



VERMONT COMMUNITY CLIMATE CHANGE GRANT PROGRAM APPLICATION

Applications will be evaluated on the project's ability to successfully address the five review criteria; the qualifications of the project personnel; the clarity of the project plan; and a sound and reasonable budget. The project review criteria and the general terms and conditions of the grant are described in greater detail in the Climate Change Grant Program guidance. All applicants are responsible for reading the guidance and, if awarded a grant, complying with the general terms and conditions.

Please respond to all sections below and attach all documentation that you are relying on to support your grant application.

Due Dates:

February 2, 2009 (Funding Round One)

April 1, 2009 (Funding Round Two)

Contact and Mailing Address:

Don Einhorn

Department of Environmental Conservation

103 South Main Street, West Office Building

Waterbury, VT 05671

802-241-1093

anr.VTClimateChangeGrant@state.vt.us

A. APPLICANT INFORMATION AND PROJECT SUMMARY

1. Project Title: Heating System Efficiency Improvement at Ascension Lutheran Church and Day Care
2. Applicant Name (include all partners): Ascension Lutheran Church
3. Applicant Address: Ascension Lutheran Church
95 Allen Road
South Burlington, VT 05403

3. Authorized Contact Name, Phone and Email: Sam Swanson
Home office phone 802.652.0056
Home office email: samswanson@aol.com
4. Project Location: Ascension Lutheran Church
95 Allen Road
South Burlington, VT 05403
5. Brief Project Description (*fifty words or less*):

Replace the existing inefficient heating equipment to reduce fuel use and carbon emissions by installing a new high efficiency natural gas fueled condensing boiler with indirect water heater system and new variable speed air handler.

Develop model for congregation financing and encourage congregation families to improve home heating system efficiency.

B. PROJECT WORK PLAN AND BUDGET

1. Describe the project work plan. *Include in the work plan, your plan for project oversight and quality assurance. Identify the number of hours dedicated to each task and identify who will complete the tasks. Provide a project timeline. If applicable, identify all permitting requirements, include permitting in your project timeline, and indicate which permits have already been obtained.*

The plan to replace the existing boiler and air handler components of the heating system at Ascension Lutheran Church is a component of a long term commitment of this congregation to reduce the carbon footprint of church activities and to encourage members of the congregation to take steps to reduce the carbon footprint of their lives.

The heating system serves the approximately 6,100 square foot church building, about three-fourths of which is occupied daily by the not-for-profit Ascension Day Care program and Ascension's offices. The worship sanctuary that occupies about 25 percent of the building space is used only for weekly worship services and special events. Natural gas consumption, which is used primarily for space and water heating,¹ has ranged during the last four years from 4,970 to 5,435 hundred cubic feet ("ccf") annually, averaging 5,257 ccf/year during this period. This translates into average carbon dioxide ("CO₂") emissions of almost 32 tons annually.² The project

¹ Very small amounts of natural gas are used to operate the kitchen cooking stove.

² The CO₂ emission calculation assumes that burning one ccf of natural gas releases 12.0593 pounds of CO₂. See: http://www.climatetrust.org/solicitations_Open_Metrics.php

aims to reduce the natural gas use and associated CO₂ emission by at least 25 percent.

The financing plan for this project conservatively assumes this project will result in 25 percent reductions in natural gas use, on average about 1,300 ccf annually. Over the next twenty years this level of savings adds up to over 26,000 ccf of natural gas savings. The \$11,108 grant produces these 20 year savings at a grant cost of \$0.42 per ccf and a cost of \$0.85 per ccf for the total \$22,216 project.

The new heating system includes an air handler system upgrade to improve the efficiency of the heat distribution system, reducing the amount of gas required to deliver heat to where it is needed. The new air handler system also will save electricity because new efficient variable speed motors use less electricity than the existing single speed ones being replaced. While the electricity savings are an important benefit the primary objective of this project is to reduce natural gas consumption.

For clarity we present the work plan in two parts: Part 1 describes the specific steps involved upgrading the heating system; Part 2 describes the education and outreach component of this project that addresses how the heating system upgrade fits in the broader effort by this congregation to address the crisis of climate change. All grant funds will be committed to Part 1.

Work Plan Part 1: Heating System Upgrade

Immediately upon receiving notice of the grant award we will proceed with the steps required to install expeditiously the heating system upgrade. This upgrade involves the following:

1. Remove the existing natural gas boiler, hot water heater and air handlers
2. Install a high efficiency condensing boiler with indirect hot water heater. This system includes controls that adjust boiler temperature to heating load demands posed by ambient outdoor temperature.
3. Install a high efficiency variable speed air handler
4. Test and adjust the new equipment to achieve optimal system performance

Attachment #3 provides the two part bid proposal offered by VT Energy Contracting and Supply that describe the details of this work.

