Energy in the One Earth Community: Current Challenges and Future Options for Energy Use in the Canadian and Global Contexts

A policy statement adopted by the 37th General Council of The United Church of Canada, August 2000

1. Executive Summary

Energy is integral to God's creation. Sources ranging from fossil fuels to the sun are transformed into the physical energy used by human societies. Nutritional elements combine with water and air to give our bodies the biological energy to maintain life. Our relationships with God, the natural world, and other people provide us with the spiritual energy to thrive.

During its history, The United Church of Canada has addressed these various aspects of energy in policy, study, and advocacy, usually treating them as distinct challenges in human society. Various General Councils and other church courts have explored the ecological and social justice dimensions of nuclear power, fossil fuels, hydroelectric developments, conservation, efficiency and renewable energy sources (see in particular General Council policy statements from 1980, 1982, and 1990). On other occasions, the church has focused on concerns about food security as critical to meeting our biological energy needs with particular attention to the economic and social well-being of farmers and fisherfolk. Attention to spiritual energy has been a less explicit agenda, but is discernible in much of the church's faith nurture, congregational development, and interfaith dialogue.

This policy statement of the 37th General Council concentrates on current challenges and future options for the physical energy needed by human society in Canada and globally. However, the issues are addressed within the context of our growing awareness of the inter-relatedness of all life. Developments in ecological theology and ethics are opening our eyes to the ways in which energy use is linked to the ecological crises facing the Earth, the health consequences for us and future generations, the global justice implications, and the more profound levels of spiritual well-being for us in relation to other species and to our Creator.

The framework for the statement draws upon insights from the 33rd General Council's policy *One Earth Community – Ethical Principles for Environment and Development* (August 1992), which reads in part:

> We believe that creation is a gift of God. We therefore endorse the following principles:
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> 1. Human societies must bear a responsibility toward the Earth in its wholeness.
> 2. To be both people-oriented and ecologically sound, all development strategies must be founded on a just international economic order, with priority for the world's poor.

3. Lifestyles of high material consumption must yield to the provision of greater sufficiency for all.

Energy in the One Earth Community draws a number of implications from these principles in terms of energy including:

- 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.

- The generation and use of energy must be determined primarily by the needs of all people for a good quality of life, with priority for appropriate and accessible energy for the world's poor.

- Energy policy in Canada should be based on publicly stated ethical principles and should shift away from the strategy of expanding supply through energy megaprojects and focus more on managing demand and development of renewable, alternative sources. Specifically, Canada should:

    - reflect in its domestic and foreign policies a move away from large-scale energy projects, which inevitably entail major disruptions to the environment and human communities;

    - move beyond our dependence on high-carbon fossil fuels, which produce emissions leading to climate change;

    - reduce our reliance on nuclear power, a technology which entails a level of risk many find unacceptable and for which there are still unresolved problems such as the safe disposal (or safe storage) of high-level wastes from nuclear reactors;

    - manage demand through a high priority on conservation and energy efficiency including significant reductions in the energy needed per unit of production and transportation;

    - significantly increase research and development into renewable energy sources such as solar, wind, biomass;

    - support development and utilization of appropriate technologies for small-scale, decentralized energy systems, including small-scale hydroelectric development;

    - provide the necessary supports for individuals, families, and communities adversely affected by a transition away from fossil fuels, nuclear power, and large-scale hydro in order to allow for alternative economic development, retraining, and relocation.

Energy in the One Earth Community begins with theological and ethical reflections on energy within the Canadian and global contexts, and continues with a more specific discussion of

current challenges and futures options related to a range of energy sources. An accompanying resolution includes recommendations for government, industry, church, and individuals.

2. Theological and Ethical Reflections

"The earth is the Lord's and all that is in it,
the world, and those who live in it." (Psalm 24:1)

"For in him (Jesus Christ) all things in heaven and on earth were created, things visible and invisible...all things have been created through him and for him."
(Colossians 1:16)

"In [God], we live and move and have our being." (Acts 17:28)

Awareness of the importance of the inter-relatedness of the various elements of the natural world has been a fundamental part of some human societies for generations, but the world of science, which has fed the thinking of the Western world, has begun to see the significance of this inter-dependence only gradually over the past 50 years. Physics has come to focus on relationships as the essential defining characteristic of matter. Biology and ecology have described the ways in which life forms interact and depend upon one another and the physical environment. Human beings are inextricably part of and dependent upon the natural world. Increasing documentation of the ways in which human activity is having destructive impacts on the biosphere is leading many scientists to move beyond their role as researchers and become more active in calling for dramatic changes in the way in which we live as human societies.

Christian theologians and ethicists have responded to the challenge of the ecological crisis by revisiting our scripture, tradition, and theology. Building on insights from the sciences, they have developed the spiritual dimension of this new understanding of the inter-relatedness of all life. The entire Earth is the Lord's. Through Jesus Christ, all things exist. The Spirit of God is present, active, and pervasive throughout all creation. As humans within the natural order, justice, prudence, and piety all summon us to acknowledge our inter-relatedness with other life processes and our dependence upon the God who is Creator and sustainer of creation. The United Church of Canada recognized the implications of these eco-theology perspectives by revising its creed in 1995 to include the words "to live with respect in creation" among the vocations to which we are called as people of faith. Living with respect in creation has implications for our individual and collective lives in terms of our use of physical energy, our dependence on biological energy derived from the gifts of creation, and how we open our souls to the spiritual energy granted by God and experienced by us through many aspects of the natural world.

