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Energy Efficiency as Fundamental to the Missions of U.S. Religious Congregations, Health Care Providers and Schools

Warren G. Lavey*

Abstract

Increased energy efficiency confers many economic, environmental, and public health benefits but is handicapped in the United States by energy prices which fail to reflect damaging emissions from most energy production. Under market prices, standard lifecycle financial analysis of potential investments leads businesses and households to improve their energy efficiency in many ways. However, pursuing environmental sustainability and enhanced public health requires heightened awareness, stronger incentives, and more actions. Many religious congregations, health care providers, and schools recognize that improving energy efficiency and reducing related emissions serve their missions. Many organizations in these mission-driven sectors have undertaken far-reaching commitments to energy efficiency, implemented strong programs, and achieved substantial progress. Some entities in these sectors appear to implement energy improvements even when not justified by typical cost/benefit analysis. Reviewing these missions and actions yields nine recommendations to strengthen and expand the impact of these sectors in driving greater energy efficiency.

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I. Introduction to Mission-Driven Energy Efficiency Actions

Increasing the energy efficiency¹ of buildings, equipment, and vehicles confers economic, environmental, and public health benefits.² Energy

1. See *Energy Basics: Glossary of Energy Related Terms*, U.S. DEP'T OF ENERGY, <http://www.eere.energy.gov/basics/glossary.html> (last visited June 24, 2011) (defining efficiency as the ratio of work (or energy services) output to energy input in the First Law of Thermodynamics) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); see also *Energy Efficiency: Definition*, U.S. DEP'T OF ENERGY (June 19, 2000), <http://www.eia.doe.gov/emeu/efficiency/definition.htm> (last visited Sept. 25, 2011) (providing multiple definitions for the term efficiency; energy intensity (ratio of energy consumption to some measure of demand for energy services) measures are at best rough surrogate for energy efficiency) (on file with the Journal of Energy, Climate, and the Environment); Kenneth Gillingham et al., *Energy Efficiency Economics and Policy*, NAT'L BUREAU OF ECON. RESEARCH 1, available at <http://www.nber.org/papers/w15031.pdf> (stating that energy efficiency is a crucial means for reducing greenhouse gas (GHG) emissions).

2. See *Massachusetts v. EPA*, 549 U.S. 497, 532 (2007) (holding that the U.S. Environmental Protection Agency (EPA) has the authority to regulate GHG under the Clean Air Act and directing the EPA to articulate a reasonable basis if it continued not to regulate carbon dioxide as an air pollutant); see also INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *CLIMATE CHANGE 2007: SYNTHESIS REPORT* 36–37 (2007), available at http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf (assessing recent information related to climate change); NAT'L RESEARCH COUNCIL, *ADVANCING THE SCIENCE OF CLIMATE CHANGE* 3 (2010), available at https://download.nap.edu/catalog.php?record_id=12782 (providing advice relating to climate change); U.S. GLOBAL CHANGE RESEARCH PROGRAM, *GLOBAL CLIMATE CHANGE IMPACTS IN THE UNITED STATES* 89–98 (2009), available at <http://downloads.globalchange.gov/usimpacts/pdfs/climate-impacts-report.pdf> (discussing the impact of climate change on ecosystems and human health); U.S. EPA, *REGULATORY IMPACT ANALYSIS FOR THE PROPOSED FEDERAL TRANSPORT RULE 1–9* (2010), available at http://www.epa.gov/ttn/ecas/regdata/RIAs/proposaltrria_final.pdf (presenting the health and welfare benefits, costs, and other impacts of the proposed federal standard restricting air emissions of particulate matter and other pollution by power plants in 2014); P. EPSTEIN ET AL., *CHANGING PLANET, CHANGING HEALTH: HOW THE CLIMATE CRISIS THREATENS OUR HEALTH AND WHAT WE CAN DO ABOUT IT* 3 (2011) (“Clearly, climate change is hazardous

efficiency in the United States is handicapped because many consumers make decisions based on erroneous energy price signals, which fail to reflect the high external costs of energy production and consumption.³

Recent legislation, regulations, and public expenditures/incentives aimed at national energy independence and reduced air pollution have advanced energy efficiency.⁴ Nevertheless, governmental actions to control

to our health.”); N. Muller et al., *Environmental Accounting for Pollution in the United States Economy*, 101 AM. ECON. REV. 1649, 1669–71 (2011) (estimating that gross external damages produced by oil- and coal-fired power plants far outweigh their value added to the U.S. economy).

3. See P. Epstein et al., *Full Cost Accounting for the Life Cycle of Coal, in Ecological Economics Reviews*, 1219 ANN. N.Y. ACAD. SCI. 73 (R. Costanza et al. ed., 2011), (“Accounting for the damages conservatively doubles to triples the price of electricity from coal per [kilowatt hour] generated, making wind, solar, and other forms of non-fossil fuel power generation, along with investments in efficiency and electricity conservation methods, economically competitive.”); see also NAT’L RESEARCH COUNCIL, HIDDEN COSTS OF ENERGY: UNPRICED CONSEQUENCES OF ENERGY PRODUCTION 6 (2010), available at http://www.nap.edu/catalog.php?record_id=12794 (excluding the difficult-to-quantify costs of climate change, public health costs, and related damages not reflected in the price of electricity produced by coal power plants in the United States is on average 3.2 cents per kilowatt hour); U.S. DEP’T OF STATE, U.S. CLIMATE ACTION REPORT 2010 41–75 (2010), available at <http://www.state.gov/documents/organization/140636.pdf> [hereinafter U.S. DEP’T OF STATE, CLIMATE ACTION REPORT] (finding that the government has not taken adequate energy efficiency measures). The American Clean Energy and Security Act of 2009 (H.R. 2454, the “Waxman-Markey bill”) passed the House but was not voted on by the Senate; it would have (a) created a cap-and-trade mechanism (which would have boosted the prices of electricity from oil- and coal-fired power plants to reflect their high external costs), aiming to reduce U.S. greenhouse gas emissions to 20% below 2005 levels by 2020 and to 83% below 2005 levels by 2050; (b) created new energy efficiency programs; and (c) mandated that 25% of the nation’s energy be produced from renewable sources by 2025. This bill was the most ambitious, albeit far from comprehensive, attempt at federal legislation to address energy independence and energy efficiency, and no serious effort to pass broad energy and climate federal legislation has been mounted since it failed. See CONGRESSIONAL RESEARCH SERVICE, CLIMATE CHANGE: COSTS AND BENEFITS OF THE CAP-AND-TRADE PROVISIONS OF H.R. 2454 (2009), available at http://energy.senate.gov/public/_files/R40809.pdf.

