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Why Solar for Congregations?

People of faith embrace their cathedrals, churches, mosques, synagogues, and temples as sacred. In the best of scenarios, houses of worship hold a community together and serve as a central focus for community life in general. Symbolically and in reality, people of faith strive for their sacred spaces to be the center of good works and community service.

In today's hyperactive, business-oriented, electronic world, our houses of worship continue to be placed of retreat, where the faithful come for worship, study, fellowship, and community engagement.

As people of faith have become more deeply engaged in environmental stewardship they have begun to recognize that rapidly accelerating climate change has become one of the greatest challenges that civilization has ever faced. Some are doing energy audits and making steps to reduce energy use, some are designing new buildings and additions that are highly energy efficient. These actions are taken out of love for the beauty and goodness of

Divinity and the desire to fulfill our responsibility to preserve and protect it.

NCIPL believes that it is important for congregations to be leaders in their communities by installing solar systems, and we are committed to helping forge this precedent-setting path forward. Seeing solar panels on a house of worship becomes an iconic marker to the broader community, a demonstration of the congregation's love of the Creator and creation, and it shows a commitment to change our relationship to energy. It becomes a moral statement, a rejection of our use of fossil fuels and the implications of damages that such use brings to all in our shared earth community, expressing a clear commitment that the broader human community cannot ignore.

How it Works.

The most common way congregations can provide renewable energy to their houses of worship is by installing solar panels. The sun's energy is converted into electricity, which can be used directly by the congregation by a technique called net-metering¹, where the meter runs backward when the congregation is using less electricity than the solar system is generating, or runs forward when the sun isn't shining or if the buildings are using more electricity than the system is generating. Alternatively, the congregation can have a conventional hook-up meaning that the electricity that is generated by the solar panels goes directly to the electricity grid, which acts like a huge battery, and the congregation continues to get its electricity from its usual supplier.

The financial benefits of using net metering or a conventional hook-up will depend on many factors, such as the electric utility company in the congregation's service area and other factors that are discussed in other sections below.

In some circumstances a faith community may have a need for a significant amount of hot water. In such instances, the community may wish to install solar thermal panels, which convert the heat into hot water.

FINANCING OPPORTUNITIES

Direct Donation Model

Members directly donate to the congregation, which installs the solar system. The members get a pro-rated (percentage share of project) tax deduction on their state taxes and a regular charitable contribution on their Federal taxes if they itemize deductions.

As of January 1, 2008 the State of North Carolina has enacted among the most generous and accessible renewable energy technology incentive programs in the USA. Through this incentive, the State of North Carolina will return 35% of the cost of qualifying renewable energy projects through tax credits. This credit extends to individual taxpayers, businesses, and now, to taxpayers who donate to NC registered 501c3 non-profits for renewable energy

property installed by the non-profit within the state. The congregation's project costs up to a maximum of \$7.1 million can qualify for the tax credit.²

For example, 10 donors each give \$10,000 to the congregation for a solar electric project. These donors each receive \$3,500 (35% of the cost of qualifying renewable energy projects) as a state tax credit. The state tax credit is taken in five installments over a five-year period. Donors also can deduct their contribution on their federal tax return as a charitable donation the same year of the donation. It is important to note that this credits are set to expire unless they are re-instated in 2015.

Success Stories:



[Temple Emmanuel](#), Greensboro dedicated their 5 kW solar system on October 16, 2011 at their Jewish Festival. Temple Emmanuel has had a very active *Teva* Committee for many years. *Teva* is the Hebrew word for nature. The *Teva Committee* worked for several years shepherding the solar project through the congregational administrative structure, culminating in unanimous approval by their Board of Trustees. Both Rabbis Fred Guttman and Andy Koren were

fully supportive. Each donor receives a proportional share of the tax credit on their North Carolina return, depending on the size of their donation to the total cost of the project. They were also able to take a deduction on their federal return for their charitable contribution. *Teva* committee members estimate that donors received about 40-50% of their donations back in the form of these credits and deductions.

