

Orthodox Ecological Perspectives

Energy and Conservation

by Fred Krueger

*Humanity cannot infinitely and whimsically exploit the natural sources of energy.
The price of our arrogance will be our self-destruction, if the present situation continues.*

- HAH Ecumenical Patriarch +Dimitrios, September 1, 1989

*The irrational use of natural resources and the
unchecked consumption of energy... are a form of sin.*

- HAH Ecumenical Patriarch Bartholomew, September 1, 2008

*What contributes most to the creation of this ecological crisis is the excessive waste
of energy by individuals. The reduction of wasteful consumption will blunt the
acuteness of the problem, while an increase in the use of renewable sources of energy
will contribute to its alleviation.*

- HAH Ecumenical Patriarch Bartholomew , September 1, 2002

AS OUR ORTHODOX HIERARCHS REFLECT ON THE CONDITION OF THE WORLD AND the issues that loom on the horizon, they highlight the energy problem. What are the principles that should shape our use of energy?

On the near horizon humanity faces a series of converging crises, each of our own making and each requiring a thoughtful response. These crises include global warming and the prospect of extreme weather, overpopulation, worldwide food shortages, ozone depletion, destruction of the tropical rainforests, the melting of the Greenland and polar ice caps, causing a dramatic rise in sea levels, an economic crisis, and perhaps a monetary crisis. Alongside these issues, the most immediate and perhaps the most disruptive of the challenges that we face may be the decline of oil and the problems surrounding fossil fuel use.

Energy is a critical issue because society is organized around the use of cheap energy. Everything that moves on land, air and sea requires energy. All heating and cooling needs energy. All the food that we refrigerate and cook uses energy. Every electrical appliance is powered by energy. Industry and agriculture run on energy, as do our communications and information systems. Most of the products we buy and the services we employ are made possible by energy. Our well-being, prosperity, and security depend on fossil fuels. These fuels lifted human society out of the horse-and-buggy era and moved us into the modern world. We never realized – until perhaps too late – the serious side effects to these fuels. Of all of the challenges facing human society, the energy problem is one of the most immediate and critical. It is perhaps also the easiest to understand because it can be reduced to three geopolitical realities:

First, worldwide demand for oil is increasing while world production is decreasing. Whether we like it or not, within the next decade, we will witness the end of easy-to-acquire, low cost oil. Billionaire Texas oilman T. Boone Pickens summarizes this situation. “The simple truth is that cheap and easy oil is gone. This is one emergency we can't drill our way out of.” The world does have supplies of natural gas and coal that can last for many more decades, maybe another century, but coal is terribly dirty and we are now realizing that oil and coal are major polluters of the world's atmosphere.

Second, the burning of fossil fuels is changing the earth's atmosphere and fostering fearsome climate disruptions. Coal and oil are the major culprits. The burning of fossil fuels releases carbon dioxide (CO²), and the massive volume of CO² release has raised the content of atmospheric CO² from under 275 parts per million (ppm) at the beginning of the industrial era to 392 ppm. This measurable and incontrovertible change in the atmosphere's composition causes the world to retain more of the sun's radiance. This retention of solar energy is warming the planet, disrupting climate stability and raising sea levels. Because a stable climate is essential to the global food supply, and because it will produce more powerful and deadly storm intensities, we must do all that we can to end a reliance on fossil fuels – and we must do this soon. Every major scientific institution is in agreement with this assessment.

Third, human society must change the extravagant way it consumes energy. We can continue to fuel society's energy needs, but we must act with intelligence and speed to transition from fossil fuels to renewable energy sources. Renewable energy means power sources from the sun and wind that are readily derived from natural processes. The advantage of these forms of energy is that they are clean, they are less expensive, and they do not have negative side-effects. The disadvantage is that we must retool our energy system as well as the ways that we use energy. A 2011 report from the UN's Intergovernmental Panel on Climate Change (IPCC) reports that renewable energy could account for 80% of the world's energy supply

within four decades - but only if governments act deliberately to pursue the necessary policies.

Between these three global realities – easy oil in rapid decline, fossil fuels damaging our future, and structural changes that must be made now – we have the factors shaping our global energy problem. What is hopeful is that scientists say that we can make this transition to renewable energies if we work together and make this transition a priority in our lives. We can do this, but it will take a lot of work.