4. On the federal level, significant recent energy efficiency legislation, regulations, and expenditure/incentive programs include the Energy Independence and Security Act of 2007 (Pub.L. 110-140) (increasing automobile fuel economy standards, requiring greater efficiency for light bulbs and appliance equipment, and providing funding and requirements for energy savings in residential, commercial, and federal buildings). See CONGRESSIONAL RESEARCH SERVICE, ENERGY INDEPENDENCE AND SECURITY ACT OF 2007: A SUMMARY OF MAJOR PROVISIONS (Dec. 21, 2007); see also U.S. EPA, Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule, 75 Fed. Reg. 31514 (June 3, 2010) (phase-in of permitting requirements for GHG emissions); U.S. EPA, Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles, 76 Fed. Reg. 57106 (Sept. 15, 2011) (describing the first program to reduce GHG emissions and fuel consumption for heavy-duty highway vehicles); U.S. EPA, Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy

or impose prices on carbon dioxide emissions (a powerful greenhouse gas (“GHG”)) and other environmental externalities of power production have been inadequate, and governmental actions to decrease the costs of low-emission sources of energy and energy efficiency measures have been too meager.⁵

Standards, 75 Fed. Reg. 25324 (May 7, 2010); U.S. EPA, Federal Implementation Plans: Interstate Transport of Fine Particulate Matter and Ozone and Correction of SIP Approvals, 76 Fed. Reg. 48208 (Aug. 8, 2011) (describing the “Cross-State Air Pollution Rule,” which limits the interstate transport of emissions of nitrogen oxides and sulfur dioxide that contribute to harmful levels of fine particle matter and ozone in downwind states, affecting oil- and coal-fired power plants); CONGRESSIONAL RESEARCH SERVICE, RENEWABLE ENERGY AND ENERGY EFFICIENCY INCENTIVES: A SUMMARY OF FEDERAL PROGRAMS (Mar. 22, 2011) (reviewing a variety of programs across federal agencies, including energy programs established by the American Reinvestment and Recovery Act (Pub.L 111-5)). On the state level, significant recent governmental actions include the efficiency incentives provided by electric and natural gas utilities to their customers. See S. NOWACK ET AL., ENERGY EFFICIENCY RESOURCE STANDARDS: STATE AND UTILITY STRATEGIES FOR HIGHER ENERGY SAVINGS 1 (June 2011) (stating that a majority of states have enacted “energy efficiency resource standards” aimed at unprecedented savings levels); see also U.S. DEP’T OF ENERGY, IMPACTS OF THE 2009 IECC FOR RESIDENTIAL BUILDINGS AT STATE LEVEL 6 (Sept. 2009), *available at* http://www.energycodes.gov/publications/techassist/residential/Residential_Georgia.pdf (stating that thirty-eight states have adopted the International Energy Conservation Code for buildings or its predecessor, the Model Energy Code, and that four other states have mandatory building energy codes with minimal or no connection to the international standard); *Renewable & Alternative Energy Portfolio Standards*, PEW CENTER ON GLOBAL CLIMATE CHANGE, http://www.pewclimate.org/what_s_being_done/in_the_states/rps.cfm (last visited Oct. 23, 2011) (describing the state standards requiring electric utilities to generate a certain amount of electricity from renewable or alternative energy sources, which decrease the air pollution from energy generation; such energy sources are typically higher cost than oil- or coal-fired power plants).

5. See, e.g., U.S. DEP’T OF STATE, CLIMATE ACTION REPORT, *supra* note 3 (finding that the government has not taken adequate energy efficiency measures); *Clean Air Act Permitting for Greenhouse Gases*, U.S. EPA, <http://www.epa.gov/nsr/ghgpermitting.html> (last visited Sept. 14, 2011) (stating that the Prevention of Significant Deterioration and Title V Operation Permit Programs will cover GHG emissions for the first time on Jan. 2, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *Program Overview*, REGIONAL GREENHOUSE GAS INITIATIVE, <http://www.rggi.org/design/overview> (last visited Sept. 25, 2011) (finding that, in an attempt to reduce GHG emissions, ten states recently partnered to form a market-based cap-and-trade approach) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); Regional Greenhouse Gas Initiative, *Investment of Proceeds from RGGI CO2 Allowances* (2011), http://www.rggi.org/docs/Investment_of_RGGI-Allowance_Proceeds.pdf; *Climate Change Scoping Plan*, CALIFORNIA AIR RESOURCES BOARD, <http://www.arb.ca.gov/cc/scopingplan/document/scopingplandocument.htm> (last visited Aug. 30, 2011) (outlining ways in which California can reduce its GHG) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); MASS. SEC’Y OF ENERGY & ENVTL. AFFAIRS, MASSACHUSETTS CLEAN ENERGY AND CLIMATE PLAN FOR 2020,

Despite the shortcomings in market price signals and governmental actions, some sectors of U.S. society understand the larger picture and have embraced more aggressive energy efficiency decisions as fundamental to their missions, taking actions even when justified by considerations of values and social responsibilities added to a typical financial cost/benefit analysis. This paper analyzes programs and actions by certain organizations motivated by the principle that stronger energy efficiency measures are required to support their core values and missions. Put differently, important sectors of society recognize that the consequences of energy inefficiency and resulting emissions conflict with their responsibilities to society. This recognition leads to actions to increase energy efficiency going beyond compliance with legal requirements and beyond the typical cost/benefit analysis confined to considering market prices.