The congregation came to the table in an amazing fashion, with 58 families donating to the project. Donations ranged from \$10 to \$3000, allowing people of all income levels to share in the sense of ownership. The solar system has a direct tie to Duke Energy, and sells all of its electricity to Duke and the Renewable Energy Credits to NC Greenpower, thus reducing their gross expenditures on electricity. The project costs about \$25,000, but again this expense was absorbed by the donors, not the congregation, and *Teva* committee members estimate that after taxes, the project probably costs about \$13,000.

Within the first year of operation, the array brought in the congregation \$1,200. *Teva* members point out that the congregation “made all of the money back for the congregation on the first day that we started generating electricity—because the congregation did not directly invest any funds in the project.”

As the members of *Teva* remind us, it is important to understand that “this project cost Temple Emanuel” \$0.



[Myers Park Baptist Church](#), Charlotte dedicated their 5 kW system on October 2, 2011 in a ceremony after worship services. A church Energy Committee, created at the request of their *Earthkeepers Group* learned about a matching grant using federal stimulus funds that was administered through the State Energy Office and applied for the funds in the fall of 2009. In order to make their grant application more attractive to the state, the church proposed putting a display in their

Learning Center that tells people about energy and carbon savings generated by the solar system. They also proposed conducting quarterly classes on energy related topics in their Learning Center. The Committee simultaneously began the process of educating their faith community about the value of solar and moving the process through the proper administrative channels at the Church. The grant was awarded early in 2011, and the *Earthkeepers* had no difficulty in raising the matching funds, although the project was scaled down in size due to the economic downturn. The solar system was installed in August 2011, and has been producing clean energy from the sun since then. The system was placed on the Learning Center, and is supplying electricity directly to the Church through a behind the meter installation, thus saving directly on energy costs. The donors will receive a proportional share of their donation as a tax credit on their North Carolina tax returns and a take the donation as a contribution on their federal tax return.

LLC Funding Model

Members of a faith community form a Limited Liability Corporation (LLC), a legal entity that allows shareholder/investors of the LLC to take advantage of all state and federal tax incentives. In addition to the 35% N.C. State Tax Credit outlined above, the IRS has a 30% tax credit that is taken in the year the renewable energy project is placed into operation. The solar system is also depreciable business expense. The LLC will also have a revenue stream provided by selling the Renewable Energy Credits and electricity to available buyers. The LLC leases the congregational property on which the solar project is sited. At the appropriate time, the LLC will sell or donate the project to the congregation, after the investors have achieved their return on their investment (ROI). In general, as the LLC is composed of moral empathetic investors whose primary objective is to make the project available to the congregation as soon as their ROI is achieved, the project will be donated or sold to the congregation within about 6-7 years. At that time the congregation receives the full financial benefit described above in model 1, either by a behind the meter installation, net metering, or selling the RECs and electricity.

This model differs from the Direct Donation Model in several important ways. Because the investors in the LLC anticipate being able to recoup 100% of their investment in within 5-6 years, they often can afford to finance a much larger solar array than through the direct donation model. Many of these investors consider this a form of socially responsible investing, but with the knowledge that the investment is remaining in their local community, providing jobs to the renewable energy industry. They understand that while the direct benefit of reducing energy costs to their faith community is delayed for a number of years, the long term benefit of that investment will endure for decades. The investors also know that as their ROI accrues, they can use that money for direct donations to their congregation. Finally, if part of the terms of the LLC contract involves leasing roof space for solar panels, a small new income stream is generated for the congregation during the period before the system is donated or sold to the faith community.

Success Stories:



[First Congregational United Church of Christ, Asheville](#) is the first congregation in North Carolina to use this model. They dedicated their 10KW solar system at a [Solarbration](#) on April 3, 2011. It was featured in a news story in the Asheville Citizen-Times, [Asheville Church Puts in Faith in Solar Power](#). The project was developed by the Earth Team with the full support of Pastor Joe Hoffman, who had been promoting the idea for several years.