It is not only the Christian faith from which calls are coming for a reappreciation of the sacredness of creation and of the need to live in more respectful ways with the rest of the natural world. Currently, one of the most exciting areas of inter-faith dialogue and collaboration is in addressing ecological concerns and sharing insights from our respective faith systems regarding

care for creation. The United Church's statement from the 36th General Council on *Mending the Earth* is an eloquent testimony to this inter-faith potential and reality.

Within Christianity, certain voices have been critical in opening perspectives to encompass not only an appreciation for the inter-relatedness of all life, but a recognition that many societies must stand judged for the unjust manner in which policies and practices have oppressed the vulnerable among the human community and the broader natural world. Aboriginal peoples, eco-feminists, and activists from Southern countries articulate their insights from within the contexts of centuries of oppression from the dominant cultures, largely Western industrialized societies. Such oppression continues in our day through the trends toward economic globalization. These analyses have led to an understanding within the ecumenical community of the many ways in which contemporary society is structured as a destructive culture of death, especially for the vulnerable within the human community and broader natural world. Our challenge as people of faith is to bear witness to life. We are called to work toward sustainable community in which all people have sufficient for life in abundance, where future generations are not ecologically impoverished because of the actions of this generation, and where other species are respected as having an integrity of their own.

This theological and ethical understanding of our call to work toward an ecologically sustainable and socially just world has specific application in terms of our use of physical energy. The 33rd General Council Statement (1992) *One Earth Community – Ethical Principles for Environment and Development* (12 principles included below) provides a framework for identifying some of the implications related to energy.

1. Human societies must bear a responsibility toward the Earth in its wholeness.

The full range of environmental and social consequences from the exploration, development, and use of energy must be considered in assessing various options. Life-cycle analyses are useful in that they force us to broaden our perspective beyond the immediate use of energy and consider the long-term and long-range impacts. For instance, large-scale hydroelectric projects have serious consequences for ecosystems which are flooded and for communities which are displaced. Fossil fuel emissions contribute carbon dioxide to the atmosphere, leading to climate change which will affect people and ecosystems around the world. Toxic wastes from nuclear generating facilities, if improperly stored or disposed of, pose a threat to the health of many generations to come. As Canadians, we cannot concern ourselves with just the immediate and domestic consequences of our energy choices, but must recognize and take responsibility for the impacts on the Earth as a whole, both currently and in the future.

2. To be both people-oriented and ecologically sound, all development strategies must be founded on a just international economic order, with priority for the world's poor.

Large and powerful economic interests have had a determining influence on energy decisions around the world. Until quite recently, almost all World Bank energy funding has gone for projects that fed industrial and urban development in countries of the South. This development has supported the wealthy élites, but paid little attention to the needs of the vast majority of the

poor. Research into new energy options has paid insufficient attention to what technologies and systems would be most appropriate and accessible for peoples living near subsistence levels. The risk that international trade treaties may take precedence over international environmental and social agreements threatens to exacerbate the economic gap between the rich and the poor, including inequality of access to energy resources. Canada should work to model alternative approaches which shift priority toward values of relationship, so that meeting the needs of the poor is the highest priority of energy policy.

3. Lifestyles of high material consumption must yield to the provision of greater sufficiency for all.

The vast majority of energy produced and used in the world goes to meet the needs and luxury demands of the world's rich. In Canada, where energy has been relatively inexpensive, we have constructed individual and collective lifestyles which make prodigious and inefficient use of energy resources. Technologies already exist which are much more energy efficient, and many more could be brought on stream quickly if the research and development resources were applied. These technologies could dramatically reduce the amount of energy that we use per unit of production, consumption, and transportation. Further, as Christians, we should challenge the level of material consumption which has come to be viewed as natural in our society, and model alternative approaches which shift toward values of relationship, simplicity, and health. We should ask ourselves what is enough or sufficient for a good quality of life. We should also press for policies and actions that ensure all in Canadian society and globally have access to sufficient resources for a good quality of life.

4. Environmental destruction must stop and humanity must understand itself collectively responsible both for the destruction and for the repair thereof.

Human societies are now less able now to plead ignorance when it comes to the negative environmental and social consequences of energy development and use. Environmental and social assessment processes, as well as the accumulating scientific evidence, point to massive destructive impacts from many of the energy sources currently in use. We must accept our responsibility and shift energy policies and approaches so that we use less energy and draw it from sources which are less polluting and less environmentally destructive than the current ones.

5. The rights of future generations must be protected.

The consequences of the energy patterns of current human societies represent the most serious environmental threats to the health and well-being of future generations. Consider, for example, the predicted climate changes over the next centuries caused by the burning of fossil fuels. High-level nuclear wastes will remain radioactive for tens of thousands of years, and there is no known safe way to protect future generations from the toxicity which may ensue. Energy from these two technologies are serving the demands of people living now and over the past number of decades, and yet the negative environmental consequences will last for hundreds and thousands of years into the future. Future generations are not represented in our legislatures, boardrooms, or international negotiations to argue their own case. One role for Christians who see themselves as caring for God's creation is to assume responsibility for speaking on behalf of future generations of human and non-human species as energy decisions are made which could affect positively or negatively their capacity to live full and healthy lives.