In light of energy prices that fail to reflect globally-threatening environmental externalities (especially GHG emissions contributing to global climate change), mission-driven entities should strengthen their energy efficiency initiatives.⁶

at ES-6 to ES-8 (Dec. 9, 2010), available at <http://www.mass.gov/Eoea/docs/eea/energy/2020-clean-energy-plan.pdf> (creating an energy and climate plan for Massachusetts to adopt before 2020); *Mayors Leading the Way on Climate Protection*, The U.S. Conference of Mayors, <http://www.usmayors.org/climateprotection/revised/> (last visited Sept. 25, 2011) (announcing that mayors throughout the country have begun taking action on climate protection in their cities) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); JEFFREY D. SACHS, COMMON WEALTH: ECONOMICS FOR A CROWDED PLANET 105–06 (2008) (“The costs of mitigation—limiting carbon emissions—are manageable. Yet, even the lowest-cost steps are unlikely to be taken on their own There must be a cost, in one form or another, of choosing a high-carbon technology over a low-carbon technology.”). Commonly discussed methods of attaching prices to carbon dioxide and other GHG (including methane) emissions involve a tax on emissions or a cap-and-trade system. See generally U.S. EPA, TOOLS OF THE TRADE: A GUIDE TO DESIGNING AND OPERATING A CAP AND TRADE PROGRAM FOR POLLUTION CONTROL (2003), available at <http://www.epa.gov/airmarkets/resource/docs/tools.pdf> (stating how to create and manage a cap and trade program for pollution control); see also FRED KRUPP & MIRIAM HORN, EARTH: THE SEQUEL 8 (2008) (providing alternative ways for countries to use energy); BRUCE L. HAY ET AL., ENVIRONMENTAL PROTECTION AND THE SOCIAL RESPONSIBILITY OF FIRMS 2 (2005) (analyzing the issue of corporate social responsibility); PAUL R. PORTNEY ET AL., PUBLIC POLICIES FOR ENVIRONMENTAL PROTECTION 1–5 (2000) (identifying six environmental policy developments and trends since 1989).

6. See generally LIVERMORE BERKELEY NATIONAL LABORATORY, DRIVING DEMAND FOR HOME ENERGY IMPROVEMENTS 1 (2010), available at <http://eetd.lbl.gov/EAP/EMP/reports/lbnl-3960e-web.pdf> (“Policy makers and program designers in the U.S. and abroad are deeply concerned with the question of how to scale up energy efficiency.”). Efficiency should rise “to a level that is commensurate both to the energy and climate challenges we face[] and to the potential for energy savings that has been touted for decades.” *Id.*; see also GLOBAL GOVERNANCE 2020, BEYOND A GLOBAL DEAL: A

The next section describes indicators of whether certain sectors of society pursue energy efficiency as central to their social missions. The following section analyzes ways that three sectors of the society embrace energy efficiency as intrinsically tied to their social obligations: religious organizations, health care providers, and educational institutions. Major groups in each sector endorse and implement mission-driven programs to increase their energy efficiency: religious congregations committing to be good stewards of God's creation; health care providers promoting the welfare of patients and public health; and schools providing knowledge and trained graduates for a stronger society.⁷ Additionally, each sector derives further motivation to advance energy efficiency from its perceived responsibilities as a role model in society. The concluding section explains nine recommendations for expanding the mission-inspired pursuit of energy efficiency in these sectors of society and spreading the programs to other sectors.

II. Indicators of Whether Some Sectors of Society Pursue Energy Efficiency as Central to their Missions

A wide range of businesses, households and other consumers have increased the energy efficiency of many different operations. Some building owners undertake retrofits with more energy efficient lighting, heating and cooling systems, insulation, and water boilers. Buyers of new buildings, in some instances, use designs that achieve even greater energy efficiency. Consumers of many appliances, computers, and other electrical equipment benefit from engineering that uses less electricity per unit of output (such as

UN+ APPROACH TO CLIMATE GOVERNANCE 5–6, 30 (2011), *available at* http://www.gg2020.net/fileadmin/media/gg2020/GG2020_2011_Climate_Beyond_Global_Deal.pdf (“Tapping the energies of the world’s climate entrepreneurs presents new and exciting opportunities for governments, business, and civil society to meet the climate challenge in the next decade.”).

7. *See Who Signs the Genesis Covenant?*, THE GENESIS COVENANT, <http://genesis.eds.edu/who.htm> (last visited Sept. 25, 2011) (setting forth a covenant that mandates the total GHG produced by all the facilities the participating religious organizations maintain to be reduced by a minimum of 50% within ten years from signing the covenant) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *see also Healthcare Sector Accounts for 8% of U.S. Carbon Footprint*, ENVIRONMENTAL LEADER, Nov. 11, 2009, <http://www.environmentalleader.com/2009/11/11/healthcare-sector-accounts-for-8-of-u-s-carbon-footprint/> (estimating that the health care sector produces eight percent of the United States’ carbon-dioxide output); U.S. DEP’T OF ENERGY, GUIDE TO FINANCING ENERGY SMART SCHOOLS 1 (2009), *available at* http://apps1.eere.energy.gov/buildings/publications/pdfs/energysmartschools/ess_financeguide_0708.pdf [hereinafter U.S. DEP’T OF ENERGY, ENERGY SMART SCHOOLS] (showing how energy smart schools have a positive impact on the community).

the U.S. government’s ENERGY STAR standard). Generally, purchasers of newer cars and trucks receive higher mileage per gallon. Similar improvements abound. Some of these actions reflect compliance with laws and regulations. Other changes result from an energy consumer’s calculation of how to reduce costs, raise productivity, or obtain other benefits.

