

CARING FOR CREATION, OUR COMMUNITIES AND OUR CONGREGATIONS

THE CASE FOR A NATIONAL CARBON REDUCTION PROGRAM FOR FAITH BUILDINGS

Report for the United Church of Canada
Prepared by BuildGreen Solutions and Faith & the Common Good

EXECUTIVE SUMMARY

“The United Church recognizes that global warming is unequivocal, threatens the world as we know it, is largely and increasingly caused by human agency, requires a paradigm change, and must be tackled on a priority basis...”

The Unavoidable Challenge, 40th General Council, 2009

The United Church of Canada (UCC) has long acknowledged that the global climate crisis poses a grave threat to our planet and must be tackled urgently. It has a proud track record of leadership on climate change that reflects the UCC’s sacred calling to care for creation and its moral duty to advocate for responsible stewardship of the earth and all its citizens.

Like faith communities the world over, however, the UCC has recognized that it needs to do more. To be a truly credible and inspiring climate change leader, the UCC must put its own house in order: **it must address the carbon footprint of its own activities.**

To guide this effort, the UCC’s General Council sought to answer these key questions:

1. What amount of carbon are UCC faith buildings collectively producing?
2. How could a national carbon reduction program support congregations in reducing their carbon footprint?

The result is this report: A summary of the findings of an independent, six-month study involving a mix of surveys, focus groups, data collection and research, and broad recommendations for a successful national carbon reduction program.

Why a national program? The UCC knows that individual congregations are the backbone to any carbon reduction program. But the UCC also knows that for the program to be successful,

congregations must be properly supported at both the national and regional levels. Their successes must be celebrated and the lessons they learn must be shared across the country. Research, both within the UCC and other faith communities around the world, indicates that a coherent, national program is the best way to achieve these aims.

The UCC’s carbon commitment: With a current building carbon footprint estimated to be 135,000tCO₂e, this report recommends that the UCC align with national, provincial and global faith groups by committing to reduce its carbon emissions by 80% by 2050. Achieving this target will require changes to the UCC’s faith buildings as well as systemic change to clean the electricity grid, emphasizing the importance of the UCC’s ongoing climate advocacy role.

The timing is excellent to act now. All levels of government are starting to provide financial and collaborative opportunities to address the climate crisis. A well thought out carbon reduction program will ensure that the UCC is positioned to advocate for and take advantage of these opportunities.

While emissions stem from many sources, including transportation, waste and buildings, the UCC should focus first on reducing carbon emissions from its places of worship. This is a strategic decision based on the fact that the energy used to light and heat UCC faith buildings is one of the UCC’s largest carbon contributors – and also one of its biggest expenses.

The UCC recognizes that the task ahead will not be easy. There are significant barriers – lack of money and human resources, difficulty collecting the utility data necessary to measure and monitor carbon, and communications strategies that, traditionally, have failed to provide congregations with a clear, compelling vision and the motivation

to take serious action commensurate with the size of the challenge.

With a national carbon reduction strategy – one that includes a bold, narrative vision, specific performance goals, and financial, human and technological support for congregations – the UCC can fulfill its sacred calling to care for creation, its communities and congregations.

The next steps are crucial to the program’s success. UCC needs to commit to a carbon reduction target, launch a national carbon reduction program, establish a complete baseline, use a staged launch for national campaigns, and monitor progress. With these steps, UCC will be able to demonstrate it is taking meaningful action to fulfill its commitment to addressing climate change.



Dublin United Church in Guelph, Ontario

This church won the 2011 Green Sacred Space award for its many greening achievements for spirituality and worship, the building, and the wider community.

The church has installed an automatic temperature control system, motion-activated lights, energy efficient light bulbs, an upgraded heating system and 52 solar panels on the roof. Inside the church, a display shows all users the day-by-day renewable energy production.



Islington United Church, Etobicoke, ON

With heating bills for natural gas around \$30,000 per year, Islington United Church was motivated to reduce their energy consumption and track the progress of energy efficiency projects.

First, they completed an energy audit to set a baseline for annual energy use.

Next, the congregation took advantage of Ontario’s microFit program and installed 48 solar panels that have been producing renewable energy for the community since October 2011.

With each improvement, the church has been able to demonstrate the energy and cost savings achieved. By June 2016, the church had tracked savings of over 63,000kWh of energy, 44,000 kg of carbon emissions, and \$50,000.

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1 CHARTING THE COURSE: A NATIONAL CARBON REDUCTION PROGRAM

“The United Church recognizes that global warming is unequivocal, threatens the world as we know it, is largely and increasingly caused by human agency, requires a paradigm change, and must be tackled on a priority basis...”

The Unavoidable Challenge, 40th General Council, 2009

Adding Carbon Reduction to the UCC Climate Action Program

The United Church of Canada (UCC) has long recognized that the global climate crisis poses a grave threat to our planet and must be tackled urgently. It has a proud track record of leadership and action that includes:

- **Sacred Calling** – In 1994, UCC amended its official creed to call upon members “to live with respect in Creation.” Since 2000, successive General Council resolutions and Moderator platforms have called for action on climate change and the need to restore Right Relations with Creation as an integral part of the UCC’s sacred calling.
- **Focus on Justice** – For over two decades, the UCC has acted and spoken loudly on the need for stronger environmental stewardship and justice for those most vulnerable to climate change. Equitable access to sustainable development, respect for the rights of Indigenous communities and a just transition for workers to a renewable energy economy have been particularly strong elements of its Climate Justice work.
- **Political Advocacy** – Understanding that solutions require local, national and global cooperation, the UCC has been an active participant in national and global policy

advocacy efforts in support of the United Nations Framework Convention on Climate Change.

- **Responsible Investment** – Recognizing the need to ensure that its financial investments are in line with its sacred calling, the UCC has divested its treasury fund of the world’s 200 largest fossil fuel companies and continues to actively engage companies regarding carbon risk.
- **Congregational Support** – The UCC has made available a wide array of online educational and worship resources on climate change and creation care to help congregations align this work with their faith values.

While these efforts are indeed laudable, the UCC’s General Council Office recently identified one vital missing dimension to its climate action program: supporting congregations across the UCC in their efforts to reduce the carbon footprint of their places of worship.

The General Council Office felt that the mantle of moral leadership on climate change required the UCC to examine how to reduce its own carbon emissions. How could the UCC credibly call upon others to act on climate change when it doesn’t have a program to put its own house in order?

In an effort to fill this gap, the General Council Office commissioned this report. More specifically, it wanted to understand:

- Why is a national faith building carbon reduction program important for the UCC?
- How much carbon is currently being consumed by its over 3000 churches across the country? What metrics should UCC use to measure and evaluate success? What can it learn from

institutions with similar national property portfolios about what has worked and what hasn't?

- Finally, and most importantly, how could a national program support and incentivize individual congregations to make carbon reduction a priority? How could it help congregations make carbon reduction a crucial part of their sacred calling to care for creation and their community and to deliver on their commitment to responsibly steward church resources?

- Reviewing existing faith-based best practice program types, engagement strategies and incentive opportunities around the world.
- Gathering energy conservation and/or energy generation project samples from within the UCC portfolio.
- Using UCC, National Resources Canada and Energy Star Portfolio manager data to estimate the carbon footprint of the UCC's national portfolio of places of worship.
- Piloting utility data collection and baseline recommended actions with the UCC Ottawa Presbytery.

Initial Investigation & Approach

This report was researched and prepared jointly by Faith & the Common Good and BuildGreen Solutions, two organizations specializing in creating more sustainable buildings and communities.