6. The carrying capacity of the Earth, regionally and globally, must become a criterion in assessing economic development..

The emissions from the burning of fossil fuels are pushing carbon dioxide concentrations levels in the atmosphere higher than at any time in recorded history. Scientists with the Inter-Governmental Panel on Climate Change estimate that human societies need to reduce their annual emissions of carbon dioxide by around 60% in order to stabilize the CO_2 concentrations in the atmosphere at levels which avoid serious interference with climate systems. Renewable energy technologies offer the most encouraging potential for energy sources which carry modest enough environmental impacts that they can be used without exceeding the carrying capacity of the Earth.

7. The bio-diversity of the Earth must be respected and protected.

Coal and uranium mining, oil and gas exploration and development, and large-scale flooding for large hydroelectric projects all have destructive impacts on ecosystems. These are compounded by the long-term consequences of these energy sources, such as radioactive uranium mine tailings and the destruction of ecosystems through climate change. Though we are aware of some of these impacts now, there are others which will only become apparent when it is too late to prevent them and further plant and animal species have been threatened. Protecting the Earth's bio-diversity requires us to utilize energy judiciously so as to avoid waste and inefficiency and to shift toward energy sources which carry fewer inherent destructive impacts.

8. Militarism must yield to non-violent approaches to conflict resolution.

War, military manoeuvres, and the production of military equipment utilize vast quantities of energy. Environmental impacts are among the less analyzed consequences of war. Oil refineries and energy systems are favourite targets for bombing, causing severe pollution of land, air, and water sources. Nuclear power generation and nuclear bomb production are inter-related through common use of uranium, the potential for high-level nuclear wastes to be diverted for bombs, and the proposed use of mixed-oxide fuels from bombs in nuclear reactors because there is no known safe method of disposing of the waste. Environmental protection can be added to the many other good reasons for pursuing non-violent approaches to conflict resolution.

9. Decision-making for just and ecologically sound development must ensure the participation of individuals and groups, especially those most affected by the project.

Peoples displaced by large projects such as big hydroelectric dams, oil and gas development, nuclear plants, and hydro transmission lines, should have the opportunity for full and meaningful participation in decision-making regarding such projects, especially since the energy benefits are likely to be reaped by industry and urban dwellers far away. Participation is often difficult for community groups with limited resources. It is important for governments to provide adequate intervenor assistance for those most affected by the projects and to use an open and transparent decision-making process.

10. Both opportunities for learning and access to knowledge must be assured in order to facilitate sustainable development.

The Internet and other forms of electronic communication are making it easier for people to share information around the world regarding the destructive environmental and social impacts of current energy sources and the potentials for energy efficiency and renewable energy technologies. However, governments and companies in industrialized countries, claiming intellectual property rights, resist making new energy technologies available to countries of the South which are seeking ways to avoid repeating the energy-inefficient and fossil fuel dependent development path of the North. If sustainable energy options are to be pursued, information needs to be readily accessible to those who need it.

11. Development decisions must emphasize prevention of ecological damage.

Energy conservation, efficiency, and alternative renewable sources reflect the precautionary principle of avoidance of ecological damage much more effectively than do most of the energy sources currently used. Churches could play an important modelling role in their communities by ensuring that their buildings use energy as efficiently as possible and by being willing to experiment with alternative renewable energy.

12. Procedures and mechanisms must be established ensuring a transnational approach to environmental issues and disputes.

The intergovernmental negotiations related to climate change, though frustratingly slow, do represent an attempt by the global community to deal with an energy-related environmental issue through negotiation and collective planning. The increasingly trans-boundary nature of energy issues, which have significant environmental and social consequences, is raising questions about the need for new forms of global governance. Concerns have been raised that international trade agreements under NAFTA or the World Trade Organization might restrict Canada's capacity to adopt measures aimed at shifting energy policy to emphasize conservation, efficiency, and renewable sources.

3. Major Energy Issues in Canada and their Global Implications

The implications for Canadian energy policy arising out of *One Earth Community* include the need for a significant shift in direction away from efforts to expand the supply of energy resources through large-scale projects utilizing fossil fuels, hydro, or nuclear power and concentrate instead on reducing the demand for energy and developing cleaner, safer alternative sources. This is consistent with the policy position which the United Church adopted in the 1982 General Council statement on *Energy and the Church.*

3.1 Megaprojects and impacts of resource development projects

Energy megaprojects inevitably entail major disruptions to the environment and human communities.

Hydroelectric production is a renewable source and has great potential in small-scale applications. However, massive hydroelectric projects such as on the Churchill River in northern Manitoba and the James Bay dams in northern Quebec almost invariably produce large-scale flooding that adversely impacts people and ecosystems. First Nations peoples affected by these energy projects have often opposed them or have had to struggle for years to try and gain appropriate input to the planning and compensation for their loss of land and livelihood. The United Church has participated on its own as well as through the ecumenical Aboriginal Rights Coalition in supporting First Nations in their struggles related to these developments.