In the constellation of decision-makers, changes, and motivations, what indicators would help identify whether certain actions are driven by the fundamental mission of organizations in a sector of the society? This section describes three indicators which will be applied in reviewing the actions of three sectors and formulating recommendations.

A. *Cost/Benefit Analyses with “Plus Factors”*

First, an organization with a mission including elements such as safeguarding the environment, protecting human health, or strengthening future society should be inspired to implement more energy efficiency measures than typical entities with otherwise similar cost considerations. Many energy improvements are financially justified based on full life-cycle costs and benefits (costs of initial purchase, installation, operating, and maintenance; life expectancy; production capacity; and so on). After considering market prices and financial returns, some consumers find additional reasons—“plus factors”—for increasing their energy efficiency in some potential actions at the margin.⁸ Capital and operating budgets are relevant to all entities, but some decision-makers may go further than most because achieving increased energy efficiency helps them advance their values and social responsibilities.

The tools that these entities apply in evaluating potential changes should incorporate the value (quantified or not) of increased energy efficiency to their missions. For example, the U.S. Department of Energy’s EnergySmart Schools program provides a framework for schools to analyze the costs and benefits of potential actions to increase their energy efficiency.⁹ The guide starts with standard life-cycle-cost and net-present-value calculations.¹⁰ The program then suggests other messages in making the business case, which may be difficult to quantify, including the

8. See D. YERGIN, *THE QUEST* 682 (2011) (“*Consumer Reports* may have questioned whether a hybrid was actually superior to a high-mileage car from a dollar-savings point of view . . . but that was not the point. . . . Driving a Prius was also about a statement . . . about the owner’s concern about the environment, climate change, and oil dependence.”).

9. See U.S. DEP’T OF ENERGY, *ENERGY SMART SCHOOLS*, *supra* note 7, at 1 (showing how energy smart schools have a positive impact on the community).

10. See *id.* at 7 (finding that schools are an effective place for students to learn about the environment).

following: “Schools should serve and reflect the community’s values” and “[s]chools are the best place to teach children about energy conservation.”¹¹ Such messages may not be as relevant to the cost/benefit analysis of a typical retail store, manufacturing plant, or law office.

There is a wide variation in financial cost/benefit analyses, and it is difficult to draw lines to distinguish sectors driven by energy-efficiency missions. Three cautions should be applied when evaluating plus factors.

1. Sustainability as a Business Model

In many sectors, a small but growing group of companies make sustainability/enhanced resource conservation central to their business models.¹² These business models may reflect principles of the owners/management, preferences by some consumers, investor pressures, and other factors.¹³ One company’s passionate pursuit of energy efficiency

11. *Id.* at 11.

12. *See generally* INVESTOR NETWORK ON CLIMATE RISK, INVESTOR NETWORK ON CLIMATE RISK ACTION PLAN—CAPITALIZING THE NEW ENERGY FUTURE: MINIMIZING CLIMATE RISK, SEIZING OPPORTUNITIES 3 (2008), *available at* <http://www.un.org/partnerships/Docs/Investor%20Network%20on%20Climate%20Risk%20Action%20Plan.pdf> (finding that investors are increasingly pressing companies to address climate risks and opportunities, including by closer scrutiny of the costs and benefits of actions that would increase energy efficiency); *see also* CERES, GLOBAL INVESTOR SURVEY ON CLIMATE CHANGE: ANNUAL REPORT ON ACTIONS AND PROGRESS 5 (2010), *available at* <http://www.ceres.org/resources/reports/2010-global-investor-survey-on-climate-change-1/view> (stating that addressing the risks and opportunities arising from climate change is an important focus of investment managers); *Green Rankings: U.S. Companies*, NEWSWEEK, Oct. 17, 2011; *2011 Global 100 List, Most Sustainable Corporations in the World*, GLOBAL 100, *available at* <http://www.global100.org/annual-reviews/2011-global-100-list.html>; *Members: Tier 1 Members*, THE SUSTAINABILITY CONSORTIUM, <http://www.sustainabilityconsortium.org/members/> (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); E. HUMES, *FORCE OF NATURE: THE UNLIKELY STORY OF WAL-MART’S GREEN REVOLUTION* (2011); D. YERGIN, *supra* note 8, at 620–21 (describing Dow Chemical’s energy efficiency targets); U.S. Securities and Exchange Commission, *Commission Guidance Regarding Disclosure Related to Climate Change*, 75 Fed. Reg. 6290 (2010) (“Many companies are providing information to their peers and to the public about their carbon footprints and their efforts to reduce them.”).

13. *See* INVESTOR NETWORK ON CLIMATE RISK, *supra* note 12 (“As fiduciaries and . . . investors, we recognize that getting more use out of the energy we already produce is one of the fastest, easiest, and cheapest ways to significantly reduce emissions and to improve the bottom line of many companies in which we invest, especially with demand for energy increasing.”); *see also* INSTITUTIONAL INVESTORS GROUP ON CLIMATE CHANGE ET AL., *2010 INVESTOR STATEMENT ON CATALYZING INVESTMENT IN A LOW-CARBON ECONOMY* 1 (2010), *available at* http://www.unepfi.org/fileadmin/documents/InvestorStatement_ClimateChange.pdf (stating

and associated reduction in energy-related emissions does not mean that this mission is central to the values of its sector.¹⁴ For example, one trucking firm may operate vehicles producing low GHG emissions, but most firms in that industry would employ standard cost/benefit analysis in assessing which vehicles to procure.

