  
**Wednesday November 29, 2023 at 7:00 p.m., via Zoom**  
**Remote Participation Only**

**Public Hearing**

1. Call to Order
2. Roll Call
3. Continuation: Consideration of Application for a COA at 45 Tolland Green to install low-profile solar energy collection panels to the south-facing roofs on the main church and daycare buildings (on the rear property of church). Panels are to be black and non-reflective.
4. Neighbor comments, both for and against
5. Close of Public Hearing

**Regular Meeting**

1. Call to Order
2. Consideration of the COA at 45 Tolland Green by the Commission, and vote thereon
3. Old Business
  - 3.1 Discuss proposed sidewalks on the Tolland Green
4. Miscellaneous
  - 4.1 Discuss Officers and terms
5. Approval of Minutes from October 18, 2023
6. Approval of Minutes from November 15, 2023
7. Adjournment

**To View Meeting Materials:**

See <https://www.tolland.org/historic-district-commission/pages/remote-meeting-packets-audio-recordings>

**To Join Zoom Meeting:**

**Either click:**

<https://us06web.zoom.us/j/85100583485?pwd=0CU00wXr1dz3f2Bxc4bhByjV5CbavG.1>

**One tap mobile:**

+13052241968,,85100583485#,,,,\*11292023# US

**Or call:** 1-646-876-9923 and input: 851 0058 3485

Meeting ID: 851 0058 3485

Passcode: 11292023

# Public Hearing

# Agenda Item 3



**TOLLAND GREEN HISTORIC DISTRICT COMMISSION**  
**Application for a Certification of Appropriateness**

**Property Information**

Property Address: 45 Tolland Green

Property Owner: UCC of Tolland

Phone Number: [REDACTED]

**Applicant Information**

Applicant Name: United Congregational Church of Tolland

Applicant Address: 45 Tolland Green

Phone Number: [REDACTED] Email Address: [REDACTED]

**Project Information**

Type of Building: Church and Daycare Building

Nature and description of work to be done as it affects exterior appearance. Attach appropriate drawing or plans giving the position of the house or structure on the site, ground plan of house with proposed addition, and all pertinent elevations showing size and style of windows, dormers, doors, exterior wall finishes, roofing material, chimneys, vents and ornamentation. (If more space needed, attach sheet to application.)

Installation of low profile solar energy collection panels to the south facing roofs of the main church and daycare building (on the rear property of the church). Panels are to be black, non-reflective. See attached documents for more details.

Estimated Start and Completion Dates:

Start: After Mid February 2024 Complete: Before August 2024

1. Attach a photograph of the existing structure or place to be changed as viewed from the street showing that portion of the structure to be altered, together with a drawing of the proposed alteration or change.
2. Application fee of \$75.00 must accompany application (make checks payable to Town of Tolland).
3. Application form, fee, plans, photograph and drawing must be submitted to **Planning & Building Department**. Public Hearings will be scheduled within not more than sixty-five days after the filing of an application.

Certificate of Appropriateness will expire 1 year from date of approval.

This application form and all accompanying plans and materials are accurate and complete:

Applicant Signature: Bailey Brown Jr Date: 9-27-2023

Property Owner Signature: Daryl T. Moore (Asst. Trustee) Date: 9-27-2023

-----OFFICE USE ONLY-----

|                                |                           |                    |                 |
|--------------------------------|---------------------------|--------------------|-----------------|
| Received & Fee Paid:           | <u>9/28/23 check</u>      | Hearing Scheduled: | <u>10/18/23</u> |
| Hearing Advertised:            | <u>10/4/23 + 10/11/23</u> | Action:            |                 |
| Notice of Action to Applicant: |                           | HDC Due Date:      | <u>11/27/23</u> |

RECEIVED  
 SEP 28 2023  
 BY: LS





Salisbury Congregational Church  
In a Historic District also  
Please note the low profile of the  
panels. Roof is a metal roof here.

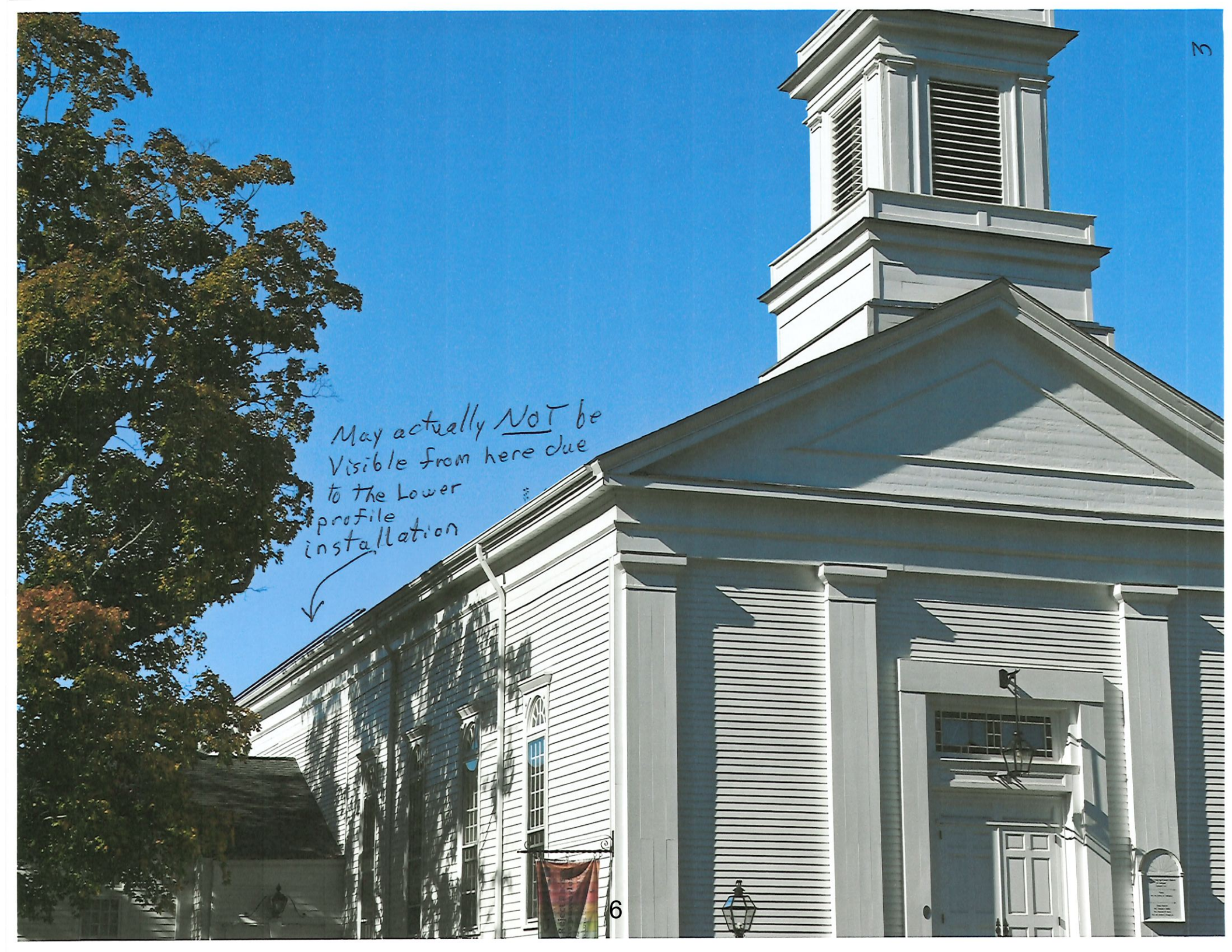


May actually NOT be  
Visible from here due  
to the lower  
profile  
installation

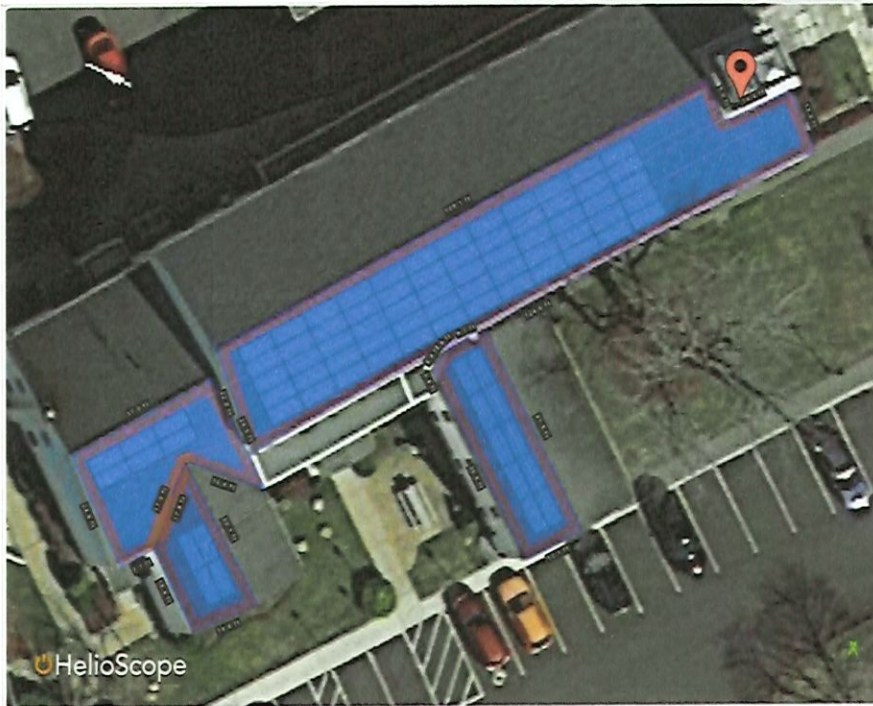


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## PANEL LAYOUTS

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1. Panels will ONLY be where the boxes are shown and not the entire shaded areas. The panels will also be black, with a flat matte finish thus non-reflective. No reflective chrome borders either.
2. Distance from the roof surface to the panels will be reduced from the usual 4-6 inches to 1.5 inches. This will make the panels appear as part of the roof itself and less noticeable to the passerby. The tree in the front of the church will also help obstruct the panels presence.
3. There will be panels on the west facing roofs of the Miller addition and classroom out of view from Rte 195. Panels are placed as far back from the street on the main church roof so that they will be less visible from the green.
4. Actual UCCT photos with lines drawn // or \\ illustrate where the panels will be visible from the street.
5. Additional photos taken between the houses on the green where the church roof is visible from the sidewalk are included with this application.



















Tollard Library Parking Lot

TO  
LI







*Church Parking Lot*



**Laura Smith**

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**From:** Laura Smith  
**Sent:** Monday, October 2, 2023 1:30 PM  
**To:** 'BAILEY BRENN JR'  
**Subject:** FW: [EXTERNAL]Re: COA Application 45 Tolland Green

Mr. Brenn,  
Below are some questions and additional information the Tolland Green Historic District Commission are asking of you. Can you please see below, and address the requests listed below for the application?  
Kindly,

Laura Smith  
Building Permit Technician  
21 Tolland Green  
Tolland, CT 06084  
860-871-3601  
[lsmith@tollandct.gov](mailto:lsmith@tollandct.gov)

*Please note the change in my email address to [lsmith@tollandct.gov](mailto:lsmith@tollandct.gov)*

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**From:** Jodie Coleman-Marzialo [REDACTED]  
**Sent:** Friday, September 29, 2023 6:56 PM  
**To:** Laura Smith <lsmith@Tollandct.gov>  
**Cc:** Rod Hurtuk [REDACTED]; Kathy Bach [REDACTED]; Ann Deegan [REDACTED]; Celeste Senechal [REDACTED]; Mariah B [REDACTED]; Michael McGee [REDACTED]; John Hughes [REDACTED]  
**Subject:** [EXTERNAL]Re: COA Application 45 Tolland Green

Hi Laura,

I have a few questions and need more information:

1. Can you please ask how many solar panels will be installed in total (broken out per roof). I counted 70 and want to confirm.
2. Provide a realistic view of what they will look like. Something from the solar company with pictures of the same non-reflective panels on an existing roof.
3. A realistic picture of the view of the main church building with the front south facing tree removed for future visibility.
4. And why the delay in the installation?

Thanks,  
Jodie

5.

## Laura Smith

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**From:** BAILEY BRENN JR [REDACTED]  
**Sent:** Tuesday, October 3, 2023 1:03 PM  
**To:** Laura Smith [REDACTED]  
**Cc:** Alholm, Hannes; Brenn Jr, Bailey; Jeff Gallagher; Christine Hutton; Lewis, Chris; Moore, Doug; Lois Pabst; Cheryl Randino  
**Subject:** [EXTERNAL]Reply to Questions from THDC  
**Attachments:** UCCT Photo with Hash Marks where Solar Panels will be placed.pdf

To THDC, Reply to your questions,

1. Can you please ask how many solar panels will be installed in total (broken out per roof). I counted 70 and want to confirm.

**Answer:** In total there will be 105 panels (60 on the main church roof, 10 on the back side of the front "L" addition roof, 4 on the back side of the rear "L" addition roof and 6 panels on the south facing roof of the lower-level back roof of the main church). The B. Phelps building has 13 panels on the south facing south most roof and 12 panels on the south facing northernmost roof.

2. Provide a realistic view of what they will look like. Something from the solar company with pictures of the same non-reflective panels on an existing roof. **Answer:** The photo submitted of the Salisbury Congregational church is a roof done by AEC (the company that we are ready to sign a contract with) with the same panels we want to use and at the same reduced height of 1.5 inches from the roof to the panels. I have called AEC and they will send me another example of the same panels on another job that they have performed. When I receive it, I will be happy to forward it to you all.
3. A realistic picture of the view of the main church building with the front south facing tree removed for future visibility. **Answer:** I have requested this from AEC, and they are working on providing that. I am unclear why you want the tree removed from the photo. I will submit this to you when I receive it from AEC. In the meantime, I will overlap a grid where I believe the starting point of the panels on the main church roof with the tree in my actual photo that I submitted with the application. This may give you an example of what I think you are looking for. I have prepared this photo and it is attached to this email.
4. And why the delay in the installation? **Answer:** AEC will work 12 months out of the year, and they currently have other projects. For the best result for UCCT we need to get the project accepted by Eversource as eligible for the NRES tariffs which will be paid to the church if accepted by Eversource. Eversource only accepts new NRES applications twice a year, being August and February and we are hoping for approval in the February window. Once accepted AEC can begin to install within 2 to 8 weeks and complete the installation in another 2 to 3 weeks. UCCT leadership also needs time to present this to the congregation for a churchwide vote of approval. Church leadership sequence of events that we have chosen is, 1. Get approval from the THDC to go ahead, 2. Present to the church congregation for approval. 3. Apply for and get approval for receiving the NRES tariffs from Eversource and 4. Sign the actual binding contract with AEC to come and install our solar energy generating panels.