Similar situations have been repeated in other parts of the world such as the Three Gorges Dam in China where millions of people have been displaced. Some of the dams proposed for India's Narmada River were successfully stopped as a result of local people's resistance.

The ecumenical coalition the Taskforce on the Churches and Corporate Responsibility (TCCR), in which the United Church is an active member, has been involved in the past in raising issues with oil and gas companies in terms of the impact of their activities on the lands and communities of First Nations peoples in Canada (e.g., Lubicon Cree in Alberta). The United Church has long maintained that industrial development should not occur on land which is the subject of dispute in terms of Native land claims and that First Nations peoples should be full participants in co-management planning for natural resources on their lands. Recognizing the importance of ensuring that peoples most affected gain adequate benefit from resource development, the 29th General Council included in the policy on *Energy and the Church* a call for renewed negotiations between the federal government of the day and the Government of Newfoundland and Labrador on offshore oil and gas development.

In recent years, the Taskforce on the Churches and Corporate Responsibility has been involved in efforts related to the environmental and social impact of resource development projects by transnational oil companies in other countries (e.g., Nigeria, Sudan).

Concerns have also been raised in recent years by United Church people in Alberta about the air pollution and the health impacts of the heavy concentration of oil and gas companies in their

province. The continuous burning flares by oil and gas companies is a serious health concern in various regions of the country. Technologies have been developed and are in use in other countries for putting waste gas back into the ground or re-injecting it into the formation.

3.2 Fossil fuel use and its contribution to climate change

Ours is a world that is addicted to fossil fuel. From the Industrial Revolution to the present, much of the technological development has been powered by coal and oil. While fossil fuel-based industrialization has resulted in significant improvements for the quality of life of many people, we are now becoming more aware of the environmental and social costs. High levels of energy and material consumption exacerbated by ever-increasing transportation of persons and goods are producing emissions from the fossil fuels used which are reducing local air quality and leading to climate change.

The recognition of the environmental and social consequences of our intensive use of fossil fuels is providing greater impetus to efforts to develop economically viable alternative renewable energy sources. The international negotiations on climate change which have led to the UN Framework Convention on Climate Change (1992) and the Kyoto Protocol (1997) are forcing Canada and other countries to pay increased attention to using energy more efficiently and supporting the development of alternative renewable energy sources. Under the Kyoto Protocol, Canada would be committed to a 6% reduction in greenhouse gas emissions from 1990 levels by 2010. Given our responsibility as an industrialized country with one of the highest per capita rates of carbon dioxide emissions in the world, it is important for Canada to concentrate on reducing fossil fuel based energy use within our own country and not to depend on mechanisms such as emission trading with other countries to reach our targets for emission reduction under international agreements.

Various legislative, regulatory, and fiscal measures are available to governments to encourage movement away from high-carbon fossil fuels. The low cost of energy on this continent has been one of the most significant factors in maintaining our dependence on fossil fuels and retarding progress on conservation, efficiency, and renewables. While some economic approaches are controversial, such as a carbon tax graduated in relation to the carbon content of the fuel, fiscal measures are an important tool which can have positive ecological and economic benefits. Fossil fuel exploration and development have been and continue to be heavily subsidized by public funds in Canada. If such costs as well as environmental costs were built into the price of fossil fuels, renewable energy options would be much more economically competitive. The regional economic impacts of movement away from fossil fuels are important factors for consideration in Canadian energy policy. Energy conservation, efficiency, and renewable options have significant job-creation potential, which could help offset job losses in the fossil fuel sector.

Transportation is a significant source of carbon dioxide emissions. Progress could be made toward reducing emissions if Canadian energy and transportation policy emphasized public transit over private motorized vehicle use and railroads rather than trucks for freight transport. The development of the fuel cell is an encouraging technology which may revolutionize much of the energy supply for both transportation and centralized power supply.

3.3 Nuclear fuel cycle

The United Church has a long history of discussion and advocacy related to various aspects of the nuclear fuel cycle, including uranium mining, management of mine tailings, nuclear energy production, and high-level nuclear waste management and disposal. In the 1970s, British Columbia Conference and Saskatchewan Conference raised concerns about the impact of uranium mining on First Nations communities which are near mines and on the environment. Saskatchewan Conference has reaffirmed its opposition to uranium mines a number of times over the years, while acknowledging the economic complexities given the fact that the mines have provided some employment in northern communities.

The 28th General Council in 1980 adopted a resolution on the "nuclear option for Canadians" based on the premises that the church has a deep concern for the well-being of this and future generations and believes that science and technology should serve the quest for a just, participatory, and sustainable society and that "an ability to solve many of the problems associated with uranium mining/nuclear power has not been demonstrated." The 1980 resolution called for a national public inquiry into all aspects of the nuclear fuel cycle and, in the meantime, the declaration of a moratorium on the expansion of existing nuclear facilities and/or the establishment of new nuclear facilities or mines. The 36th General Council in 1997 added two new elements to this policy base by requesting the Government of Canada to firstly, decline to accept plutonium from other nations and to cease experiments in the potential use of plutonium as a component in MOX (mixed oxide) fuel for burning in CANDU reactors and secondly, to declare a moratorium on the sale of CANDU nuclear reactors.