While the UCC's total carbon footprint includes sources beyond its places of worship, such as carbon emitted by travel back and forth to worship or to regional or national meetings and by waste, the fact remains that the energy used to light and heat its places of worship is one of the biggest carbon contributors – and also one of the UCC's biggest expenses.

As such, the focus of this report is how to reduce the carbon footprint of UCC faith buildings.

The findings and recommendations are based on a six-month study that involved a mix of surveys, focus groups, research and data collection. Specifically, the work included:

- Engaging key stakeholders in focus groups and a survey to better understand the obstacles congregations face in taking action on climate change.
- Examining the UCC's existing sustainability programs and the reasons why there has been minimal uptake of these initiatives.

This report seeks to accomplish four main tasks:

1. Explain why a national carbon reduction program is important,
2. Provide insight into existing obstacles to action on carbon reduction,
3. Set out the current carbon performance of the UCC's property portfolio, and
4. Make recommendations for a successful carbon reduction program.



Ottawa Presbytery's Project Footprint team

David Lee, David Sherwin, Caroline Penhale, Guy Faubert and Randal Goodfellow kick-off the Ottawa Presbytery's pilot efforts to reduce its buildings' energy consumption by 25% in 5 years.

Learn more about the Ottawa Presbytery "Project Footprint" Pilot project and the results in Appendix E.

2 CREATION, COMMUNITY AND CONGREGATIONS

“Human societies must learn to live in a much more ecologically integrated manner within the Earth community drawing on energy sources in ways that do not damage ecosystems or compromise the capacity of the Earth to meet the needs of current or future generations.”

-- Energy in the One Earth Community, 37th UCC General Council, 2000

In researching for this report, three key reasons emerged as to why a national carbon reduction program was important to UCC mission and values: A national effort to reduce the carbon footprint of the UCC’s faith buildings provides a tangible demonstration of the UCC commitment to care for

- 1) creation,
- 2) its communities, and
- 3) its congregations.

Care for Creation

Living in right relations with creation in an era of global warming means changing our behavior towards how we use the earth’s resources, especially with regard to carbon emissions.

The Intergovernmental Panel on Climate Change (IPCC)’s global scientific consensus tells us that to avoid the worst impacts of climate change, we need to stop burning fossil fuels such as coal, oil and natural gas, which are adding carbon dioxide to the atmosphere.

The UCC has a moral responsibility to respond to this crisis because climate change is destroying the integrity of God’s creation. The longer we delay the transition to a low carbon economy, the higher the destructive cost to creation, measured in dollars and human lives. Delay also means that the long-term climate impacts will be larger and more intractable.

While no one is immune to the negative impacts of climate change, the affect they have on the most vulnerable members of our global community is disproportionately high. This is particularly relevant for Indigenous communities, whose rights and livelihood are often jeopardized by our reliance on irresponsible fossil fuel extraction. Our places of worship are a reflection of who we are as a faith community. By supporting the transition to a low carbon economy, through a national carbon reduction program, UCC members would have a tangible way to demonstrate their sacred calling to care for and mend creation.

“Many in the United Church see Jesus as a friend of the poor and an advocate for the marginalized. Today we have committed to journeying in his footsteps, raising our moral voices to address the burdens of climate chaos that disproportionately affects those living on the margins.”

-- Christine Boyle, General Council commissioner, parent, and long-time climate advocate, 42nd UCC General Council, 2015

Care for Our Community

The transition to a clean economy in Canada is going to take effort. Climate experts estimate that buildings account for 20 to 30% of global carbon emissions. Moreover, Canadian citizens have the world’s 3rd highest energy use per capita.¹

While UCC might contribute a relatively small percentage of Canada’s overall carbon emissions, with over 3000 houses of worship and two million adherents, the UCC extends deep into Canadian communities.

¹ <http://data.worldbank.org/indicator/EG.USE.PCAP.KG.OE/countries/>

A national program that enables UCC houses of worship to operate more efficiently and sustainably can be a powerful symbol for right relations with the earth and each other. It can also be an important role model for green building practices, region-specific solutions and strategic partnerships to help our country transition to a low carbon economy. National action and storytelling around what works will help our communities understand how to live more sustainably and help them to advocate for systemic solutions.

Role modeling green building and creation care practices in UCC places of worship is an important way to spread the message of sustainability practices, to give back to the community and to leave the world a better place for generations to come.



Beacon United in Yarmouth, NS

Refrigerators and coolers were identified as a large portion of the church's energy use. The church frequently hosted events that require a large cooler, but the cooler was often left on unnecessarily between events. A simple solution was to upgrade to Energy Star refrigerators and install an accessible power switch to make it easier to turn the cooler off.



Care for Our Congregations

A national program of carbon reductions will provide support, tools and shared learning for individual congregations to improve their ability to responsibly steward their own resources.

Faith building energy costs are one of the UCC's largest expenses. Carbon reduction and energy efficiency programs provide vital money-saving opportunities for congregations.

Moreover, under various levels of government, energy benchmarking regulations for buildings are emerging across the country. A national UCC carbon reduction program will help ready congregations for these reporting requirements should this become mandatory in the future.

A national carbon reduction strategy will provide congregations with other important financial, building and resource stewardship advantages. As noted in the U.S. EPA's 2014 *Energy Star Action Workbook for Congregations*, these include:

- Improved overall appearance of and comfort within worship spaces
- Extended useful lifespan of worship facilities and equipment
- Increased asset value of the facilities owned by congregations
- Enhanced credibility of capital campaigns by demonstrating that stewardship saves operations dollars
- Improved congregation credit-worthiness for financing new construction or remodeling.

"Our church buildings reflect who we are as a community of faith. Buildings that are built sustainably outwardly reflect our concern for and responsibility of God's beloved creation including those human communities that can be disproportionately impacted by unsustainable building practices. Green buildings also inwardly reflect this concern to congregants, reminding us of our responsibilities to live in loving community with all of God's creatures."

– *Building a Firm Foundation: Creation Friendly Building Guide for Churches, 2006, National Council of Churches USA*

3 OBSTACLES TO ACTION: WHAT HAS BEEN STOPPING US?

Before looking at the current carbon footprint of the UCC property portfolio or making any recommendations about carbon reduction goals, it is necessary to understand the existing obstacles that have historically prevented individual congregations from undertaking carbon reduction actions on their own.

Increasing the energy efficiency of places of worship is not a new idea. Faith groups around the world, including UCC congregations, have undertaken a variety of efforts to improve the energy efficiency of their faith buildings. Yet, program uptake has remained limited.

- In 2011-2012, the United Church set aside \$100,000 to offer free subsidies to 100 UCC congregations willing to undertake energy audits through the Greening Sacred Spaces program. The audits, with an average cost of \$750, were paid for by the United Church. In return, participating congregations committed to spend the equivalent dollar amount on energy retrofit work. Only 50 congregations took advantage of the program.
- The Toronto United Church Council's Sustainable Energy Loan Fund (SELF) provides eligible applicants with low interest loans, ranging from \$5,000 to \$50,000, for energy retrofit projects. The interest rate is 0% in the first five years and 1% for years 6 to 10. The program is consistently undersubscribed.
- In 2014, the Ottawa Presbytery committed to reduce their carbon footprint by 25% over 5 years. Despite presbytery leadership and dedicated support from Greening Sacred Spaces staff over three-months, only 26% of the congregations (18 out of 69) submitted the utility data required to participate in the program.