2. Marketing

A firm's long-term marketing strategy could provide a plus factor, but this adjustment may not be driven by an energy-efficiency mission. For example, providers of telecommunications services offer some applications which could reduce energy consumption, such as video conferencing, remote monitoring of electrical equipment, and wireless tracking of shipments. Even if a certain application is not financially justified for a telecommunications provider's own operations, the company may choose to implement it for demonstrating and promoting the service to potential customers. Competing as a provider of telecommunications services—without a mission of environmental sustainability—leads to its greater willingness to adopt certain energy-efficiency measures.¹⁵

3. Greenwashing

A firm's strategy to avoid the imposition of onerous regulations may also lead to energy efficiency measures not reflected in standard cost/benefit analyses; again, this conduct differs from a mission that embraces environmental sustainability and energy efficiency. As an illustration, a profit-driven solid waste collection and disposal company may pursue a reputation as sensitive to the environmental impacts of its operations. The strategy may be to avoid additional governmental scrutiny of and mandates for its operations. Though the focus may be on landfills, "greening" the company may lead it to adopt more energy-efficient vehicles and other machinery that would not be justified by standard financial analyses.¹⁶

that investors are concerned with the threat climate change poses to regional and global economics).

14. *See generally* INSTITUTIONAL INVESTORS, *supra* note 13, at 2–3.

15. *See generally* VERIZON COMMUNICATIONS, CORPORATE RESPONSIBILITY REPORT 38–41 (2011), *available at* http://responsibility.verizon.com/images/vz_uploads/verizon_cr_report_2010-2011.pdf; AT&T, MEET THE POSSIBILITY ECONOMY: 2010 AT&T SUSTAINABILITY REPORT (2011), *available at* http://www.att.com/Common/about_us/files/csr_2011/2010_CSR_Report.pdf.

16. *See generally* WASTE MANAGEMENT, TODAY WE'RE REINVENTING OUR BUSINESS MODEL & RE-ENVISIONING THE NATURE OF WASTE ITSELF. WELCOME TO WASTE

B. Public Commitments to Increase Energy Efficiency

Second, a mission-driven organization should publicly state that making its operations more energy efficient is a core value and publicly commit to achieve gains as part of a sector-specific effort. Major established industry groups in that sector should endorse energy efficiency commitments. While new groups may form that are specifically directed at the sector's environmental footprint, their purpose should be tied to the long-held values which distinguish the sector from most other industries.

Businesses and other entities benefit from stating their missions, goals, and values, including through corporate social responsibility reports.¹⁷ For some organizations, their public commitments on energy efficiency advance their values, reputation, and branding for management and staff; investors, donors, and other sources of financing; customers, members, and other users; and communities.¹⁸ Multiyear plans for increasing their energy

MANAGEMENT (2011), available at http://www.wm.com/sustainability/pdfs/2011_WM_Executive_Summary.pdf.

17. See generally SACHS, *supra* note 5, at 320 (“CEOs understand that if they neglect the nonmarket side of their activities, they can risk the very success of the company.”). CEOs also recognize that “[t]he reputational costs to business of blocking solutions to vital challenges can be devastating to shared values, customer loyalties, worker morale, the ability to recruit new employees, and even the social acceptance of their continued operations.” *Id.*; see also JEFFREY ABRAHAMS, THE MISSION STATEMENT BOOK: 301 CORPORATE MISSION STATEMENTS FROM AMERICA’S TOP COMPANIES 49–472, 33–45 (1999) (offering examples of corporations’ mission statements and advice for writing one); James C. Collins & Jerry I. Porras, *Building Your Company’s Vision*, 65 HARV. BUS. REV. 1 (1996) (suggesting how companies adapt their vision over time to ensure sustained success), available at <http://hbr.org/1996/09/building-your-companys-vision/ar/1>; WILLIAM B. WERTHER & DAVID B. CHANDLER, STRATEGIC CORPORATE SOCIAL RESPONSIBILITY: STAKEHOLDERS IN A GLOBAL ENVIRONMENT 119–42 (2010) (suggesting ideas for corporate social responsibility); BRIAN W. HUSTED & DAVID B. ALLEN, CORPORATE SOCIAL STRATEGY: STAKEHOLDER ENGAGEMENT AND COMPETITIVE ADVANTAGE 64–85 (2010) (offering ways in which corporations can create value and competitive advantage); Joe W. Pitts III, *Corporate Social Responsibility: Current Status and Future Evolution*, 6 RUTGERS J.L. & PUB. POL’Y 334, 419–20 (2009) (setting forth ways in which corporations should act in the future).

18. See SACHS, *supra* note 5, at 321 (“This is the real meaning of corporate social responsibility: to operate in a manner that promotes broad social objectives, including nonmarket goals, in a way consistent with core business principles, values, and practices.”). Some organizations may adopt energy efficiency and other environmental sustainability commitments in part to offset the harms they suffered from the public perception that they failed to satisfy distinct areas of corporate social responsibility. See E. HUMES, *supra* note 12, at 52–53 (stating that Wal-Mart initially pursued sustainability as a “defensive move,” “feeling besieged” from complaints of unfair labor practices and other violations or public relations problems). Certain of the organizations in sectors characterized in this article as having mission-driven commitments to energy efficiency may similarly benefit from offsetting shortcomings in other areas of social responsibility. See, e.g., NEW MEXICO

efficiency become important parts of the organizations' strategic plans and goals.¹⁹

As in the case of plus factors, not all public commitments to increase energy efficiency indicate mission-driven sectors.²⁰ Some organizations make individual public commitments on energy efficiency and other environmental measures as part of their statements of corporate responsibility or marketing campaigns.²¹ Such individual commitments may be, but are not necessarily, indicative of the fundamental values of most entities in the sector. Also, some public commitments on reducing GHG emissions were designed to attract multiple organizations across many sectors of society.²² The commitments provide a framework and certification for entities seeking to improve their reputations.²³ Again, such efforts are commendable but do not necessarily indicate that the signatories operate in mission-driven sectors for energy efficiency.

C. Public Reporting of Progress on Energy Efficiency

Third, many organizations in a mission-driven sector should publicly report on their progress with regard to energy efficiency. Along with

ENVIRONMENT DEPARTMENT, ENVIRONMENT DEPARTMENT ISSUES COMPLIANCE ORDER TO LOVELACE HEALTH SYSTEM, INC. (July 14, 2011), *available at* http://www.nmenv.state.nm.us/OOTS/PR/2011/Improper_Disposal_of_Infectious%20_Waste.pdf (describing the medical center's improper disposal of infectious waste); MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION, ENFORCEMENT ACTIONS—2011, *available at* <http://www.mass.gov/dep/public/press/enforce.htm> (citing the May 16, 2011 consent order with Boston Medical Center Corp. for asbestos violations).