To understand the energy problem more comprehensively, the National Academy of Sciences (NAS) in July, 2009 issued a report entitled “America’s Energy Future.” This report declares that the way America deals with this energy problem in the next ten years will determine the quality of our energy future. The press statement for this report provides the following perspective:

With a sustained national commitment, the United States could obtain substantial energy-efficiency improvements, new sources of energy, and reductions in greenhouse gas emissions through the accelerated deployment of existing and emerging energy technologies.... Initiating deployment of these technologies is urgent. Actions taken – or not taken – between now and 2020 to develop and demonstrate key technologies will largely determine the nation's energy options for many decades to come.

The NAS report asserts that deploying existing energy-efficiency technologies is a near-term and low-cost way to reduce U.S. energy demand. Fully deploying these technologies in buildings alone could save enough power to eliminate the need for new electricity generating plants to meet a growing U.S. energy demand. Deployment of efficient new technologies in the building, industrial, and transportation sectors could reduce U.S. energy use by 15 percent in 2020, and by 30 percent in 2030.

The United States has many promising options for new sources of electricity over the next several decades. However, according to the report, the nation's electrical grid will need expansion and modernization to enhance its reliability, to accommodate changes in load growth and electricity demand, and to facilitate the use of new energy technologies, especially wind and solar energy. This, they foresee, will likely result in higher prices for electricity.

In the transportation sector, the NAS report predicts that petroleum will continue to be an indispensable fuel in coming decades. Maintaining production at current rates will be challenging. There are limited options for replacing petroleum before 2020, but there are long-term options that could make significant contributions by the year 2030. Reductions in petroleum use might be obtained through increased vehicle efficiency, production of alternative fuels such as ethanol or biomass, and expanding the use of battery electric and hydrogen fuel-cell vehicles.

Substantial reductions in greenhouse gas emissions from the electricity and transportation sectors are achievable over the next several decades, the report claims. In both areas, a variety of alternative technologies aimed at reducing greenhouse gas emissions are necessary.

In recognition of the seriousness of the energy problem, in 2008, the National Academies of Science convened a “Summit on America's Energy Future.” Many of our nation’s most respected scientists from industry, government, academia and research institutions assembled to evaluate the options that we face as a nation.

Former Energy Secretary James Schlesinger spoke for the “Summit,” and bluntly declared that we have a serious energy problem.

We face a painful transition to a future in which we hit a limitation, a plateau, in the ability to produce crude oil.

Schlesinger explained the concept of “peak oil” as the point in time when production reaches maximum supply and then begins to decline. After that point, which we are soon to reach, supplies of petroleum will be increasingly constrained even though demand for oil will continue to increase, especially in the developing world.

He further explained that the U.S. Energy Information Administration (EIA) – the government agency that compiles official energy statistics – projects that the U.S. will need to increase oil production from the current 86 million barrels a day to 118 million barrels a day by 2030 to meet rising demand. With available reserves of oil declining, “the probability of acquiring that petroleum is very low.”

As a society we are being forced to find alternative energy sources. This is why there is a growing urgency to make changes. It is not only scientists who are pondering the implications of the energy problem. The Orthodox Church through its patriarchs has been pointing to this issue and highlighting its spiritual implications.

The Orthodox Christian Perspective

The importance of the energy problem is not an entirely new issue for the Orthodox Church. The patriarchs have been speaking to the faithful for over twenty years about this looming predicament. Only now in the 21st century are their words beginning to be recognized as prophetic of the changes to which we are called.

To steer us through the demands of the energy problem, the commentary of our hierarchs, particularly His All-Holiness Ecumenical Patriarch Bartholomew, is important because they provide spiritual perspective accompanied with clear principles to guide our efforts. Orthodox parishes and parishioners can meet the changes before us, but we will be greatly assisted if we examine our responsibility

with clarity of mind and an admission that this is a problem of our own collective making. To avoid the easy, wide path of blaming others, Ecumenical Patriarch Bartholomew provides direction on how we should proceed in his 2004 letter on the Day of Prayers for the Environment.