Proposals to take plutonium from nuclear armaments and convert it into MOX fuels does appear to have an initial attractiveness as a strategy toward global disarmament. Certainly, the Canadian government has promoted it in those terms. The most persuasive argument in favour of MOX would be if it actually represented final disposal, but it does not, since the resulting high-level wastes from the reactors would still need storage or disposal. The option has also been pushed as a way to alleviate a dangerous situation in Russia, that is, concerns about Russian instability and the country's capacity to manage the material from dismantled warheads. In reality, the MOX fuel option is a long-term option that would take many decades and would do little to get dangerous materials quickly out of an unstable Russia.

On the basis of these policies, the Division of Mission in Canada (DMC) prepared two major interventions related to the Environmental Assessment Panel on Nuclear Waste Management and Disposal. Former United Church Moderator Lois Wilson was a member of this federal environmental assessment panel. In 1996, the DMC made a submission to the panel utilizing the framework of the General Council statement *One Earth Community* and made various recommendations, including that the concept of deep geological burial of high-level nuclear waste should not be approved at present. The Environmental Assessment Panel's report, which was released in February 1998, makes essentially the same recommendation. The DMC, along with many others including former Moderator Wilson, were deeply disturbed by the federal government's December 1998 response to the panel report because of the way that its response misrepresents the panel's conclusions and how the government, while purporting to endorse

most of the panel's recommendations, actually proposes actions which are often in contradiction to those recommendations.

Given the investment that Canada has made in nuclear technology and our current dependence on it as an energy source ,especially in Ontario, nuclear power will continue to play a role in the energy mix in Canada for the immediate future. However, concerns continue to grow about the safety of nuclear power with the shutdown of many nuclear power stations in Ontario and the refurbishing of others because they were found to be aging more quickly than had been anticipated. Permanent, scientifically proven, and socially acceptable management options for uranium mine tailings and high-level nuclear wastes are still not available. Further, nuclear power is becoming increasingly uneconomical if one acknowledges the range of costs related to it, including decommissioning of obsolete reactors and the still unknown long-term management costs of wastes. Public and private funds invested in nuclear energy could provide more ecologically sustainable forms of energy and yield many more jobs if invested in programs for energy conservation, efficiency, and the development of alternative, renewable energy sources.

3.4 Energy efficiency and conservation

The policy statement on *Energy and the Church* adopted by the 29th General Council in 1982 made a strong argument for moving away from energy megaprojects to supply an ever-increasing energy demand and toward soft path energy which emphasizes managing energy demand more effectively through energy efficiency, conservation, and alternative renewable sources. The General Council based much of its position on analyses done by the ecumenical coalition GATT-FLY of which the United Church was an active member and which is now called the Ecumenical Coalition on Economic Justice. In 1984, a United Church delegation met with Jean Chrétien, then Minister of Energy, Mines, and Resources, to express concern about serious cutbacks in federal support programs for energy efficiency and conservation, as well as research funding for renewables. It is regrettable that the church's voice was not heeded and that Canada did not continue to support the development of energy efficiency and conservation more strongly. Advances over the past 15 years would certainly have placed us in a better position to meet the challenges to reduce our energy use that we are now facing as a result of the commitments made within the context of international agreements on climate change.

There have been considerable developments around the world which provide specific examples of ways in which energy efficiency and conservation can result in dramatic reductions in the amount of energy needed per unit of production and transportation:

- Super-efficient homes in Frankfurt, Germany, which use 90% less heat and 75% less electricity than normal German homes;

- Super-efficient and ultra-light "hypercars" using hybrid engines giving 100 mpg in local driving and 200 mpg-plus for long-distance travel;

- An integrated transportation system in Curitiba, Brazil, has bucked the "norm" of extensive car use. With a cheap and effective bus network, 70% of the inhabitants use the system, leading to 30% lower gas use when compared to other Brazilian cities;

- Clever appliance design and minimum standards-setting in Denmark which can cut electricity use by 74% compared to 1988 levels. (cf. Lovins & Weizsaecker, *Factor Four*).

Within the church community, we have a challenge to significantly improve the energy conservation and efficiency of our own buildings and the extent to which attendance at worship and church programs can be organized to reduce individual use of cars. Technologies exist and experiments are in progress in various regions of Canada whereby United Churches are retrofitting buildings and finding that the energy they save pays back the capital costs of the renovations in a relatively short period of time. The ecumenical Taskforce on the Churches and Corporate Responsibility, and its subunit the Inter-Church Committee on Ecology, have launched a project, with financial assistance from the federal government, to help churches across the country to improve energy efficiency and conservation. In every region of the country, resources on energy efficiency and conservation are available from governments, utilities, and environmental organizations to assist individuals and families take practical steps toward better stewardship of energy use.

3.5 Potential for alternative renewable energy sources

The statement on *Energy and the Church* from the 29th General Council in 1982 placed emphasis on the need to support the development of renewable energy options as an alternative to Canada's existing dependency on fossil fuels, nuclear power, and hydroelectric megaprojects. In the years since that General Council, considerable progress has been made in the field of renewables, bringing the technologies closer to economic viability.