We will immediately obtain a Zoning Permit from the City of South Burlington. This is required for any project costing more than \$5,000 and can be obtained immediately after receiving notice of a grant award. No additional permits are required. (time required 3 days)

We will schedule the heating system upgrade with the contractor who will remove the existing boiler, hot water heater and air handlers and install the new efficient ones. This will be carried out as soon as possible and no later than six weeks following the grant award notice, as called for by this grant program. All grant funds will be committed to the work carried out by the heating system contractor.

Mr. Hubert Norton, with assistance from the other members of the Ascension Lutheran Church Property Committee, will supervise the contractor chosen to install the heating system improvements. The oversight by Mr. Norton and the Property Committee will be provided without charge as is normal practice at Ascension Lutheran Church. The contractor will brief representatives of the Property Committee on maintaining the new system to ensure optimal performance. The Property Committee will be responsible for on-going system operation and maintenance.

Ascension will monitor the natural gas and electricity meters to observe real changes in energy use resulting from this heating system renovation. This monitoring will produce regular reports to the congregation on the resulting changes in natural gas and electricity use and the associated CO₂ emission reduction and bill saving benefits. We plan to include our Congregation youth in this and use this information to encourage congregation families to address heating system and other efficiency improvements in their homes (see Part 2 below).

Work Plan Part 2: Ascension Climate Change Plan

Three years ago Ascension Lutheran Church committed to take steps to understand the climate change issue and to reduce our contribution to climate change. The Congregation launched an education program aimed at informing all members of our congregation about the threat of climate change and steps we can take together and in our individual lives to reduce our contribution to the causes of climate change. This proposal to improve the efficiency of our heating system emanates from this commitment and is the latest action step in our continuing program.

We have taken several steps to actualize this commitment, including:

- Studied the causes of climate change and the contributions to climate change by the actions of our daily lives; organized discussions and published regularly brief daily living tips for reducing climate change in our congregation newsletter.
- In October 2007 we participated with 30 other Vermont faith communities in the nationwide faith community screening of Al Gore's feature length, Oscar winning movie, An Inconvenient Truth. Hosted 100 people from the South Burlington community, showing the movie and conducting a Climate Change community discussion.
- Joined with other congregations across Vermont to form and to support a new multi-faith organization to address climate change – Vermont Interfaith Power & Light (“VTIPL”); representatives of our congregation serve on the VTIPL Board of Directors
- Enlisted members of our congregation to adopt Earth stewardship as a core commitment of congregation life with an immediate focus on the threats posed by climate change
- Developed a three year plan to take significant steps to minimize the carbon footprint of the Church buildings, congregation activities, and lives of congregation members. We aim to reduce our carbon foot print by 50 percent immediately and by 80 percent over the next ten years.

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- Solicited expert advice on energy efficiency improvement opportunities at Ascension (explained below)
- Conducted seminars for our congregation and members of the Burlington area community on the connection between the environmental crisis and the values of our faith tradition and the faith traditions of other religions in our community (i.e., “Greening our Religions: An Interfaith Response to Our Environmental Crisis” – a series of 5 lectures at Ascension in 2007 co-sponsored by Burlington Area Ministerial Association, ECHO Lake Aquarium & Science Center, VT IPL, and Vermont Interfaith Action). Each of the five lectures attracted about 100 people from the Burlington area. The lectures were broadcast on community television and DVDs have been produced for repeat viewing.
- Created an Eco-team Seminar to help individuals assess and act on opportunities in their lives to address the threat of climate change

We have for years been taking steps to reduce energy use, starting with the installation of insulating shades that cover all the large windows in our worship sanctuary at all times except when the space is being used during daylight hours.

In May 2005 we requested assistance from VT IPL to obtain expert advice on what additional steps Ascension should take to improve the efficiency of our church building. VT IPL offers energy efficiency opportunity assessments based on a walk through inspection by individuals with expertise in building systems efficiency (see www.vtipl.org for information on the energy assessment service).

The report from VT IPL advised us to replace the extensive use of incandescent lights with compact fluorescent bulbs and to replace several relatively inefficient appliances with new efficient ones. In response we replaced over 120 150-watt incandescent bulbs with 22 watt compact fluorescent bulbs and replaced two of the three refrigerators on the church property. Steps are underway to replace the third refrigerator in the next few months. The VT IPL assessment urged we investigate opportunities to significantly improve upon the efficiency of the existing natural gas fueled heating system boiler and air handling system.

In October we initiated steps to evaluate the heating system for opportunities to obtain significant efficiency improvements. After checking the qualifications and recommendations for qualified heating system contractors we requested assistance from Vermont Energy Contracting and Supply. Mark Stephenson, that company's President, agreed to inspect our heating and ventilation system and propose a multistep plan we could implement over time to improve heating system efficiency. In January 2009 Mr. Stephenson presented his recommendations.