It is always the easier approach to lay blame on Western development and technological progress for the ills that we confront in our world. And it is always a temptation to believe that we hold the solution to problems that we face today or else to ignore the imminent danger that we face globally.

What is more difficult - and yet at the same time more noble - is to discern the degree to which we constitute part of the problem itself. Just how many of us examine... the energy that we waste, or the consequences of our privileged living? How often do we take the time to scrutinize the choices that we make on a daily basis, whether as individuals, as institutions, as parishes, as communities, as societies, and even as nations?

His All-Holiness reminds us that the scientific findings of respected international organizations are important for our sense of direction.

We heartily salute the international consultations on this matter which are taking place, or will take place, and wish them to conclude their deliberations with unanimous decisions on the measures that should be taken and on their implementation.

Nevertheless, the greatest part of ...this crisis is due to the excessive waste of energy by isolated individuals. Thus, the restriction of this wasteful consumption will blunt the acuteness of the problem, while the increase in the use of renewable sources of energy will contribute to its alleviation. However insignificant the contribution of every individual to the averting of new catastrophic natural phenomena may appear, we are all obliged to do whatever we can, because only then we shall be able to pray to God boldly to supply what is lacking in our own efforts and possibilities.

Letter to the Entire Plenitude of the Church,
The Day of Prayers for the Environment, September 1, 2002

The implication is that every parish and every parishioner has a role to fulfill in meeting the energy challenge that we all share.

At this point, we are obligated to state that the spiritual and moral dimension of the environmental problem constitutes, more than ever before, the common conscience of all people, especially young people, who are aware that all humanity has a common destiny. Also a growing number of people comprehend that their consumption - their personal

use of particular goods and their rejection of others – touches ethical and eschatological issues. They understand that the irrational use of natural resources and the unchecked consumption of energy contribute to climate change, with consequences for the life and survival of humanity, and are therefore a form of sin....

- HAH Ecumenical Patriarch Bartholomew
The Day of Prayers for the Environment, September 1, 2008

The changes that are happening in society are not merely unfortunate or accidental. At their core lies a deeper problem. We have been living beyond the ability of the world's fossil energy resources to support our extravagant lifestyles. A proper correction will require us to recall the original commands given by God in the Book of Genesis. In particular we must gain a larger perspective on our human life in creation. As we recognize that we are intimately connected to one another and the earth, we will place our energy problems in their larger context of our responsibility to God for a right relationship to His creation. This, says His All-Holiness, requires humility.

We must regain humility and recognize the limits of our powers, and most importantly, the limits of our knowledge and judgment. We have been making decisions, taking actions and assigning values that lead us away from the world as it should be, away from the design of God for creation, away from all that is essential for a healthy planet and a healthy commonwealth of people. A new approach and a new culture are needed, based on the centrality of the human person within creation and inspired by environmentally ethical behavior.... Such an ethics fosters interdependence, stressing the principles of universal solidarity, social justice and responsibility in order to promote a true culture of life.

The COMMON DECLARATION on environmental ethics,
by Ecumenical Patriarch Bartholomew at the Palazzo
Ducale in Venice, and co-signed by Pope John Paul II,
Rome, RSE Symposium IV, June 10, 2002

Back in 1991 the patriarchs of the canonical Orthodox Churches gathered at the Orthodox Academy on the Island of Crete for an Inter-Orthodox Conference to study and discuss the theological dimensions to the problem of the environment. Together, with the far-sightedness that comes from inspired conciliar reflection, they issued a joint statement on Orthodoxy and Environmental Protection. Among their conclusions they made the following recommendations for Orthodox parishes:

- ◆ Conserve energy within Church buildings by using proper insulation and control of lighting.
- ◆ Consider opportunities for the production and use of alternative energy (solar, wind and biomass) as an immediate and practical action.

As simple as these recommendations may sound, these represent the practical changes that parishes can readily implement to make changes in how we think and understand the energy problem and the world that is changing around us. We can gain further perspective on this problem as we realize that to live otherwise is wrong because the path of unbridled consumption fails to respect that God is the source of all the things that we use, and that they are often of limited supply. His All-Holiness Ecumenical Patriarch Bartholomew makes this clear in this 2008 “Letter for the Orthodox Day for Prayers for the Environment.”