Thank You for your interest and requesting clarity,

Respectfully Submitted,

Bail Brenn Moderator UCCT









ctric  
-1244

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**Laura Smith**

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**From:** BAILEY BRENN JR [REDACTED]  
**Sent:** Wednesday, October 4, 2023 3:11 PM  
**To:** [REDACTED] Laura Smith  
**Subject:** [EXTERNAL]Updated renditions of UCCT Solar panel array  
**Attachments:** UCCT AECs street view with panels on the church.png; UCCT Solar Panels adjusted by AEC.JPG; Salisbury Church.jpeg; Salisbury Church 2.jpeg

Hello Jodie and Laura,

I have attached the new roof renditions of the street side view of the church with the panels on them which was created by AEC. Unfortunately, they were unable to remove the tree. The projected panel covered area in the real picture is where you see the light grey shading mixed in with the tree. The panels will not extend to Infront of the tree.

The deceptive light blue shading that previously went all the way to the steeple has been removed from the aerial view in the other new file. AEC altered the number of panels for the main church from 80 to 100 panels as displayed in the new rendition to scale.

The 2 other files are ones that AEC took during the Salisbury church project.

If you need more please let me know.

Respectfully Submitted,

Bail Brenn  
Church Moderator, UCC Tolland











ctric  
-1244

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# Q.PEAK DUO BLK ML-G10+ 385-405

ENDURING HIGH  
PERFORMANCE



### BREAKING THE 20% EFFICIENCY BARRIER

Q.ANTUM DUO Z Technology with zero gap cell layout boosts module efficiency up to 20.9%.



### THE MOST THOROUGH TESTING PROGRAMME IN THE INDUSTRY

Q CELLS is the first solar module manufacturer to pass the most comprehensive quality programme in the industry: The new "Quality Controlled PV" of the independent certification institute TÜV Rheinland.



### INNOVATIVE ALL-WEATHER TECHNOLOGY

Optimal yields, whatever the weather with excellent low light and temperature behavior.



### ENDURING HIGH PERFORMANCE

Long term yield security with Anti LID Technology, Anti PID Technology<sup>1</sup>, Hot Spot Protect and Traceable Quality Tra.Q™.



### EXTREME WEATHER RATING

High tech aluminum alloy frame, certified for high snow (5400 Pa) and wind loads (4000 Pa).



### A RELIABLE INVESTMENT

Inclusive 25 year product warranty and 25 year linear performance warranty<sup>2</sup>.

<sup>1</sup> APT test conditions according to IEC/TS 62804 1:2015, method A (1500V, 96h)

<sup>2</sup> See data sheet on rear for further information.



6 BUSBAR  
CELL TECHNOLOGY

12 BUSBAR  
CELL TECHNOLOGY

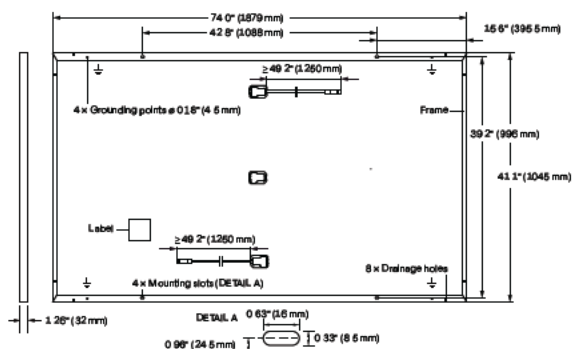
### THE IDEAL SOLUTION FOR:



Rooftop arrays on  
residential buildings

## MECHANICAL SPECIFICATION

|              |                                                                                                     |
|--------------|-----------------------------------------------------------------------------------------------------|
| Format       | 74.0in x 41.1in x 1.26in (including frame)<br>(1879mm x 1045mm x 32mm)                              |
| Weight       | 48.5lbs (22.0kg)                                                                                    |
| Front Cover  | 0.13in (3.2mm) thermally pre-stressed glass with anti-reflection technology                         |
| Back Cover   | Composite film                                                                                      |
| Frame        | Black anodized aluminum                                                                             |
| Cell         | 6 x 22 monocrystalline Q.ANTUM solar half cells                                                     |
| Junction Box | 2.09 3.98in x 1.26 2.36in x 0.59 0.71in<br>(53 101mm x 32 60mm x 15 18mm), IP67, with bypass diodes |
| Cable        | 4mm <sup>2</sup> Solar cable; (+) ≥49.2in (1250mm), (-) ≥49.2in (1250mm)                            |
| Connector    | Stäubli MC4; IP68                                                                                   |

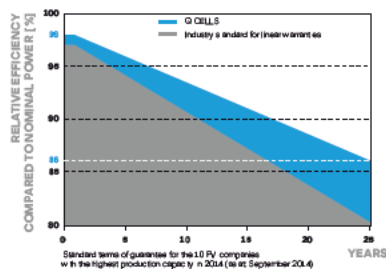


## ELECTRICAL CHARACTERISTICS

| POWER CLASS                                                                                   |                                    | 385                  | 390   | 395   | 400   | 405   |       |
|-----------------------------------------------------------------------------------------------|------------------------------------|----------------------|-------|-------|-------|-------|-------|
| MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC <sup>1</sup> (POWER TOLERANCE +5W / -0W) |                                    |                      |       |       |       |       |       |
| Minimum                                                                                       | Power at MPP <sup>2</sup>          | P <sub>MPP</sub> [W] | 385   | 390   | 395   | 400   | 405   |
|                                                                                               | Short Circuit Current <sup>2</sup> | I <sub>SC</sub> [A]  | 11.04 | 11.07 | 11.10 | 11.14 | 11.17 |
|                                                                                               | Open Circuit Voltage <sup>2</sup>  | V <sub>OC</sub> [V]  | 45.19 | 45.23 | 45.27 | 45.30 | 45.34 |
|                                                                                               | Current at MPP                     | I <sub>MPP</sub> [A] | 10.59 | 10.65 | 10.71 | 10.77 | 10.83 |
|                                                                                               | Voltage at MPP                     | V <sub>MPP</sub> [V] | 36.36 | 36.62 | 36.88 | 37.13 | 37.39 |
|                                                                                               | Efficiency <sup>2</sup>            | η [%]                | ≥19.6 | ≥19.9 | ≥20.1 | ≥20.4 | ≥20.6 |
| MINIMUM PERFORMANCE AT NORMAL OPERATING CONDITIONS, NMOT <sup>2</sup>                         |                                    |                      |       |       |       |       |       |
| Minimum                                                                                       | Power at MPP                       | P <sub>MPP</sub> [W] | 288.8 | 292.6 | 296.3 | 300.1 | 303.8 |
|                                                                                               | Short Circuit Current              | I <sub>SC</sub> [A]  | 8.90  | 8.92  | 8.95  | 8.97  | 9.00  |
|                                                                                               | Open Circuit Voltage               | V <sub>OC</sub> [V]  | 42.62 | 42.65 | 42.69 | 42.72 | 42.76 |
|                                                                                               | Current at MPP                     | I <sub>MPP</sub> [A] | 8.35  | 8.41  | 8.46  | 8.51  | 8.57  |
|                                                                                               | Voltage at MPP                     | V <sub>MPP</sub> [V] | 34.59 | 34.81 | 35.03 | 35.25 | 35.46 |

<sup>1</sup>Measurement tolerances P<sub>MPP</sub> ± 3%; I<sub>SC</sub>; V<sub>OC</sub> ± 5% at STC: 1000W/m<sup>2</sup>, 25 ± 2°C, AM 1.5 according to IEC 60904-3:2000W/m<sup>2</sup>, NMOT, spectrum AM 1.5

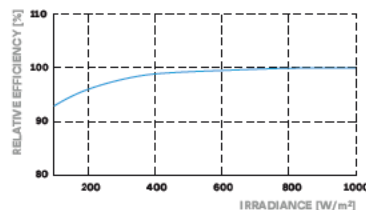
### Q CELLS PERFORMANCE WARRANTY



At least 98% of nominal power during first year. Thereafter max. 0.5% degradation per year. At least 93.5% of nominal power up to 10 years. At least 86% of nominal power up to 25 years.

All data with measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organisation of your respective country.

### PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25°C, 1000W/m<sup>2</sup>)

### TEMPERATURE COEFFICIENTS

|                                             |         |       |                                            |           |                      |
|---------------------------------------------|---------|-------|--------------------------------------------|-----------|----------------------|
| Temperature Coefficient of I <sub>SC</sub>  | α [%/K] | +0.04 | Temperature Coefficient of V <sub>OC</sub> | β [%/K]   | 0.27                 |
| Temperature Coefficient of P <sub>MPP</sub> | γ [%/K] | 0.34  | Nominal Module Operating Temperature       | NMOT [°F] | 109 ± 5.4 (43 ± 3°C) |

## PROPERTIES FOR SYSTEM DESIGN

|                                            |                        |                            |                                                 |                                         |
|--------------------------------------------|------------------------|----------------------------|-------------------------------------------------|-----------------------------------------|
| Maximum System Voltage V <sub>sys</sub>    | [V]                    | 1000 (IEC) / 1000 (UL)     | PV module classification                        | Class II                                |
| Maximum Series Fuse Rating                 | [A DC]                 | 20                         | Fire Rating based on ANSI / UL 61730            | TYPE 2                                  |
| Max. Design Load, Push / Pull <sup>3</sup> | [lbs/ft <sup>2</sup> ] | 75 (3600Pa) / 55 (2660Pa)  | Permitted Module Temperature on Continuous Duty | 40°F up to +185°F<br>(40°C up to +85°C) |
| Max. Test Load, Push / Pull <sup>3</sup>   | [lbs/ft <sup>2</sup> ] | 113 (5400Pa) / 84 (4000Pa) |                                                 |                                         |

<sup>3</sup>See Installation Manual

## QUALIFICATIONS AND CERTIFICATES

UL 61730, CE compliant,  
Quality Controlled PV TÜV Rheinland,  
IEC 61215:2016, IEC 61730:2016,  
U.S. Patent No. 9,893,215 (solar cells),



## PACKAGING INFORMATION

|                      |                  |                  |                  |                  |               |               |               |
|----------------------|------------------|------------------|------------------|------------------|---------------|---------------|---------------|
|                      |                  |                  |                  |                  |               |               |               |
| Horizontal packaging | 76.4in<br>1940mm | 43.3in<br>1100mm | 48.0in<br>1220mm | 1656lbs<br>751kg | 24<br>pallets | 24<br>pallets | 32<br>modules |

**Note:** Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

Hanwha Q CELLS America Inc.

400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL [inquiry@us.qcells.com](mailto:inquiry@us.qcells.com) | WEB [www.qcells.us](http://www.qcells.us)



Jeffrey Gallagher [REDACTED]

9/19/2023 11:28 AM

## Fwd: Solar Panels

To Bail Brenn [REDACTED]

Get [Outlook for iOS](#)

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**From:** Judith Imperatore [REDACTED]

**Sent:** Monday, September 18, 2023 7:42:46 PM

**To:** Jeffrey Gallagher [REDACTED]

**Subject:** Solar Panels

Bail,

My name is Judy Imperatore. I live at 714 Tolland Stage Road. Right next door to the X Tolland Inn. I was surprised to get your letter asking for support with the Historic District regarding your request for solar panels. Let me tell you why: last year, I was sitting in my sun room when I saw a solar panel truck come into the X Inn's driveway and began putting up panels on the roof directly in our view. I was very angry as I had gone to the historic commission when I renovated my home and was told an absolute NO on panels. How was it that these new neighbors were able to get the okay? This was in addition to the decision the commission made regarding the fencing that was placed all around their property diminishing our view as well as the aesthetic value of our home.

Here's what I discovered.

- #1. The Lewis's applied to the commission for the installation of the panels.
- #2. The commission somehow "forgot" to approve their application within a timeframe stipulated in the application. (Only two days had passed the expiration date when the Lewis's realized the town made an error.)
- #3. They then immediately hired an attorney and threatened the town with a law suit if they were not allowed to put up their panels due to the administrative error.
- #4. The town relented, not wanting to spend money on attorney fees.
- #5. Hence, the Lewis's skipped over the approval process and a review from the historic commission.
- #6. After Sue, the interim town manager I made my complain to, did a lot of research on this subject, she discovered that the historic commission has no authority under state regulations to deny any resident in CT the use and installation of solar panels.
- #7. I was adamant the town inform folks who had requested solar panels in the past be updated. I requested the town make this happen. Sue agreed this was the right thing to do.
- #8. Obvious, the town did not follow through.

I support your endeavor 100% and I would also advise you look up the state statues and regulations and present them to the town.

I am not an attorney, a town employee or an expert on state regulations, however, I wanted to share what I have experienced and what I learned.

Good Luck.

Judy's iPhone

## Solar Panel Support

To [REDACTED]

Good morning,

I want to express my support for the installation of solar panels on the United Congregational Church of Tolland and education building. Embracing solar panels on buildings on the Tolland Green demonstrates the town's commitment to both preserving the historic integrity of the site as well as the advances in clean and renewable power sources.

While I understand objection to the panels on the basis that they are not historic, that cannot be the only metric by which the Commission reviews proposals. Allowing the solar panels actually gives the Historic District Commission more credibility because it shows that it can balance maintaining the beauty of the Tolland Green with the progress that will keep this town alive and thriving.

As a homeowner in the Tolland Green Historic District, I, again, fully support the solar panel proposal before the Commission.

