



## Good Shepherd Carbon Neutral Initiative Mission Green Project Updates

On Sunday, June 5th 2022, the Good Shepherd Congregation voted to go forward in partnership with Mission Green LLC on the carbon neutral initiative. The information given below was the updates provided by Mission Green LLC to the congregation during the construction process, listed latest to earliest.

### **March 24, 2025**

**Good Shepherd was awarded the Energy Star NextGen certification, the newest level of certification for commercial buildings.** In order to receive this certification, facilities must go “above and beyond” traditional Energy Star certification and show **1) Superior Energy Performance** via highly efficient HVAC and electrical requirements, **2) Meet a Direct Emissions Target:** Good Shepherd is Carbon Neutral, and **3) Use Renewable Energy:** The building must obtain at least 30% of the total energy it consumes—or 100% of the total electricity it consumes. Good Shepherd generates approximately 125% of the electricity it consumes.

As Energy Star NextGen is a brand new certification level, Good Shepherd will be one of the first Houses of Worship in the US to gain this honor!

### **January 15, 2025**

**Good Shepherd was awarded the 2025 Energy Star Certification.** This is the first time gaining this certification since 2012.

### **February 24, 2024**

**Good Shepherd Lutheran Church, Decorah, IA is one of 6 National Winners in Interfaith Power and Light’s Cool Congregations Annual Award for Leadership and Sustainability**

*Interfaith Power and Light Announces 'Cool Congregations Challenge' Winners as Faith Communities Prioritize Energy Efficiency, Renewables, and Sustainability*

WASHINGTON, D.C., February 24, 2024

**Good Shepherd Lutheran Church**, Decorah, IA is one of the six national Interfaith Power & Light (IPL) 2024 Cool Congregations Challenge winners awarded a \$1000 prize. The annual contest accepts applications from religious congregations around the United States who are doing work to address climate change by reducing their carbon footprint as they create models of sustainability within their communities.

**Good Shepherd Lutheran Church** won the Energy Saver Award for entirely eliminating the use of fossil fuels in heating, cooling, lighting, and powering their buildings. They have converted their building to all-electric, with heat pumps to heat and cool their buildings, powered entirely by solar on their property, preventing 25 tons of carbon emissions annually.

“**Good Shepherd Lutheran Church** and the other national winning congregations are casting a vision for the kind of world in which they want to live, and then carrying out that vision with practical actions that make a real difference in creating lasting solutions to climate change,” said Rev. Susan Hendershot, President of Interfaith Power & Light.

The *Cool Congregations Challenge* shows that people of faith are united by concerns about climate change and are taking action. The winners provide strong moral role models for their communities, and their activities have a ripple effect on people in their own homes, demonstrating that acting on climate is a moral issue.

“Iowa IPL congratulates Good Shepherd Lutheran Church on their well-deserved recognition for their work and commitment on prioritizing sustainability. Good Shepherd shows us all what is possible when people of faith come together and live into bold and just action on the climate crisis. They are a leader and will inspire other houses of worship to see what they can do,” says Deaconess Irene DeMaris, Executive Director, Iowa Interfaith Power & Light.

## **November 30, 2023**

Winter is now upon us. After the Thanksgiving snowfall, the new solar panels were covered with snow. When Mission Green's solar output calculations were made, there was an assumption that they would be covered with snow for part of the winter. So, while we lose solar output during the winter, it is a part of the calculations made from the beginning.

The solar panels on the roof of the Education Wing will gradually allow the snow to slide off as they are set at a 10-degree angle. But, eventually, the snow piles up and can no longer slide off. Most solar gain is then lost until spring, but that is expected.

The solar panels on the pergola are a different story. The snow slides off because the bottom of the panels creates energy, which makes heat. The heat allows the snow to slide off the entire pergola array. There are no gutters on the pergola because the snow would build up in the gutters and not allow the panels to eliminate the snow, also eliminating any solar gain. The downside is that the sidewalk immediately below the south edge of the array becomes a skating



**November 9, 2023**







### **Project Completion**

The backyard reconstruction project was completed this past week of November 6 - 10. The dirt areas were roto-tilled, dragged, and seeded. The pollinator prairie was also planted and covered with a jute mat. The mat will remain for several years and eventually decompose. It will help germination and also prevent damage from deer traffic.