Wind energy and solar power are two of the most promising renewable technologies. Though they still meet only a small fraction of the world's energy needs, wind and solar power are growing faster than any other energy source. In 1998, use of wind energy increased 30% worldwide, and solar increased 16% worldwide. Increasing the market share for renewable energy is a problem because it is still more expensive to produce electricity from wind or through photovoltaic solar panels than it is from traditional hydroelectric, fossil fuel, and nuclear sources. Part of the difficulty is that traditional sources are priced inappropriately cheaply: the price charged for fossil fuels and nuclear power does not reflect either the environmental costs of using those fuels nor the amount of investment of public funds that has gone into fossil fuel developments and nuclear power over the past decades. Canada has a relatively vibrant renewable energy sector made up of many small companies which are developing promising technologies, but face considerable obstacles given the preferential treatment (e.g., grants, tax concessions) accorded to traditional sources over the years. Governments have a variety of fiscal measures at their disposal which could make renewable sources more economically competitive and thus encourage the development of the renewable sector.

Consumers across Canada will be able to influence the mix of energy sources as the opportunities grow for them to request a certain percentage of their electricity to come from "green energy" sources. There initially will be a premium that consumers will have to pay for the green energy, but it is anticipated that this will gradually diminish as the economies of scale improve.

3.6 Small-scale, decentralized energy systems

Currently, electricity production and distribution in Canada relies on highly centralized systems of control, with grid networks connecting large electricity generating facilities with markets through extensive transmission corridors. Such a system leaves people and businesses vulnerable to major disruptions as a result of storms, fluctuations in generating capacity, etc.

There are considerable benefits to be gained through a redesign of our electricity system in the direction of small-scale generating facilities utilizing renewable energy sources. The vulnerability of the system is reduced, local people have more control and can assume greater responsibility for their own energy production, and environmental and social problems associated with transmission of electricity over long distances are diminished.

Small-scale hydroelectric development offers significant potential in Canada and elsewhere for meeting local industrial or community energy needs with a relatively modest impact on the environment.

To help make such ventures economically viable, legislation is needed which would allow small-scale projects to sell excess power to the electrical utility at a fair price.

3.7 Challenges in the transition to a new energy approach

There will be difficult social, economic, and political challenges in making a transition from an energy system based largely on fossil fuels, nuclear power, and large-scale hydro to an energy system that prioritizes conservation, energy efficiency, and alternative renewable sources. Significant numbers of jobs exist currently in construction and operations in the coal, oil, and gas industries, the nuclear sector, and large-scale hydro. A long history of government subsidies and private sector investments in our current energy system leads to political resistance to seriously contemplating a major change.

Considerable research over the past several decades confirms that a new energy approach based on conservation, efficiency, and renewable sources would have a positive impact on Canada's economy, including a net increase in employment opportunities. However, the majority of those employment opportunities may not be in the same areas that currently host energy-related jobs. If Canada shifts its energy policy away from dependence on fossil fuels, nuclear power, and large-scale hydro, various regions of the country which already struggle with significant levels of unemployment would face further economic challenges and social upheaval.

These social, economic, and political challenges should not be minimized, but neither are they reasons for maintaining the status quo. The transition to a new energy approach would not be easy, and individuals, families, and communities that would be adversely affected should be provided with the necessary supports from government, the private sector, and other organizations, including the church. Alternative economic development options would need to be pursued. There is encouraging experience in other sectors that have undergone major change, such as forestry, where eco-tourism has provided employment opportunities in some communities which no longer host logging or milling industries.

4. Relevant Reference Materials

***General Council Policies available in the resource* In the Public Arena:**

- *The Nuclear Option for Canadians*, 28th General Council, 1980.
- *Nuclear Power*, 28th General Council, 1980.
- *Energy and the Church*, 29th General Council, 1982.
- *Uranium Exports*, 32nd General Council, 1988.
- *Global Warming and Atmospheric Destruction*, 33rd General Council, 1990.
- *One Earth Community – Ethical Principles for Environment and Development*, 34th General Council, 1992.

Division of Mission in Canada Policies and Briefs:

- *Resolution re. James Bay II Hydroelectric Development*, DMC Executive, June 1991.
- *Submission to the Public Hearings of the Canadian Environmental Assessment Panel Reviewing the Nuclear Fuel Waste Management and Disposal Concept*, March 1996.
- *Comments Relating to the Government of Canada Response to Recommendations of the Nuclear Fuel Waste Management and Disposal Concept Environmental Assessment Panel*, February 1999.

5. Suggestions for Practical Implementation of Policy Proposals

The Division of Mission in Canada wishes to inform the 37th General Council that,

- The United Church's *Mandate Mission Study Special Edition*,
- the Taskforce on the Churches and Corporate Responsibility (and its sub-unit the Inter-Church Committee on Ecology),
- the Canadian Ecumenical Jubilee Initiative, and
- Ten Days for Global Justice

will be concentrating jointly on creation issues, including climate change and energy use, as one of their major foci for the third year Jubilee theme "Renewal of the Earth," starting in September 2000. They will be developing resources for programs and practical actions at the congregational level that can be used to help implement, within communities, the policy directions laid out in *Energy in the One Earth Community*.