Members of the Earth Team, members of the church, and some interested outside parties formed a Limited Liability Corporation, *First Solar LLC*, to finance the project. *First Solar LLC* leased roof space from the church, and all of the electricity is being sold to Progress Energy. *First Solar* also is selling their Renewable Energy Tax Credits to North Carolina Green Power. At the end of 6 years, *First Solar* plans to donate the system to the church. Although the Church does not benefit financially directly from the solar array, other than the lease payment, during this time period, after the solar panels are donated, they will have full financial benefit for the life of system from that time forward.

A reflection from Pastor Joe Hoffman on the project:

Our approach was to invite investors to purchase a share - which was valued at \$5000, and thus each investor became a partner in the LLC. We ended up with 9 investors, some who bought more than 1 share, and a couple who split a share with another person.

The rest of the congregation was then invited to donate to a solar fund so that we might have money to purchase the panels from the LLC in 5-6 years - according to what the financial model indicated. Those persons would write a check to the church, it could be any amount, and would receive a notice from the church of this tax free contribution. In this way, everyone still gets to be a contributor, and the original investors do not face a possible small loss of their investment when it is time to sell the panels to the church. (The church does not want our original investors to lose money - they could have earned money on that investment in some other kind of investment on the market - but they chose to invest socially, and we want to honor that.)

So far, the church has had no costs associated with the solar panels. And yet, we have gotten free great publicity in the press, we have used the results of our panels for educational purposes to inform people of why this is important, etc. It has been a win/win. We are considering doing the same kind of LLC for a different kind of green energy project in our church because this process has worked so well with the solar panels.



[Elon Community Church](#) followed the LLC model of financing our solar panels. This is the model developed by the Appalachian Institute for Renewable Energy (AIRE) in Boone and utilized by the Asheville UCC. What follows are learnings and suggestions gleaned from our experience of putting this model into action.

Perspective: This is a creative and complex model that allows a non-profit (for example, a church) to take advantage of tax credits in order to maximize capital investment in solar panels. Its structure and process allow “benevolent investors” (in an LLC) to recoup most or all of their investments over the course of about six years. This means that a church will most likely be able to put up a larger array of solar panels than would normally be possible, because investors would get their money back, whereas contributors would only get a charitable contribution credit on their taxes.

Findings:

- 1) The process, from information gathering to educating the congregation to site assessment to fund raising to trustee approval to panel installation to final connection and activation, took over two years. All along the way there were many details to learn and obstacles to overcome. Patience, perseverance, and faith are needed.
- 2) It seems important to involve not only a core group of solar panel promoters, but also as many people in the congregation as possible. This project needs dedicated people

with skills in technology, church politics and functioning, construction, fund raising/investing, marketing. That bears much fruit when it comes time for approving the project and raising the funds.

- 3) Think big. Put up as large an array of panels as possible, even if you have to wait a little longer to accumulate the necessary capital. The costs of solar panels is steadily decreasing. The LLC paperwork involved in financing a large system is not much more than that for financing a small one. AIRE is now focusing on assisting the non-profits who organize to finance at least 20 kW systems (80 panels), and they actually much prefer larger systems. The only down side to a large system is that NC Green Power will not buy Renewable Energy Credits from systems larger than 5kW. Thus that source of revenue for investors will not be available.
- 4) In forming the LLC, consider expanding the possible pool of investors beyond just church members. While it is important for the church to have a strong sense of ownership for the project, there may be people in the community who would also like to invest in a renewable energy project. This can strengthen community ties and be a good advertisement for a congregation that does earth stewardship.
- 5) We contracted with AIRE to teach us the LLC financing model and to guide us through its implementation. We could not have done this project without them.
- 6) You will need the help of a lawyer and a tax accountant who are familiar enough with the LLC financing model to ably facilitate it. AIRE can recommend such professionals if you do not already have them available.
- 7) Due to the fact that our church was erecting a new Community Life Center, we had some complications. First of all, our members were already financially pledged to the new building. This made for unfortunate timing for fund-raising for solar panels. Investor-financing was helpful here, but still limited in potential.
- 8) Secondly, the new building was determined to be the best site for the solar panels, but it has insulated roof panels. This was good for energy efficiency, but problematic for attaching frames for solar panels. Our trustees raised this issue with much concern. We had to pay the architect to engineer the attachment process.
- 9) You have to have liability insurance for your solar panels. Although the church's own insurance did provide that coverage, the insurance company itself would not name our LLC as an insured party. Thus Duke Energy required that the LLC buy separate liability insurance before they would contract with us.
- 10) We sell our generated electricity to Duke Energy. In order to do that, we had to sign contracts and have them run through their inspection and connection procedures. That all took several weeks. Now we are producing and selling, but be forewarned that Duke's purchase price for renewable energy is significantly below what they charge customers for electricity. Progress Energy pays more than Duke does, but now they are merging with Duke and that could change.

