

**ENVIRONMENTAL JUSTICE WEBINAR SERIES FOR
HOUSES OF WORSHIP AND COMMUNITIES**

**WAYS HOUSES OF WORSHIP
ARE EMBRACING SOLAR POWER
FOR ENERGY NEEDS**

(Part 1)

JULY 13, 2023

*** PLEASE NOTE THIS WEBINAR IS BEING RECORDED AND WILL BE POSTED ON AN EPA WEBPAGE.**

PANELISTS

Pastor Zach Hopp, *Christ United Methodist Church, (Welcome & Introductions)*

James Critchfield, *Green Power Partnership, U.S EPA*

Robin Lewis, *Director for Climate Equity, Interfaith Power and Light (DC, MD, NoVA)*

Pastor William Young IV, *Covenant Baptist United Church of Christ, Washington, DC*

Rachael Neill, *Homewood Friends Meeting, Baltimore, MD*

Pastor Darryl Roberts, *19th Street Baptist Church, Washington, DC*

Danny Gogal, Ericka Farrell, and Julie Childers, *Office of Environmental Justice and External Civil Rights, U.S. EPA (Facilitators)*



Solar Opportunities for Houses of Worship

James Critchfield, US EPA Green Power Partnership – 2023

EPA's Green Power Partnership

EPA's Green Power Partnership is a free, voluntary program that encourages organizations to use green power to reduce the environmental impacts associated with conventional electricity use

<https://www.epa.gov/greenpower>

Partners include:

- Fortune 500 corporations
- Higher Education institutions
- Federal, State and local governments
- Small & medium sized businesses
- Non-profits (including houses of worship)



ENERGY STAR®

PortfolioManager®



- 300,000+ buildings last year
 - >2000 worship facilities
- Nearly 25% of all floorspace
- 1,000 properties added daily
- Track renewable energy purchases

energystar.gov/buildings/benchmark



How Efficiency & Green Power Work Together

$$\text{Energy (kWh)} \cdot \text{Emissions Rate} \left(\frac{\text{lbs CO}_2}{\text{kWh}} \right) = \text{Air Emissions}$$