Best,  
Anabel

Anabel Perez Malone  
699 Tolland Stage Rd  
Tolland, CT 06084

Mitchell Doucette [REDACTED]

9/18/2023 6:12 PM

## Support of solar panels for UCC

To [REDACTED]

To whom it may concern,

I, Dr. Mitchell L. Doucette, resident of 100 Tolland Green, **fully support UCC's installation of solar panels.** I also find the need to voice my support for a private property owner's ability to make adjustments to their property antithetical to the American process.

Sincerely,  
Mitchell L. Doucette, PhD, MS  
100 Tolland Green

--  
Mitchell L. Doucette, PhD, MS



08/14/2023

To Whom it may concern;

My thoughts re our church adding solar on the roof:

I applaud the plan to add solar; it makes so much sense. A large structure such as our church affords a lot of roof space to effectively generate lots of electricity. That makes it ideal.

I hope the plan gets approved and moves forward. I commend the church leadership for developing this plan. Adding solar on buildings to generate power is what we need to do much more of around the world to reduce generation by fossil fuels.

I will be happy to look over at the church to see the solar panels just as I am when I see the ones at our neighbor's place at the former Tolland Inn.

Tom Calabrese  
59 Tolland Green  
Tolland, CT 06084



Please feel free to comment -

To BAILEY BRENN JR

We are happy to make changes if needed. If it looks good I will send it as an attachment.

Dear Tolland Historical Committee and all other relevant parties:

This letter is written in strong support for the application of The United Congregational Church in Tolland (UCCT) for solar panels on its primary and secondary buildings.

We will not spend time here spelling out the federal and state statutes for guidance to historic districts in regard to the rights of home and business owners seeking to avail themselves of renewable energy sources. Nor will we quote from the HDC's own charter on the topic. Based on experience, we know the Commission has been presented with that information on numerous occasions. Suffice to say that solar and greening of historic buildings is acceptable and even encouraged in most situations. Talking with solar contractors and historic architects, we know that historic districts all over the state and country are increasingly accepting of solar. In Connecticut, Tolland HDC has been the exception, not the rule, in denying solar applications.

UCCT is an organization that we consider the open heart of this town. In one form or another, at this location or at the north of the Green, this Church has been central to Tolland for 200 years. The UCCT is currently vibrant and financially viable, but financial projections indicate that the long-term viability of the church will require a strategy to decrease energy costs and improve efficiency. Churches all over Connecticut are closing, in part because of the increasing costs of keeping up and heating large, old buildings. It is our conviction that the value of having the Church on the Green (and we mean the Church and not the church building!) is of paramount importance to the historic district and to all of Tolland. We hope the HDC will also appreciate UCCT's ongoing contribution to Tolland and the need to support its continued presence.

UCCT is an asset to the Town, even to residents who are not members. Reverend Jeff Gallagher goes above and beyond his duties as a pastor to volunteer as a firefighter, chaplain, and sports coach. Many UCCT members are active in important roles within our community. UCCT hosts the food share, AA meetings, PFLAG Tolland-Mansfield meetings, and other community events. The church property also hosts daycare and before/after school programs at a location convenient to Tolland Intermediate School and bus routes. If UCCT were to move, there's no telling what sort of business entity would purchase the property and what that would look like for the community. But we can be certain that losing the UCCT on the Green would be an enormous loss.

UCCT's application for solar will allow the church to continue to operate and maintain the large buildings it occupies. We have been members of a church that faced financial hardship before, and it is very difficult for the leaders to continue to focus on the mission of the Church when preoccupied with paying the bills. We don't want that for our church community on the Green. Showing the UCCT and its leaders our support in their endeavors, though it won't guarantee things will stay the same, is one of the ways that our community can show them that we want them here. We want them to be successful. We want them to thrive. And if the UCCT's aim to go green is inspired by principles of stewardship, we want the UCCT to be allowed to exercise those principles where they are now, without needing to move.

And no, the community will not lose its historic designation by allowing homeowners and organizations to add solar. That simply will not happen, despite scare tactics to the contrary. Again, Tolland has been the exception, not the rule, in denying solar applications. Modern, architectural asphalt shingles really have no more historic value or relevance than solar panels.

We know other neighbors feel the same and hope you will be hearing from many of them.

Sincerely,

Lisa and Fred Day-Lewis

63 Tolland Green

Tolland, CT 06084



August 22, 2023

41 Tolland Green  
Tolland, CT 06084

To Whom It May Concern:

My husband and I live next door to the United Congregational Church of Tolland. We rent the first floor of what is commonly known as the Tobiassen House which is owned by the church. We love our spot on the Green and work hard to make sure that our home is visually appealing throughout the seasons.

We would like to take this opportunity to state that we have absolutely no issue with the church's potential use of solar panels. Having lived in a solar-paneled home 40 years ago, we do not find them unsightly. The look of solar panels has come a long way since then and we were thrilled at how much electricity we saved.

Our congregational church, like most towns in New England, is an iconic part of the town's main thruway. A building with solar panels shows that the owners care deeply for the environment and we support the church's use of solar panels 100%.

Thank you!

A handwritten signature in black ink, appearing to read "AM Carlson Dennis R". The signature is written in a cursive, flowing style.

Anne-Marie & Dennis Carlson



Kate Vallo

9/16/2023 4:50 PM

## solar panels

To

Dear Church Moderator Bailey Brenn,

Thank you for alerting neighbors about the United Congregational Church of Tolland's hope to install solar renewable energy collection panels on the church's south roof as well as on the education building. As a neighbor, I am in support of this project.

The Tolland Green has a rich history, including a history of innovation. Solar panels offer an energy solution that is innovative, while also being low profile enough so as to not distract from the historic charm of the neighborhood.

Good luck with the project!

Kate Vallo  
80 Tolland Green  
(former UCCT parsonage!)



# New Materials (received since last meeting)



Date: 10/27/2023

To: Tolland Historical District Commission

RE: A response to the Historic District Commission's request to remove solar panels from the roof of the main church at the October 18<sup>th</sup>, 2023 meeting concerning the United Congregational Church of Tolland's (UCCT) application for COA to install Solar Energy Collection Panels on the UCCT property at 45 Tolland Green.

We have heard your concern and we are working with our installation company to do everything possible to meet the redesign recommendations while still maintaining our electric generation requirements.

The following are the direct steps that UCCT and AEC Solar have taken in an attempt to address the concerns of the Tolland Historic District Commission (THDC):

-- We have moved as many panels as possible from the main UCCT roof to the Barbara Phelps building and other roofs on the main church. We believe that the visual impact of the panels left on the main church roof is minimal during the winter and even less so when the trees have full leaves. The panels included in the current design are the minimum needed to generate adequate energy to make this project viable to Eversource and for UCCT to qualify to receive tariffs from Eversource (for the electricity sent back out to the local grid and qualify for the 30% rebate back to the church).

--The solar panels unable to be moved from the main roof of the church in the updated design are installed from the rear of the south facing roof forward ending at the Miller Room addition (which is the perpendicular outcropping nearest the road, Rte. 195). Please see the updated panel footprint included with this communication. By placing the panels as far back on the main roof as possible, the current configuration has no panels extending beyond the tree in the church's side yard. In the new design diagrams provided by AEC we are using the rear (west) facing roofs and other roof surfaces on the main church whose surfaces are not visible from the street. We are also moving some panels off of the main church roof to one of the south facing roofs of the Phelps Building (Daycare). This will require trenching the array power cable from the Phelps building to the main church and connecting to one of the solar panel arrays on the main UCCT building. Eversource can credit that energy production to the main church via the main church electric meter. Both the main UCCT building, and the Phelps building have their own separate electrical meters and accounts with Eversource. Eversource policy is that it can only measure and credit energy production from the meter that the energy is traveling through to determine the credits.

-- The Phelps building solar energy redesigned (after 10/18/2023) plan for producing electricity will come from panels on the remaining space on the south facing roof and by moving other panels to the west facing Daycare building roof.

Taking into consideration the Town of Tolland zoning and Tolland Fire codes regulating rooftop solar installations and emergency access to roofs in the event of a fire, this revised plan has maximized all the

available surface area on both buildings, thus limiting the number of solar panels on the main church roof.

--In response to questions at the October 18, 2023 meeting we looked into some other proposed options.

Building a free standing pedestal or ground mounted solar panel array on the grassy area between the church parking lot and the woods in the rear of the church property. This is not feasible for 2 reasons. First, the grassy area is used as a playground for the daycare children thus it is inappropriate to place electrical producing equipment near children. Second, the woods will significantly reduce the solar light exposure to only mornings and midday before being shaded by the trees to the west in the afternoon.

--Constructing a church parking lot carport where panels could be moved from the main UCCT building roof to the carport roof. Unfortunately this suggestion, is cost prohibitive for the church (please see the attached email thread from AEC regarding the cost of constructing such a structure). In addition, we believe this structure would detract from the charm of the Green and our property.

--Using geothermal. In order to maintain temperature only, running this system 24/7 would be using more electricity than the church currently does now (in order to pump the water to and from the ground and then circulate air through the buildings). There is no central air system in either the church building or the Daycare and the current systems would have to be modified to one central air system. Creating a central air system was explored during the Covid 19 outbreak to improve air quality. This would have cost \$50,000 (in 2021 cost estimates), for just the sanctuary, on top of the other costs of installing geothermal.

--Installing EV Charging Stations. We believe this would be a security risk for UCCT and the residents of the Historic District as it would be open to the public 365/24/7. It would not be possible to monitor the stations at all times and would also significantly increase the price of the whole project.

In closing, as members of the Historic District, we enjoy Tolland's rural New England charm and architectural appeal. This was taken into consideration for our initial presentation on October 18, 2023. We sent a letter to all the residents of the Green explaining what our plans were and asking for their support and thoughts. One letter was returned unopened due to an invalid address. UCCT received a total of 10 letters and emails supporting our plan, all of which 8 were submitted for the October 18<sup>th</sup> meeting, two of the 10 letters were received post 10/18/2023. Not one received expressed any concerns. The letters referenced of concerns at our initial meeting came from 2018.

Today, rooftop solar panels are a very common sight. They are much less reflective, and generally not seen as a detraction, as they may have been viewed in the past. Though minimally visible from the Green, we believe that the panels, make a statement that UCCT takes seriously our commitment to caring for the environment—something we believe is asked of us, in the Bible, as a way of living out our faith in the world. In addition, with an aging congregation, and seeking to remain financially solvent in the future so that we can continue to support our community, we believe it is imperative that we reduce our expenses and attract new and younger members. We believe the addition of these panels meets all of those objectives.



Thank you for your time and consideration. We look forward to talking with you further at our meeting on November 15, 2023.

Sincerely,

Bail Brenn, UCCT Moderator

# Solar Power Project

## for the UCCT Tolland Green Learning Center Barbara Phelps Building

### Opportunity

Earthlight Power LLC of Ellington Connecticut is offering a Power Purchase Agreement (PPA) with UCCT to install a 23kW solar system on the roof of the Barbara Phelps building in return for a 20-year lease to purchase power from them at \$0.10 k/Whr. With this arrangement, UCCT has the opportunity to contribute to energy conservation at no cost to UCCT with a savings potential of around \$2000/yr for electricity for the building, and likely increased savings over the next 25 years.

### Specifics of the Business Case

The TGLC typically consumes 25,000 kWhr/year of power, which has been steady over at least the last three years. The cost for power has ranged between \$0.17-\$0.24 kWhr and most recently the cost has been \$0.173 kWhr. This includes transmission/distribution/service charges of around \$0.02/kWhr. The system is eligible for a Zero-Emissions Renewable Energy Credit (ZREC) from the State of Connecticut paying \$0.10307/kWhr to offset power generation cost for 15 years. The PPA requires UCCT to sign the ZREC over to Earthlight LLC and in return Earthlight will install and maintain the system for 20 years and charge UCCT a fixed power cost of \$0.10 kWhr for 20 years. This provides a cost savings to UCCT of about \$0.08 kWhr which will likely escalate over the 20-year period.

The table below shows the savings projected by Earthlight assuming about a 3%/yr increase in power cost and a 0.25%/yr decrease in panel power generation efficiency. This estimate indicates a total savings to UCCT of \$2,055 in year 1, \$2,622 in year 10, and \$3,436 in year 20, for a cumulative savings of \$53,796 after 20 years.

| Year ->                         | 0   | 1       | 2       | 3       | 4       | 5        | 6        | 7        | 8        | 9        | 10       | 11       | 12       | 13       | 14       |
|---------------------------------|-----|---------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Depreciation Schedule           |     | 60.00%  | 16.00%  | 9.60%   | 5.76%   | 5.76%    | 2.88%    |          |          |          |          |          |          |          |          |
| Allowable expense to depreciate | \$0 |         |         |         |         |          |          |          |          |          |          |          |          |          |          |
| Escalating Rate                 |     | \$0.080 | \$0.082 | \$0.085 | \$0.087 | \$0.090  | \$0.093  | \$0.096  | \$0.098  | \$0.101  | \$0.104  | \$0.108  | \$0.111  | \$0.114  | \$0.117  |
| Electricity Savings             | \$0 | \$2,055 | \$2,111 | \$2,169 | \$2,229 | \$2,290  | \$2,353  | \$2,417  | \$2,484  | \$2,552  | \$2,622  | \$2,694  | \$2,767  | \$2,843  | \$2,921  |
| Energy production               |     | 25,688  | 25,624  | 25,560  | 25,496  | 25,432   | 25,369   | 25,305   | 25,242   | 25,179   | 25,116   | 25,053   | 24,990   | 24,928   | 24,866   |
|                                 |     |         |         |         |         |          |          |          |          |          |          |          |          |          |          |
|                                 |     |         |         |         |         |          |          |          |          |          |          |          |          |          |          |
| Total per Year                  | \$0 | \$2,055 | \$2,111 | \$2,169 | \$2,229 | \$2,290  | \$2,353  | \$2,417  | \$2,484  | \$2,552  | \$2,622  | \$2,694  | \$2,767  | \$2,843  | \$2,921  |
| Cumulative Total Cash Flow      | \$0 | \$2,055 | \$4,166 | \$6,336 | \$8,565 | \$10,854 | \$13,207 | \$15,624 | \$18,108 | \$20,660 | \$23,281 | \$25,975 | \$28,742 | \$31,585 | \$34,507 |

After the 20 year lease UCCT will own the system. The PPA includes an option for UCCT to purchase the system for \$35,000 after seven years and re-assume the ZREC for the remaining 8 years, potentially providing even more savings.