While we can't stop the deer from tromping through the freshly hydro-seeded lawn areas, we ask everyone else to stay off the new seeding until the ground has frozen completely. We hope for moisture this winter and a gentle spring for ideal growing conditions.

**Now that the backyard reclamation and re-seeding are done, the Mission Green construction commitment to create the Good Shepherd Carbon Neutral Initiative is 100% completed!**

### **Energy Production**

The solar arrays have been generating lots of renewable electricity. We've already banked over 14,000 kWh via net metering. Unfortunately, we missed some prime solar collection time during the summer due to our changed project timeline. The courtyard solar canopy was only connected

to the grid in late August. Because of this, Good Shepherd made reduced payments to Mission Green during the solar array's low production.

### **Mission Green Advocacy and Consulting**

As a Cool Congregation recipient, the Good Shepherd Carbon Neutral Initiative has received much attention. The project is currently featured on the Interfaith Power and Light national website: <https://interfaithpowerandlight.org/coolcongregations/good-shepherd-lutheran-church/> as well as the Iowa Interfaith Power and Light website: <https://iowaippl.org/2023/09/28/moving-the-needle-how-one-rural-congregation-electrified-its-building-and-secured-its-future/>

Mission Green has also presented the Good Shepherd Church Carbon Neutral Project at multiple events. Here is what we've been doing!

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8/15/23 Winneshiek Energy District presentation and Good Shepherd tour

9/1/23 Benji Nichols/Inspired podcast - Rhymes with Decorah: <https://benjinnichols.podbean.com/e/mg/>

10/7/23 Interfaith Power and Light tour of Good Shepherd Church

10/25/23 Interfaith Power and Light/UCC Church National Webinar - Holy Heat Pumps! webinar: <https://youtu.be/PAPGpKA4xWo?feature=shared>

10/31/23 email correspondence w/John Wilkerson re: Holladay UCC, Holladay, Utah re: efforts to install heat pumps/solar

11/2/23 Zoom meeting with Eli Sadow-Hasenberg re: Oberlin UCC church heat pumps

11/4/23 Citizens Climate Lobby National Meeting Webinar - Presentation and Good Shepherd tour

11/6/23 interview with David Mitchel of KKFI radio in Kansas City, MO

<https://kkfi.org/program-episodes/a-spark-of-hope-on-the-climate-crisis-from-the-heartland/>

11/8/23 Iowa Energy Summit: building innovation presentation for 50 energy industry attendees - sponsored by Iowa Economic Development Authority

11/9/23 Robert Wollenburg, building committee, Our Saviour's Atonement Lutheran, NYC, reaching out for help with heat pumps

11/13/23 Zoom presentation & video of Good Shepherd Carbon Initiative project for NEIowa Citizen's Climate Lobby

On 11/8/23, Jim and Liz presented at the Iowa Association for Energy Efficiency's (IAEE) "[Iowa Energy Summit](#)," where they will speak on facility innovation with renewable energy.

[https://www.iowaenergy.org/en/iowa\\_energy\\_summit/about\\_the\\_summit\\_more\\_info/](https://www.iowaenergy.org/en/iowa_energy_summit/about_the_summit_more_info/)

Mission Green was invited to present on the Good Shepherd Carbon Neutral Initiative at several upcoming events. Jim provided guided tours of the Good Shepherd facility on October 7th from 1-4 p.m. as a part of the national Interfaith Power and Light National Solar Tour. There will also be a virtual tour component listed on their website.

Jim was a presenter for a national Heat Pump/Solar webinar hosted by Interfaith Power and Light on October 25, 2023.

### **October 1, 2023**

Fall is in the air! The sun lowers in the sky. We will receive less solar gain because of the sun angle. However, as the sun continues its southward trek, the reflective courtyard will increase the electricity created from the bottom side of the solar cells throughout the winter.