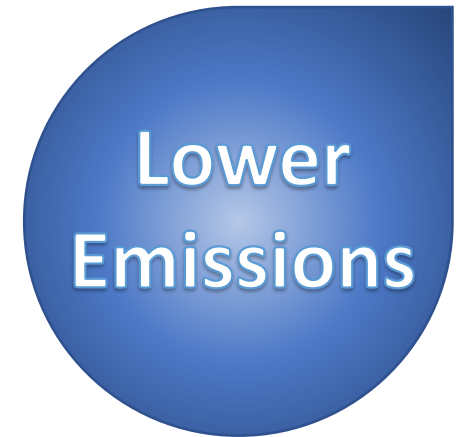
Efficient Electrification



Renewable Electricity



=



The Promise of Renewable Energy

The ability to procure cost effective energy with a low environmental footprint



ENERGY



ECONOMICS

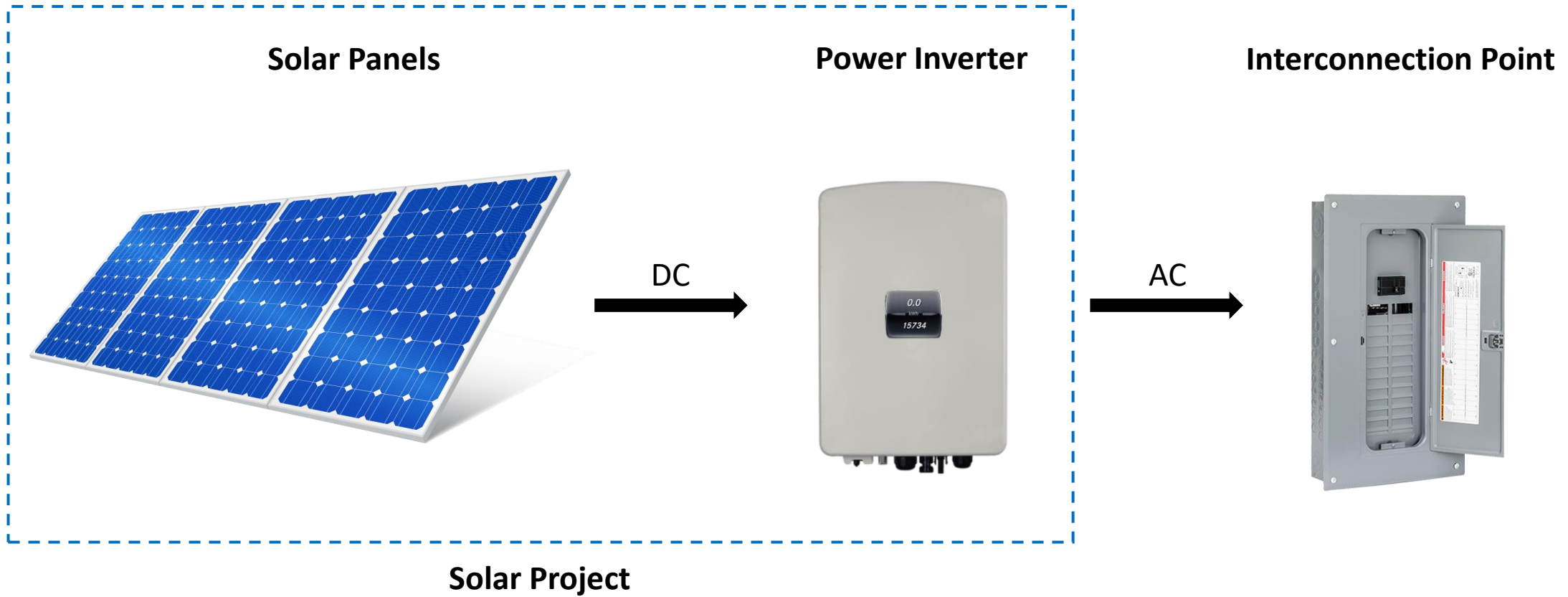


ENVIRONMENT

REC

Options for Buying Renewable Electricity

| | |
|---------------------------------|-------------------------------------|
| Retail Options | Retail (Unbundled) RECs |
| | Utility Products or Programs |
| | Community Choice Aggregation |
| Project Specific Options | Self-Supply |
| | Power Purchase Agreement |
| | Shared Renewables |
| | Utility Green Tariffs |
| | Financial Contracts |



Primary Components of Solar Projects

Solar Project Development Process

1. Assess your solar site opportunities
2. Collect your utility data and useful site information
3. Determine your available financing opportunities
4. Solicit a request for proposals (RFP)
5. Evaluate your project proposals
6. Select and sign a contract
7. Build your project

Working with a Solar Developer

- Best Practices
 - Obtain multiple proposals
 - The lowest cost is not always the highest value
 - Ensure your developer is licensed within your state to install solar
 - Ensure your developer carries proper workplace and insurance coverage
 - Check references and [business reviews](#)
 - Work with members of trade associations that follow industry [business codes](#)
 - Work with [NABCEP certified professionals](#) for the design and installation of solar projects





Sisters of St. Francis of the Holy Cross (Green Bay, WI)

- EPA Partner since 2015
- Uses more than 525,000 kWh per year in electricity
- Owns an onsite ground mounted solar PV array that produces 263,000 kWh per year
- Video: https://youtu.be/5IOEyU0O_Nw
- Remote Monitoring: <https://www.solrenview.com/SolrenView/mainFr.php?siteId=2751>



Solar Power for Houses of Worship

Robin Lewis, Director for
Climate Equity, Interfaith
Power and Light, (DC, MD,
NoVA)



Our religious response to climate change

- ***IPL DMV works with hundreds of congregations of all faiths across Maryland, DC, and Northern Virginia to save energy, go green, and respond to climate change.***
 - ***Learning***
 - ***Going Green/Solar***
 - ***Taking Action***



IPL DMV is Getting Congregations involved

Educate about climate and environmental issues

- *Request speaker from Speakers Bureau*
- *Participate in Climate in the Pulpit*

Starting a Green Team

- *Aid congregation to start green teams*
- *Connect with over 800 green leaders*