These are just a few local examples that indicate the presence of barriers to uptake and widespread adoption of faith-based energy efficiency programs. What can we learn from these experiences? If we expect a UCC program to be successful, it will have to be designed and implemented so as to overcome the following barriers.

- **Inadequate financial support.** The barrier most frequently cited by congregations as to why they don't do more to lower their carbon footprint is lack of financial resources to complete building retrofits. UCC congregations are building rich and cash poor. With aging demographics and shrinking congregations, raising capital for building retrofit work seems daunting to most congregations. This is especially true for the many who are unsure whether their doors will remain open or if they will be in the same building for the next five to ten years.



Parkdale United Church, Calgary AB

An early leader to greening its place of worship, Parkdale United completed an eco-audit, installed low flow toilets, reduced the use of disposable dishes, installed water filtration systems to reduce purchased bottled water, and encourages its congregation to lessen their carbon footprints.

- **Lack of dedicated human resources.** Many congregations understand the benefits of carbon reduction action and have access to resources to finance reduction efforts, but they simply don't have the people available to implement such work. Often, volunteers who may be available to do this work felt that they didn't have the proper expertise in building or energy conservation to carry it out. As one survey respondent noted, "we are not at church to be property managers." Unfortunately, with new limits on staffing and regional level grants expected in 2018, it is not realistic to expect conference or presbytery staff to support congregations to achieve energy efficiency targets.

- **Difficulty collecting utility data:** Collecting the utility data to track and measure energy consumption and energy conservation actions is critical.



Laidlaw United Memorial Church, Hamilton, ON

In 2008, faced with dwindling membership, continuous budget deficits and a facility requiring repair, the Laidlaw community started to make small cost saving measures. They installed a 7-day electronic thermostat, turned off pilot lights, turned off the water heater in summer and set up a convection current that made the gym warmer using less fuel.

They realized they were going green. To help pay for the cost of replacing the roof, they installed solar panels through the Ontario microFIT program using a mortgage loan. The roof's solar array continues to generate around \$800/month for the church.

If you can't measure it, you can't manage it. However, this is no small task. Many churches do not have dedicated building staff. For congregation volunteers, utility data collection often seems overwhelming, which was clearly illustrated in the pilot project at the Ottawa Presbytery. Best practice for data collection would mean having uniform data collection measures in place and the capability to benchmark the results. An effective program will have to include incentives to encourage and motivate everyone – at the congregational, regional and national levels – to change the way they manage faith buildings, to include regular energy use tracking.

- **Ineffective communication:** The need to lower carbon consumption is a complex, relatively new, and poorly understood issue for many congregants. In our survey of key stakeholders across the UCC as well as in the Ottawa presbytery pilot, many people expressed frustration with the UCC's inability to communicate the tangible benefits, especially economic ones, of carbon reduction actions to individual congregations.

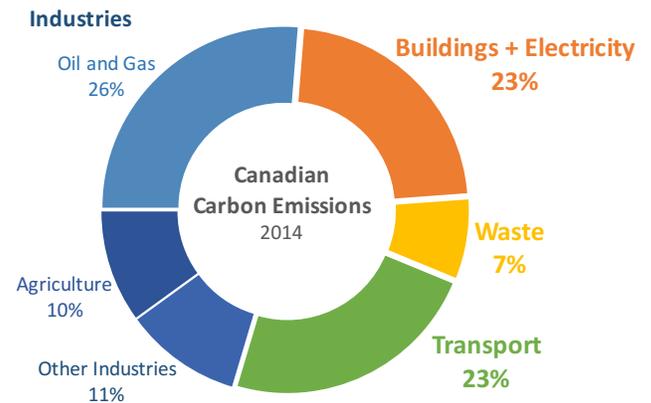
Survey respondents reiterated that as much as they would like to rely on their faith commitment to creation care to motivate action, the reality is that the success of carbon reduction will be largely driven by the concrete benefits congregations believe they will receive from investing in these actions. As one conference secretary put it, "We are a practical conference that will respond to practical money saving opportunities."

Identifying real cost savings of carbon reduction actions is therefore important, as is educating congregants about other tangible benefits of carbon reduction such as improving health and comfort and attracting young families. Moreover, these tangible benefits have to be communicated in language that is plain and accessible by all congregations. "Keep it simple" is a message we heard frequently.

4 CURRENT PERFORMANCE: WHERE ARE WE NOW?

“We must first move quickly to discover the current level of our greenhouse gas emissions and identify a strategy to enable an audit of greenhouse gas emissions at all levels of the church, so that local churches, regional structures, and national church institutions become aware of the starting point for action to reduce greenhouse gas emissions.”

Hope in God’s Future, The Methodist Church of UK and Ireland, 2012



Current Performance of UCC Faith Buildings

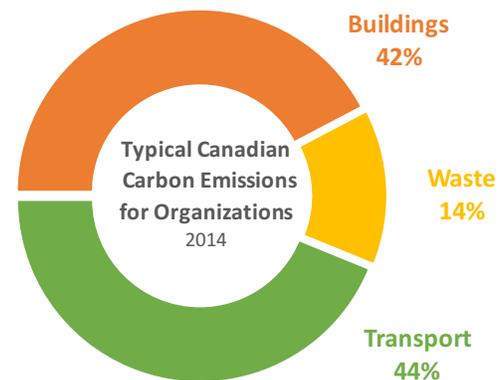
To effectively manage and reduce carbon emissions, it is important to first understand how much carbon the UCC is currently producing.

For organizations like UCC, carbon emissions come from a variety of activity sources, including consumption of electricity and natural gas in buildings, waste and transportation. In Canada, buildings account for approximately 23% of carbon emissions². For organizations, after industrial processes like manufacturing, oil and gas, and agriculture are excluded, then buildings account for approximately 42%.

Recognizing that buildings are a significant contributor to carbon emissions, and also that buildings make up an even larger portion of the UCC operational control relative to other organizations included in the national data set, the UCC has decided to focus its initial carbon reduction efforts on its faith buildings.

Figure 1: Canadian Carbon Emissions by Economic Sector

² National Inventory Report 1990-2014: Canada’s 2016 Submission to the United Nations Framework Convention on Climate Change (April 2016)



The UCC building portfolio is made up of nearly 3,000 buildings across Canada. To calculate how much carbon each building produces, we took the building area (using the median value when areas were not available) and applied an energy use estimate and carbon emissions factors. Details on this calculation can be found in Appendix A.

The total carbon footprint for all UCC faith buildings (excluding Newfoundland and Labrador) is estimated to be 135,000 tonnes of carbon dioxide equivalent per year. This is roughly equal to the carbon produced by driving 30,000 cars or powering 15,000 homes for a year³.

³ [US EPA Greenhouse Gas Equivalencies Calculator](#)

Figure 2: Estimated Carbon Emissions for UCC Faith Buildings

Figure 2 shows the carbon emissions across the UCC portfolio. It is broken down by region and by individual building within each region. Each line represents one building.⁴

As illustrated, total carbon emissions vary greatly, from negligible to 470 tCO₂e per faith building. This range can be attributed to a number of factors, including building area, climate, energy consumption, and carbon intensity of fuel source.

As shown in

Figure 3, regional carbon intensity (amount of carbon emitted per square foot of building area) varies significantly across the country. Alberta relies heavily on coal and natural gas for electricity generation, while Quebec uses more hydroelectric power which has a much lower carbon impact.