To save the congregation money by avoiding watering, we will restore the backyard grass and plant the pollinator prairie using a "dormant seeding" technique. In this method, the hydroseeding is done after the ground temperature is lower than 50 degrees. No germination will occur this fall, but with cooler temperatures and more moisture in the spring, the seeding will jump to life. This dormant seeding process will likely happen during late October/early November.

### **September 25, 2023**

Now that the Good Shepherd Carbon Neutral Initiative has been completed, we can see more of the future regarding our energy usage.

We previously received Energy Star certification in 2012. That is now quite dated, and a new recertification request is underway. Energy Star doesn't have a "Net Zero/Carbon Neutral" rating yet, but they are in the process of creating one. When it is available, we will apply.

Good Shepherd electric bills from Alliant have averaged \$22.47 per month! This amount reflects the hook-up fee for the meter. We receive 110% net metering and send the excess energy we produce to the grid. There, it is "banked" to be used by Good Shepherd when the sun's energy is lower (wintertime). We have already "banked" 14,520 kWh hours...enough for several winter months! Additionally, there is no gas bill since we removed all gas furnaces and the meter in January 2023.

We have had questions about the option of being totally "off the grid." Keeping our meter connected with Alliant allows us to store all energy produced without a battery storage system. Using net metering on the grid is currently the most efficient path.

### **Cool Congregation Award**

Good Shepherd is one of 3 congregations in the country certified as a national IPL Cool Congregation at the "100% CO2 Reduction – Platinum Medallion" level for converting their building to all-electric - with geothermal and air-to-air heat pumps - powered entirely by solar on



their property, preventing 25 tons of carbon emissions annually. Congratulations from IPL! Read their story: <https://interfaithpowerandlight.org/.../good-shepherd.../> Certificate and plaque received September 21,2023.

Our CNI project is also being recognized by the Iowa InterFaith Power and Light. You may view it on their website: <https://iowaipf.org/2023/09/28/moving-the-needle-how-one-rural-congregation-electrified-its-building-and-secured-its-future/>

We're happy the word is getting out! Moving the Needle!

We received a certificate suitable for framing, window clings to place at our entrances, and a bamboo plaque that will be displayed. Here is Pr. Amy accepting the plaque and certification on behalf of the congregation:



We recently hired a drone operator to capture the "big picture" of the Good Shepherd Carbon Neutral project. A video will be produced, with voiceovers, explaining what Good Shepherd



Church has done over time to become Carbon Neutral. This photo is the link to that video:

(photo credits: Nick Chill Photography)



**September 10, 2023**





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The courtyard and pergola dedication was held during Fellowship Hour at 10:45 on Sunday, September 10, 2023. Jim and Liz Fritz formed an LLC to provide solar and heat pumps for our church. Jim designed the system and was the general contractor/chief grunt. Liz made sure the business side was done properly.

The project, finished this month, includes: 48 kW of solar panels (102 bi-facial panels), 4 heat pumps, a huge French drain below a permeable paver courtyard and a pergola with a large solar array on top. This project has allowed the church to get rid of the last of the old gas furnaces and become all electric/carbon neutral. Enough solar has been installed so the church will be Net Zero, meaning all the electrical needs will be met on-site through our own "private solar power utility".

**All those who helped make this a reality:**

Iowa Energy Office/IEDA

Hammond Climate Solutions

Winneshiek Energy District - Andy Johnson, Paul Cutting  
greenpenny.bank of Decorah - Mike Ludeking

**MENTORS**

Larry Grimstad, Jim Martin-Schramm, Amy Bouska

**LOCAL CONTRACTORS:**

Decorah Electric -Joel Teslow

Vick's Heating and Plumbing - Steve Klemme

Legacy Concrete/Finholt Construction - Seth Klotzbach

Kittleson Woodworks - Dale Kittelson

Pinter Landscaping - Shane Pinter

Couillard Solar Foundation - Cal Couillard

Other Side Hydro Seeding - Robert Ringeon

Erdman Engineering - Lindsay Erdman

Lifetime Gutters

Alliant Energy

Reed Fitton

Tom Bourcier

**For the "leap of Faith":**

the Good Shepherd Congregation

Pr. Amy Zalk-Larson

**All the volunteers**

Our son-in-law Jake Gazlay, for the computer renderings he made of the pergola long before it was ever built.

