



## Clearinghouse

### Solar Photovoltaic Installations for Congregations



#### 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 spiritual nurture, good works, and community service.

In today's hyperactive, business-oriented, electronic world, our houses of worship continue to be islands of retreat, where the faithful come for worship, study, fellowship, and community engagement. Their orientation is both inward and outward. As people of faith, one challenge we face is to make sure that our faith communities do not parallel the hyper-individualism of the prevailing culture. Now more than ever, as congregations continue to engage in traditional peace and justice work, many have recognized that modern culture has resulted in a desecration of creation, and that caring for creation is an essential component of faith in action. These congregations have committed to serve as a model for the outer, more secular world.

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

NC IPL 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, especially fossil fuel use. 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-metering<sup>1</sup>, 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 Options for Congregations.**

Congregations, as tax-exempt entities, cannot benefit as can ordinary citizens or businesses from federal and state tax incentives that help to make solar energy cost competitive with conventional electricity. Yet, faith communities concerned about

climate change may wish to reduce their carbon footprints and be “early adopters” of solar energy as part of their efforts to care for creation, reduce their electricity consumption and costs, and be models for sustainable energy use within their broader communities. Several models have evolved across the United States that allow houses of worship to install solar systems that make use of existing incentives that are currently available to individuals and businesses and make solar electricity a good financial investment. As more forms of clean, renewable energy evolve in the marketplace, likely additional models for finance will be developed specifically for tax-exempt entities.

There are several models that congregations can pursue to finance their solar projects. There are also many solar contractors, and some provide innovative models for financing. There are organizations dedicated to helping non-profits like congregations organize their membership in ways that help them take advantage of all legal tax incentives.

As policy, North Carolina Interfaith Power and Light does not endorse any specific model for financing a solar project. We do not recommend specific individual installer/contractors, third party contractor/financiers, nor any specific finance structure or organization that assists congregations in financing renewable energy projects. The decision to proceed with renewable energy should be made by each individual congregation based upon their specific circumstances and needs.

NCIPL encourages houses of worship to explore all legal and legitimate models for renewable energy installations on their properties or buildings. **We will provide interested congregations with contact information, with permission, to other congregations who are actively exploring or have completed installation of renewable energy technology using one of the financing models described below.**

For learning more about the models described below feel free to contact Richard Fireman at [Richard@ncipl.org](mailto:Richard@ncipl.org).

### **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.<sup>2</sup> 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. They also can deduct their contribution on their federal tax return as a charitable donation the same year of the donation.

**Using this model the congregation benefits immediately and directly** by reducing their energy expenses in one of several possible ways:

1. by selling produced electricity to their utility
2. by selling the Renewable Energy Credits (REC) in the marketplace, either to NC Green Power, the utility, or in the general REC marketplace
3. or by using the electricity directly with the solar array directly connected to the congregation's electric system behind the meter or by net-metering,<sup>1</sup> thus reducing their electricity expense.

As the congregation's net expense for electricity is reduced, there is a new source of income for the congregation that can be used for more traditional mission work or other program areas. This one time donation provides at least 25 years of benefits. Furthermore the congregation, through its creation care ministry, will be recognized for its leadership role in the community towards a transition to a sustainable and just energy future. The solar system can also be used as an educational tool for the entire congregation.

### **Two Success Stories:**

#### **Temple Emmanuel, Greensboro**



**Temple Emmanuel** in 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. Some of their accomplishments have included a comprehensive recycling program, converting their kitchen to earth friendly and re-useable dinner-ware, a *Mitzvah* Garden (*Mitzvah* is the Hebrew word for commandment), which donates the produce to local organizations that feed the hungry. The garden also has a composting system, and members of the congregation often bring their home compost to the composters. And even though the new Temple Emmanuel campus is only 13 years old, the congregation had an energy audit and made some improvements to their energy profile.

The *Teva Committee* has 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 will get 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 will also be able to take a deduction on their federal return for their charitable contribution.

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 will be selling all of its electricity to Duke and the Renewable Energy Credits to NC Greenpower, thus reducing their gross expenditures on electricity.

### **Myers Park Baptist Church, Charlotte**



**Myers Park Baptist Church** in 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.

*Earthkeepers* has many other successes that include a comprehensive recycling program and the installation of motion sensing light switches. They hope to create a community garden soon; plan to continue working on improving the church's energy efficiency profile; and hope to be able to generate more interest in solar through their educational programs and someday add more solar panels and even solar hot water to their system.

### **LLC Funding Model**

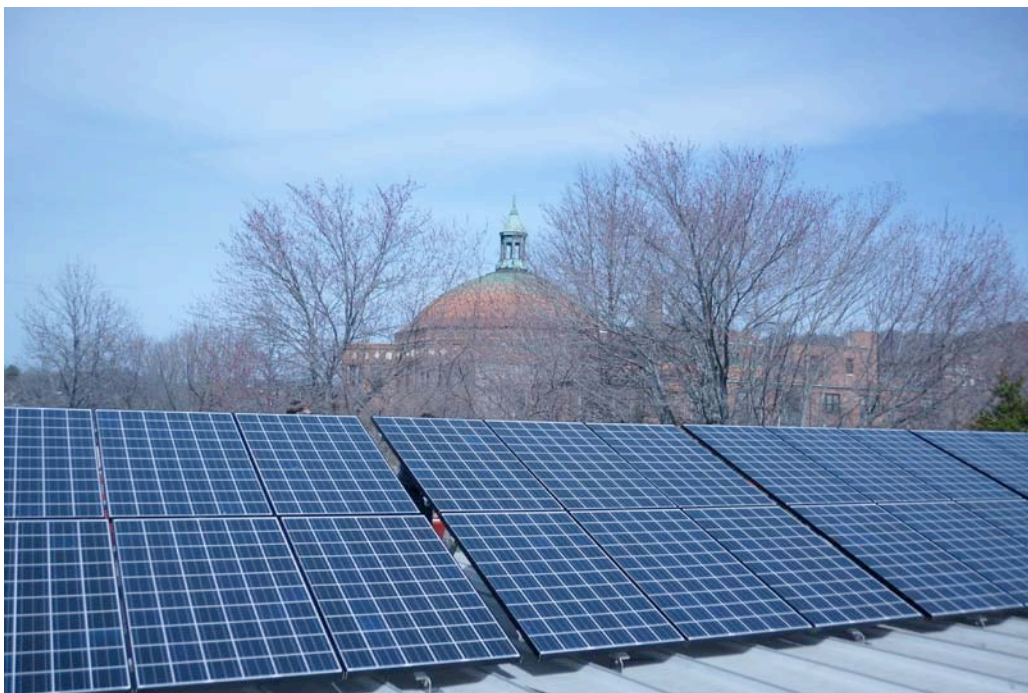
Members of a faith community form a Limited Liability Corporation (LLC), a legal entity that allows shareholder/investors of the LLC to take advantage of all state and federal tax incentives. In addition to the 35% N.C. State Tax Credit outlined above, the IRS has a 30% tax credit that is taken in the 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.

As the solar equipment is generally guaranteed for 35 years, and has an expected useful life of 40-50 years, the congregation will be saving a substantial amount of money over the lifetime of the project.

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 Story:**

#### **First Congregational United Church of Christ, Asheville**



[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. Solar panels have a life expectancy of 40 or more years, and are guaranteed for 25 years.

### **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 October 2011 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, Montreat**

[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.”

1. 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.

2. Section 13. (a), Senate Bill 3, Session Law 2007-397 General Statute§ 105-129.16G.