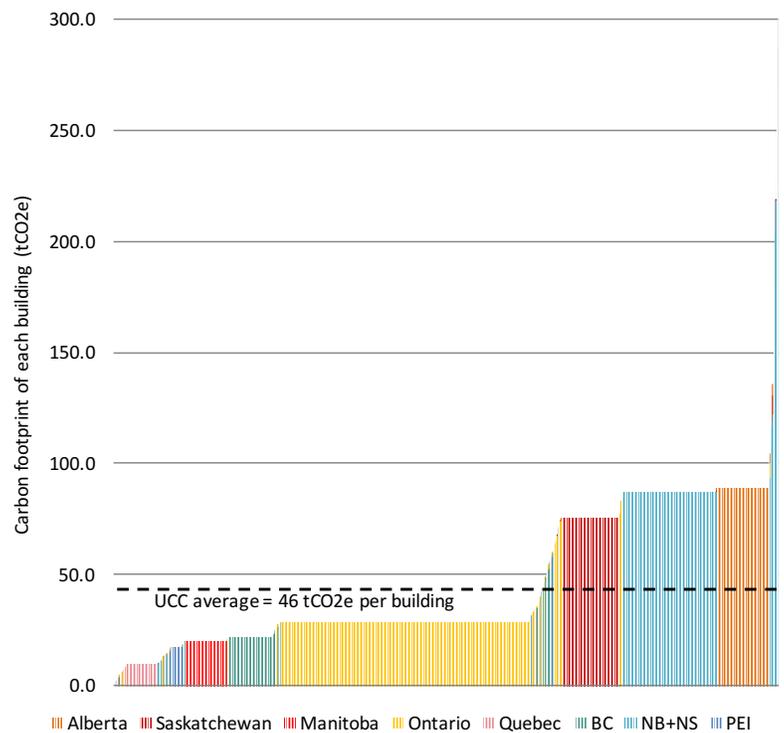
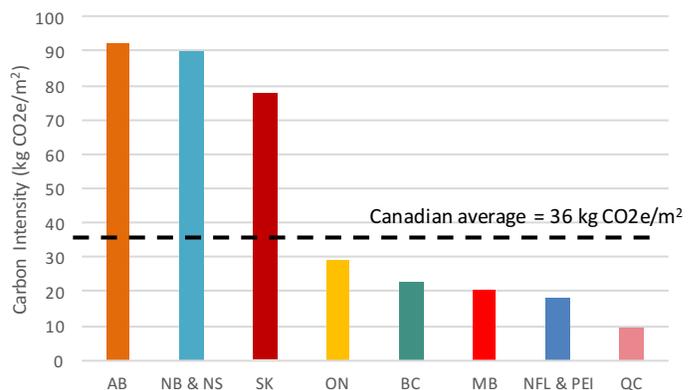


Figure 3: Carbon Intensity of Canadian Faith Buildings by Province (based on SCIEU data)

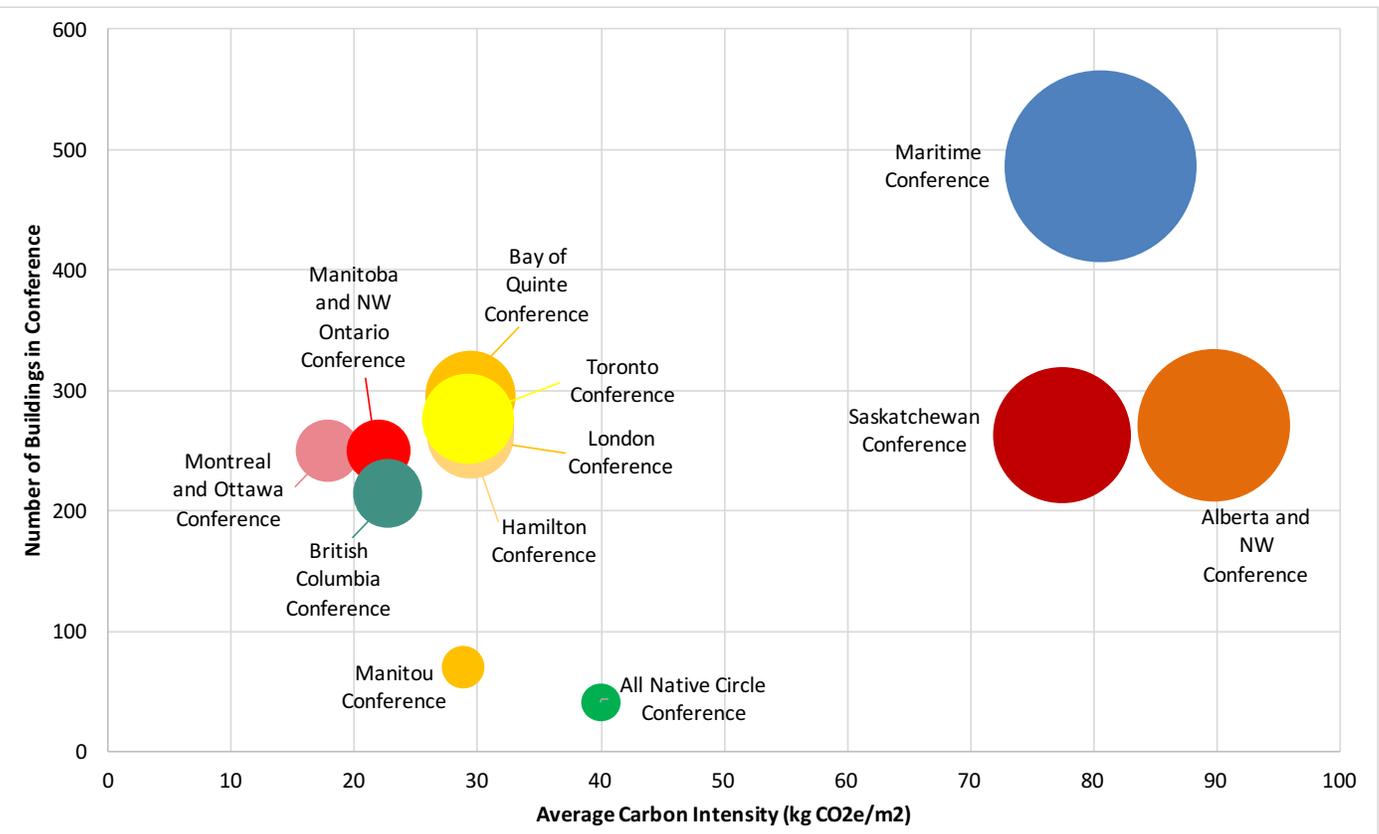
This indicates that nationally UCC can have the most immediate impact by reducing energy consumption in buildings in Alberta, Saskatchewan, New Brunswick and Nova Scotia. Additionally, the UCC could have widespread and ongoing impact by focusing future advocacy for cleaner electricity grids in these regions

Figure 4 illustrates the carbon impact in the portfolio by mapping the number of UCC buildings and their regional carbon intensities. The larger the circle, the higher are the total carbon emissions. It demonstrates that while the Alberta and NW Conference have a similar number of buildings as the Toronto Conference, the carbon footprint of the Alberta and NW Conference is significantly larger.



⁴ Data estimates were generated using data from the Survey of Commercial and Institutional Energy Use (SCIEU) for Religious and Worship buildings, from National Resources Canada; see Appendix A for details.

Figure 4: Carbon Intensity and Total Carbon of UCC Faith Buildings by Province



Building the Baseline: Why Data Matters

The data presented above helps lay out some important trends that will allow the UCC to focus efforts and maximize carbon reduction. However, the UCC carbon baseline generated is largely based on estimates – of both building area and energy usage benchmarks – and it may not accurately reflect the *actual* carbon emissions of the UCC portfolio.