## Description of the System

Earthlight's proposal is to install 64 SunPower solar panels on the two South facing roofs on the East end of the BP building, and on the West facing roof at the West end of the building. Panels will not be installed in-line with the West entrance to avoid the risk of snow/ice falling near the entrance door.



Earthlight uses U.S. made SunPower X-series commercial grade panels which are high-end components that produce 20% more power over the life of the panel than other panels and are more durable because of the copper back-panel design. Collection efficiency drops about 0.25%/yr, also better than many other panels. They carry a 25 year warranty and should be economically viable for 30-40 years. Two inverters will be installed on the North wall of the building near the existing electrical meters. The system includes modern web-remote sensing allowing Earthlight to monitor system performance. Earthlight will cover all operating costs and maintenance for the system for the 20 year lease.

## Risks

**Roof issues/repairs** - Premium 50-year shingles were installed on the BP building in 2011 and should have nearly 40 years of remaining life. Solar panels generally extend the life of the shingles by blocking sun light. We discussed the project with Dave Welch and he believes all issues with the shingled part of the roof have been fixed and we should not have to do anything with that roof for 40 years. It would not make sense to re-architect the roof in his view. In the past leaks occurred related to the rubber-roof section in the valleys. However, since installing heating tapes no issues with the valley in the roof have occurred recently. The panel locations are only on the shingled roof and do not prevent access to the valley of the roof if new leaks were to occur again. Dave confirmed that he sees no issue with installing the system. In the unlikely event of a major issue with the roof, the system can be disassembled and removed. Estimated cost to remove and reinstall the system is about \$5,000-\$8,000 (4 man crew for 2 days), which is less than five years savings, so as long as this does not occur multiple times during the life of the system a net savings would still exist.

**System reliability** - Earthlight provides all maintenance of the system for the 20 years. Earthlight monitors the output and will decide if repairs are needed at their cost if performance drops. The main risk would be if tree limbs fall on and damage the system. Since there are no trees close to the BP building, this risk appears to be very low and may be covered by UCCTs insurance.

**System performance** - The ZREC program is based upon the system providing enough power to cover the usage of the BP building on an annual basis. If the usage is higher than the power generation, then Eversource would charge for the difference at their normal rate. This would decrease our cost savings.

For example, if our usage is 20% over the system production, the annual additional cost would be on the order of \$900 ( $25,000 * 0.2 * 0.18$ ). Thus, it will be important for UCCT to make sure the usage stays under about 25,000 kWhr. There are several conservation measures that can be employed (such as LED lighting) to keep usage down, so this risk appears manageable but will need to be monitored. Similarly, if the system under-produces in a given year and usage exceeds production, we would pay the difference at Eversource rates. The system was sized using zipcode specific data that takes several years worth of weather data into account (number of cloudy days, amount of snow etc.). So again, if the system produces 20% less power one year (lots of cloudy days :->) and usage is normal the additional cost could be of the order of the \$900/yr. The system generation efficiency should drop by less than 5% over the 20 years, so the main risk is in terms of the weather, which is not likely to vary by greater than 10%. Finally, the PPA has a fixed rate for the power generated so if usage is below production, we still pay for the power produced and we would not get a benefit for reduced usage. This could be a factor if the TGLC were closed and usage was substantially reduced, we would not get a savings. In summary, it seems reasonable to assume that 10% variations in power generated or excess usage could occur which would reduce our annual savings by less than 25% that year, but should not completely remove the cost savings provided by the system.

Fire Department - There was concern expressed about whether an energized solar system prevents the fire department from responding to a fire. We spoke to the Tolland Fire Marshall and he confirmed that an external power shut off will be installed but the panels still carry a charge in them so they don't break the panels to vent the roof. Instead they will vent out the side of the building. He said they absolutely will fight the fire, it just makes venting a little trickier. He was generally in favor of installing such a solar system if beneficial to UCCT.

Recycling - Wide-spread use of solar panels is a relatively recent development and recycling constraints/costs are not clear. Although it is often advertised that some toxic materials are used in manufacturing the panels, there are no significant toxic materials in the finished panels and we are told there is currently no disposal costs. Used panels are often donated to under-developed areas. If the system is disposed of in 30 years or so it is not clear what the disposal/recycling cost would be. Assuming it is less than \$50/panel, this would be less than the last years savings.

Data security - Earthlight will be the only organization able to access system performance and will report results to UCCT. All data is in-house processed. The PPA includes a condition preventing them from using any data restricted by UCCT. The risk/liability associated with the power generation/usage information is very low.

### **Environmental Impact**

The advertised environmental benefit of solar is impressive. The amount of clean energy produced by this project in a year compared to conventional utilities would be equivalent to driving over one million fewer miles in your car, growing over 10,000 tree seedlings for ten years, taking 100 passenger cars off the road for a year.



### **Company Reputation**

Earthlight LLC is a locally owned company licensed in CT, MA, RI, ME, VT, NH, PA and OR. They are certified by the North American Board of Certified Energy Practitioners (NABCEP) and is accredited with the Better Business Bureau (BBB). They have completed projects with Trinity Church, Swiss Cleaners and others locally. They also do energy audits and HVAC.

### **Going-Forward Schedule**

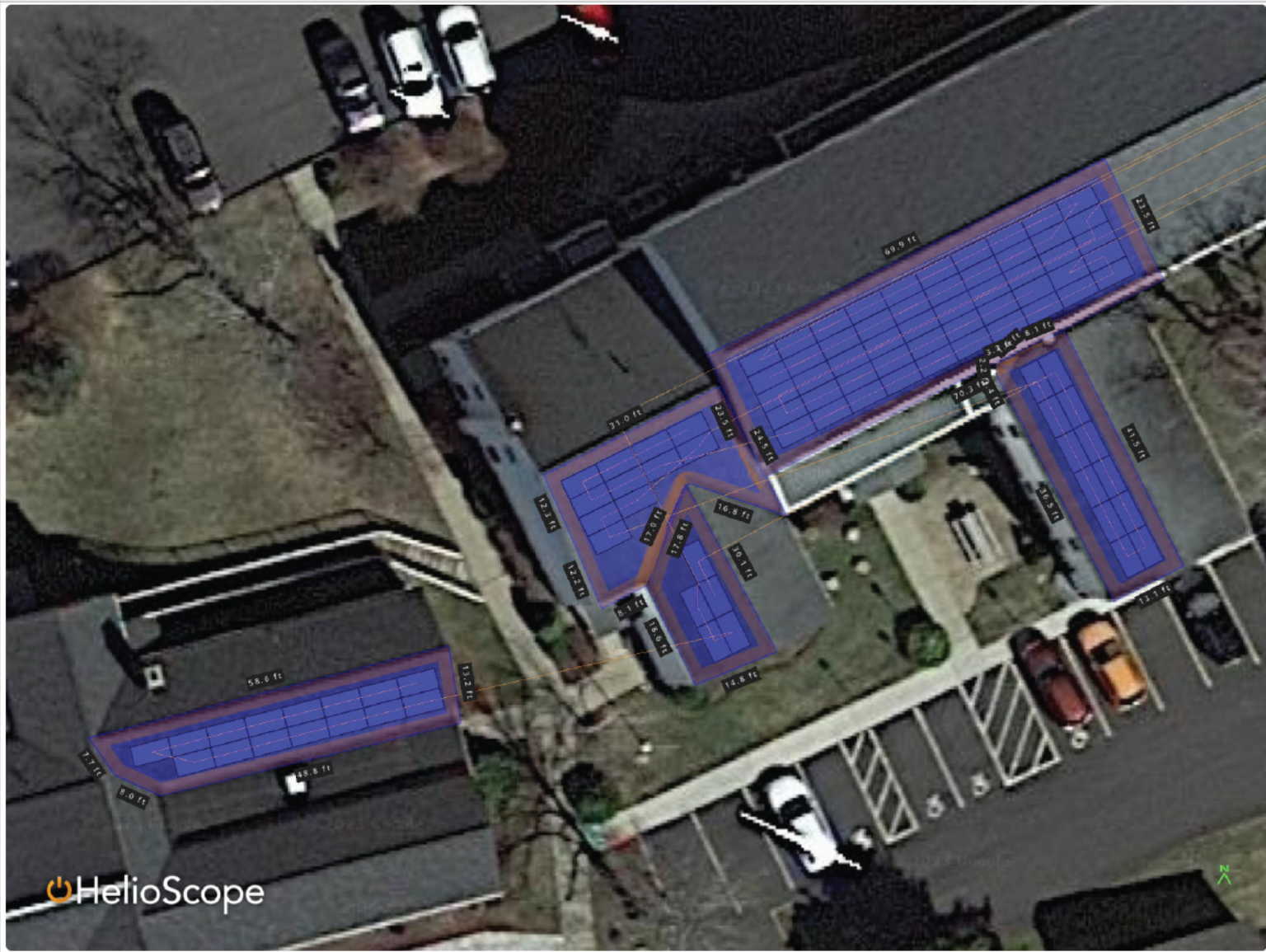
The following are the next steps to complete the project. It is important to try to get the system installed and on-line by the April-May time-frame to take advantage of the high solar months of the summer.

- Receive finalized ZREC contract between Eversource and UCCT - next week or so
- UCCT to sign PPA with Earthlight LLC to buy power
- Engineering assessment of roof – 32 lb/ft<sup>2</sup> capability, no structural issues – Earthlight
- Acquire building and utility permits from the Town of Tolland – Earthlight
- UCCT to sign ZREC over to Earthlight LLC
- Schedule installation
- Installation (approximately 2 days)
- Hook-up system and bring on line
- Inspection by Tolland Building Inspector





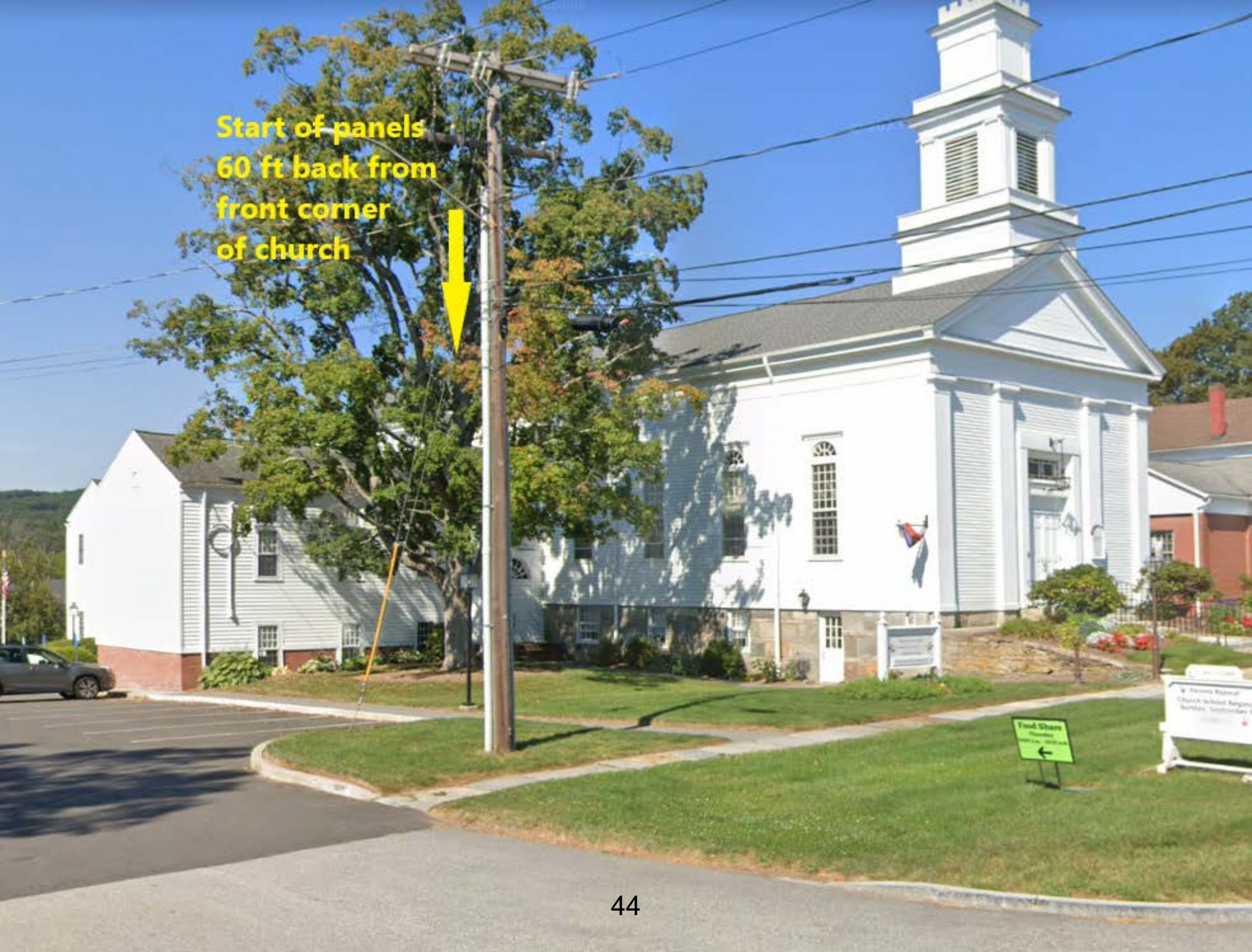
Detailed Layout







Start of panels  
60 ft back from  
front corner  
of church





- 45 Panels sit on the main Church roof
- The first row of panels begins roughly halfway back into the annex roof top