The irrational use of natural resources and the unchecked consumption of energy ... are a form of sin.

The ecumenical patriarch in unity with all the canonical Orthodox patriarchs have set a vision before the Church. It is a vision of living in harmony with God and His creation. With one voice our patriarchs declare the importance of environmental issues and provide clear principled direction so that parishes can set a proper example of serving God and living rightly in the world. In reading these directions, they should not be considered something novel or new. From ancient times, God has spoken to humanity and given commandments and principles to observe that we might return to His goodness and find eternal life.

Down through history, God places before each generation some challenge to face. The challenge for our generation is to restrain the profligate use of technology and power, and to set an example of living in harmony with creation. For two centuries society has developed amazing methods for harnessing and directing the powers and energies within creation. We have built magnificent vehicles for transportation, fashioned marvelous mechanisms for global communication, and invented millions of tools and devices that enhance the ingenuity and creativity of humanity. But in our creation of these instruments, we have forgotten God. In the process we have invented dreadful weapons that bring danger and death to humanity. This must be corrected – and this is precisely the dilemma to which our hierarchs are speaking.

For those of us who live at the dawning of the 21st century we will more deeply understand why we must address issues of energy if we recall the ancient commandments about a right relationship to God and creation. They require us to build a way of life that does not harm our neighbor and that respects our neighbors and the life of the world. This is not all that difficult. The following

recommendations and suggestions allow our use of energy to harmonize with God's commandments about living rightly and lightly on the earth.

General Guidelines for Energy Conservation and Efficiency

As a principle the actions within our parishes and homes should embrace the teachings of the Church. The following recommendations, principles and goals will get us started in reducing energy consumption and decreasing what might be called our “footprint” on the planet. At the same time it will help us to live within the mandates given by God for blessed and grace-filled living.

◆ Appoint a parish energy steward

The single most important action that a parish can take to reduce energy consumption is the appointment of one person to oversee energy conservation. This is because energy use is often a low priority for a pastor or parish council. If one person is not assigned to oversee this aspect of parish function, it will fall by the wayside and become a low priority. The person selected does not need to be an expert. Any conscientious person can fulfill this function. The first action by this energy steward is to study in a methodical manner the ways that energy use can be reduced. This study will show that most of the tasks are rather simple. It should be noted that for this task, one person will function more effectively than a committee. Whoever is responsible for parish energy then reports to the parish council to submit recommendations.

◆ Be deliberate about reducing energy use

Intentionality is essential. Far more important than energy efficiency is the goal of only using energy when it is necessary. This is especially true for times when parish facilities are not in use – such as nighttime or times when a room or building might be empty. Implementation of this one step can provide substantial reductions in parish energy consumption. Less energy use means more funds for other purposes. This one step can save hundreds of dollars per month in winter fuel bills. A basic energy principle is this: “If you don’t need it, don’t use it.” This also means that you don’t pay for what you didn’t need. Therefore, do not use any energy which is not essential for the operation of the building or the support of parish functions. In practice this means relamping high energy consuming lighting fixtures, pulling the plug on unnecessary or unused appliances (especially refrigerators when not in use or electric cold water fountains), the resetting of thermostats and installing automatic sensing devices.

◆ Seek Clean Renewable Energy Sources

No one source of power will satisfy energy needs in the future. The answer lies instead in a diverse mix of energy technologies that share key goals: (1) they do not harm the community; (2) they do not deplete natural resources; and (3) they do not destroy or degrade the environment. Renewable energy technologies tap into natural cycles and systems, turning the ever-present energy around us into usable forms. With this in mind solar and wind power are ideal. The shortterm installation costs are sometimes steep (the costs vary depending upon the subsidies which state governments provide), but the longterm costs are low. They also allow the parish to set a forward-looking example for the larger community of tapping free sources of energy. One parish in California – Saint Seraphim of Sarov in Santa Rosa – estimates that if electricity prices remain constant (which is unlikely), it will save more than \$500,000 over thirty years because of its installation of solar power. As electrical rates increase, which is more likely, its savings will be even larger.