We anticipated that the challenge for our congregation would be to find a way to finance the heating system improvements. We know that the heating system improvements will reduce fuel bills but we face the challenge of funding the large immediate cost of such improvements, even though we know that the long term fuel savings will eventually repay this initial cost.

We immediately considered whether we could spread the initial cost out with a commercial loan in a way that would bring the loan payments in line with the fuel cost savings. With a loan alone it does not appear that fuel savings will offset the annual loan repayment obligation, at least not immediately. Because the actual fuel cost savings face the uncertainty of estimated vs. actual efficiency savings and fuel price volatility our congregation concluded it does not now have the funds available to finance the heating system improvements on our own.

At the time we were analyzing the heating system efficiency we learned about the new VT Community Climate Change Grant Program. We find that with assistance from this grant program we will be able to reduce our annual loan payments to a level that would be offset by fuel cost savings, assuming reasonably conservative estimates of fuel efficiency improvements, 25 percent.

An Efficiency Rewards Reinvestment Account

We hope we can achieve larger savings than the conservative 25 percent estimate we use for financing the improvements. We plan to commit 80 percent of the savings in excess of the projected 25 percent savings to a fund that will be dedicated to additional expenditures that will further reduce climate change causing emissions at Ascension. The remaining 20 percent of “excess savings” will provide income to pay remaining natural gas and electricity bills of Ascension Lutheran Church and the not-for-profit Ascension Child Care Program.

The following outlines how we envision calculating the contributions to the Efficiency Rewards Reinvestment Fund Account

1. Determine actual annual natural gas consumption at the end of each calendar year, reflecting actual total heating degree days during the year.
2. Calculate how much natural gas we would expect to consume if we achieve 25 percent efficiency savings, adjusted for actual heating degree days, using as a baseline average consumption for the four year period, 2005, 2006, 2007, and 2008.
3. Calculate any “excess savings” represented by how much the actual natural gas use in step one exceed the projected savings in step two (reflecting an assumed 25 percent efficiency improvement).
4. Calculate the actual natural gas cost and the projected gas cost associated with the 25 percent efficiency savings and the resulting value of any excess savings.
5. Assign 80 percent of the value of excess savings to the Efficiency Rewards Investment Account. Assign the remaining 20 percent of the value of the excess savings to benefit the general budget from which fuel costs are routinely paid.

We plan to continue this calculation for three to five years, discontinuing it after three years if reasonably accurate estimates of “excess savings” become difficult to calculate because of other improvements undertaken at Ascension or other unforeseen complications.

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We will work with VT IPL to evaluate the feasibility and desirability of using this pilot demonstration of a savings collection program to help other Vermont faith congregations accrue savings for additional investments in efficiency.

2. Provide the name, title and contact information for project implementation personnel. *Describe their role and qualifications. Identify all subcontractors that will be involved in this project. Provide the name, title and contact information for primary subcontractor personnel and describe their role and qualifications.*

Sam Swanson, Chair, Care for Creation Committee, Ascension Lutheran Church
Telephone: 802.652.0056
Email: samswanson@aol.com
Address: 17 Harbor Ridge Road, South Burlington, VT 05403

Sam Swanson will serve as the grant manager and will administer the payment of the contractor who will perform the heating and ventilation system improvements.

Sam Swanson will also manage the effort of the Ascension Care for Creation Committee to inform the members of the Ascension congregation of the environmental and economic benefits of the improvements. In his role as a Board Member of VT IPL he will communicate to other Vermont faith congregations the story of how these improvements were planned, financed and carried out, describing the benefits the congregation observes in its efforts to reduce our contribution to the crisis of climate change.

Hubert Norton, Property Committee, Ascension Lutheran Church
Email Hubert.Norton@verizon.net

Mr. Norton is a member of the Ascension Lutheran Church Property Committee that manages the care and maintenance of the Church property. Mr. Norton will be assisted by other members of the Property Committee. Mr. Norton will supervise the contractor, VT Energy Contracting and Supply, who will install the heating system improvements. He will verify that the new system is operating properly before the final payments are made to VT Energy Contracting and Supply.

Subcontractor

Mark Stephenson, President and General Manager
Vermont Energy Contracting & Supply ("VT Energy")
188 Krupp Drive, Williston, Vt 05495
phone 802.658.6055
email: mark@vtenergy.com

Mark Stephenson will serve as the project supervisor for VT Energy Contracting and Supply.

Attachment #1 provides a summary of the experience and qualifications of Sam Swanson and Mark Stephenson.