**September 1, 2023**

The large pile of dirt in the back yard is now gone and has been spread around the yard.



The new pollinator prairie has been prepped for seeding. The prairie has been bordered using rebar with yellow “mushroom caps”. It is an area of 4500 sq. ft or about 11% of an acre.

A small area just south of the pergola has been hydro-seeded and will be watered to create an area we can use as “overflow” for the Community Picnic





The remainder of the yard will be leveled and seeded in late September. The pollinator prairie will be seeded at that time as well.

Now, we wait for cooler weather and hopefully some rain!

Jim will be a guest speaker for the virtual national conference during Interfaith Power and Light's National Solar Day. Good Shepherd's installation will be part of the National Solar Day demonstrations. Jim will provide a live tour of the facilities on October 7, 2023 from 1-4 p.m. We also plan to have a virtual presence as well.

### **August 8, 2023**

#### *Moving the Needle*

by Jim and Liz Fritz

Is it possible for a small Midwestern Lutheran congregation to go from eight natural gas furnaces to eight heat pumps and create all needed energy, via solar, needed to run them in only 4 years? It is possible, and it's happening right now! See article linked below.

[Mission Green article](#)

### **August 2, 2023**

#### **GOOD SHEPHERD CARBON NEUTRAL INITIATIVE NEARS COMPLETION!**

Monday and Tuesday (July 31/August 1), an 8-man crew erected the solar canopy on the post and beam pergola.

Eleven 37' aluminum extruded beams were firmly secured on the wooden pergola. Then 50



**May 17 2023:**

The filling in of the French drain will be completed this week.

This week, a new electrical conduit for the pergola will be placed in the rock. New sidewalks on the south and east side of the pergola will be poured in the next week or so. We will fix the grassy area east of the Fellowship and start new grass seed. The remainder of the yard will wait until the project is complete.



**January 15, 2023**

The new air to air heat pumps went live today! We're now 100% electric throughout the entire facility!



These are the new head units in the Sanctuary over the organ. The old duct holes will be covered.

**Dec. 12, 2022**

We have much to report as the Good Shepherd Carbon Neutral Initiative is moving forward!





After a long delay due to supply chain issues, the new 600 amp service entrance was bored into the church from the relocated Alliant transformer. There are several large electrical boxes now installed on the south side of the Education Wing.



There are now 52 solar panels (21 kW) mounted on the Education Wing and office roofs. These will begin producing electricity as soon as Alliant Energy turns on the meter. A new mini-split heat pump was installed in the Annex. In the 1988 addition, the ceiling tiles were removed, the old ductwork was removed, and all duct register openings are being sheetrocked. The many penetrations (from over the years) through the hallway ceiling sheetrock have been fireproofed, the 3 heat pumps are installed on the south side of the Sanctuary, and the wall units in the Sanctuary are in the process of being installed.





The plan is to have the Sanctuary switched to the new HVAC system by Christmas. This is the priority. The offices, library, bathrooms, Sacristy, and hallways will be completed next.

Much care and attention are being paid to properly condition the Sanctuary for the long-term health of the organ and baby grand as well as congregants. The small humidifier/dehumidifiers will be replaced with a commercial-grade humidification system, and the new HVAC will dehumidify appropriately. The new air purification system will integrate MERV/carbon/LED UV elements. There will be backup heat in case of extreme winter conditions.

This is a large project with lots of moving parts. While there are currently no “unknowns” that will slow the process, it will still take time. The congregation’s patience with this process is greatly appreciated. The goal is to have the facility be 100% electric by 1/1/2023. After the HVAC work is completed, we can unhook the gas lines.