Go Solar

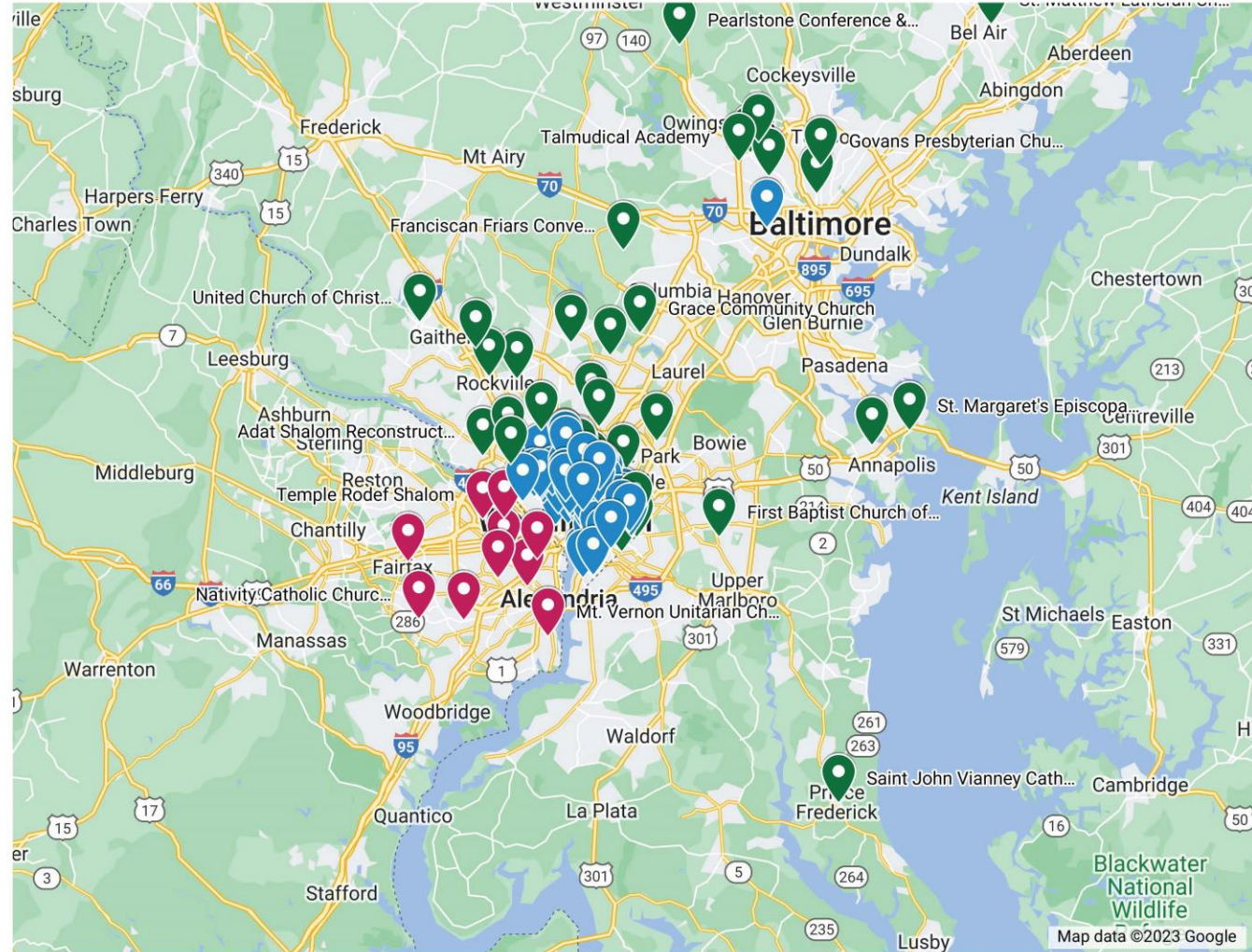
- *Provide guidance to congregations*
- *Connect with solar resources*
- *Host over 75+ faith-based workshops*



IPL-DMV Solar Congregations

Solar Congregations, Green=MD, Blue=DC, Pink=VA

-  St. Alban's Episcopal Parish
-  University Park Church of the Brethren
-  Homewood Friends Meeting
-  Lutheran Church of the Reformation
-  Adat Shalom Reconstructionist Congregation
-  Florida Avenue Baptist Church
-  Mt. Vernon Unitarian Church
-  Western Presbyterian Church
-  Greenbelt Baptist Church
-  Tikvat Israel Congregation