There is also a new NFB video, *Turning Down the Heat: The New Energy Revolution*, that has been placed in United Church AVEL outlets as a helpful companion resource to study of *Energy in the One Earth Community*.

6. General Council Policy Resolution

Energy in the One Earth Community:
A policy statement adopted by the 37th General Council

WHEREAS during its history, The United Church of Canada has addressed various aspects of energy in policy, study, and advocacy; and

WHEREAS the last major General Council comprehensive policy statement on energy was in 1982 and does not reflect the significant United Church work on fossil fuels and climate change over the past 10 years; and

WHEREAS the Division of Mission in Canada has made submissions on nuclear waste to an environmental assessment panel (March 1996) and to the federal government (February 1999) based on the last major General Council policy statement on nuclear energy which was in 1980 and which now could use updating in light of this recent United Church work on nuclear waste; and

WHEREAS United Church of Canada statements on specific energy issues over the past 20 years are largely unconnected one to the other. United Church education and advocacy on energy issues would be enhanced by having an integrated policy statement which is placed within the context of recent developments in ecological ethics and theology; and

WHEREAS the 33rd General Council's policy *One Earth Community – Ethical Principles for Environment and Development* (August 1992) provides a framework in which to articulate a new General Council policy statement on energy;

THEREFORE BE IT RESOLVED THAT the 37th General Council affirm the following principles:

1. 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;

2. The generation and use of energy must be determined primarily by the needs of all people for a good quality of life, with priority for appropriate and accessible energy for the world's poor;

3. Compliance with international trade agreements should not be given precedence over compliance with international environmental agreements or prevent Canada from adopting measures to reorient its energy policy;

4. Energy policy in Canada should be based on ethical principles of respect for and justice within the One Earth Community, and should shift away from the strategy of expanding supply through energy megaprojects and focus more on managing demand and development of renewable, alternative sources. Specifically, Canada should:

4.1. reflect in its domestic and foreign policies a move away from large-scale energy projects which often entail major disruptions to the environment and human communities;

4.1.1. communities and peoples most affected by oil and gas exploration, large-scale hydroelectric development projects, nuclear facilities, and other energy-related mining, production, or waste projects should have the opportunity and intervenor assistance to allow for full and meaningful participation in decision-making regarding those projects;

4.2. move beyond our dependence on high-carbon fossil fuels which produce emissions leading to climate change;

4.2.1. Canada should ratify the Kyoto Protocol under the UN Framework Convention on Climate Change;

4.2.2. Canada should concentrate on reducing carbon dioxide emissions within Canada and not rely on mechanisms such as emission trading with other countries to meet our targets for emission reductions under international agreements;

4.3. reduce our reliance on nuclear power, a technology which entails a level of risk many find unacceptable and for which there are still unresolved problems such as the safe disposal (or safe storage) of high-level wastes of nuclear reactors;

4.3.1. a moratorium should be instituted on the expansion of existing facilities and/or the establishment of new nuclear facilities or uranium mines, such moratorium to extend to the disruption of radioactive deposits and the export of nuclear technology and materials;

4.3.2. in terms of nuclear waste management and disposal, the government should ensure that the full set of options for approaches to nuclear waste management are adequately explored in an open and transparent process with the necessary expertise in social and environmental science and in ethics. Any waste management agency that is set up should operate at arm's length from both the utilities and AECL, with a board and advisory council having broad representation;

4.4. manage demand through high priority on conservation and energy efficiency including significant reductions in the energy needed per unit of production and transportation;

4.4.1. government policy should facilitate the reorganization of individual and community lifestyles in order to generate and use energy as efficiently and sustainably as possible;

4.4.2. United Church congregations and members should be encouraged to pursue strategies to increase energy efficiency and conservation within their own buildings and use of transportation;

4.5. significantly increase research and development into renewable energy sources such as solar, wind, biomass, etc.;

4.5.1. Canada should utilize a variety of fiscal measures to make renewable sources more economically competitive and thus encourage the development of the renewable sector;

4.5.2. United Church congregations and members should be encouraged to opt for green energy when available in their region to help increase the economic viability of alternate renewable sources;

4.6. support development and utilization of appropriate technologies for small-scale, decentralized energy systems, including small-scale hydroelectric development;

4.6.1. legislation should be enacted which would allow small-scale electrical generating projects to sell excess power to the electrical utility at a fair price in order to help make such projects economically viable;

4.7. provide the necessary supports for individuals, families, and communities adversely affected by a transition away from fossil fuels, nuclear power, and large-scale hydro in order to allow for alternate economic development, retraining, relocation, etc.;

4.7.1. intentional programs should be established by public and private sectors in consultation with affected communities to assist in economic transition including alternate economic development, retraining, relocation, etc.;

4.7.2. the United Church, through mechanisms such as its participation in the Canadian Alternative Economic Cooperative, should support alternate economic development initiatives in regions that would be adversely affected by a transition to a new energy approach.

AND BE IT FURTHER RESOLVED THAT the 37th General Council request the Division of Mission in Canada to communicate recommendations to and take other appropriate initiatives with governments, industry, congregations, and United Church members.

AND BE IT FURTHER RESOLVED THAT THE 37th General Council request the Division of Mission in Canada to prepare resources which enable congregations to become “One Earth Communities” or “Creation Communities.”