With better data, congregations can understand where energy is actually being consumed within their buildings and how they compare to other like buildings. Better data will also allow congregations to track their success in reducing emissions over time.

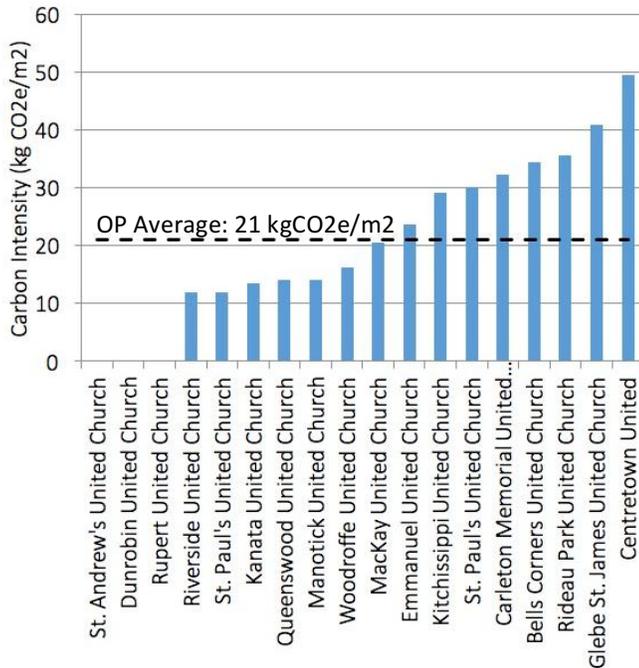
Figure 5 provides an example of the value of better data. While most of the faith buildings in Ottawa Presbytery have the same climate and the same regional carbon intensity of their energy sources⁵, the building carbon intensity varies significantly. This variation is due to building characteristics that UCC can control, such as efficiency of mechanical systems and building envelope, and building operations. Actual data will help UCC identify and prioritize support to poor performers.

In the Ottawa Presbytery pilot, collecting accurate utility data and completing two individual energy audits allowed the Presbytery to anticipate which types of faith buildings in their portfolio needed the most energy efficiency support and predict annual energy costs savings for carbon reduction efforts.⁶

⁵ While Ottawa Presbytery contains a few churches in Quebec, the Quebec churches that reported data (Rupert and St. Andrew) are small summer-time-only churches that do not heat nor cool their buildings, therefore QC emission factors were not used.

⁶ See Appendix E.

Figure 5: Actual Carbon Intensity for Faith Buildings in Ottawa Presbytery



While the church as a whole can make the largest initial impact on its carbon footprint by reducing building energy consumption in Alberta, Saskatchewan, New Brunswick and Nova Scotia, the cost saving benefits to congregations of carbon footprint reduction apply to all regions. This is especially important because electricity prices are projected to continue to rise.

Energy efficiency measures taken by congregations today will protect against future increases in electricity prices. Moreover, the lower the energy footprint of a faith building, the less money the congregation will have to spend on future renewable energy installations or emergency power generators in a climate stressed world. Accurate utility data collection will enable all presbyteries and conferences to map out a plan of support to help congregations.

To improve the accuracy of its data, the UCC can pursue a number of initiatives, including:

- Expanding the dataset to include Newfoundland and Labrador.
- Collecting actual building floor area and utility data and recording this in Energy Star Portfolio Manager as is currently being done in the Ottawa Presbytery pilot. As the number of

buildings within Portfolio Manager grows, a more complete picture of the portfolio will emerge, and a number of comparisons can be made. For additional recommendations on how to improve your data, see Appendix A.

Expanding from Buildings to a Complete Carbon Inventory

Once building data collection is underway, steps can be taken to account for a complete carbon inventory, including transportation and waste, to finalize the baseline. Accounting for UCC's broader carbon footprint will allow UCC to offer further opportunities to achieve its national carbon reduction targets, and ultimately, to have more impact across the country.



Nelson United Church (Nelson, British Columbia): "Saving \$ and Creation"

In 2009, the Nelson United Church replaced floodlights with 23W CFLs and upgraded their existing furnace to a new air heat exchange pump.

After a "LiveSmart" energy grant, the total cost was \$43,058. The congregation fund raised \$27,000 and the remainder was covered by a bank loan, with monthly payments covered by energy cost savings. The loan was scheduled to be paid off by Dec 2011, but the balance was paid off in 2010 with a generous donation.

Since March 2011:

- Energy costs decreased by 36% (with no adjustment for price increases)
- Overall energy use decreased by 44%.

5 SUGGESTED CARBON REDUCTION TARGETS: WHERE DO WE WANT TO BE?

How is Canada addressing climate change?

To set the UCC’s carbon reduction goals, one should consider the goals of global, national and provincial governing bodies as well as those of other faith institutions.

To avoid the worst effects of climate change, the world will have to reduce its carbon emissions significantly by 2050 and become carbon neutral by 2100. It is also generally accepted that most of the early emission reduction action should be led by developed countries.

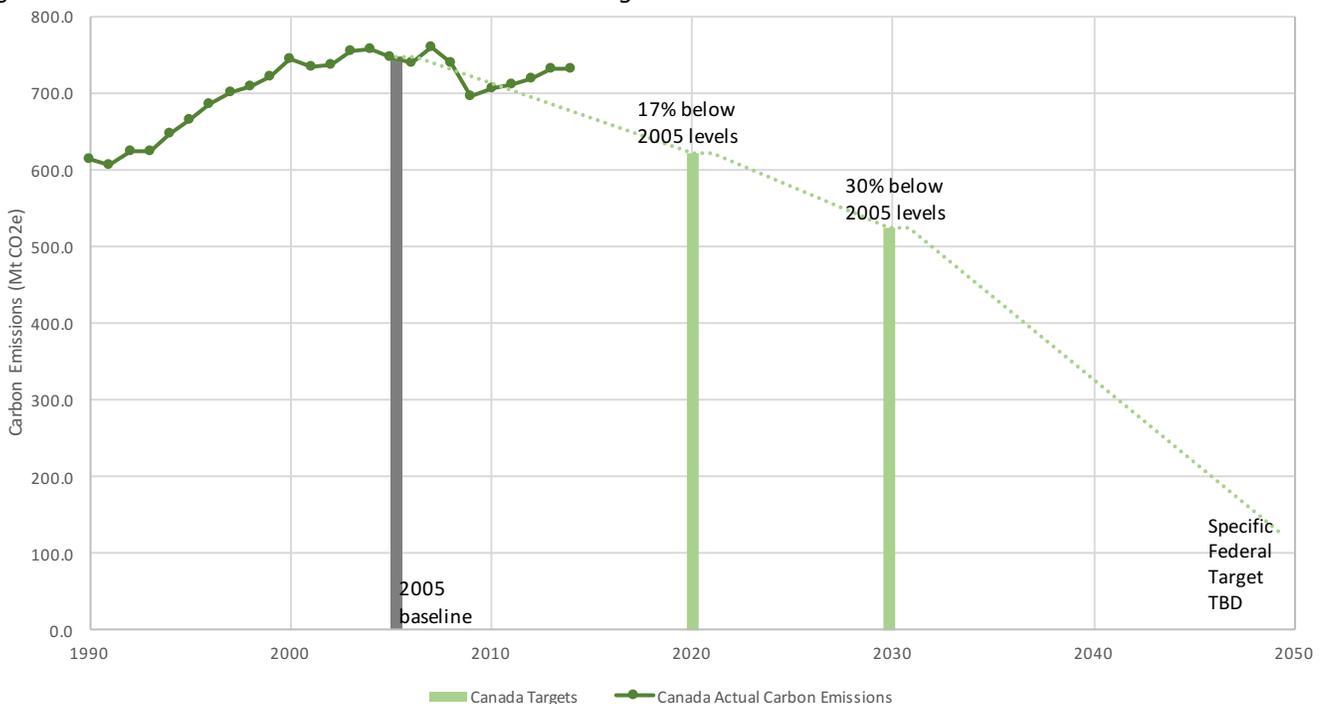
The chart below illustrates how various levels of government across Canada are planning to reduce carbon emissions and mitigate climate change. While Canada was a signatory to the 2015 Paris Agreement, which commits to carbon neutrality sometime between 2050 and 2100, federally, there is only a commitment to reduce carbon emissions by 30% below 2005 levels by 2030. Some provinces