◆ Audit energy consumption

Before you can make thoughtful changes, a parish must know its consumption habits. This involves an examination of its energy history. This means it should undertake a one- or two-year review of its energy past and the costs that were involved. Unless the lessons of a parish's energy past are understood, it cannot measure its potential for reduction.

To establish an energy history, review the energy bills for the past year or two. Energy cost and consumption data are available on the utility bill stubs which should be on file with the parish's financial records. (If these are lacking, ask the utility company to recreate these for you.) To audit your energy, list six figures: (1) the date-time period, (2) the amount of energy consumed for each form of energy you purchase (i.e., coal, electricity, natural gas, fuel oil, propane, etc.), (3) the amount you pay for the energy, (4) the price per energy unit, (5) the total energy consumption, and (6) the total energy bill. Record this data for each building that you use. Once you establish a historical baseline (a record of past performance), you can evaluate the effectiveness of every measure that you install. Successful parish energy management depends not only on proper implementation, but also on careful monitoring of energy savings. By making monthly comparisons of the present against past bills, you can measure and assess the effectiveness of each conservation measure that you institute.

◆ Evaluate Parish Energy Systems

The average Orthodox parish, if it has not already performed a detailed professional evaluation of its energy systems, can usually cut its energy use – and its energy bill – by about 30%, sometimes even more. In most states, professional evaluations are available at no cost from the local utility company, the EPA's Energy Star Program,

or the Interfaith Power and Light Network (IPL). The IPL service is free to parishes that request this assistance. IPL does request that each participating parish commit to acting on the recommendations to improve the energy efficiency of their building. For more information or to request an evaluation of your parish's energy system, send an email to either Green Houses of Worship at Couloumbis@gmail.com, or to Interfaith Power and Light (IPF) at Info@theregenerationproject.org. You can call IPF direct at their national office in San Francisco at (415) 561-4891 or Green Houses of Worship in McLean, Virginia at (240) 242-5391.

◆ **Change parish habits and energy expectations**

Consciousness is essential. With lighting, turn lights off when an area is not in use. With heating, lower the thermostat when an area is not in use or turn it off. You might also slightly lower the temperature in winter and raise the temperature of air conditioning in summer. Education about proposed changes is important. Parishioners always need preparation for changes which they may be expected to make. Also don't be extreme. Let people gradually accustom themselves to somewhat cooler temperatures in winter and slightly warmer temperatures in summer. Room temperatures in the low to mid 60's in winter and the high 70's in summer are still comfortable, but the change in temperature settings reduces energy use substantially. The pastor's (or the energy steward's) own ingenuity will find additional ways to adjust for temperature that is appropriate to your climate. Study the specific features of the area where you live and apply local wisdom to adjust your habits to fit what is most appropriate.

◆ **Maintain efficient heating and cooling systems**

Keep parish (or home) equipment clean and in top operating condition. Dirty condenser coils, improper refrigerant charges, or dirty evaporator coils all reduce energy efficiency on air conditioners or dehumidifiers. The small cost of cleaning air conditioners and keeping them in top operating condition will be much less than the cost of the additional energy which you will have to purchase in order to maintain the same temperature throughout the summer. As with the leakage of heated air in winter, so the leakage of cooled air in summer represents a drain on energy consumption and adds needless dollars to the parish energy bill. Good stewardship is watchful of these small details that in their aggregate become substantial.

◆ **Utilize natural heating and cooling opportunities**

Some of the best opportunities for energy efficiency cost little or nothing to implement. In the summer the parish can open windows to cool the building after hot days. Install adjustable shades which reflect sunlight during the day and allow heat to enter during cool times. Deciduous trees can be planted to shade exterior

building surfaces during the summer, but they let the winter sun shine through to provide some additional warmth.

These guidelines for energy conservation help the parish begin its journey into restraint in its use of energy in God's creation. Just as important they cultivate a change in attitude toward how we respect and use God's earth. This becomes a practical form of education for the larger changes that remain ahead of us. The more we voluntarily step into these adjustments in our way of life, the more readily we will see the path to integrating our lives into the natural systems of the planet.