3. Complete the project budget table and provide a narrative description of the project budget. *The budget must include a minimum 10% cash match. Cash*

spent before the start of the contractual grant period cannot be used as a cash match. Cash matches of greater than 10% are encouraged. In-kind services are not eligible as a match.

a. Budget Table:

	Grant Share	Match Share	Total Cost
Personnel	\$ 4,400	\$ 4,400	\$ 8,800
Materials	\$ 1,608	\$ 1,608	\$ 3,216
Equipment	\$ 5,100	\$ 5,100	\$ 10,200
Other			0
Total Budget	\$11,108	\$11,108	\$22,216

b. Budget Narrative:

Summary:

The \$22,216 budget cost for this project includes only the cost for the following heating system improvements:

1. (a) Replace the existing natural gas boiler [with name plate input/output efficiency of 78 percent) with a high efficiency condensing boiler (Triangle Tube high efficiency natural gas boiler model PS399) (b) Replace the existing direct fired hot water heater with indirect hot water heater (Super Stor model SSC50 indirect water heater). The condensing boiler system adjusts boiler temperature to heating load demands posed by ambient outdoor temperature. Cost \$16,556

2. Replace the existing single speed air handler with a high efficiency variable speed air handler (First Company variable speed air handler model 60VHBXB)— Cost \$5,560

Other costs will be assumed entirely by Ascension Lutheran Church as a part of our continuing commitment to environmental stewardship.

The grant budget plan is a simple one. We propose splitting the cost of the two part heating system upgrade on a 50/50 basis between Ascension and the grant program. This means Ascension will provide a 100 percent match for the grant to cover the contractor installation costs. Ascension will split on a 50/50 basis any rebate incentives offered by Vermont Gas and Efficiency Vermont, which will reduce the total grant outlays by a yet to be determined amount. We have not obtained precise information on the scale of rebate incentives, but will do so as soon as the grant award is announced. We will finance the Ascension share of the total cost with a secured bank loan. This loan will align the cash outlays by Ascension for this heating system improvement with the annual reductions in natural gas, assuring that natural gas cost savings will offset the loan repayment obligations.

An important element of our project plan is to develop, test and demonstrate the efficacy of what we are calling an “Efficiency Rewards Investment Account.” For the first 3-5 years we plan to divide any natural gas cost savings in excess of loan repayment costs between the Ascension budget for natural gas service and a budget for additional steps to address climate change at Ascension.

The project planning and oversight will be carried out with volunteer contributions from the Ascension congregation project team, as described in the project work plan.

Ascension will carry out the project education and outreach that will involve communication with members of the congregation, other faith congregations in Vermont through VT IPL with resources already committed by Ascension for these kinds of activities.

Attachment 3 provides the proposal provided by the heating system contractor, Vermont Energy Contracting and Supply.

C. PROJECT REVIEW CRITERIA

The following describes how this project addresses the project evaluation criteria.

1. Measurable reductions in energy consumption and/or greenhouse gas emissions (30 points).

- *Indicate whether an energy audit or study has previously been performed and how the project relates to the recommendations of the energy audit or study.*

Ascension obtained an energy efficiency assessment provided by VT IPL in 2005. See the cost effectiveness discussion for further explanation of this advice and other advice used to develop this project proposal.

- *Indicate how the project will reduce energy consumption or greenhouse gas emissions, and to the extent possible, identify the amount of reductions anticipated in terms of tons of carbon emitted or amount of energy or fuel conserved.*

For planning purposes we estimate that installation a high efficiency heating system boiler with indirect hot water heater and a new heating system air handler unit will reduce the amount of natural gas required to heat the approximately 6,100 sq ft Ascension Lutheran Church building by about 25 percent³, on average about 1250 hundred cubic feet (“ccf”) per year, about 25 thousand ccf over the next twenty years. This natural gas savings translates into about an 8 ton reduction of CO₂ emissions annually, more than 150 tons over the next twenty years.⁴

³ Our heating contractor indicates that this a 25 percent reduction in natural gas consumption is reasonable conservative assumption for planning purposes.

⁴ The avoided CO₂ emission calculation assumes that burning one ccf of natural gas releases 12.06 pounds of CO₂.

Replacing the air handler will not only improve the delivery of heat but will also require less electricity to operate the air handler than the existing system. We do not yet have an estimate of the likely electricity savings but will provide that when available.⁵ Because our heating system is fueled by natural gas, using electricity only to operate the controls and heat distribution equipment, including hot water circulators and hot air blowers, this project has focused primarily on the natural gas savings and the associated reductions in CO₂ emissions.

- *Explain how the anticipated reductions will be measured and verified.*

The project will monitor natural gas and electricity consumption after the project is completed and compare this with natural gas and electricity consumption over the past several years. We will adjust the consumption for differences in annual heating requirements related to year to year differences in the average daily temperature using heat degree day information provided by the National Weather Service for Burlington, VT. This will serve our Efficiency Rewards Investment Account, described elsewhere, and our climate change education program.