Pastor William Young IV

Covenant Baptist United Church of Christ, Washington DC



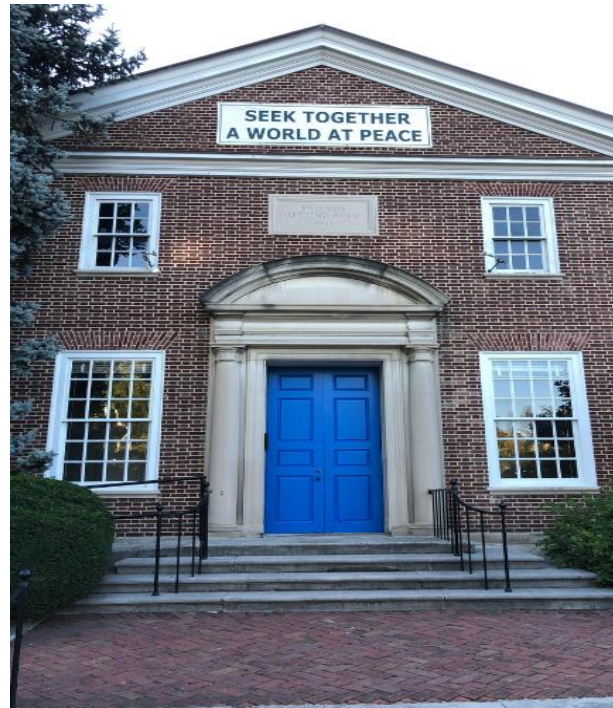
RESERVED
PARKING





Solar Panels at Homewood Friends Meeting Baltimore, MD

Rachael Neill, Homewood Friends Meeting, Baltimore, MD



Genesis of the Project

- ❖ Homewood is a Quaker meeting in Baltimore's Charles Village neighborhood
 - Work of the meeting is done by committees and monthly meeting for business
- ❖ Energy audit
- ❖ Outrageous dream
 - Start small

How We Paid for It

Phase One, 2010

- ❖ \$43,750 (for 50% of usage) was more than we could pay up front
- ❖ Astrum Solar offered a special arrangement
 - Discount of 75% of the value of federal tax credits for a system of this size
 - In exchange, Homewood agreed to allow Astrum to
 - Claim the Solar Renewable Energy Credits (SRECs) our system would earn
 - Market directly to our members

How We Paid for Phase One, Detail

❖ \$43,750

- \$9,030 SREC estimated value
 - \$7,812 75% federal tax credit
 - \$6,250 Maryland state solar grant
- \$20,658 Total cost to Homewood**

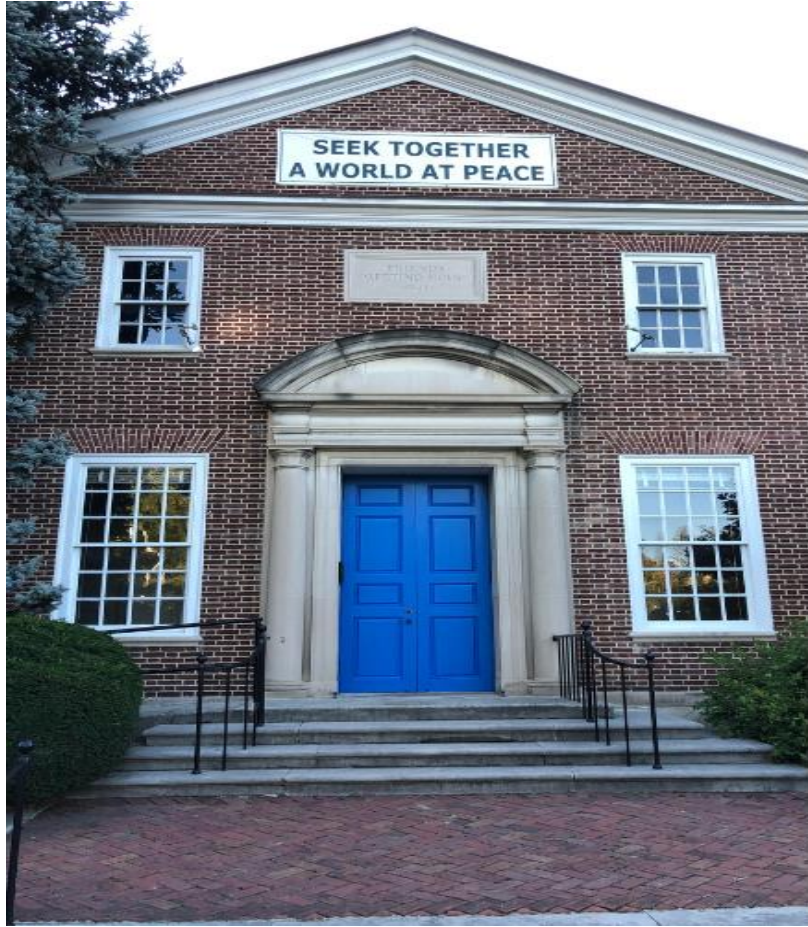
❖ We reduced this amount slightly (by about \$2,000) with fundraisers