Specific Actions that you can take

For parish and home use - in winter

- ◆ Turn down the thermostat from 70° F to 65° F. This action will reduce your natural gas bill by up to 21 percent. Lowering it further, for instance during the night, to 60° F, can save an additional 18 percent. If you are uncomfortable with these lower settings, wear a sweater or layers of clothes and a cap. Use extra bed covering at night. Some homes are comfortable with nighttime temperatures of 55° or below.

- ◆ In very cold weather, use a smaller portion of your home, and heat only that area. Close off unused areas unless there is risk of water pipes freezing. Shut off air vents and close the doors. A towel placed under the door reduces drafts.

- ◆ Insulate windows. This can be done simply by using a clear plastic covering. An uninsulated window can lose 10 to 20 times the heat as the same area of a well-insulated wall. A storm window conserves even more energy.

- ◆ Use caulking and weatherstripping around doors and windows to reduce heat loss up to 37 percent.

- ◆ Insulate your hot water heater. A hot water heater uses 12 to 15 percent of a typical home's energy. Completely wrap electric water heaters with insulation, but wrap gas water heaters on the sides only. On gas heaters, make sure that the pilot light's access door isn't covered or that air isn't blocked from the burner.

- ◆ Change the filter on the heating unit often. Dust can accumulate and restrict air flow. This increases operating costs.

- ◆ Fix hot water faucet leaks. Hot water leaks make your hot water heater operate unnecessarily.

- ◆ Seal off fireplaces. Avoid using a fireplace as a heat source for your home.

Even as a supplemental heat source, the cold air introduced to a warm home through an open flue isn't as efficient as sealing off a fireplace and using the primary source of heat. For natural gas fireplaces, turn off the pilot light when not in use. Close off the fireplace area or the flue area to prevent cold air from entering. (Note: Building codes in some areas require that the damper in your chimney be permanently blocked open if you install gas logs. Check the building code for your area for the appropriate procedure.)

- ◆ Insulate water pipes coming from the water heater. Insulate the first 3- to 6-feet of cold and hot water pipes near the water heater. Insulating all hot water pipes is not necessary where pipes are located in a crawlspace or attic.

- ◆ Add an insulation blanket to the water heater. Wrapping the water heater with an insulation blanket can save heating money by slowing the drop in temperature from the hot water tank as it sits unused. Inexpensive insulation kits are available at most home improvement stores.

- ◆ Add insulation to the attic. When adding insulation, start at the top and work down only after eliminating air infiltration.

- ◆ Maintain energy records. Keep records of monthly bills so you know precisely how well your conservation efforts are paying off.

- ◆ Stop warm air leaks by caulking, weatherstripping, and sealing holes, cracks, and other places where cold air can enter. If the structure isn't well insulated, consider adding insulation based on recommendations for the particular structure and climate zone. Make sure the structure is ventilated properly for more efficient fuel use and for safety reasons.

- ◆ Safety is an important consideration with all heating equipment. Don't try to adjust regulators on gas tanks or make potentially dangerous repairs by yourself. Contact the gas company or utility for help.

For parish and home use - in Summer

What can parishes or homeowners do to reduce summer energy use? Many of the energy conservation principles that apply to winter also apply to summertime.

- ◆ Caulking and weatherstripping around doors and windows saves energy in both hot and cold weather.

- ◆ Raising the thermostat in summer lowers the cooling bill. A good starting point is 76° or 78°. Every degree the thermostat is set below 78° during warm

weather adds roughly 7 percent to the cooling bill. For instance, at 72°^a, the cost of energy will be about 42 percent higher than at 78°^a. If higher thermostat settings are uncomfortable, you can make your living area feel several degrees cooler by using a fan to circulate air. This is the number one way to conserve energy.

- ◆ Don't overlook the value of landscaping in summer energy savings. About 60 percent of the heat entering a home is through the roof. Provide shade to the roof, walls and driveways to reduce heat absorption and save energy and money.

- ◆ Take advantage of open windows in the spring for fresh air and natural ventilation. In the summer, keep the drapes drawn to reduce radiant heat from the sun. Ventilation is especially important to reduce summer energy costs. Make sure attics are properly ventilated. Sunny windows account for 40 percent of unwanted heat and can make an air conditioner work two to three times harder.

- ◆ Change air conditioner filters regularly. Insulate air conditioner ducts that are exposed in the attic or in other areas.