## Church 405 netting reduced for Historic Tolland Church, 43 Tolland Green Tolland, CT

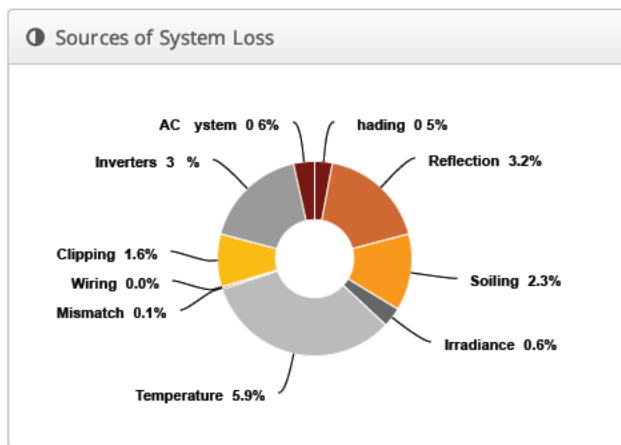
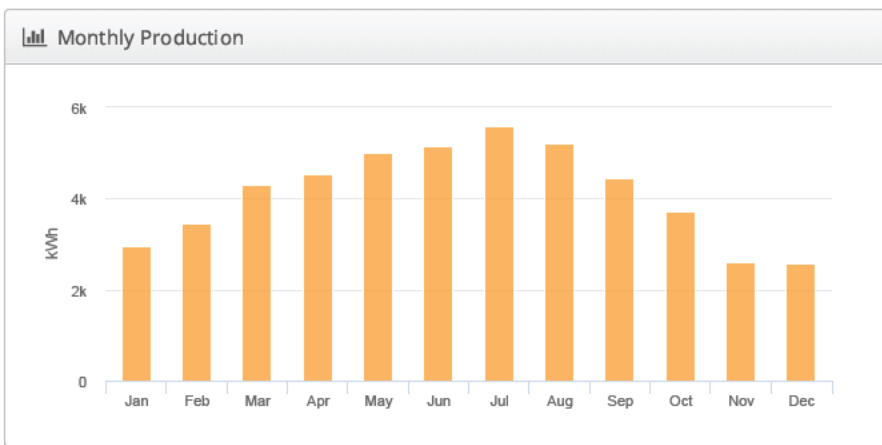
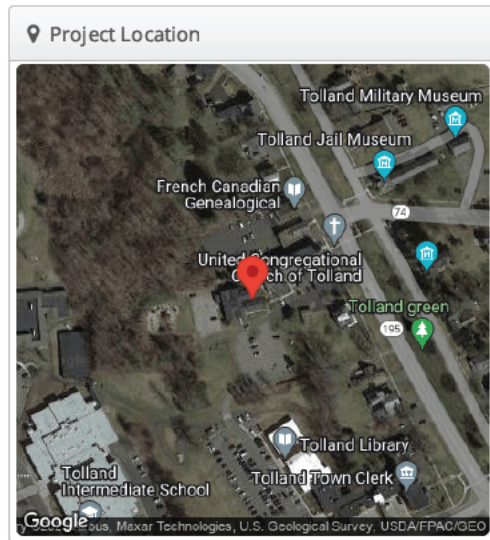
**Report**

|                 |                              |
|-----------------|------------------------------|
| Project Name    | Tolland Church               |
| Project Address | 43 Tolland Green Tolland, CT |
| Prepared By     | Patrick Lewis                |



**System Metrics**

|                       |                                                  |
|-----------------------|--------------------------------------------------|
| Design                | Church 405 netting reduced for Historic          |
| Module DC Nameplate   | 37.7 kW                                          |
| Inverter AC Nameplate | 27.0 kW<br>Load Ratio: 1.40                      |
| Annual Production     | 49.60 MWh                                        |
| Performance Ratio     | 83.3%                                            |
| kWh/kWp               | 1,316.8                                          |
| Weather Dataset       | TMY, 10km grid (41.85,-72.35), NREL (prospector) |
| Simulator Version     | 75529a00bc 7075686018 4a5054d7d6-dbbcb55c8       |





| ⚡ Annual Production              |                                     |                 |              |
|----------------------------------|-------------------------------------|-----------------|--------------|
|                                  | Description                         | Output          | % Delta      |
| Irradiance (kWh/m <sup>2</sup> ) | Annual Global Horizontal Irradiance | 1,402.9         |              |
|                                  | POA Irradiance                      | 1,580.4         | 12.7%        |
|                                  | Shaded Irradiance                   | 1,572.1         | -0.5%        |
|                                  | Irradiance after Reflection         | 1,521.6         | -3.2%        |
|                                  | Irradiance after Soiling            | 1,486.7         | -2.3%        |
|                                  | <b>Total Collector Irradiance</b>   | <b>1,486.6</b>  | <b>0.0%</b>  |
| Energy (kWh)                     | Nameplate                           | 55,982.2        |              |
|                                  | Output at Irradiance Levels         | 55,654.9        | -0.6%        |
|                                  | Output at Cell Temperature Derate   | 52,373.7        | -5.9%        |
|                                  | Output After Mismatch               | 52,338.1        | -0.1%        |
|                                  | Optimal DC Output                   | 52,338.1        | 0.0%         |
|                                  | Constrained DC Output               | 51,513.5        | -1.6%        |
|                                  | Inverter Output                     | 49,909.0        | -3.0%        |
|                                  | <b>Energy to Grid</b>               | <b>49,598.1</b> | <b>-0.6%</b> |
| Temperature Metrics              |                                     |                 |              |
|                                  | Avg. Operating Ambient Temp         |                 | 11.9 °C      |
|                                  | Avg. Operating Cell Temp            |                 | 27.3 °C      |
| Simulation Metrics               |                                     |                 |              |
|                                  | Operating Hours                     |                 | 4700         |
|                                  | Solved Hours                        |                 | 4700         |

| ☁ Condition Set              |                                                  |       |         |                   |   |   |             |   |                                  |   |   |   |
|------------------------------|--------------------------------------------------|-------|---------|-------------------|---|---|-------------|---|----------------------------------|---|---|---|
| Description                  | Condition Set 2                                  |       |         |                   |   |   |             |   |                                  |   |   |   |
| Weather Dataset              | TMY, 10km grid (41.85,-72.35), NREL (prospector) |       |         |                   |   |   |             |   |                                  |   |   |   |
| Solar Angle Location         | Meteo Lat/Lng                                    |       |         |                   |   |   |             |   |                                  |   |   |   |
| Transposition Model          | Perez Model                                      |       |         |                   |   |   |             |   |                                  |   |   |   |
| Temperature Model            | Sandia Model                                     |       |         |                   |   |   |             |   |                                  |   |   |   |
| Temperature Model Parameters | Rack Type                                        | a     | b       | Temperature Delta |   |   |             |   |                                  |   |   |   |
|                              | Fixed Tilt                                       | -3.56 | -0.075  | 3°C               |   |   |             |   |                                  |   |   |   |
|                              | Flush Mount                                      | -2.81 | -0.0455 | 0°C               |   |   |             |   |                                  |   |   |   |
|                              | East-West                                        | -3.56 | -0.075  | 3°C               |   |   |             |   |                                  |   |   |   |
|                              | Carport                                          | -3.56 | -0.075  | 3°C               |   |   |             |   |                                  |   |   |   |
| Soiling (%)                  | J                                                | F     | M       | A                 | M | J | J           | A | S                                | O | N | D |
|                              | 3                                                | 3     | 2       | 2                 | 2 | 2 | 2           | 2 | 2                                | 3 | 3 | 3 |
| Irradiation Variance         | 5%                                               |       |         |                   |   |   |             |   |                                  |   |   |   |
| Cell Temperature Spread      | 4° C                                             |       |         |                   |   |   |             |   |                                  |   |   |   |
| Module Binning Range         | -2.5% to 2.5%                                    |       |         |                   |   |   |             |   |                                  |   |   |   |
| AC System Derate             | 0.50%                                            |       |         |                   |   |   |             |   |                                  |   |   |   |
| Module Characterizations     | Module                                           |       |         |                   |   |   | Uploaded By |   | Characterization                 |   |   |   |
|                              | Q,PEAK DUO BLK ML-G10+ 405 (Hanwha Q Cells)      |       |         |                   |   |   | HelioScope  |   | Spec Sheet Characterization, PAN |   |   |   |
| Component Characterizations  | Device                                           |       |         |                   |   |   | Uploaded By |   | Characterization                 |   |   |   |
|                              | P1101 (SolarEdge)                                |       |         |                   |   |   | HelioScope  |   | Mfg Spec Sheet                   |   |   |   |
|                              | IQ8PLUS-72-2-US (2022) (Enphase)                 |       |         |                   |   |   | HelioScope  |   | Spec Sheet                       |   |   |   |

| 📦 Components |                                                   |                |
|--------------|---------------------------------------------------|----------------|
| Component    | Name                                              | Count          |
| Inverters    | IQ8PLUS-72-2-US (2022) (Enphase)                  | 93 (27.0 kW)   |
| AC Branches  | 1/0 AWG (Aluminum)                                | 5 (1,654.1 ft) |
| Module       | Hanwha Q Cells, Q,PEAK DUO BLK ML-G10+ 405 (405W) | 93 (37.7 kW)   |

| 🔌 Wiring Zones |                |             |                    |
|----------------|----------------|-------------|--------------------|
| Description    | Combiner Poles | String Size | Stringing Strategy |
| Wiring Zone    | -              | -           | Along Racking      |

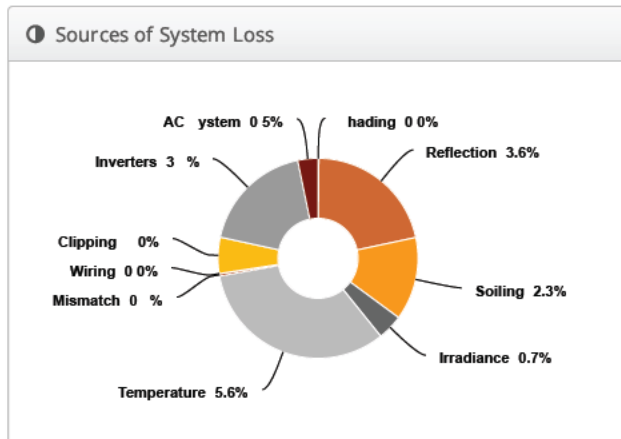
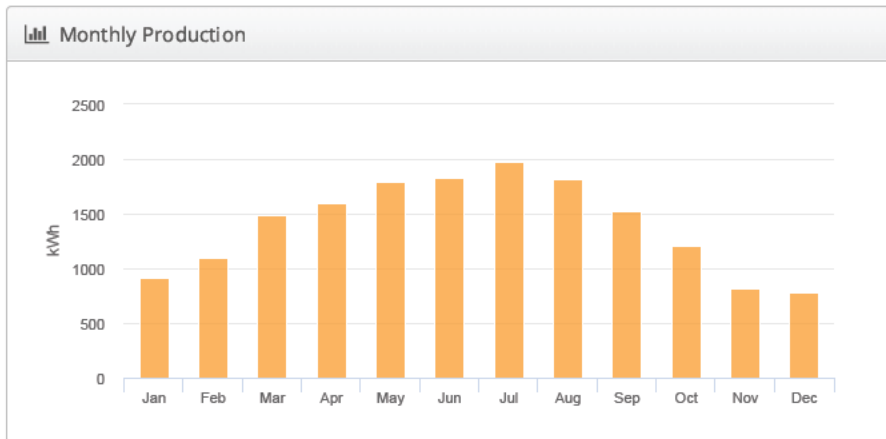
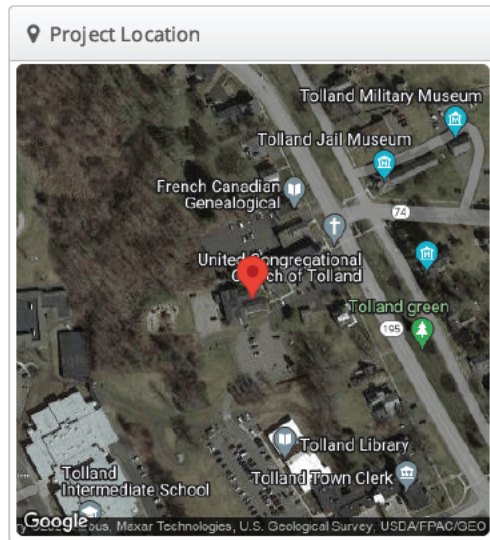
| 🏠 Field Segments |             |                        |      |            |                  |            |        |         |         |
|------------------|-------------|------------------------|------|------------|------------------|------------|--------|---------|---------|
| Description      | Racking     | Orientation            | Tilt | Azimuth    | Intrarow Spacing | Frame Size | Frames | Modules | Power   |
| Field Segment 1  | Flush Mount | Landscape (Horizontal) | 25°  | 153.60818° | 0.0 ft           | 1x1        | 50     | 50      | 20.3 kW |
| Field Segment 2  | Flush Mount | Landscape (Horizontal) | 20°  | 153.60818° | 0.0 ft           | 1x1        | 11     | 11      | 4.46 kW |
| Field Segment 3  | Flush Mount | Landscape (Horizontal) | 20°  | 242.65013° | 0.0 ft           | 1x1        | 12     | 12      | 4.86 kW |
| Field Segment 4  | Flush Mount | Landscape (Horizontal) | 20°  | 243.65788° | 0.0 ft           | 1x1        | 5      | 5       | 2.03 kW |
| Field Segment 5  | Flush Mount | Landscape (Horizontal) | 20°  | 165.42186° | 0.0 ft           | 1x1        | 15     | 15      | 6.08 kW |