and municipalities are aiming to go even further by reducing carbon emissions by 80% by 2050 (see Appendix D). It will require a concerted effort by all Canadian individuals, companies, and organizations, including faith institutions like UCC, to reach these targets.

*“I think the United Church of Canada needs to step up **boldly** on the issue of reducing our carbon footprint. UCC has done this with respect to residential schools, LGBTQ and other issues. However, stepping up boldly must be done with a clear strategy for achieving the desired results. The potential for achievement is huge given the number of buildings involved, the technology available to mitigate energy use and availability of “low hanging fruit” in the form of small, simple measures that collectively can achieve great results.”*

– survey comments from Jim Dillane, Chair, Cummer Avenue United Church

Figure 6: Canadian Federal Carbon Inventories and Targets



Other faith institutions have set the following carbon reduction targets:

- Church of England, Diocese of London “Route 2050”: 80% by 2050
- Methodist Church (UK) “Carbon Reduction Project”: 80% by 2050
- Episcopal (USA) “Genesis Covenant”: 50% in 5 years
- A Rocha (UK) “Eco Church”: 5% per year
- Uniting Church of Australia “Uniting to Green”: 20% by 2020

The UCC Commitment

Most of the targets set by various levels of government and other faith organizations are relative to a historical baseline (for example, 1990 or early 2000s). Since UCC does not have historical data going back as far, setting a more current baseline may make it more difficult for UCC to hit the same percentage reduction targets.

That said, sixty per cent of stakeholders surveyed by Faith & the Common Good as part of this study are seeking a “very bold carbon reduction target in line with the global and national carbon reduction

targets.” Hundreds of UCC congregations across the country are already involved in greening their buildings. Most want to see the UCC position itself as a moral leader on climate change by backing up its creation care with meaningful actions.

Therefore, based on the targets set by similar organizations and input from UCC stakeholders across the country, we recommend UCC take a leadership role with the following carbon reduction goal.

REDUCE ITS CARBON EMISSIONS BY 80% BY 2050, RELATIVE TO 2016.

To meet this long term 80% reduction target, carbon reductions will need to be realized across all of UCC’s activity sources, including buildings, waste and transportation. These efforts will need to be complemented with systemic change across the country to decarbonize the electricity grid.

As discussed above, the UCC is committed to focusing first on reducing carbon consumption within buildings. Later, it will expand the program to account for waste, staff and congregant travel to church, and other carbon emissions within its operational control. By demonstrating leadership and educating congregants, it is expected that UCC’s efforts will have even greater impact as congregants bring this behavior home and reduce carbon more broadly across their communities. The commitment to these efforts will also strengthen the UCC’s ongoing climate advocacy role.

As part of the national carbon reduction program, interim targets for 2020 or 2030 and carbon neutrality for all new buildings should be considered to keep momentum on track.

6 SOLUTIONS FOR SUCCESS: HOW DO WE GET THERE?

The critical next step question is how to put together a program that motivate local congregations to act to reduce their carbon footprint and drives the best results overall.

There are two basic change management implementation strategies:

- **Comprehensive long-term program.** This approach requires an upfront investment to map out a long term strategy. The main advantage is that the organization has a detailed, clearly mapped out process for achieving the ultimate carbon reduction program. The key disadvantage is that an organization may invest too much time and money up front before knowing if the agreed upon program elements will drive anticipate change. This robust implementation strategy may also be too much for program participants to digest and could therefore lead to inaction because people become overwhelmed.
- **Staged launch.** A staged launch involves setting a long term target and identifying campaigns or initiatives that contribute to the goal. These are detailed in and of themselves and are launched sequentially. They could include pilot projects, like the Ottawa Presbytery carbon project. The key advantage of a staged launch is digestible programs that participants can complete and celebrate in a relatively short time frame. Also, the staged launched would allow UCC to stage investment in consulting time for national program elements and evaluate program success before launching each subsequent campaign. The key disadvantage is that the overall program approach is less detailed.

the UCC pursue the staged approach. This will allow for the national program team to evaluate campaign strategy and modify, if necessary, prior to investing too much time in each subsequent initiative.

Goals, action plans, communication strategies and tools will be generated at the outset of each campaign. Progress will be tracked throughout the implementation phase and reported back to congregants. Results will be celebrated. Results will also be used to inform subsequent campaigns as well as progress towards medium and long term national goals. This feedback loop is shown in Figure 7.

Figure 7: Staged Launch Program: Feedback loop cycle ⁷



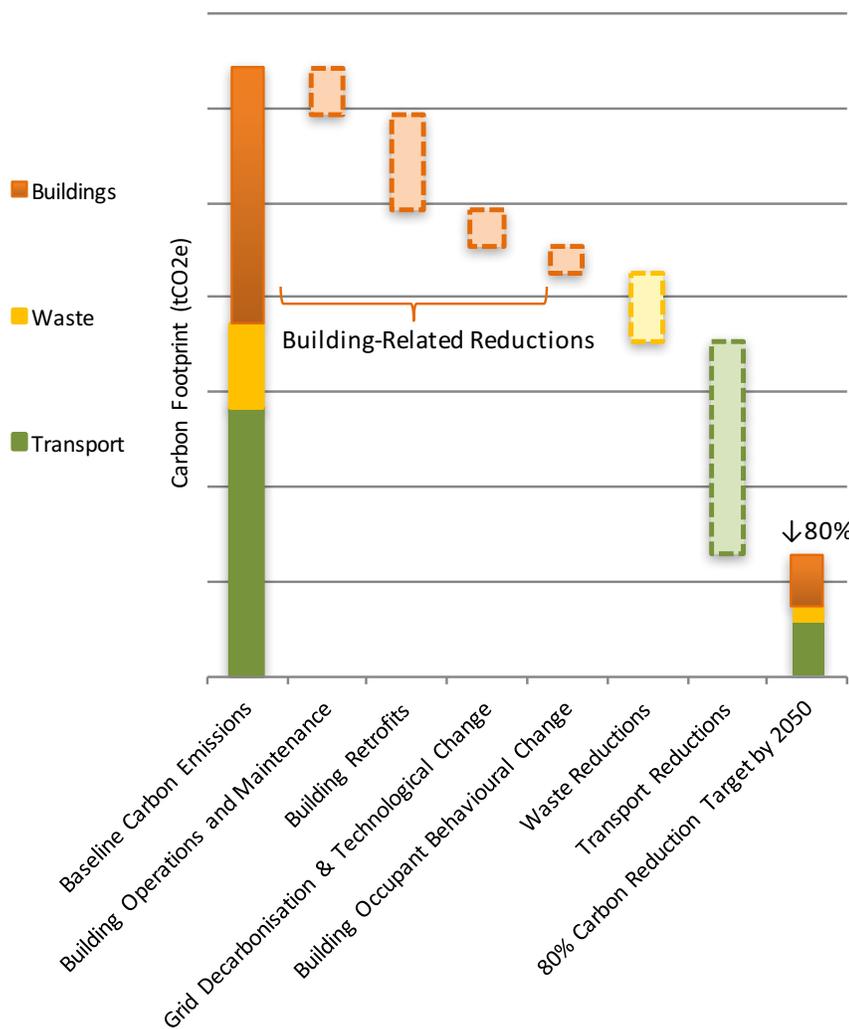
Based on our understanding of labour capacity and communications challenges, we recommend that

⁷ Figure adapted from Energy Star Action Workbook for Congregations, 2014.