19. See WERTHER & CHANDLER, *supra* note 17, at 34 (“Throughout this century, as businesses worldwide evolve to account for the changing environment in which they operate, [corporate social responsibility] will occupy an increasingly core component of the strategic planning process and day-to-day operational decisions of the business.”).

20. See HUSTED & ALLEN, *supra* note 17, at 86–101 (describing how corporate social strategies can create economic value).

21. See *id.* at 98–101 (discussing the advantages and disadvantages of making a strategy socially visible).

22. See, e.g., *Carbon Disclosure Project 2010: Global 500 Report*, CARBON DISCLOSURE PROJECT (2010), *available at* <http://www.cdproject.net/CDPResults/CDP-2010-G500.pdf> (examining the world's largest public corporations' carbon reduction activities); see also *Overview*, CHICAGO CLIMATE EXCHANGE, <http://www.chicagoclimatex.com/content.jsf?id=821> (last visited Sept. 25, 2011) (describing North America's largest and oldest GHG emission reduction program) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

23. See *Overview*, *supra* note 22 (allowing entities to register their reduction of carbon emissions).

financial accounts and reports, accounting for and reporting various social performance measures has become widely accepted for corporations.²⁴ From the perspective of a mission-driven organization, reporting measures of its energy-efficiency gains is central to its values and measures of success.²⁵ The management, investors, customers, and others want to track the indicators of energy efficiency and review the relevant actions.²⁶ As in the case of public commitments, the public reporting should be widespread and prominent for many organizations in the sector.²⁷

III. Energy Efficiency as a Mission of Organizations in Major Sectors of Society

As public perceptions of fundamental global values evolved to include increasing energy efficiency, various organizations came to reformulate their missions to encompass this goal. Of course, the benefits of energy efficiency gains in reducing operating costs or complying with legal requirements were not lost on these entities. Moreover, an organization's sense of its moral obligations is constrained by its budget and capabilities. Nevertheless, their commitments to increasing energy efficiency appear to go beyond the price signals in the marketplace, government standards, and typical decisions to spur more extensive programs, expenditures, commitments, and reporting.

This section reviews the energy-efficiency commitments, programs, and actions of organizations in three major sectors of society: religion, health care, and education.

24. See generally *G3 Guidelines*, GLOBAL REPORTING INITIATIVE (2010), available at <http://www.globalreporting.org/ReportingFramework/G3Guidelines/> (explaining how the G3 guidelines have become commonplace for corporations); see also KPMG INTERNATIONAL, KPMG INTERNATIONAL SURVEY OF CORPORATE RESPONSIBILITY REPORTING 2008 8, available at <http://www.kpmg.com/LU/en/IssuesAndInsights/Articlespublications/Documents/KPMG-International-Survey-on-Corporate-Responsibility-Reporting.pdf> (exploring the state of corporate responsibility); ROB GRAY ET AL., CORPORATE SOCIAL REPORTING: ACCOUNTING AND ACCOUNTABILITY 118–33 (1987) (examining corporations' financial social reporting).

25. See KPMG INTERNATIONAL, *supra* note 24, at 13 (describing corporate responsibility reporting as “critical to a company's long-term success, viability, and growth”).

26. See *id.* at 8 (noting that “[w]orldwide demand for transparency and accountability [is] at an all-time high”).

27. See *id.* (exploring the state of corporate responsibility).

*A. Religious Congregations Adopt Energy
Efficiency in Stewardship of God's Creation*

Religious institutions in the United States are diverse and do not share a single set of beliefs or approach to energy efficiency. Several substantial programs across religions as well as within particular denominations have embraced energy efficiency as integral to pursuing their mission.

1. Energy Efficiency as a Religious Mission

Major religious organizations sent a letter to the U.S. Senate in November 2010 which demonstrates their environmental values.²⁸ Fifty-six leading denominations and faith-based organizations opposed legislation that would limit the ability of the U.S. Environmental Protection Agency to implement the Clean Air Act to impose controls on GHG emissions.²⁹ The letter refers to “the right of all of God’s children to live in a healthy world” and the goal of “ensur[ing] a just and sustainable future for God’s Creation.”³⁰ Both Christian and Jewish leaders are quoted as recognizing the core religious values of being good stewards or caretakers for the earth and its resources, as well as protecting the life and health of all people.³¹

Another example is the Interfaith Power & Light campaign, a faith-based group working with about 10,000 congregations of various religions in thirty-eight states.³² Its principles are that “[c]limate change is a moral

28. See *56 Religious Groups to U.S. Senate: Save the Clean Air Act*, PR NEWswire, Nov. 23, 2010, <http://www.prnewswire.com/news-releases/56-religious-groups-to-us-senate-save-the-clean-air-act-110175629.html> (calling for the United States Senate to not dismantle the EPA).

29. See *id.* (same).

30. *Id.*

31. See *id.* (naming Christian and Jewish leaders who have commented on the importance of preserving the environment); see also *Faith-based and Neighborhood Partnerships*, U.S. EPA, <http://www.epa.gov/fbnpartnerships/> (last visited Oct. 23, 2011) (“[T]here has been considerable progress to build on the religious and moral reasons for being good stewards of our environment.” (quoting EPA Administrator Lisa Jackson)); *ENERGY STAR Congregations Award Winners*, U.S. EPA, http://www.energystar.gov/index.cfm?c=sb_success.congregations_winners (last visited Oct. 23, 2011) (saluting “the thousands of congregations across the nation who are working to save energy and prevent pollution”).