Was it worth the effort and aggravation? Yes, definitely. We are subtracting some carbon that would normally be put into our atmosphere. We are educating our congregation about climate change, we will be saving the church money on utility bills. We are witnessing to our community about earth stewardship. We hope, in the future, to add to our solar panel array and to produce more renewable, clean energy.

David Andes, chair
Elon Community Church Green Church Committee

Third Party Payer Model

Using this model, members of a faith community usually have no or little upfront costs in getting a renewable energy system. The congregation contracts directly with an outside business (Third Party Payer) which installs a system, arranges financing, and negotiates the rate for energy usage directly with the congregation. The third party payer usually owns the system for anywhere from 11 and 15 years before the congregation is offered an option to buy the system at fair market value.

Because of Electric Utility Regulations in North Carolina, to our knowledge no solar electricity systems have been installed as of February 2013 using this model. This model has, however been used by faith organizations that have a large need for hot water, as hot water usage is not regulated by the Utilities Commission.

Success Story:



Montreat Conference Center received the **2011 Green Leaf Seal** from the Presbyterian Church (U.S.A.)'s Environmental Ministries and the Presbyterian Church Camp and Conference Association for the installation of an innovative solar hot water system on the roof of the Conference Center's Assembly Inn.

The Conference Center incorporated a 1500 gallon solar thermal system into their energy portfolio using a Solar Energy Purchase Agreement (SEPA). No capital was required of Montreat. The Third Party Payer owns the solar hot water system and will sell Montreat the energy needed to heat the water for the next 10 years, at rates lower than energy rates dependent upon burning fossil fuels. The hot water solar collectors will generate over 1 million BTU's of energy and save Montreat about \$3000/year in heating oil costs.

“Montreat Conference Center is deeply committed to the responsible care and preservation of this mountain cove,” said conference center president Pete Peery. “We have an on-going program of environmental stewardship that includes a 2,500 acre conservation easement,

environmental programming, a recycling plan, an electric vehicle for on-site transportation of guests, and more.”

Using or Selling your Energy

If your congregation does the direct-donation model, you will need to decide what to do with your power immediately. If your congregation chooses the LLC route, your congregation will make this decision upon the transfer of the array.

There are currently two entities that purchase/compensate for solar energy: [NC GreenPower](#) (which purchase Renewable Energy Credits) and Duke/Progress. Either way, if you connect your array to the grid, Duke/Progress will pay you 5 cents/KwH for your solar energy month. If your congregation chooses to form a (typically annually written) contract with NC GreenPower, your congregation will earn a subsidy (ranging typically from 8 to 15 cents/KwH). Currently (2013), NC Green Power contracts are only available to congregational arrays at or below 5K.

Alternatively, your congregation can use the electricity directly by congregation’s electric system behind the meter or by net-metering, thus reducing their electricity expense. Net metering is a system that involves that allows the facility’s electric meter to run either forward or backward. When the solar array produces more electricity than the congregation is using, the meter runs backward. When the facility uses more electricity than is being generated, the meter runs forward. The congregation is billed on the “net” usage per month.