2. Transferability (20 points).

- *Explain how the project, once completed, can be implemented by others to achieve similar reductions in energy consumption and emissions. Identify other places where similar projects have been successfully implemented.*

This project has three components that may be implemented by others to achieve reductions in energy consumption and emissions:

- The first component is the upgrade of existing heating system equipment with new high efficiency equipment. We find that well proven heating system technology is available that will produce significant efficiency savings. The primary obstacle to this action is assembling the funds required to carry out the system upgrade. These heating system efficiency improvements will produce savings over a long period of time that add up to benefits that far exceed the large lump sum investment. The problem is in finding an affordable way to finance the installation of a heating system improvement, in this case \$22,216. The combination of this grant and a loan will enable Ascension to overcome this initial cost barrier, actions this grant program makes quite replicable by others who will face similar a similar dilemma.
- The second component is the associated outreach and education program this project fits within. As explained in the work plan, the project emanates from an established commitment by this congregation to address the crisis of global climate change by reducing climate change emissions resulting directly from Ascension activity, by enlisting members of our congregation, many of whom had not previously considered the seriousness of this crisis, in reducing climate change emission resulting directly from the activities of their daily life, and by supporting initiatives in our community to initiate changes

⁵ We requested information from Efficiency Vermont on the amount of electricity savings that we may expect from such a system upgrade. Efficiency Vermont indicates that they will not provide that information until we commit to install the system, a commitment we will make if we receive this grant.

that can only be tackled on a community wide basis, such as park-n-ride initiatives and improvements in the efficiency of local schools and local government buildings. We know this is replicable because Ascension is one of fifty faith congregations in Vermont who have pledged through their membership in Vermont Interfaith Power & Light to take similar actions.

- The third component is the new “Efficiency Rewards Investment Account.” We have developed this budget innovation to enable Ascension to make the expenditure without incurring costs we cannot afford but at the same time making sure we use the potentially large cost savings potential of these efficiency improvements to support our continuing effort to cut climate emissions by 50 percent immediately and by 80 percent within ten years. In the business world, the Energy Service Company business model offers a commitment to contain their customers’ energy costs by investing in efficiency improvements. This adapts this Energy Service Company approach to the situation of a small not-for-profit organization that lacks enough savings to attract an Energy Service Company. If successful our budget will benefit as well as our commitment to gradually implementing all effective steps to reduce climate emissions. This may prove a useful approach for other not-for-profit community organizations.

3. Viability of project approach (30 points).

- *Explain how you will ensure a high likelihood of success for the project. Include the basis for identifying the type of project you are proposing, why this project was selected as one that is viable and how you will manage the project to increase the level of success.*

We sought out a heating system contractor who had a reputation for a strong commitment to environmental protection. We consulted with colleagues at Vermont Energy Investment Corporation and Vermont Gas to get off the record advice on who are among the best heating system contractors in the area. Mr. Sam Swanson, the leader for the project at Ascension took on a heating system upgrade at his own home. He compared contractors by soliciting bids and then observing carefully the installation at his home. VT Energy Contracting and Supply installed the upgraded natural gas heating system at Mr. Swanson’s home. Based on this personal experience Mr. Swanson approached VT Energy Supply and Contracting for help analyzing the heating and ventilation system at Ascension Lutheran Church. Mr. Mark Stephenson, company president, offered to inspect the Ascension system and prepare recommendations for consideration by the Ascension governing council and property management committee. We followed up on the recommendations of VT Energy Contracting and Supply by requesting bids for similar work from Advanced Systems. That analysis provided similar results. We have also communicated extensively with VT Gas Company, seeking information and advice from their technical service personnel.

- *Indicate what is innovative about your project. Consideration is given to projects that are innovative as to the technology used, approach to organization or method of implementation.*

We have created the “Efficiency Rewards Investment Account” as a means to accumulate resources to support additional efficiency improvements at Ascension. As explained above, this allows Ascension to budget prudently while providing a means to capture the potentially larger benefits to support continuing efforts at Ascension to improve energy efficiency and reduce climate emissions. If we achieve all the benefits we hope for from the heating system improvements resulting from this project the new Account will increase the impact of the grant and the investment by Ascension by increasing the resources in our budget for additional investments.

- *Describe the community that will be served by your project. Explain how the community will be served and discuss the benefits to be derived.*

Ascension Lutheran Church and the Ascension Child Care Program will be the primary immediate beneficiaries of the natural gas and electricity bill savings that result. However, this project is undertaken in the context of large education and advocacy commitment of Ascension Lutheran Church describe in the budget narrative. The next level beneficiaries are the people and other congregations that learn from our experience, initiating investments in efficiency after seeing how our congregation of modest means has been able to achieve very significant environmental benefits with efficiency improvements we have tackled in a measured but persistent way.