## Day care netting cell 405 Tolland Church, 43 Tolland Green Tolland, CT

| Report          |                              |
|-----------------|------------------------------|
| Project Name    | Tolland Church               |
| Project Address | 43 Tolland Green Tolland, CT |
| Prepared By     | Patrick Lewis                |



| System Metrics        |                                                  |
|-----------------------|--------------------------------------------------|
| Design                | Day care netting cell 405                        |
| Module DC Nameplate   | 13.4 kW                                          |
| Inverter AC Nameplate | 9.57 kW<br>Load Ratio: 1.40                      |
| Annual Production     | 16.84 MWh                                        |
| Performance Ratio     | 84.1%                                            |
| kWh/kWp               | 1,260.3                                          |
| Weather Dataset       | TMJ, 10km grid (41.85,-72.35), NREL (prospector) |
| Simulator Version     | 75529a00bc 7075686018 4a5054d7d6-dbbcbce55c8     |





| ⚡ Annual Production              |                                     |                 |              |
|----------------------------------|-------------------------------------|-----------------|--------------|
|                                  | Description                         | Output          | % Delta      |
| Irradiance (kWh/m <sup>2</sup> ) | Annual Global Horizontal Irradiance | 1,402.9         |              |
|                                  | POA Irradiance                      | 1,498.0         | 6.8%         |
|                                  | Shaded Irradiance                   | 1,497.7         | 0.0%         |
|                                  | Irradiance after Reflection         | 1,443.2         | -3.6%        |
|                                  | Irradiance after Soiling            | 1,410.5         | -2.3%        |
|                                  | <b>Total Collector Irradiance</b>   | <b>1,409.7</b>  | <b>-0.1%</b> |
| Energy (kWh)                     | Nameplate                           | 18,836.2        |              |
|                                  | Output at Irradiance Levels         | 18,705.4        | -0.7%        |
|                                  | Output at Cell Temperature Derate   | 17,664.7        | -5.6%        |
|                                  | Output After Mismatch               | 17,652.9        | -0.1%        |
|                                  | Optimal DC Output                   | 17,652.9        | 0.0%         |
|                                  | Constrained DC Output               | 17,477.8        | -1.0%        |
|                                  | Inverter Output                     | 16,936.6        | -3.0%        |
|                                  | <b>Energy to Grid</b>               | <b>16,843.7</b> | <b>-0.5%</b> |
| Temperature Metrics              |                                     |                 |              |
|                                  | Avg. Operating Ambient Temp         |                 | 11.9 °C      |
|                                  | Avg. Operating Cell Temp            |                 | 26.5 °C      |
| Simulation Metrics               |                                     |                 |              |
|                                  | Operating Hours                     |                 | 4700         |
|                                  | Solved Hours                        |                 | 4700         |

| ☁ Condition Set              |                                             |                                                  |         |                   |   |   |             |   |                                  |   |   |   |
|------------------------------|---------------------------------------------|--------------------------------------------------|---------|-------------------|---|---|-------------|---|----------------------------------|---|---|---|
| Description                  |                                             | Condition Set 2                                  |         |                   |   |   |             |   |                                  |   |   |   |
| Weather Dataset              |                                             | TMY, 10km grid (41.85,-72.35), NREL (prospector) |         |                   |   |   |             |   |                                  |   |   |   |
| Solar Angle Location         |                                             | Meteo Lat/Lng                                    |         |                   |   |   |             |   |                                  |   |   |   |
| Transposition Model          |                                             | Perez Model                                      |         |                   |   |   |             |   |                                  |   |   |   |
| Temperature Model            |                                             | Sandia Model                                     |         |                   |   |   |             |   |                                  |   |   |   |
| Temperature Model Parameters | Rack Type                                   | a                                                | b       | Temperature Delta |   |   |             |   |                                  |   |   |   |
|                              | Fixed Tilt                                  | -3.56                                            | -0.075  | 3°C               |   |   |             |   |                                  |   |   |   |
|                              | Flush Mount                                 | -2.81                                            | -0.0455 | 0°C               |   |   |             |   |                                  |   |   |   |
|                              | East-West                                   | -3.56                                            | -0.075  | 3°C               |   |   |             |   |                                  |   |   |   |
|                              | Carport                                     | -3.56                                            | -0.075  | 3°C               |   |   |             |   |                                  |   |   |   |
| Soiling (%)                  | J                                           | F                                                | M       | A                 | M | J | J           | A | S                                | O | N | D |
|                              | 3                                           | 3                                                | 2       | 2                 | 2 | 2 | 2           | 2 | 2                                | 3 | 3 | 3 |
| Irradiation Variance         |                                             | 5%                                               |         |                   |   |   |             |   |                                  |   |   |   |
| Cell Temperature Spread      |                                             | 4° C                                             |         |                   |   |   |             |   |                                  |   |   |   |
| Module Binning Range         |                                             | -2.5% to 2.5%                                    |         |                   |   |   |             |   |                                  |   |   |   |
| AC System Derate             |                                             | 0.50%                                            |         |                   |   |   |             |   |                                  |   |   |   |
| Module Characterizations     | Module                                      |                                                  |         |                   |   |   | Uploaded By |   | Characterization                 |   |   |   |
|                              | Q,PEAK DUO BLK ML-G10+ 405 (Hanwha Q Cells) |                                                  |         |                   |   |   | HelioScope  |   | Spec Sheet Characterization, PAN |   |   |   |
| Component Characterizations  | Device                                      |                                                  |         |                   |   |   | Uploaded By |   | Characterization                 |   |   |   |
|                              | IQ8PLUS-72-2-US (2022) (Enphase)            |                                                  |         |                   |   |   | HelioScope  |   | Spec Sheet                       |   |   |   |

| 📦 Components |                                                   |              |
|--------------|---------------------------------------------------|--------------|
| Component    | Name                                              | Count        |
| Inverters    | IQ8PLUS-72-2-US (2022) (Enphase)                  | 33 (9.57 kW) |
| AC Branches  | 1/0 AWG (Aluminum)                                | 2 (525.3 ft) |
| Module       | Hanwha Q Cells, Q,PEAK DUO BLK ML-G10+ 405 (405W) | 33 (13.4 kW) |

| 🔌 Wiring Zones |                |             |                    |
|----------------|----------------|-------------|--------------------|
| Description    | Combiner Poles | String Size | Stringing Strategy |
| Wiring Zone    | -              | 1-1         | Along Racking      |

| 🏠 Field Segments |             |                        |      |            |                  |            |        |         |         |
|------------------|-------------|------------------------|------|------------|------------------|------------|--------|---------|---------|
| Description      | Racking     | Orientation            | Tilt | Azimuth    | Intrarow Spacing | Frame Size | Frames | Modules | Power   |
| Field Segment 1  | Flush Mount | Landscape (Horizontal) | 18°  | 165.40474° | 0.0 ft           | 1x1        | 15     | 15      | 6.08 kW |
| Field Segment 2  | Flush Mount | Landscape (Horizontal) | 18°  | 255.47986° | 0.0 ft           | 1x1        | 18     | 18      | 7.29 kW |

November 2, 2023

To Whom it May Concern

My family has lived in Tolland since 1977 and my husband, daughter and I have had a home in Tolland since 2002. We moved to the “Historic Green” a little over 5 years ago.

As with all residents of the historic district, we fully embrace the historical heritage of our homes and the district as a whole. At the same time, we are also keenly aware of a responsibility to the future of our town, and to all of its residents.

We appreciate and fully support the prospect of having solar panels installed on the roof of United Congregational Church, right here in the historic district of Tolland. What a wonderful opportunity to demonstrate the town’s commitment to a clean and sustainable energy future, especially on one of our most beautiful and iconic buildings!

We look forward to the adoption of solar panels at the UCC, as well as other historic buildings and homes in the district.

Thank you for your consideration.

Susan Lucek-Hughes  
95 Tolland Green



## Solar panels for church

To [REDACTED]

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Bailey,

I would like to add my support to the proposed solar panel project at our United Congregational Church on Tolland Green. My family has been on the Green since 1951 - it is a part of our character and being, and we hope that the historical character of the Green will remain for a long time. But life goes on and changes occur, generally for the betterment of our way of life. Even our church has made upgrades and additions, keeping the colonial character intact even while expanding and improving its place in the community, growing and changing with the times.

Now we all need to be environmentally proactive and make changes in our choices for energy. Solar power is the obvious choice. The rooftop panels do not change the structure of the building and are removable and replaceable.

I imagine that the early residents of the Green would have loved to harness the power of the sun in this way! Going solar would be a definite benefit for the life of our church, which has been at the center of our community for generations. We can keep our colonial heritage and still move forward.

Thank you.

Laura Bretas  
228 Buff Cap Rd and  
16 Tolland Green  
Tolland CT

Sent from my iPhone

**From:** Pat Lewis [REDACTED]  
**Sent:** Wednesday, November 1, 2023 10:06 AM  
**To:** Cindy Mickune [REDACTED]  
**Subject:** Re: Request from Bailey

Cindy,

i think your statement below is accurate and states what we would specify.

Thank-You,  
Patrick Lewis, President



80 Farwell St Unit B  
West Haven, CT 06516



On Oct 31, 2023, at 11:46 AM, Cindy Mickune <[REDACTED]> wrote:

Hey Pat,

With regard to placement of the panels at 45 Tolland Green, using the rooftops of both the church and daycare center are the most cost effective and efficient way to get the solar production needed.

Switching to a ground mounted system would be more costly, more disruptive due to extensive trenching through paved areas, and would take considerably longer to implement.

Would you agree?

Cindy Mickune, Commercial Developer  
*Commercial, Industrial, Community and Utility Scale Solar*

E: [REDACTED]  
C: [REDACTED]



# Received Correspondence

## Laura Smith

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**From:** Jim Paquin  
**Sent:** Monday, November 13, 2023 9:58 AM  
**To:** Laura Smith  
**Subject:** FW: [EXTERNAL]HDC Minutes October 2023

James Paquin  
Chief Building Official  
Town of Tolland, CT  
(860) 871-3601

**\*\*Please note the change in my email address to: [jpaquin@tollandct.gov](mailto:jpaquin@tollandct.gov)**

**From:** Fred Day-Lewis <[REDACTED]>  
**Sent:** Monday, November 13, 2023 9:51 AM  
**To:** Jim Paquin <jpaquin@Tollandct.gov>; Jodie Coleman-Marzialo <[REDACTED]>  
**Subject:** [EXTERNAL]HDC Minutes October 2023

Dear HD Commissioners,

I was just reading the posted draft minutes from the October meeting. I have several suggestions for revisions and corrections to the draft based on my recollection and review of the audio record.

1. In the October HDC meeting, one of the commissioners brought up opposition to an application from the UCCT that the HDC considered and denied in 2018. The draft minutes summarize in detail several letters of opposition to this previous application. To raise former opposition to a prior case here is inappropriate. Those letters were not written in regard to the case before you now, which involves a different panel layout and type of panels; furthermore, solar is now installed on at least three houses within the HDC and has grown in acceptance in the past 5 years, as people have figured out it's not a fire risk, reflective, etc., which were concerns in the 2018 letters. The HDC should not assume that opposition to a case 5 years ago equates to opposition to the application before you. Indeed, perhaps the letter writers did not write this time because they have changed their opinion about solar or have no issue with the proposed plan. Inclusion of these letters, and the fact that a commissioner brought them up, appear as a bias on the part of the HDC. This is a bad look for the Commission.
2. Although the HDC received no letters of opposition to the current application ahead of the October meeting, it received numerous letters of support. As of the October meeting, your only input from the community--and most from neighbors--were favorable. You do not summarize or even mention these letters in the minutes. Again, this looks like bias on the part of the HDC.
3. The summaries of people speaking in opposition (now or 5 years ago) are long and lay out full arguments, whereas the summaries of statements in favor are terse and less impactful. Take for example, the characterization of my statement in favor of the application as essentially 'solar is good.' Rather, I spoke to the importance of the UCCT's role in the history of Tolland for 300 years, and how if the HDC aims to preserve history it should work to preserve the church and keep it here on the Green. The most important historical value here is the church, and I don't mean the building. The UCCT community, its work here over 3 centuries, and its



ongoing contributions are historical resources that should be preserved. The UCCT hosts the food share, AA, boy scouts, concerts, and other support groups.

To anyone listening to the audio recording, this again would appear as commissioner bias against the application or the applicant.

4. I suspect he doesn't care, but I suggest replacing 'Mr. Jeff Gallagher' with "Rev. Dr. Jeff Gallagher."

Thank you.

V/r,  
Dr. Fred Day-Lewis

Received Material since  
November 15, 2023  
Meeting



## Laura Smith

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**From:** Jodie Coleman-Marzialo [REDACTED]  
**Sent:** Saturday, November 25, 2023 12:04 PM  
**To:** Laura Smith; Celeste Senechal; Ann Deegan  
**Cc:** Jim Paquin; Michael McGee [REDACTED]; John Hughes  
[REDACTED]; Mariah B; Kathy Bach  
**Subject:** [EXTERNAL]Fw: Solar panel on UCCT

Hi Laura,  
Can you please update our Nov. 29<sup>th</sup> meeting packet to include this neighbor response.  
Thank you,  
Jodie

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**From:** Hollie Barnas <[REDACTED]>  
**Sent:** Friday, November 24, 2023 12:47 PM  
**To:** Jodie Coleman-Marzialo <[REDACTED]>  
**Subject:** Re: Solar panel on UCCT

Hi Jodie - we would approve of solar panels on the back roof of the church ONLY if the church replants *large* trees that were removed along the parking lot perimeter. Prior to removal, the trees obstructed the view of the backside of the church and daycare building from my home and when driving on Tolland Green road thereby maintaining the historic ambience. Since tree removal our home and road drivers have a clear line of sight to the parking lot which includes the back roof of the church. Therefore, without plantings, the solar panels would be seen from our home and the road and they would not appear consistent with a registered historic area and designated scenic road. My hope is that a win-win situation can be negotiated so that the church can have the eco-benefits of solar while they also take responsibility for maintaining the historic area ambience they reside in.

Thank you for allowing me the opportunity to comment,  
Hollie (31 Tolland Green)

On Thu, Nov 23, 2023 at 10:38 AM Jodie Coleman-Marzialo <[REDACTED]> wrote:

Hi Hollie and Dave,

The United Congregational Church would like to install solar panels on the main roof of the church toward the back. Do you have a neighbor comment please. We referred to the comments from 2018 and are reaching out to those to comment again. Our continued PH is next Wednesday Nov. 29th. Please let me know.