7. Workshop Outline for the study of *Energy in the One Earth Community*

Overview

This workshop is intended to provide participants with ideas of some of the constructive things that we can do to help reduce the polluting gases which are leading to climate change.

The primary resources are:

- *Energy in the One Earth Community:* A statement on current challenges and future options for energy use in the Canadian and global contexts adopted by the United Church's 37th General Council (August 2000) as a new church policy.

- *Turning Down the Heat: The New Energy Revolution:* An NFB video narrated by David Suzuki which describes the exciting opportunities for the development of clean, renewable energy sources. Conservation, efficiency, and renewable energy sources can reduce our dependence on the burning of fossil fuels which produce carbon dioxide, the major greenhouse gas leading to climate change. (Available through AVEL outlets.)

The leaders should have an opportunity to read *Energy in the One Earth Community* and preview the video in advance of the meeting. The workshop consists of an initial introductory time, viewing the video or part of it, and then a discussion period focused on *Energy in the One Earth Community*.

Workshop Process

5 minutes: Open the workshop with prayer and a song.

20 minutes: You might begin by using the accompanying Bible Study on "Climate Change and Global Ethics" (see page 21).

10 minutes: To open the workshop period, pass out copies of "10 ways to reduce greenhouse gas emissions" and ask people to check off how many they do.

5 minutes: Prior to showing the video, make the following comments:

- There is growing scientific consensus that the Earth's atmosphere is warming as a result of the accumulation of greenhouse gases trapping more of the sun's heat close to the Earth.

- The main greenhouse gas is carbon dioxide produced by the burning of fossil fuels such as coal, oil, and gas.

- The predicted consequences of this global warming include significant climate changes with hotter temperatures, more erratic rainfall patterns resulting in drought and floods, rising sea levels, and increased storm activity.

- Since our use of fossil fuel energy is one of the major sources of the greenhouse gases accumulating in the atmosphere, it is important to find ways to reduce our reliance on fossil fuels.

- Energy conservation and increased energy efficiency is one important strategy.

- In addition, the development of alternative, renewable energy sources holds great promise as a means to reduce our dependence on fossil fuels.

- This video shows what is happening in Canada and around the world in this new energy revolution.

48 minutes or less: Show the video. The video is 48 minutes long so if you do not have sufficient time to watch the entire video, you could stop it after 20 or 30 minutes when participants already have gained a good grasp of the video.

10 minutes: Break

10 minutes: Provide a time as a whole group to share reactions to the video.

10 minutes: Distribute copies of the resolution portion of the statement *Energy in the One Earth Community*. Ask people to read the resolution and to pick out one or two of the points that they think are particularly important.

15 minutes: Invite people to break into groups of six to eight to discuss their reactions to the statement and the specific points that they identified as important.

15 minutes: Join back together as a total group and open the floor for comments from the discussion groups.

5 minutes: Close the workshop with prayer and a song.

8. Bible Study: Climate Change and Global Ethics

> *Enter through the narrow gate; for the gate is wide and the road is easy that leads to destruction, and there are many who take it. For the gate is narrow and the road is hard that leads to life, and there are few who find it. (Matthew 7:13–14)*

Background

Jesus' call to find and enter through the narrow gate is consistent with the difficult challenges that he posed throughout his ministry. He told the disciples that they had to become as little children to enter the kingdom of heaven (Matthew 18:1–5). He admonished Peter to forgive not seven times but 77 times (Matthew 18:21–22). He commissioned his followers to go into all the world and proclaim the good news to the whole creation (Mark 16:14–15).

Climate change places before us as Christians the challenge of having to choose the easy or the hard road. Climate change represents a major threat to the well-being of peoples and ecosystems around the world. Countries in the developing world and future generations will suffer particularly severe consequences of sea levels rising and the increase in droughts, disease, and tropical storms.

Scientists are clear that the rich, industrialized countries such as Canada have produced the majority of polluting gases accumulating in the atmosphere that are leading to climate change. Our society's extravagant use of energy is largely related to the pursuit of materialistic consumption and economic globalization.

We have to change our lifestyles and pressure government and industry to reduce pollution. There will be difficult choices to make.

But here comes Jesus' surprise. The road that is hard through the narrow gate does not lead to deprivation, sorrow, despair. It leads to *life*! Perhaps we have lost our awareness of what life is really all about and where the sources of true satisfaction and richness lie.

Changing our lifestyles and societies to live more in harmony with the systems of the natural world will not only reduce the potential of climate change. It will also lead to greater justice in our relationship with our brothers and sisters around the world and with future generations, and we will find sources of deep fulfillment beyond our imaginings.

Quiet Reflection Time

After having someone read the scripture passage (Matthew 7:13–14) and the background material above, ask people to spend some time quietly on their own. It might be helpful to provide some quiet music or a recording of nature sounds in the background.

Invite them to write responses to the following three questions:

- What is most important to them in life, what do they value the most highly?
- What would they be prepared to change in their lives if it meant helping to create a healthier, cleaner world?
- What difficulties would they anticipate in being able to make the changes?

Form small groups of four or five persons to share reflections from their writings.

Come together again as a full group for any comments that people would like to make arising out of their discussion.