4. Cost-effectiveness (10 points).

- *Why this project is a more cost effective way to achieve reductions in energy consumption or greenhouse gas emissions.*

This project tackles one of the two biggest greenhouse gas emission sources associated with the life of Ascension Lutheran Church and Ascension Child Care, the heating of the Ascension building facility. The other major source is transportation, the regular automobile travel of congregation members related to the activities of our Church.

Upgrading the natural gas fueled facility occurs after Ascension has implemented virtually all available more cost effective measures such as button up, tighten up weatherization of the building. This upgrade will replace a fully functional but relatively out-dated heating system with a modern high-efficiency boiler to improve the delivery of heat throughout the Ascension building. Ascension has taken many steps to improve electricity efficiency and this project takes steps to improve the electricity efficiency of the air handlers that deliver heat to the building. Nevertheless, improving the boiler efficiency and efficiency of the heat delivery process directly reduces the use of natural gas. During the last four years the Ascension heating system has consumed an average of 5,257 ccf annually. The project financing for Ascension conservatively assumes this project will result in 25 percent reductions in natural gas use, on average more than 1,300 CCF annually. Over the next twenty years this level of savings adds up to over 26,000 ccf of natural gas savings. The \$11,108 grant produces these savings at a grant cost of \$0.42 per ccf and a total project cost of \$0.85 per ccf. The new air handler system also improves the efficiency of the heat distribution system, reducing the amount of gas required to deliver heat to where it is needed. The new air handler system also will save electricity because the new efficiency variable speed motors use less

electricity than the existing single speed ones being replaced, When the yet to be determined electricity savings are added into the project cost effectiveness assessment one can see that the benefits increase even further.

Finally, if the advice provided by the heating contractors and general observations made by Vermont Gas Company personnel prove true, we may see natural gas savings of 30 percent or more, increasing the annual natural gas savings from 1,300 ccf to more than 1,550 ccf and 20 year total savings to more than 31,000 ccf, reducing the grant cost of these savings from \$0.42 to less than \$.036 per ccf.

The conservative 25 percent savings in natural gas alone will reduce CO₂ emissions from the Ascension heating system by 8 tons annually, reducing emissions by about 159 tons over twenty years. If the savings amount to at least 30 percent, than the CO₂ reductions will increase to at least 9.5 tons annually and 190 tons over twenty years.

- *How does this compare with other options the congregation considered?*

We briefly considered replacing our natural gas fueled system with a ground source heat pump but found after checking with two engineering consultants that the conversion of the existing heating system would require modifications of our heat distribution system and likely expansion of the capacity of the existing well on site, increasing the cost beyond what Ascension could afford with the assistance from this grant program. If Ascension later undertakes a building expansion we will revisit the possibility of using a ground source heat pump to serve such a new addition.

5. Public Education and Involvement (10 points).

This project has been developed as an outgrowth of the commitment of Ascension Lutheran Church to minimize the environmental impact of its activities and to encourage members of the congregation to minimize the environmental impact of their lives. We will inform the 75 families of the congregation of the progress with installing the heating system and then report the benefits that include environmental benefits (reduced CO₂ and NO_x emissions), reduced natural gas and electricity use, cost savings, and heating system performance improvements. We will encourage families in the congregation to investigate opportunities to obtain similar benefits by improving heating efficiency in their own homes, as we have already encouraged successfully lighting and appliance efficiency improvements.

We will report the results of our pilot demonstration of the efficiency benefit fund and will communicate the results to member congregations of VT IPL. If successful we will work with VT IPL to help other congregations start similar benefit funds in connection with their efficiency programs.

We will communicate the benefits of our project to other faith communities throughout Vermont through our ties to VT Interfaith Power & Light. We will also communicate the lessons of this experience to other Lutheran congregations in Vermont and New England through the New England Synod green congregation program.

D. ATTACHMENTS

Attachment #1 – Documentation of the non-profit status of Ascension Lutheran Church

Attachment #2 – Description of qualifications for the Ascension Project Manager and the Vermont Energy Supply and Contract project supervisor

Attachment #3 –Vermont Energy Contracting and Supply bid proposal describing the heating system improvements and contract terms.

E. APPLICANT REPRESENTATIONS AND SIGNATURE

The applicant(s), by signing and submitting this application, make(s) the following representations with the understanding that the Department of Environmental Conservation will rely on these representations for the purpose of evaluating this application. The applicant(s) understand(s) and acknowledge(s) that should any of these representations be untrue, the Department may rescind any award of assistance and, in the Department's sole discretion, pursue any other appropriate remedy or relief:


1. All information contained in this application, including attachments, is true and complete to the best of the applicant's knowledge and belief;
2. The applicant(s) has read and understands the grant background and guidance and grant terms and conditions and agrees to comply with them;
3. The primary applicant is a Vermont municipal entity or a non-profit organization, and if a non-profit, is in compliance with all requirements for maintaining its non-profit status; and
4. The applicant(s) will be ready to proceed with the project within 60 days of notification of the award.