Happy Thanksgiving,  
Jodie

## Laura Smith

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**From:** Jodie Coleman-Marzialo <[REDACTED]>  
**Sent:** Monday, November 27, 2023 8:07 PM  
**To:** Laura Smith; Celeste Senechal; Ann Deegan; Michael McGee  
([REDACTED]); John Hughes ([REDACTED]); Jim Paquin  
**Cc:** Kathy Bach; Mariah B  
**Subject:** [EXTERNAL]Fw: solar panels

Hi Laura,

I have a few more neighbor letters to add to our Special Meeting packet in addition to the one I sent you Saturday from Hollie Barna.

Thanks for help,

Jodie

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**From:** Stella Demand ([REDACTED])  
**Sent:** Sunday, November 26, 2023 4:32 PM  
**To:** ([REDACTED])  
**Subject:** solar panels

As residents of the Tolland Green, we hope to preserve the historicity of our neighborhood. We are encouraging the Historic District Commission to decline any request that would degrade the historic aesthetic, the degree to which we feel would be acceptable if the installation were limited to the less prominent parts of the structure. We believe the church is a beautiful building, and is perhaps the most iconic component of our neighborhood. We hope the parties can come to an agreement by which the historical integrity of the neighborhood is preserved far into the future.

Thank you for considering our input.

Phil and Stella Demand

81 Tolland Green



## Laura Smith

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**From:** Jodie Coleman-Marzialo [REDACTED]  
**Sent:** Monday, November 27, 2023 8:08 PM  
**To:** Laura Smith; Jim Paquin; Ann Deegan; Celeste Senechal; Michael McGee ([REDACTED]; John Hughes [REDACTED])  
**Cc:** Mariah B; Kathy Bach  
**Subject:** [EXTERNAL]Fw: UCCT solar panels

Here is another letter for our packet.  
Jodie

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**From:** Craig Surber [REDACTED]  
**Sent:** Sunday, November 26, 2023 7:50 PM  
**To:** Jodie Coleman-Marzialo [REDACTED] >  
**Subject:** Re: UCCT solar panels

As a former resident of the historic district I do not like the idea. I believe it will take away from the historical feel of the green. All these types of proposal will eventually ruin the historic feel of the green. I feel it is important to maintain and preserve the green before we have gone to far.  
Craig Surber

[Sent from the all new AOL app for iOS]Sent from the all new AOL app for iOS

On Saturday, November 25, 2023, 3:54 PM, Jodie Coleman-Marzialo <[REDACTED]> wrote:

The United Congregational Church would like to install solar panels on the main roof of the church toward the back. As a previous resident of the HD do you have a comment please. We referred to the comments from 2018 and are reaching out for comments again. Our continued PH is next Wednesday Nov. 29th. Please let me know.

Happy Thanksgiving,  
Jodie

## Laura Smith

---

**From:** Jodie Coleman-Marzialo <[REDACTED]>  
**Sent:** Monday, November 27, 2023 8:13 PM  
**To:** Laura Smith; Jim Paquin; Ann Deegan; Celeste Senechal; Michael McGee ([REDACTED]); John Hughes ([REDACTED])  
**Cc:** Mariah B; Kathy Bach  
**Subject:** [EXTERNAL]Fw: Solar Panels for UCCT

And here is another please for our meeting packet. I believe we have 24 hours to post the agenda and materials for a Special Meeting. Thanks for your help.

Jodie

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**From:** Denis Deegan [REDACTED]  
**Sent:** Monday, November 27, 2023 2:12 PM  
**To:** [REDACTED]>  
**Subject:** Solar Panels for UCCT

Jodie,

Please allow me to express my absolute objection to "any" use of visible solar panels on "any" property located on or adjacent to the historically designated Tolland Green. Just because one Tolland Green resident played the delay game to side step the Historic District Commission's purview, doesn't then make that outcome precedent for all other property owners.

This is a very pivotal point in terms of preserving the intentions of prior generations to maintain Tolland as an aesthetically traditional old New England town. If the creation of the Tolland Historic Commission and its chartered intentions to protect the integrity of the Tolland Green can no longer be maintained because of demographic new-comers who fail to understand its purpose, then it's time for everyone to admit that Tolland is ready to walk away from its historical identity. Placing solar panels on the main structure of UCCT as they have proposed will create an extreme eyesoar in addition to significantly degrading the historical value of the Town Green.

While I am committed to supporting steps to allow the environment to overcome the proliferation of hydrocarbon pollutants, let's take into consideration the full perspective. First and foremost, what steps are all of these concerned individuals taking to minimize their own personal carbon footprint. What type of vehicle(s) do they drive? How many miles a day / week / year do they drive? Do they take mass transportation? How efficient are their heating systems? Do they operate wood burning stoves or fireplaces? Have their homes been brought up to the highest efficiency standards? It's extraordinarily easy for "concerned individuals" to support measures that either shift the burden upon others and / or directly benefit their own pocketbooks.

It is also critical to keep in mind that advancements in alternative energy are dramatically evolving with each passing year. We can simply compare the solar panels of a few years ago with those of today to see both the aesthetic and energy generation improvements that have occurred. One can only imagine what advancements will transpire over the next 5 to 10 years that may potentially render today's solar panels obsolete. Why is it so critical for UCCT to take this action now?

In closing, two final thoughts. Only "residents" of Tolland should have any involvement in decisions relating to the maintenance of The Green's historical purity. And, when part of a property owner's argument / solution



involves enhancing or maintaining trees or other plantings to mitigate a proposal that violates the intent of The Tolland Green's historical designation, then they must be legally bound to that solution. Allowing property owners to later walk away from their commitment, as at least one other Tolland Green resident has, should place them in violation of Town Ordinance and thus forfeiture of their CofO.

Thank you,

Denis J. Deegan  
689 Tolland Stage Road

## Laura Smith

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**From:** Jodie Coleman-Marzialo <[REDACTED]>  
**Sent:** Monday, November 27, 2023 9:47 PM  
**To:** Laura Smith; Jim Paquin; Ann Deegan; Celeste Senechal; Michael McGee  
([REDACTED]); John Hughes ([REDACTED])  
**Cc:** Mariah B; Kathy Bach  
**Subject:** [EXTERNAL]Fw: Solar panels

Hi Laura,  
Here is one more neighbor comment for the HDC Special Meeting packet.  
Thanks,  
Jodie

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**From:** Heather & Matt ([REDACTED])  
**Sent:** Monday, November 27, 2023 9:20 PM  
**To:** [REDACTED]  
**Subject:** Solar panels

Hi Jody - Here's a statement you can include for the meeting about the solar panels on the Congregational church:

In considering the installation of solar panels on the Congregational church, we believe any decision should prioritize preserving the visual integrity of our historic neighborhood. Any placement should be discreet and not only maintain the historical appearance of the Green, but consider the potential impact on neighboring properties.

Heather and Matt Ferretti



11.28.2023

Updated changes to the solar panel design for the Tolland Historic District Commission meeting on November 29, 2023

Please find attached the final panel design for the UCCT solar project proposal to the THDC. We have removed all the panels off the main church roof visible to the street, as requested. The panels previously on the main sanctuary roof have been moved to a ground mounted solar array adjacent to the daycare playscape which will require that land cleared of trees and brush. This array is on our property, will not be visible from the Green, and, we believe, lies outside of the historic district boundaries.

Sincerely,

Bailey Brenn

Moderator for the United Congregational Church of Tolland







Tolland Green  
Day Care Center

## Cassandra Santoro

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**From:** BAILEY BRENN JR <blbrenn@comcast.net>  
**Sent:** Wednesday, November 29, 2023 11:18 AM  
**To:** Cassandra Santoro  
**Cc:** Jeff Gallagher; Cindy Mickune; Fred Day-Lewis; Lyn McLeod; Tonja Kelly  
**Subject:** [EXTERNAL]Updated Ground Solar Array Positioning  
**Attachments:** UCCT Ground Solar Array.3 printablemap-properties.pdf; Church addition rooftops plus ground Final.png

Hi Casandra,

Here is the boundary map that I have marked in our final positioning of the solar array on the ground. Please include this with the meeting packet along with the second attachment. The ground array is now completely outside of the Historic District, see map view in first attachment. There are no panels on the Phelps (Daycare) Building. there remains a limited number of panels on the lower roofs of the main church building. The second attachment shows the church roof panels and the ground mound array which in this aerial view is partially inside of the Historic District but are actually moved outside of the district to it's final position noted in the first attachment.

Bailey Brenn  
Moderator United Congregational Church of Tolland





**Property Information**

**Property ID** 21/C/055  
**Location** 43 TOLLAND GREEN  
**Owner** UNITED CONG CHURCH OF TOLLAND



**MAP FOR REFERENCE ONLY  
NOT A LEGAL DOCUMENT**

Town of Tolland, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated October 25, 2021  
Data updated daily

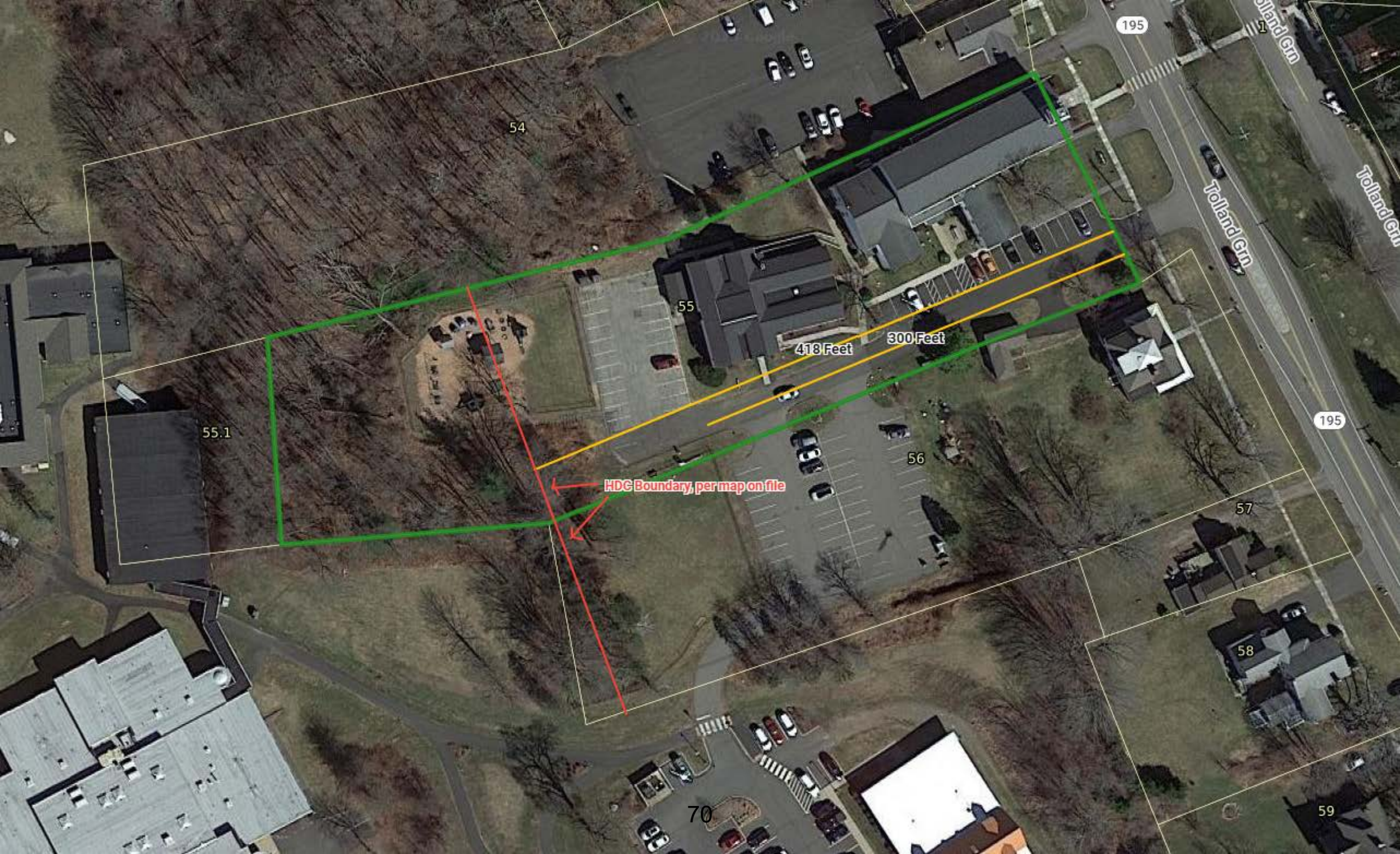
Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

## Map Theme Legends

### Zoning

- Town Center Pathway
- Historic Sites:
  - Historic Site
  - ▲ Conservation Site
- Historic District
- ▨ State Aquifer Protection Area
- ▨ Aquifer Protection Area
- Village Area
- ▨ Natural Resource Protection
- Community Commercial Zone
- Commercial Industrial Zone - A
- ▨ Commercial Industrial Zone - B
- Flood Plain/Stream Belt
- Gateway Design District
- Neighborhood Commercial Zone
- Residential Design District
- Technology Campus Zone
- Tolland Business Park
- Village Center Zone





54

55

55.1

300 Feet

418 Feet

56

57

58

59

70

HDC Boundary, per map on file

195

195

Tolland Gm

Tolland Gm

Tolland Gm



# Regular Meeting



# Agenda Item 5

**MINUTES**  
**TOLLAND GREEN HISTORIC DISTRICT COMMISSION**  
**Wednesday, October 18, 2023 at 7:00 p.m.**  
**REMOTE MEETING**

**Regular Meeting**

1. Call to Order of Public Hearing at 7:05 pm by Chair.

2. Roll Call

Commissioners: Jodie Coleman-Marzialo, Chair, Ann Deegan, substitute clerk, Celeste Senechal, alternates: Mike McGee, John Hughes  
Katie Murray, town council liaison

U

3. Reading of Public Notice as it appears in the Journal Inquirer by the Chair.

4. Consideration of Application for a COA at 63 Tolland Green for replacement windows on the front and sides of the home (13 total)

4.1 Mr. Day-Lewis, homeowner explained that there is presently water damage and rot in these windows. As they are very old there is also the possibility of the presence of lead. Presently the storms are bolted as inner window that is not only a violation of code but prevents ventilation and egress.