- A benefit concert produced by a meeting teenager
- A yard sale
- T shirt sale

Phase One Technical Specs

- ❖ 40 175w panels

- ❖ 7 kw system (50% of the meeting's usage)



Phase One Layout

The screenshot displays the Enlighten Manager web interface for a solar system named "Homewood Friends". The interface includes a navigation bar with "Systems", "Account", and "Support" options. The system is identified as "Homewood Friends" and is maintained by Astrum Solar. The main view shows a grid of 40 microinverters, with a tooltip indicating a "Normal" status for Microinverter 110948154190. A sidebar on the right provides system details: 40 Microinverters, 1 Gateway (Cellular), and a "Gateway Not Reporting" warning. Energy production statistics are shown as 0.00 Wh for Today, Past 7 Days, and Month To Date. The interface also features a "Feedback" button and a Windows taskbar at the bottom.

Enlighten Manager Systems Account Support

Activation | MyEnphase View | Maintained by Astrum Solar

Systems List
Homewood Friends Full System

View Graph Reports Devices Events Services

Energy: Today Jun 21, 2023

40 Microinverters
1 Gateway (Cellular)
baltimore, MD
58°F
Gateway Not Reporting

Full System

Energy Status

Today
0.00 Wh
Latest: 0.00 W

Past 7 Days
0.00 Wh

Month To Date
0.00 Wh

Lifetime

Normal
Microinverter 110948154190

1.92 kWh
0 kWh

58°F Cloudy 10:58 PM 6/21/2023

Phase Two, 2020

- ❖ Environmental committee, Green Organizing Action Team, recently established
- ❖ The cost of solar panels had come down
- ❖ Time to complete our original vision of generating all our electricity
- ❖ We paid full amount after a state grant of \$1,048 : \$25,576

Phase Two, Technical Specs

❖ Lumina Solar

❖ 26 320w panels

❖ 8 kw system (combined with existing system, 120% of the meeting's usage)

❖ \$26,624

Phase Two Layout

The screenshot displays the Enlighten Manager web interface for a solar system named "Homewood Friends". The interface includes a navigation bar with "Systems", "Account", and "Support" options. A sidebar on the left shows a "Systems List" with "Homewood Friends" selected. The main area features a 3D layout of solar panels on "Roof A" and "Roof B". A right-hand panel provides system details: 26 Microinverters, 1 Gateway, Wi-Fi, and Baltimore, MD. It indicates the system is "Normal" and shows energy production data for today (12.19 kWh), the past 7 days (252.44 kWh), and the month to date (821.45 kWh). The current temperature is 58°F. A "Feedback" button is visible on the right side of the panel. The Windows taskbar at the bottom shows the system time as 10:51 PM on 6/21/2023.