NAME OF APPLICANT: Ascension Lutheran Church

AUTHORIZED SIGNATURES

APPLICANT: Tom Bruno,
President, Ascension Lutheran Church Council

Attachment # 1 Documentation of the non-profit tax status of Ascension Lutheran Church

	Vermont Sales Tax Exemption Certificate for RESALE AND EXEMPT ORGANIZATIONS 32 V.S.A. §9701(5); §9743(1)-(3)	Form S-3
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To be filed with the **SELLER**, not with the VT Department of Taxes.


- Single Purchase - Enter Purchase Price \$ _____
 Multiple Purchase (effective for subsequent purchases.)

BUYER	Buyer's Name <i>Ascension Lutheran Church</i>		Federal ID Number <i>450-030329426</i>	
	Trading as _____			
	Address <i>95 Allen Road</i>			
	City <i>So Barling ton</i>	State <i>VT</i>	Zip <i>05403</i>	
Buyer's Primary Business <i>Religious</i>				

SELLER	Seller's Name _____			
	Address _____			
	City _____	State _____	Zip _____	

EXEMPTION CLAIMED	A Description			
	Description of purchased articles: _____			
EXEMPTION CLAIMED	B Basis for Exemption			
	<input type="checkbox"/> For resale/wholesale. Vermont Account Number: _____			
	<input checked="" type="checkbox"/> Purchase by 501(c)(3) organization which is religious, educational, or scientific. Vermont Account Number: <i>24508</i>			
	<input type="checkbox"/> Direct payment by Federal or Vermont governmental unit <input type="checkbox"/> Purchase by volunteer fire department, ambulance company, rescue squad (Registration is not required.)			

I certify that, to the best of my knowledge and belief, the statements provided here are true and correct.

	Title	Date
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SALES AND USE TAX REGISTRATION

VERMONT DEPARTMENT OF TAXES
MONTPELIER, VERMONT



THIS CERTIFICATE OF AUTHORITY

IS HEREBY ISSUED TO ASCENSION LUTHERAN CHURCH
LOCATED AT Allen Road S Burlington, Vt
UNDER THE PROVISIONS OF CHAPTER 233, 32 V.S.A. AND MUST BE SURRENDERED UPON SALE,
TRANSFER, MERGER, OR TERMINATION OF BUSINESS, OR UPON REVOCATION OF THE CERTIFICATE.

ASCENSION LUTHERAN CHURCH
Allen Road
S Burlington, Vt 05403

VERMONT BUSINESS ACCOUNT NUMBER 24508

Steph W. Stewart
Commissioner of Taxes

NOT TRANSFERABLE (SEE OTHER SIDE)

DISPLAY THIS CERTIFICATE IN A PROMINENT PLACE AT BUSINESS LOCATION

Attachment #2

Qualifications of Project Director and Contractor

Sam Swanson serves as the Chair of the Ascension Lutheran Church Care for Creation Committee. Mr. Swanson has previously served on the Ascension governing Council and the Ascension Finance Committee. Mr. Swanson has spent much of his work career working on energy efficiency policy and program development, at the New York State Department of Public Service, where he served as Deputy Director of the Office of Energy Efficiency and Environment and recently at the Pace Law School Energy and Climate Center where he serves as the Director of Renewable Energy Technology and Market Analysis. Mr. Swanson is the current Chair of the Board of Directors of Renewable Energy Vermont and Chair of the Board of Directors of Vermont Interfaith Power and Light. Mr. Swanson is a member of the Investment Committee of the Vermont Clean Energy Development Fund.

Mark Stephenson is President and Chief Executive Officer of Vermont Energy Contracting and Supply, a design/build mechanical contracting firm specializing in high efficiency systems. Mark is a founding partner having started the business in 1985. He is the past chairman of the Burlington Electric Board of Commissioners and former chairman of the Energy Rated Homes of Vermont Advisory Board. He received a BA in Energy Resource Management from the University of Wisconsin in 1979.

Attachment #3



Heating Proposal

January 12, 2009
Ascension Lutheran Church
95 Allen Road
South Burlington VT 05403

PART 1 – BOILER UPGRADE

We hereby submit specifications and estimates for Provision and Installation of

The Triangle Tube high efficiency natural gas boiler model PS399.