4.2 The contractor, Mr. Ted Drinkuth of 95 Hillcrest Dr. in Storrs stated that the windows would be of wood with a wood composite finish. They would cover the same square footage and have the save grill pattern. They are Andersen Woodwright 400 series. The sills would be repaired in kind.

5. Neighbor Comments: none

6. Consideration of the COA at 45 Tolland Green to install low profile solar energy collection panels to the south facing roofs in the main church and day care buildings (on the rear property of the church). These panels are to be black and non-reflective.

6.1 Ms. Cindy Mickune from AEC solar was present. She explained that the panels would be flush with the roof with only a space of about 1.5 inches. The gentleman from the church explained that this was why he called these solar panels low profile in the application for the COA. There was a question as to the exact number of panels however Ms Mickune explained that the area covered would remain the same with about 70 panels on the main church roof. There would probably be 15 rows by 14 wide, which would cover 86.3 ft. X 17.1 ft, on the main church. The church is buying the panels outright,

The number of panels was needed to match the usage that is approximately 51,040 kWh per year. These panels would produce about 51,810 kWh per year.

6.2 Discussion:

Ms. Marzialo questioned that the TGHDC is responsible for protecting and preserving the character and integrity of the Historic District. The Connecticut General Statutes Section



7-147F further stipulates that a COA for any exterior feature designed for the utilization of renewable resources shall not be denied unless the commission concludes that the system cannot be installed without substantially impairing the historic character and appearance of the district. However the commission may include stipulations requiring design modifications and limitations on the location of the feature, which do not significantly impair its effectiveness.

Ms. Marzialo question whether some of the panels from the main church could be placed on the porch area of the daycare center so as to be less visible from the street. It was explained that each building would have separate meters and wires to provide different electrical usages.

Ms. Senechal suggested panels on a freestanding carport-like construction in the parking lot. The church said that this would be too costly.

Mr. Hughes thought the idea of solar panels is a good idea as a sign of progress and adapting to present times.

The church explained that they would be saving between 17 and 20 thousand dollars plus tariffs from Eversource. They feel this is important to the survival of the church.

Ms. Senechal asked if the church had considered geothermal and was told this was too expensive.

Ms. Deegan read from the TGHDC minutes of the April 25, 2018, when the UCCT previously applied for a COA for solar panels that:

1. Mark and Denise Marti of 704 Tolland Stage Road felt that a compromise using solar shingles on the south and panels on the west was a good idea. Earthlite were not in favor of this as panels are far more efficient. The panels offer about 22% efficiency whereas the shingles only 15%. The south facing according to Mr. Schneider would definitely offer the most efficiency at about 40%.
2. Mariah Bumps of 25 Tolland Green felt that placing solar panels on the South roof is an issue as it is visible from the street.
3. Dave Barnas of 31 Tolland Green had done some research on google and on one website found that according to the Secretary of the Interior if there is a negative impact on a historical area, a project is not acceptable.
4. Holly Barnas of 31 Tolland Green stated that solar panels would reflect right into their kitchen because of the way their house is built. She stated that Tolland is a rural town with a unique character, that needs to be preserved. She felt that we should not compromise the Green, which would lower property values. She was vehemently opposed to the project.
5. Rod Hurtuk of 76 Tolland Green does not believe the panels can be installed without changing the character of the Historic District and felt that installing solar panels would be a poor precedent to set.
6. Alona Croteau of 8 Cider Mill Road mentioned her concerns about the fire safety of solar panels especially in close proximity to the old building (the church). Jeff Lovett stated that Rev. Jeff Gallagher, the minister of UCCT had discussed this issue with Tolland Fire Chief Littell and were assured that this was not a danger.

Ms. Deegan stated that it is not certain that the above neighbors continue to feel this way.

Ms. Marizalo felt the way the panels are arranged on the roof is detrimental to the TGHDC due to the visibility. She suggested that maybe the solar company could try shifting some of the panels off the main roof and get a more realistic picture of what they might look like. They could then come back to the November 15, 2023 meeting, which is day 48 well within the 65-day limit.

#### 7. Neighbor comments:

Mr. Fred Day-Lewis 63 Tolland Green spoke in favor of the solar panels stating the importance of the ecological benefits of solar.

Mr. Jeff Gallagher, pastor of the UCCT stated the church is an asset to the community. He said that solar is an environmental need and the solar panels are strategic to offer the funding needed to keep staffing and fund ministries.

Motion to close the public hearing for the COA for the windows at 63 Tolland Green and table the public hearing for 45 Tolland Green for solar panels.

By: C. Senechal, 2<sup>nd</sup> A. Deegan Vote: unanimous

The COA for 45 Tolland Green for the solar panels is tabled until the November 15, 2023 TGHDC meeting.

The Regular meeting was called to order at 8:13.

1. Roll Call: Same as above.

2. Motion to accept the Application for a COA at 63 Tolland Green to replace 13 windows on the front and sides of the home by C. Senechal, 2<sup>nd</sup> A. Deegan

Vote unanimous

3. Motion to table the Application for the COA on 45 Tolland Green for the solar panels until the November 15, 2023 TGHDC meeting. By C. Senechal 2<sup>nd</sup> A. Deegan Vote: unanimous

#### 4. Old Business

4.1 Ms. Marzialo stated that the project for the sidewalk on the Green is on hold at the moment due to the lawsuit being brought against the town on this issue.

Mr. John Hughes questioned whether the individuals who have brought the lawsuit should be excluded from further discussions concerning the sidewalks, as a member of the Commission is involved in the lawsuit.



Ann suggested possibly they only recuse themselves from any voting in the future as the members of the committee who are also members of the UCCT church have done when there is a vote concerning the church.

5. Motion to approve the dates for the TGHDC meetings for 2024. By C. Senechal, 2<sup>nd</sup> A. Deegan vote unanimous.

5.1 Ms. Marzialo stated that Mr. Hurtuk would be retiring from the Commission so we will be looking for a new vice chairperson. This will be discussed further at the next commission meeting in November.

5.2 Katie Murray, liaison to the town council stated that the engineers' report on the jail has been completed and is being reviewed by the Town Council. It was wondered whether ARPA funds would be used for these improvements.

5.3 There was a brief discussion on ADA access on the steep slope backfield at the high school for such activities such as Celebrate Tolland.

6. Motion to approve the minutes of the September 20, 2023 minutes after they are amended to include C. Senechal in the roll call as she did attend and made motions. By C. Seneshal, 2<sup>nd</sup> A. Deegan vote unanimous

7. Motion to adjourn at 8:32 by C. Senechal, 2<sup>nd</sup> A. Deegan vote unanimous

Respectfully submitted,

Ann Deegan, Substitute Clerk

# Agenda Item 6



**MINUTES**  
**TOLLAND GREEN HISTORIC DISTRICT COMMISSION**  
**Wednesday, November 15, 2023 at 7:00 p.m.**  
**REMOTE MEETING**

**Public Hearing**

1. Call to Order: continuation of Public Hearing from October 18, 2023 at 7:05 pm by Chair.

2. Roll Call

Commissioners: Jodie Coleman-Marzialo, Chair, Ann Deegan, substitute clerk, Celeste Senechal, alternates: John Hughes

Katie Murray, Town Council liaison

Guests: Mr. Bailey Brenn (applicant), Reverend Doctor Jeffrey Gallagher, pastor UCCT, Ms. Deb Goetz, Dr. Fred Day-Lewis, Ms. Cindy Minchune, Rep from AE Solar, Ms. Cheryl Randino

Continued discussion of Application for a COA at 45 Tolland Green to install solar energy collection panels to the south facing roofs on the main church and daycare buildings (on the rear property of church).

Discussion:

Could the solar panels be rearranged and removed from the main church building so as to minimize the visibility from the street? One concern was the large visibility of the roof when approaching from the south, and to provide a more realistic picture of what this will look like showing the contrast against the existing roof. The picture provided in the meeting packet on page 45 does not provide this.

Ms. Minchune stated she would try to rearrange the panels to get as many as possible off the roof of the main building. She will also work on providing a more realistic photograph of what the panels will look like in order to see the contrast.

Alternate commissioner, Mr. Hughes continues to state that solar panels show how history is adapting to the future and will make the church more viable.

Ms. Senechal continues to state that the panels are visible from the road and that the roof is gray and the panels, black.

7. Neighbor comments:

Dr. Fred Day-Lewis 63 Tolland Green continued to speak in favor of solar panels. He would like the minutes of the October meeting to state that there were at least 8 letters in the meeting packet received from residents stating their support of the solar panel project. He would also like the minutes to reflect that the pastor of the UCCT should be referred to as Reverend Doctor Jeffrey Gallagher.

The letters of support are now included in October minutes along with the April 25, 2018 meeting minutes.

Reverend Doctor Gallagher would like to emphasize that the church is not a building but a community.

Motion to table the public hearing and reconvene in a special public meeting on November 29, 2023 at 7:00 pm due to the requests for future information by the TGHDC for the consideration of a COA at 45 Tolland Green for the installation of solar panels.

By: C. Senechal, 2<sup>nd</sup> A. Deegan Vote: unanimous

The Regular meeting was called to order.

1. Roll Call: Same as above.

2. Motion to table the Application for the COA at 45 Tolland Green for the solar panels until the Special Meeting on Nov. 29th. By C. Senechal 2<sup>nd</sup> A. Deegan Vote: unanimous

3. Old Business

3.1 proposed sidewalk on hold

4. Miscellaneous

4.1 Officers and terms will be discussed and voted on at a later meeting.

4.2 Katie Murray would like to continue in her liaison position.

5. The minutes of the October 18, 2023, minutes will be amended to include the letters of support for the solar panels, the excerpt of the minutes of April 25, 2018 concerning the solar panel request by the UCCT church, and the correction of Reverend Doctor Jeffrey Gallagher's name and title.

6. Motion to adjourn at 8:15 by C. Senechal, 2<sup>nd</sup> A. Deegan vote unanimous

Respectfully submitted,

Ann Deegan, Substitute Clerk

Attachment:

Email from Chair re: Dr. Fred Day-Lewis

## Laura Smith

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**From:** Jodie Coleman-Marzialo [REDACTED]  
**Sent:** Monday, November 13, 2023 11:51 AM  
**To:** Jim Paquin; Fred Day-Lewis  
**Cc:** Laura Smith  
**Subject:** [EXTERNAL]Re: [EXTERNAL]HDC Minutes October 2023

Dear Jim and Fred,

Thank you for your correspondence. I just wanted to clarify that there are currently 2 properties in the HD with solar panels, not 3. Fred the other property you may be referring to is outside the HD. Please refer to the map on page 7 in the Tolland Green Historic District Design Guidelines for the boundaries.

Sincerely,  
Jodie

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**From:** Jim Paquin <jpaquin@Tollandct.gov>  
**Sent:** Monday, November 13, 2023 10:10 AM  
**To:** Fred Day-Lewis <[REDACTED]> Jodie Coleman-Marzialo <[REDACTED]>  
**Cc:** Laura Smith <lsmith@Tollandct.gov>  
**Subject:** RE: [EXTERNAL]HDC Minutes October 2023

Mr. Day-Lewis,

Thank you for your correspondence. It will be added to the November 15, 2023 Historic District Commission meeting packet.

James Paquin  
Chief Building Official  
Town of Tolland, CT  
(860) 871-3601

**\*\*Please note the change in my email address to: [jpaquin@tollandct.gov](mailto:jpaquin@tollandct.gov)**

**From:** Fred Day-Lewis [REDACTED] >  
**Sent:** Monday, November 13, 2023 9:51 AM  
**To:** Jim Paquin <jpaquin@Tollandct.gov>; Jodie Coleman-Marzialo <[REDACTED]>  
**Subject:** [EXTERNAL]HDC Minutes October 2023

Dear HD Commissioners,

I was just reading the posted draft minutes from the October meeting. I have several suggestions for revisions and corrections to the draft based on my recollection and review of the audio record.



1. In the October HDC meeting, one of the commissioners brought up opposition to an application from the UCCT that the HDC considered and denied in 2018. The draft minutes summarize in detail several letters of opposition to this previous application. To raise former opposition to a prior case here is inappropriate. Those letters were not written in regard to the case before you now, which involves a different panel layout and type of panels; furthermore, solar is now installed on at least three houses within the HDC and has grown in acceptance in the past 5 years, as people have figured out it's not a fire risk, reflective, etc., which were concerns in the 2018 letters. The HDC should not assume that opposition to a case 5 years ago equates to opposition to the application before you. Indeed, perhaps the letter writers did not write this time because they have changed their opinion about solar or have no issue with the proposed plan. Inclusion of these letters, and the fact that a commissioner brought them up, appear as a bias on the part of the HDC. This is a bad look for the Commission.

2. Although the HDC received no letters of opposition to the current application ahead of the October meeting, it received numerous letters of support. As of the October meeting, your only input from the community--and most from neighbors--were favorable. You do not summarize or even mention these letters in the minutes. Again, this looks like bias on the part of the HDC.

3. The summaries of people speaking in opposition (now or 5 years ago) are long and lay out full arguments, whereas the summaries of statements in favor are terse and less impactful. Take for example, the characterization of my statement in favor of the application as essentially 'solar is good.' Rather, I spoke to the importance of the UCCT's role in the history of Tolland for 300 years, and how if the HDC aims to preserve history it should work to preserve the church and keep it here on the Green. The most important historical value here is the church, and I don't mean the building. The UCCT community, its work here over 3 centuries, and its ongoing contributions are historical resources that should be preserved. The UCCT hosts the food share, AA, boy scouts, concerts, and other support groups.

To anyone listening to the audio recording, this again would appear as commissioner bias against the application or the applicant.

4. I suspect he doesn't care, but I suggest replacing 'Mr. Jeff Gallagher' with "Rev. Dr. Jeff Gallagher."

Thank you.

V/r,  
Dr. Fred Day-Lewis