32. See Nathan Rice et al., *Can Faith Slow Climate Change?*, SCIENTIFIC AMERICAN, Nov. 30, 2010, at 3, available at <http://www.scientificamerican.com/article.cfm?id=can-faith-slow-climate-change> (citing the group’s leader as saying that legislators who fail to pass a federal climate bill “are committing crimes against humanity”); see also INTERFAITH POWER & LIGHT, THE REGENERATION PROJECT: INTERFAITH POWER & LIGHT CAMPAIGN 1 (2010), available at <http://interfaithpowerandlight.org/wp-content/uploads/2009/08/2009-annual-report-web.pdf> (stating that “[c]limate change is a moral issue”); Stephen M. Johnson,

issue” and “decisions we make today regarding energy use will decide whether we want to maintain God’s creation as it was intended.”³³ The group’s mission statement connects this religious view of human responsibilities to congregations’ energy efficiency: “Every mainstream religion has a mandate to care for creation. We were given natural resources to sustain us, but we were also given the responsibility to act as good stewards and preserve life for future generations. We focus on tangible results in congregations—putting our faith into action.”³⁴

GreenFaith, a national interdenominational organization, further illustrates religious environmental commitments: “Our work is based on beliefs shared by the world’s great religions—we believe that protecting the earth is a religious value, and that environmental stewardship is a moral responsibility.”³⁵ Among other activities, GreenFaith runs a certification program for congregations, with initiatives to integrate environmental themes into their worship, education, facility maintenance (including energy efficiency), and social outreach.³⁶ GreenFaith’s website links to many statements supporting environmental stewardship by various Christian, Hindu, Buddhist, Islamic, and Jewish groups.³⁷

Is Religion the Environment’s Last Best Hope? Targeting Change in Individual Behavior Through Personal Norm Activation, 24 J. ENVTL. L. & LITIG. 119, 160–61 (2009) (stating that climate change might be best addressed through religion); J. Dernbach, *Climate Change Can Also Implicate Deeply Held Moral, Ethical, and Even Religious Views*, 26 VA. ENVTL. L.J. 107 (2008) (examining the connection between climate change and religion).

33. INTERFAITH POWER & LIGHT, *supra* note 32, at 2.

34. See *Mission & History*, INTERFAITH POWER & LIGHT, <http://interfaithpowerandlight.org/about/mission-history/> (last visited Sept. 25, 2011) (“This work includes educating congregations and helping them buy energy efficient lights and appliances, providing energy audits and implementing the recommendations.”) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment). It also involves “encouraging people to buy more fuel efficient vehicles and to drive less, supporting renewable energy development through ‘greentags,’ working on large-scale renewable energy installation projects such as rooftop solar and advocating for sensible energy and global warming policy.” *Id.*; see also WORLD COUNCIL OF CHURCHES, CLIMATE CHANGE AND THE WORLD COUNCIL OF CHURCHES 4–10 (2010), available at <http://www.oikoumene.org/fileadmin/images/wcc-main/programmes/P4/climate/1003%20-%20CI%20chg%20booklet%20-%20all%20-%20final.pdf> (setting forth the World Council of Church’s views on climate change).

35. See *Mission and Areas of Focus*, GREENFAITH, <http://greenfaith.org/about/mission-and-areas-of-focus> (last visited Sept. 25, 2011) (establishing the mission to “inspire, educate, and mobilize people of diverse religious backgrounds for environmental leadership”) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

36. See *Environmental Leadership for Houses of Worship*, GREENFAITH, <http://greenfaith.org/programs/certification> (last visited Sept. 29, 2011) (describing the organization’s certification program) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

37. See *id.* (naming two religious institutions that have saved money and revitalized their houses of worship as a result of the program).

2. *Some Energy Efficiency Actions by Religious Congregations*

There is no comprehensive study of the effects of religious organizations' views of their environmental mission on actions to increase congregations' energy efficiency. The following descriptions provide evidence of how this mission has spurred religious congregations to pursue energy audits, retrofits of building systems, construction of green buildings, and other energy conservation measures.³⁸

As one measure of the actions by religious organizations to improve their energy efficiency, EPA listed about 1,500 congregations as ENERGY STAR Partners as of October 10, 2011.³⁹ These religious organizations commit to continuously improve their energy performance, measure and track their energy performance, develop and implement a plan to achieve energy savings, help spread the word about the importance of energy efficiency to their staff and community, and other actions, all in cooperation with tools provided by EPA. The EPA estimates that “[m]ost congregations can cut energy costs by up to 30% by investing strategically in efficient equipment, facility upgrades, and maintenance.”⁴⁰

Several groups adopted covenants to reduce the participating congregations' carbon emissions and engage in energy audits. In each instance, the pledge refers to a moral obligation for the religious institution. The Episcopal Church in 2009 signed the Genesis Covenant, a multi-faith effort involving a public commitment to reduce the GHG emissions from every facility it maintains by a minimum of fifty percent within ten years; the Episcopal Diocese of Chicago adopted a resolution in 2010 requiring all congregations to perform energy audits and submit energy loss reduction

38. The selection of these few cases does not reflect a comparison of faiths or congregations, but rather illustrates some of the mission-inspired efforts by religious organizations to increase energy efficiency.