Installation Features Include

- System to be located in place of the existing Hydrotherm boiler.
- Removal of existing boiler by Vermont Energy.
- Removal of existing hot water tank.
- Direct venting with 4" PVC as required.
- Sealed combustion air intake with 4" PVC.
- Condensate lines shall be piped to a condensate pump.
- Natural gas lines to be tied to existing gas piping. All new gas lines installed to the specifications of Vermont Gas. Natural gas lines to be schedule 40 black iron or approved stainless steel.
- Line and low voltage connections are not included in this proposal.
- Eliminate existing outdoor sensor/indoor loop activation.
- Installation of a new boiler auto feed valve, backflow preventor, air purger, auto air vent, flow checks, fill and purge valves, expansion tank, isolation valves and low water cut off.
- Near boiler distribution to be primary/secondary design enhancing flow to existing heating units, adding efficiency to entire piping system and reducing the chance of boiler shock caused by too cold of water returning to the boiler.

Ascension Lutheran Church - Community Climate Change Grant Application

- Installation of a 4-zone distribution system using Taco circulators.
- Provision of domestic hot water with the Super Stor model SSC50 indirect water heater.
- Clean up guarantee. Vermont Energy will broom clean the work site each day and at the completion of the project.
- System start up and customer review.

Notes

- Acceptance of proposal: Sign and return highlighted copy with deposit to confirm installation date.

Terms

We propose hereby to furnish material and labor - complete in accordance with the above specifications, for the sum of: \$16,656.00

Option to install two hydronic fan convectors heated by the boiler as a separate zone (model Beacon Morris pk120 with wall kit F-120) in the meeting room of the original building. Work includes a Honeywell Focus Pro 6000 set back thermostat. Wiring by others. Add: \$3,490.00

1) Equipment proposed may qualify for Vermont Gas, Efficiency Vermont or Burlington Electric efficiency incentives. Check with you utility company for details.

2) Equipment proposed may qualify for a \$150.00 tax benefit according to the Energy Policy Act of 2005. Contact your income tax preparer or the Internal Revenue Service for details.

Payment to be made as follows:

30% deposit, 60% upon completion of distribution system, 10% one week following completion of project.

Installation Guarantee

Vermont Energy Contracting & Supply Corp. guarantees for one year the installation of your energy system or service. If within one year of installation there is found a defect in the workmanship or materials used in the installation, Vermont Energy will repair or at its option, replace defective components and/or parts at no charge.

This guarantee covers defects in the materials or workmanship of the installation only. It does not apply to conditions resulting from lack of maintenance, misuse, abuse, negligence, accident or alteration. This guarantee does not extend to the heating/energy equipment itself. The equipment is covered by warranties of the manufacturer only. Unless otherwise stated manufacturers warranty service will be performed by Vermont Energy.

Additional Information

We invite you to spend a few moments to [visit our website](#) to learn more about our services. Within our site you will find links to product information provided by the manufacturers.

All material is guaranteed to be as specified. All work to be completed in a professional manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders and will become an extra charge over and above the estimate. All agreements contingent upon delays beyond our control. Purchaser agrees to pay all costs of collection, including attorney's fees.

PART 2 – AIR HANDLER UPGRADE

We hereby submit specifications and estimates for Provision and Installation of

a First Company variable speed air handler model 60VHBXB (sizing to be verified) servicing the original building with hot water coil for heating.

Installation Features Include

- System to be located in place of the existing air handler.
- Removal of existing air handler by Vermont Energy.
- Wiring not included.
- Hydronic heat connections off of the boiler.
- Supply duct joint seal included for efficiency.
- Hook up to the existing supply and return air ductwork.
- Clean up guarantee. Vermont Energy will broom clean the work site each day and at the completion of the project.
- System start up and customer review.

Notes

- Acceptance of proposal: Sign and return highlighted copy with deposit to confirm installation date.

Terms

We propose hereby to furnish material and labor - complete in accordance with the above specifications, for the sum of: \$5,560.00

1) Equipment proposed may qualify for Vermont Gas, Efficiency Vermont or Burlington Electric efficiency incentives. Check with you utility company for details.

2) Equipment proposed may qualify for a \$150.00 tax benefit according to the

Energy Policy Act of 2005. Contact your income tax preparer or the Internal Revenue Service for details.

Payment to be made as follows:

30% deposit, 60% upon completion of distribution system, 10% one week following completion of project.

Installation Guarantee

Vermont Energy Contracting & Supply Corp. guarantees for one year the installation of your energy system or service. If within one year of installation there is found a defect in the workmanship or materials used in the installation, Vermont Energy will repair or at its option, replace defective components and/or parts at no charge.

This guarantee covers defects in the materials or workmanship of the installation only. It does not apply to conditions resulting from lack of maintenance, misuse, abuse, negligence, accident or alteration. This guarantee does not extend to the heating/energy equipment itself. The equipment is covered by warranties of the manufacturer only. Unless otherwise stated manufacturers warranty service will be performed by Vermont Energy.

Additional Information

All material is guaranteed to be as specified. All work to be completed in a professional manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders and will become an extra charge over and above the estimate. All agreements contingent upon delays beyond our control. Purchaser agrees to pay all costs of collection, including attorney's fees. □