The final phase: French drain, permeable paver courtyard, pergola, and solar canopy (27 kW), will begin in the spring after the ground thaws.

**November 14th, 2022**

Many Thanks to our Volunteers





We had an incredible Sunday afternoon work event due to amazing volunteers! We removed all the ceiling tiles and gridwork in preparation for the HVAC installation.

We are grateful to all who helped Sunday: Reg Laursen, Brooke Joyce, Dave Peterson, Bob Felde, Sharon Drew, Bob Wilson, Lance Wood, Christy and Jeff Tomlinson, and Laura Barlament. It was dusty and dirty, but spirits were high! Thank you! Thank you!

The new service entrance was completed on Friday, November 11th, and Alliant installed the new transformer. Decorah Electric has finished installing all the large electrical boxes on the south side of the Education Wing.

This week we will receive 52 new solar panels. These panels will be installed on the roof of the Education Wing and over the offices next to the Sanctuary. An additional 200 amp service panel will be installed near the new heat pumps on the south side of the Sanctuary. We also hope to have the new gutter installed on the Education Wing in preparation for the French Drain. All of this work will be completed by Thanksgiving.

During the week of Thanksgiving, Vick's Heating and Plumbing will begin the installation of the new HVAC system. This will involve punching through the south side of the Sanctuary (in the corner behind the organ) and then running new VRF (Variable Refrigerant Flow) lines down the office hallway to all the various rooms. Once this has been completed, we will be 100% electric and will be able to take advantage of both our solar arrays. This installation process will take several weeks, but this should be done before Christmas (and we can permanently turn off the gas line!).

We hope to have all the ceiling tiles replaced before Christmas (it'll take a lot longer to put them up than it did to take them down!!!). We also plan to have a plasterer (Good Shepherd Charter Member Torg Berg) repair all the holes left by the heat registers that will no longer be used. This will happen both before and after Christmas. Finally, the painting will need to be completed on all these plaster repairs.

At that point, we will pause for the winter and resume construction of the French Drain, permeable paver courtyard, pergola, and solar canopy in the spring after the ground thaws.

## **November 10, 2022**

The new service panel has been installed. This is the part we were waiting on for so long.

On Friday, November 11, 2022, Alliant Energy will connect the new transformer on the east lot line (picture on the bottom right) and switch from the old service entrance to the new one (picture on the bottom left).

The entire building will be without power for much of the day on Friday.





### **October 31st, 2022**

Work is finally starting to commence on the solar and heat pump project proposed by Mission Green and accepted by the congregation last June.

The concrete slab for the new heat pumps (south side of the Sanctuary) has been completed.

Timeline for Upcoming work:

Wednesday 11/2/22 - West Union Trenching will bore underground conduit from the east lot line to the south side of the Education Wing.

Friday 11/4/22 - Decorah Electric will install the new service entrance box and all electrical boxes needed for the solar installation on the south wall of the Education Wing.

Week of 11/7/22 - Lifetime Gutters will install a new gutter system along the south side of the Education Wing in preparation for the French drain.

Friday 11/11/22 - Alliant Energy will install the new transformer on the east lot line and switch from the old service entrance to the new one. The entire building will be without power for much of the day.

**\*\*\*Volunteers needed**

Sunday afternoon, 11/13/22 - Jim Fritz and volunteers will remove the ceiling tiles from the Sanctuary hallways and entry in preparation for the new HVAC equipment to be installed.

Volunteers are needed to help with this process. No heavy lifting. Minimal ladder work. We will start at 1 pm and be done no later than 4 pm. Please email Jim at: [jlfrtiz@mac.com](mailto:jlfrtiz@mac.com) if you're able to help.

Wednesday 11/15/22 - Installation of the new HVAC system will begin.

We will still be under construction throughout the Thanksgiving holiday in the Sanctuary area. We “hope” to have things put back together again by mid-December.

Due to oncoming winter weather, the French drain, permeable paver courtyard, pergola, and solar canopy/array will begin once the ground thaws in the spring.

We'll do our best to keep everyone updated on progress/changes/etc.