Enlighten Manager Systems Account Support

Activation | MyEnphase View | LUMINA

Systems List
Homewood Friends Full System

View Graph Reports Devices Events Services

Energy: Today Jun 21, 2023

Roof A

Roof B

26 Microinverters
1 Gateway Wi-Fi
Baltimore, MD

58°F

System Normal

Full System

Energy Status

Today
12.19 kWh

Peak: 1.91 kW at 12:55 PM
Latest: 0.00 W at 8:10 PM

Past 7 Days
252.44 kWh

Month To Date
821.45 kWh

Feedback

58°F Cloudy

Search

10:51 PM 6/21/2023

Lessons Learned

- ❖ **Installers.** There are solar installers who are creative problem solvers out there if you're persistent in searching.
- ❖ **Continued engagement.** Someone has to stay engaged after installation to monitor energy production and any technical problems that crop up.
- ❖ **Celebration.** Because we're a net producer of energy, we get an annual check from the utility and that's an occasion for celebration. And it serves as a reminder that what's good in our communal space might be good in people's private spaces, too.
- ❖ **Neighborhood impact.** We got some local publicity when we installed the first set of panels, which we hope helped give currency to solar energy.



Nineteenth Street Baptist Church Creation Care Ministry

Rev. Dr. Darryl Roberts, Senior
Pastor

July 13, 2023

Solar Panel Energy Installation Origins and Outcomes

- ▶ The Board of Trustees started talking about the use of solar energy back in 2015.
- ▶ 2. In early 2016, the trustees invited in several solar energy providers to make presentations to the church body over a four month period to assess how using an alternative energy source could increase costs savings for the church. Currently, we spend about \$48,000 annually for electricity and costs are expected to increase 5 % annually. Based upon their study, the Trustees found out the use of solar energy could reduce our energy costs by at least \$8,000 annually per year for 15 years.
- ▶ In July 2017, Dr. Franklin Smith, then chair of the Board of Trustees, did an in depth presentation to the membership at the Church Business Meeting about the benefits of using solar energy. After several questions, a recommendation was made to enter into contract with Volt Energy, a nationally recognized solar energy company, to install solar panels on the roof. It was approved by an overwhelming majority of the membership.

Solar Panel Energy Installation Origins and Outcomes

- ▶ In addition to significant cost savings, here are additional factors that influenced the Trustees' recommendation to contract with Volt Energy:
- ▶ We can install solar panels with no up front cost.
- ▶ We can be one of the community leaders in greenhouse gas reduction.
- ▶ We can reduce the five percent anticipated annual electricity cost increase.
- ▶ We can generate approximately 40 percent our our electricity with solar energy at a guaranteed rate of \$0.0800/kwh for the first 15 years.
- ▶ After the first 15 years, the church would accrue a cumulative savings of \$204,666.
- ▶ Over a 25-year period, the church would accrue a cumulative savings of \$652,007.
- ▶ Volt Energy has agreed to agreed to help Nineteenth Street establish a Greenhouse Ministry for the benefit of our members and as a community service outreach project



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POWER**
www.GreenStatePower.com
Solar Energy Experts

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SYMO

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Solar Panel Energy Installation Origins and Outcomes

- ▶ In October 2017, we signed a contract with Volt Energy to finance the solar panel installation.
- ▶ The installation commenced in February 2017.
- ▶ In June 2017, we were converted to the Pepco grid and began generating solar energy.
- ▶ September 27, 2017—we hosted a delegation of government officials, business leaders, religious leaders, and educators from Kenyan. Gilbert Campbell, Volt Solar Energy, requested that we host them and provide them with a brief overview of our solar installation.



Solar Panel Energy Installation Origins and Outcomes

- ▶ October 3, 2017—our solar energy installation was filmed as part of the The Climate Reality Project which produces short documentaries highlighting solutions to the climate crisis. They will feature Volt Energy and their work bringing renewable energy to diverse communities and providing “ladders of opportunity” for minorities, who are under-represented in jobs throughout the industry. The Climate Reality Project (TCRP), founded by Former U.S. Vice President and Nobel Laureate Al Gore, is one of the world's leading organizations dedicated to mobilizing action around climate change. Every year, TCRP produces "24 Hours of Reality" - a live broadcast for audiences around the world examining how climate change is impacting individuals in communities around the globe, and how pioneers at all levels of society are now devoting their lives to halting it.



Solar Installation Project Facts

- ▶ 200 kW solar system
- ▶ 645 solar panels
- ▶ Actual savings to the church— approx. \$15k annually
- ▶ Produce/ approx 240,000 kWh/year



**QUESTIONS?
EVALUATION:**

<https://forms.gle/81apegqlzxs18xqt8>

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