- ◆ If you buy new appliances, seek out models that offer energy saving features. Check the energy guide on appliances for energy consumption.

- ◆ If you're planning on a new church building, home or adding to an existing structure, match the equipment to the heating and cooling load. Oversized equipment wastes energy. But keep in mind that while a window cooling unit works well for a small area, a central unit may be more economical for larger areas in the long run.

- ◆ Run appliances that use large amounts of energy late in the evening. Use the dishwasher and clothes washer late in the evening. When used during the day, these appliances produce additional heat, causing the air conditioner to work harder.

 - ◆ Use cold water to wash dishes and clothes. This saves water heating costs.

- ◆ Unplug equipment that is not in use. Electric chargers, televisions and audio/video equipment use electricity and produce heat even when they are not in use. Running an older refrigerator can use up to three times the energy of a modern one. Unplug any appliance when it's not in use.

Lighting and Electrical Appliances

- ◆ Turn lights off when exiting a room. Replace all incandescent bulbs with energy efficient compact florescent lights (CFLs). And remember to recycle all CFLs after they burn out.

◆ Use LED (Light Emitting Diodes) if they are available. A LED light can burn for 100,000 hours on average. This means that it only needs replacing after perhaps 60 years of use. Unlike currently available energy-saving bulbs GaN LEDs do not contain mercury. Disposal is far less damaging to the environment. GaN LEDs also have the advantage of turning on instantly and being dimmable.

◆ On average it is estimated that larger parishes can save over \$1,000 per year just by replacing incandescent bulbs and switching to compact fluorescent or the new LED (light emitting diodes) forms of lighting.

◆ Turn off copiers, computers and other equipment when not in use.

◆ Make sure all automatic heating and cooling controls are in good working condition and are set properly.

Transportation

◆ Walk, bike, bus or car pool whenever possible. Use your car only when necessary. Public transportation authorities often have carpooling information as well as transit services. If you own more than one vehicle, prioritize the one that gets the best gas mileage as much as possible.

◆ Try to drive a vehicle that gets at least 30 miles per gallon. Over 35 is better. Refrain from unnecessary driving or trips.

◆ Combine errands into one trip. Consolidate trips to destinations that are near one another. Once you arrive, park and walk between destinations. Save errands for one afternoon and plan your trip so you don't retrace your route. You not only save gas, but reduce car wear-and-tear.

◆ Avoid long idles. Turn off the engine if you anticipate a lengthy wait. Instead of idling at a drive-up window, park the car and walk inside. Idling for more than ten seconds burns more gas than restarting the engine. Turn off the vehicle if you anticipate idling the engine for more than ten seconds. Less fuel is used in restarting the engine than in ten seconds of idling. Limit car warmups in winter.

◆ Avoid carrying unneeded items in the trunk. Extra weight decreases gas mileage. Estimate about 1% in decreased gas mileage for every 60 pounds of weight. Reduce drag by placing items inside the car or trunk rather than on roof racks.

◆ Keep auto tires properly aligned. Periodic wheel alignments will improve your gas mileage.

◆ Avoid high speeds. Gas mileage will improve by about 15 percent by driving at 55 mph rather than 65 mph. Higher speeds use more gas per mile.

◆ Drive your car wisely and maintain it properly. The way you drive and take care of your car can make a big difference in your gas mileage.

◆ Use overdrive. If your car is equipped with overdrive gearing (on 5-speed manual transmissions and 4-speed automatic transmissions), be sure to make use of the overdrive gear as soon as your speed is high enough. If you have a manual transmission, the lower the shift speed, the better the fuel economy. Your owner's manual will give you further information.

◆ Use auto air conditioning only when necessary. Roll down the windows or open the air vents to keep your car comfortable on not-so-hot days.

◆ Service autos regularly. Gas mileage is improved by regularly having autos serviced and by driving wisely.

◆ Go easy on the brakes and gas pedal. Avoid "jackrabbit" starts by accelerating gradually whenever possible. Also, anticipate stops to avoid sudden braking.

◆ Get regular engine tuneups and car maintenance checks. Tuneups improve performance as well as gas mileage. Check your owner's manual for maintenance schedules. By following the manufacturer's recommendations, you should avoid fuel economy problems due to worn spark plugs, dragging brakes, or low transmission fluid.