### **October 11th, 2022**

GOOD NEWS!!

The necessary electrical panels have arrived! Decorah Electric will move the old Alliant transformer late next week or early the following week.

Vick's Heating and Plumbing will most likely start the installation of the heat pumps in early November. Prior to that work all of the dropped ceiling tiles in the hallways and entry will need to be removed. This will occur so that all the old ductwork can be removed, and the new heat pump lines can be installed. In our "perfect world" the installation of the heat pump HVAC system will be complete by Thanksgiving. But, realistically, delays happen. We'll do everything in our power to minimize the disruption.

It is also our goal to get the roof-mounted solar panels installed before winter.

Cold weather will probably force part of the project to be put on hold and commence in the spring. This would include the French Drain, courtyard/pergola/solar canopy. Waiting for Spring also allows Kinderhaus to access the exit in that area through the winter months.

We should be heated by electricity and heat pumps this winter!!

This is a great thing considering the current news that natural gas prices will spike again this winter!

### **August 2nd, 2022**

GOOD NEWS: Last week, we were informed that Good Shepherd would receive a \$12,500 grant to offset the costs associated with the Carbon Neutral Initiative. This grant is through Hammond Climate Solutions, <https://www.hammondclimatesolutions.com/>, a foundation based in San Diego, California. Jim applied for this grant this past spring, and we mentioned that we hoped we might be eligible. The funding should arrive following the completion of the installation of our solar equipment and heat pumps.

BAD NEWS: The realities of worldwide supply chain disruptions are also affecting our Carbon Neutral Initiative. We knew that there would be some delays with the needed equipment, but unfortunately, the delays are going to be even greater than we had anticipated. The current equipment delays are with the Square D electrical cabinets and main breakers for the updated electrical infrastructure.

Unfortunately, in the proper sequence of construction events, this electrical equipment must be installed first before any other parts of the entire project can proceed. At this time, we're probably looking at another month of delays. In the best-case scenario, we hope to be moving forward in the middle of August. However, until this Square D electrical equipment shows up, the entire project will be on hold.

**Sunday, June 5th 2022**, the Good Shepherd Congregation voted to go forward in partnership with Mission Green LLC on the carbon neutral initiative.

## **THE PROJECT:**

Visit their website to learn more: [www.missiongreen.llc](http://www.missiongreen.llc) and watch the proposal video and discussion with experts video below:

Jim and Liz Fritz are 30-year members of Good Shepherd. They're both retired band directors, having taught in Decorah for 30 years, and live just two blocks from Good Shepherd. They have owned and operated a sole proprietorship business for over 25 years involving rental units and upgrading properties in their neighborhood. They have formed Mission Green, LLC specifically for the Carbon Neutral Initiative that is being proposed.

The business relationship would be established through a PPA (Power Purchase Agreement) and a lease between Good Shepherd Church and Mission Green, LLC. These financial contracts will provide a conduit to an affordable solution allowing for payments over time. The expenses to the church will be predetermined throughout the life of the contracts. Mission Green is responsible for all liabilities and contingencies.

Benefits of this Project:

- Good Shepherd Church becomes Carbon Neutral
- Proactive replacement of aging 34 year old furnaces eliminates reactive, expensive replacement
  - Upgrades at reduced rate (approx. 70% value) to Good Shepherd, spread out over 7 years
- At the end of the lease and Power Purchase Agreement, Good Shepherd will own all **heat pumps** with an **advanced air purification system for the Sanctuary** and **upgraded electrical equipment**, create all of their own energy using **solar** and have a **covered waterproof courtyard**.

At their April meeting the church Council voted to allow the congregation to vote on the Initiative on June 5. The vote was not an endorsement at this time, simply providing an opportunity for the congregation to have a voice in this decision. Mission Green's proposal is a comprehensive plan utilizing the latest/best technologies available. It will provide Good Shepherd with a long horizon of Carbon Neutrality. More importantly, it also includes the ability to guarantee energy costs (versus the volatile situation we are currently in) and the opportunity to redirect future energy costs towards more vital church missions.