Initial campaigns should focus on reducing building related carbon emissions and could include:

- **Carbon Awareness.** Education to build carbon and energy conservation awareness, communicate UCC’s carbon reduction goals, identify opportunities to integrate carbon reduction into existing UCC programs, and influence congregant behaviour (for example, “Switch off the Lights”).
- **Build the Baseline.** Collect actual energy and carbon consumption per building and improve building operations and maintenance.
- **Optimize Operations and Maintenance.** Implement green building operating procedures, such as regular equipment maintenance, controls to manage lighting and HVAC schedules and re-commissioning.
- **Building Retrofits.** Upgrade building structure and/or mechanical systems or install renewable energy generation to reduce carbon emissions.

Figure 8: An Illustration of Pathways to 80% Carbon Reduction



Part of the challenge of a long term target is that it is difficult to predict with a high degree of accuracy from where the carbon savings will come.

As shown in Figure 8, there are many sources of carbon reduction beyond building retrofits. Changes to the grid, new technologies, carbon pricing regimes (carbon taxes or carbon trading systems), as well as new regulations for green buildings and transportation are coming and will all impact how UCC reaches its target.

It is important to note that shutting down faith buildings will not necessarily count towards the UCC’s carbon reduction target. When a faith building is sold or leased to another organization, its carbon emissions must also be removed from the UCC baseline.

Critical Campaign Elements

There are several recommended campaign ingredients for a successful carbon reduction program to meet the target. These campaign elements are based on an understanding of where the UCC is now, where it would like to be, and the obstacles that have traditionally stood in the way of significant carbon reduction action.

Better Data: Normalize and Incentivize Data Collection

We can't manage what we don't measure. Establishing a rigorous carbon baseline with accurate faith building as well as waste and transport carbon emissions will be the biggest challenge of a national carbon reduction program in its first two years.

The good news is that the UCC can build upon a number of existing frameworks and practices of energy data collection.

- **Collect utility data for the entire UCC property portfolio.** Accurate and consistent data measurement is important to enable UCC to evaluate current carbon emissions, set the baseline, and track the success of the carbon program to target. To compile data and track performance relative to peers, we recommend that UCC use Energy Star Portfolio Manager⁸, a “Free, Open Source” tool from NRCan/EPA.

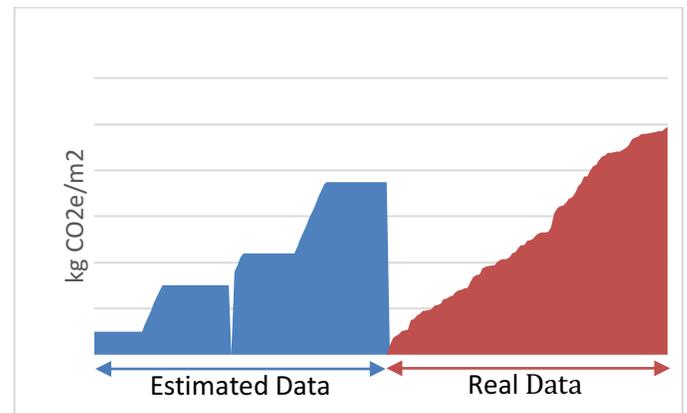
This tool helps building operators manage energy and carbon by using a standard approach, including for building floor area calculations, carbon emission factors, weather normalization and number of occupants. There are many Energy Star user guides to support operators as they learn how to use the tool.

This tool enables congregations and regional and national property management teams to input, track and measure the impact of the program, giving an accurate picture of the

building's performance overtime. As the number of buildings within Portfolio Manager grows, a more complete picture of your portfolio will emerge, and a number of comparisons can be made. In addition, as part of the Ottawa Presbytery pilot, Faith & the Common Good developed a spreadsheet for congregations that easily integrates into Energy Star Portfolio Manager⁸.

- **Incentivize integrated data collection**– The UCC can reduce the burden on trustees, secretaries, treasurers and property managers to collect and report data by integrating utility data into monthly and yearly annual financial reports. With minimal additional effort, the existing Web Applications - Statistical Information tool can be used to collect annual utility information.

Figure 8: Illustrative Example of the Potential for Improving Data Accuracy



In the short term, and especially until data collection is normalized as part of monthly and yearly financial reporting, the UCC should consider using financial incentives to motivate congregations to collect data. Simply speaking, this means making national and regional grant funding available contingent upon full data reporting. To improve data collection performance, regional bodies can offer additional incentives, such as tickets to sporting events or lunches.

⁸ See Appendix B for more information on Portfolio Manager

- **Lobby for automated data collection:** Work with federal and provincial energy and natural resource leaders to lobby for access to automated energy data collection. For example, “[green button initiatives](#)” allow data to be imported directly from utilities into Energy Star Portfolio Manager, without any intermediate steps. If successful, this could significantly decrease the human capital costs and inherent program barriers that exist around data collection.



Effective Communication: Clear Vision, Digestible Messages, Easy to Use Tools

An important part of the UCC’s carbon reduction program is a clear, compelling communications strategy. Beyond the basics, such as objectives, analysis, audiences, key messages, strategies, tactics and timeline, we recommend that the communications program include the following key elements:

- **A Bold Compelling Vision:** A bold vision moves, touches and inspires people to act. To be successful, UCC’s climate messaging needs to resonate with its overall values. Carbon reduction goals need to be embedded into the UCC’s culture across existing programs and partnerships. Not segregated into a single program.

Consider Partnerships to Build this Vision: The United Church of Christ (USA) shares the UCC’s climate justice aspirations and also supports action at the congregational level. Its 2013 General Synod resolution on “[Making UCC Church Buildings More Carbon Neutral](#)” recommends embracing a net-zero challenge. A Joint Climate Program has already been suggested.

“The churches are connected by a common land. Geographically, Canada and the United States share air and climate, water systems, mountain ranges, natural resources, animal migration, ecosystems, and more. As two churches with common commitments to ecological justice and openness to theological exploration, and as churches that share a common land, they can commit to journey together in developing theological reflection, resources, and capacities to heal relationships with the land and the environment. “

– 42nd General Council, August 2015, regarding The Report of the Joint Partnership Committee - The United Church of Christ and The United Church of Canada

- **Tangible and Meaningful Performance Goals:** Survey results indicated that congregations are hungry for simple, achievable and relevant performance targets that make climate change work meaningful. Tangible goals may include lowering energy costs, creating a more comfortable worship environment, or increasing the number of people involved in energy efficiency efforts. Short-term interim carbon targets are also motivating and allow the congregation to track their progress.