◆ Maintain proper tire pressure. Driving with properly inflated tires increases fuel efficiency by as much as 6%. That's an additional 1.5 miles per gallon for a car that gets 25 mpg. Under-inflated tires are also a safety hazard as they can overheat and be at risk of blowout. Properly inflated tires last longer. The proper tire pressure is not the pressure embossed on the tire sidewall. The correct pressure can usually be found in the owners manual, located in the glove compartment, the driver's door post, or inside of the fuel door. Keep a good-quality tire gauge in the vehicle as gas station air hose gauges can be unreliable. Check tires for recommended pressure when cold, which means the car has been parked for several hours, or driven less than a mile. Pressure in a warm tire can be 4-6 psi (pounds per square inch) higher than the recommended cold pressure.

Outdoors

◆ Test the sealing on windows and doors. If a playing card fits into the crevice of an outside door or window, you need to add more weather stripping. Caulk and weather-strip to stop air leaks around windows, doors, exhaust fans and any other place where wires or pipes pass through the walls. Replace any caulk that has cracks or is no longer soft.

◆ Cover the bare ground beneath your home with a vapor barrier to keep moisture from getting into your home. Polyethylene sheets work well. Since a third of an air conditioner's use is spent removing moisture, vapor barriers can make a noticeable dent in energy bills.

◆ Planning to replace your roof? Consider roofing materials with reflective coatings and/or choose light-colored roofing to reduce heat absorption.

◆ Plan your landscaping carefully to help reduce your energy costs and increase indoor comfort.

◆ Plant deciduous trees like oak, maple, gum, ash and dogwood on the south side of buildings. They lose their leaves in the winter, letting the sun through to warm your home. In summer, their leaves shade your home and provide additional cooling.

◆ Evergreens can be effective for blocking wind. Plant them in a staggered or double line on the northwest side of your home.

◆ Smaller foundation plants can minimize the loss of cool air away from the house in summer and, in winter, provide additional wind protection.

Each of these energy-saving actions by itself is small. Yet in their aggregate they combine and can make a large difference in the amount of energy that each person consumes.

If we recall that the excess use of electricity means additional pollution and harm to our neighbors, often in distant places, then every little bit of reduction can make a difference to the health and quality of life for our brothers and sisters, often unseen.

The issue of energy is important because society is structured around the use of energy. The following statement on the importance of reducing energy use was made by HAH Ecumenical Patriarch Bartholomew during a November 4th, 2009 address in Washington, DC.

If we are to save our planet, sacrifices must be made by all. Unfortunately, people perceive sacrifice as loss or surrender. Yet, the root meaning of the word has less to do with “going without” and more to do with “making sacred.” When we sacrifice, we render the world sacred, recognizing it as a gift from above to be shared with all humanity. Sacrifice is ultimately an expression of gratitude (for what we enjoy) and humility (for what we must share).

As we have repeatedly stressed throughout our ministry over the last twenty years, the environment is not only a political issue; it is... primarily a spiritual issue. Moreover, it directly affects all of us in the most personal and the most tangible manner. We can no longer afford to be passive observers in this crucial debate....

It is not too late. God’s world has incredible healing powers. Within a single generation, we could steer the earth toward our children’s future. Let that generation start now.

Because – “*nen o kairos*” – now is the kairos – the decisive moment in human history, when we can truly make a difference.

Because now is the kairos – when the consciousness of the world is rising to the challenge.

Because now is the kairos – for us to save the soul of our planet. Indeed, let it start now.

In addition, in 2007, the bishops of The Standing Conference of the Canonical Orthodox Bishops in the Americas (SCOBA) prophetically declared the following about energy use, climate change, and the challenges that it presents in regard to the use of fossil fuels:

In each generation, God sends some great tests that challenge the life and future of society. One of the tests for our time is whether we will be obedient to the commands that God has given to us by exercising self-restraint in our use of energy, or whether we will ignore those commands and continue to seek the comforts and excesses that over-reliance on fossil fuels involves.

- SCOBA Declaration on Climate Change
May 25, 2007