Church building consumption and carbon intensity will differ depending on the presbytery/conference. Regional plans should reflect these realities and therefore meaningful goals should be tailored to the location and size of each congregation.

“Provide progress updates -- To create an enduring project, you need to update the congregation on its progress. How much money has the congregation saved on utilities? How have the saved funds been used to better the congregation? How have the efforts of all those involved contributed to improving the environment?”

-- Energy Star Action Workbook for Congregations Dec 2014

An Example of Tailoring Goals to Fit:

The UK Methodists, who have targeted 80% carbon reduction by 2050, organized their carbon reduction tools and goals by region and according to the size of the church's energy bills and how often the building is used.

Each church has access to an "Eco-Church" certification scheme, jointly organized and funded ecumenically via [A Rocha UK](#).

Carbon Reduction

Carbon cutting opportunities for your church

[Circuit / Eco District guidelines](#)



Small churches

that use less than 20,000 kWh of energy per annum.



Medium size churches

that use between 20,000 and 75,000 kWh of energy per annum and typically hire out a hall and other areas at some time during the week.



Large churches

that use more than 75,000 kWh of energy per annum and typically hire out a hall and other areas most days of the week.

- **Easy-To-Use Tools:** To help them identify and act upon energy and cost savings opportunities, congregations need easy to use tools. Survey results indicate that most congregants believe these tools will help them achieve energy efficiency goals. Many such tools already exist, so the UCC need not reinvent the wheel, but rather, it can simply adapt the best of what is already available. See Appendix C for other recommendations that could be built into campaigns.

More Money: Incentives & Access to Funds

Lack of access to capital for retrofit work is the most frequently cited barrier to faith sector carbon reduction action. It is important for national or regional church bodies to provide this support to individual congregations searching for funding to implement energy efficiency retrofits.

That said, what congregations often view as a problem of lack of money is often in fact a lack of knowledge of where to look and a lack of dedicated expertise to understand how to take advantage of incentive and grants available for this work. This barrier can be addressed in a number of ways, including:

- **Provide access to existing incentive programs from utilities and governments:** UCC could publish a list of the many incentive programs suitable for faith building retrofits, for example, build on [this list by Faith & the Common Good based on NRCAN data](#).
- **Establish UCC Green Revolving Funds:** There are many underutilized local, regional, and national endowments and grant programs that could be used to develop a UCC network of "green revolving funds" (GRF). GRFs use existing endowment pools to loan money to congregations for energy retrofits, allowing them to pay back these loans from energy savings.
- **Collaborate on regional green procurement:** To increase buying power, consider regionalizing green procurement initiatives by partnering with other faith-based or community organizations. The EDGE, a network for UCC ministry development, has a "Buying United" initiative that could be developed with a stronger focus on green products and energy conservation/clean energy services. The [Church of England's carbon reduction program](#) successfully used discounted regional green procurement initiatives to incentivize carbon reduction action by individual faith communities.



St. Paul's United Church, Estevan, SK

In May 2014, St Paul's committed to "Becoming a Green Church". In keeping with this covenant, it decided to replace the 53 year old 1,000 kBTU furnace with four high efficient 220 kBTU furnaces, estimated to save 25% in natural gas consumption. Care for creation in action!

A typical student workplan, complete with sample deliverables, could be developed nationally to help local congregations reach out to academic institutions.

- **Green Councils or Green Teams to Increase Engagement.** Many survey respondents expressed interested in participating in recognition programs at the municipal or regional level; fewer indicated interest in an internal UCC "green church" award. Faith communities could take part in local Green Councils or environmental leadership recognition.
- **Leverage support and share regional or interfaith resources.** Faith-based carbon reduction programs rely upon resource sharing among ecumenical or interfaith partners and tapping into local energy savings incentive programs. Most local utility companies have energy conservation goals and are happy to work with faith sector collaborations and their membership to help them meet these targets. In the US, Interfaith Power and Light hosts successful US state chapters called "[Cool Congregations](#)". In Canada, Faith & the Common Good's "[Greening Sacred Spaces](#)" chapters operate on a similar model. The model allows multiple faith communities to share costs and learning, while each congregation can reap its own energy saving benefits.

More Human Resources: Partnerships and Collaboration

Congregations cannot do this work alone. They need expertise and support to track data, identify energy savings opportunities, implement retrofits, and communicate program goals and results. Leadership and commitment from each congregation to carry out this work is important as is regional level support.

Opportunities for support include:

- **Partnerships with educational institutions.** Faith buildings could act as sites for "green building" apprenticeships or "climate social media" internships through partnerships with local technical colleges and universities. These partnerships would provide hands on training to students while helping faith buildings complete the building retrofits and deliver carbon awareness programs.

Successful Example of Academic Partnerships

Windmill Development Group partnered with Algonquin College to secure student applied learning opportunities at a new sustainable waterfront community in Ottawa.

"This project ... gives us an opportunity to participate in a world-class eco-community development with unprecedented applied learning opportunities for our students," says Algonquin College President, Dr. Kent MacDonald.

Conclusion and Next Steps

With a national carbon reduction strategy – one that includes a bold, narrative vision, specific performance goals, and financial, human and technological support for congregations – the UCC can fulfill its sacred calling to care for creation, its communities and congregations.

The next steps are crucial to the program’s success. Specifically, this report recommends UCC:

- 1. Commit to the national UCC carbon reduction target and to launching national carbon reduction program:** Issue a public declaration (for example, the executive summary of this report or an adaptation).
- 2. Design and Implement National Carbon Reduction Program:** Use the Staged Launch approach. Consider setting interim targets before 2050 (for example, targets for 2020 and 2030) or specific participation targets for each campaign.
- 3. Establish Baseline with Actual Data:** Use the momentum of the national program to collect data and establish a complete baseline. Where the baseline includes actual buildings data as well as transportation and waste data.
- 4. Define and Launch Initial Campaigns:** Determine first three campaigns and timing.
- 5. Monitor Progress:** Complete an annual UCC sustainability report that includes a carbon emissions inventory and reports on progress to date.

By addressing these recommended next steps, UCC will be able to demonstrate it is taking meaningful action to fulfill its commitment to addressing climate change. The national carbon reduction program will add strength to the UCC’s ongoing climate advocacy role for systemic change.



Crescent Fort Rouge United Church, Winnipeg MB

The Crescent Fort Rouge congregation’s waste management efforts were celebrated by Winnipeg’s Green Action Centre. The church is composting on site and reducing waste not only by collecting organics from the kitchen but also from church members living in apartments who do not have access to city organic programs.

Each fall, the nutrient-rich compost is used to help the flowers flourish in the church’s Memory Garden. Minimizing waste will be an important next step in reducing the UCC’s carbon emissions.

Figure 9: Example Timeline for Staged Launch of National Carbon Reduction Program

National Program	2016		2017			2018		
	July	Dec	Jan	July	Dec	Jan	July	Dec
Build the Baseline	Prep Tools	Distribute Tools	Write 2016 Report			Write 2017 Report		
			Collect 2017 Data			Collect 2018 Data		
Staged Launch of Campaigns	Set	Implement Evaluate						
		Set Goal	Implement Evaluate					
			Set Goal	Implement Evaluate				
				Set Goal	Implement Evaluate			
					Set Goal	Implement Evaluate		
						Set Goal	Implement Evaluate	
							Set Goal	Implement Evaluate
								1. Carbon Awareness
								2. Operations & Maintenance
								3. Building Retrofits
								4. Transportation
								5. Waste