39. *Buildings & Plants Partner List Results: Congregations*, U.S. EPA, http://www.energystar.gov/index.cfm?fuseaction=PARTNER_LIST.showPartnerResults&leaders_yn=N&poy_yn=N&success_yn=N&resultsPerPage=20&partner_type_id=CON&country_code=US&s_code=ALL (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *ENERGY STAR Partnership Agreement (Partners qualifications)*, U.S. EPA, https://www.energystar.gov/index.cfm?fuseaction=opa.showESCommitments&p_code=ESB (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

40. *ENERGY STAR for Congregations*, U.S. EPA, http://www.energystar.gov/index.cfm?c=small_business.sb_congregations (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); see also *id.* (“With free, unbiased information and technical support from ENERGY STAR, your congregation can more easily improve stewardship of your budget’s energy dollars, and of the earth by reducing energy waste and energy costs, while protecting the environment.”).

plans.⁴¹ The Jewish Rabbinical Assembly in 2007 and 2008 adopted resolutions calling on its members to green their institutions through energy audits, devise energy conservation and other plans to reduce their carbon emissions by fifty percent within five years, and encourage congregants to reduce energy use in transportation.⁴² Under the Catholic Climate Covenant, Catholic individuals/families, parishes, schools, and other organizations are encouraged to take The St. Francis Pledge; among other elements, a member pledges to assess and then reduce its contribution to climate change.⁴³

None of these commitments is conditioned on whether a congregation can find sufficient actions satisfying a typical cost/benefit test. It appears that the mission-driven commitment to achieve fifty percent reductions within five or ten years will cause participating congregations to take extensive energy-efficiency measures, some of which would not pay for themselves from savings in energy costs. By comparison, a recent Massachusetts plan estimated that cost-effective energy efficiency measures applied to buildings statewide over the next ten years would reduce carbon emissions from this source by about fourteen percent in 2020.⁴⁴ Moreover, organizations which for years ignored energy audits as a step to potential

41. See *Who Signs the Genesis Covenant*, *supra* note 7 (setting forth a covenant that mandates the total GHG produced by all the facilities the participating religious organizations maintain to be reduced by a minimum of 50% within ten years from signing the covenant); see also *Resolution 070: Memorializing the Genesis Covenant*, 76TH GEN. CONVENTION (2009), available at http://gc2009.org/ViewLegislation/view_leg_detail.aspx?id=958&type=Final (stating the resolution of the Episcopal Church to adopt the Genesis Covenant); Lynette Wilson, *Episcopalians Join 10/10/10 Global Work Parties*, EPISCOPAL NEWS SERV. (Oct. 6, 2010), http://www.episcopalchurch.org/79425_125014_ENG_HTML.htm (setting forth the idea the Episcopalians have joined global work parties); EPISCOPAL DIOCESE OF CHICAGO, 173RD ANNUAL CONVENTION LEGISLATION AND RESOLUTIONS 17–18 (2010), available at <http://www.episcopalchicago.org/convention/documents/resolutionspacket2010.pdf> (providing resolutions and explanations to problems).

42. See JUDAISM AND THE ENV'T, RABBINICAL ASSEMBLY POSITION ON THE ENVIRONMENT 2 (2008), available at http://more.masortiworld.org/environment/space/world/Rabbinical_Assembly_Position_on_the_Environment.pdf (providing a list of actions for its members to take in an attempt to preserve life).

43. See *Take The St. Francis Pledge*, CATHOLIC CLIMATE COVENANT, <http://catholicclimatecovenant.org/the-st-francis-pledge> (last visited Sept. 29, 2011) (setting forth the pledge for Catholics to “act to change our choices and behaviors to reduce the ways we contribute to climate change”) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

44. See MASS. SEC’Y OF ENERGY & ENVTL. AFFAIRS, *supra* note 5, at ES-6 to ES-8 (setting forth a calculation based on plan to reach 7.1% reduction in total emissions through cost-effective energy improvements in homes and commercial buildings, with buildings accounting for about half of total emissions).

savings have undertaken the expenses of such audits as a product of their missions.⁴⁵

Interfaith Power & Light conducts an annual “10% Challenge.”⁴⁶ In 2010, about 250 congregations from thirty-eight states entered the competition to reduce their carbon emissions by at least ten percent.⁴⁷ The group reported that forty-two congregations successfully completed the 10% Challenge in that year.⁴⁸ The actions included upgrading lighting and heating/cooling systems, replacing furnaces, using ENERGY STAR appliances, and installing solar panels and other renewable energy systems.⁴⁹ Some congregations may have completed the 10% Challenge entirely through actions justified under typical cost/benefit analyses; others may have applied plus factors to justify certain actions. One congregation estimated that its green initiatives added three to five percent to the cost of its building project,⁵⁰ and another congregation cited its mission as the reason for an early energy audit and follow-up expenditures.⁵¹ Also, a religious group built a U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) Platinum monastery, restored ninety-five acres of farmland to prairie, and dredged a glacial lake.⁵²

45. See generally *Power Wise—Energy Audits*, GEORGIA INTERFAITH POWER & LIGHT, http://www.gipl.org/content/power_wise.asp (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

46. See *IPL 10% Challenge Winners*, INTERFAITH POWER & LIGHT, <http://interfaithpowerandlight.org/2010/10/ipl-announces-10-challenge-winners/> (last visited Sept. 25, 2011) (listing the winners of its annual 10% challenge) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

47. See *id.* (noting that 250 participating congregations came from thirty-eight states).

48. See *id.* (listing the forty-two successful participants).

49. See *id.* (discussing the various actions taken by the winners).

50. See *Why Build Green?*, JEWISH RECONSTRUCTIONIST CONGREGATION IN EVANSTON, ILLINOIS, <http://www.jrc-evanston.org/node/105> (last visited Sept. 28, 2011) (claiming that Jewish environmental ethics teach not to destroy or to waste) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

51. See *Success Story: St. Luke's Episcopal Church*, GEORGIA INTERFAITH POWER & LIGHT (Oct. 14, 2010), <http://www.gipl.org/Blog/blogView.asp?blogID=4096880&categoryId=6&title=Success+Story%3A+St.+Luke%26%2339%3B+Episcopal+Church> (reducing its energy consumption by more than eighteen percent).

52. See *Wisconsin Monastery Achieves Platinum Certification from U.S. Green Building Council*, BENEDICTINE WOMEN OF MADISON, <http://benedictinewomen.org/care-for-the-earth/leed-certified-building/> (last visited Sept. 25, 2011) (stating that the Monastery received the highest level of leadership in “energy and environmental design”) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

*B. Health Care Providers Pursue Energy
Efficiency to Avoid Contributing to Illnesses*

The health care sector in the United States plays a large role in energy demand and thus in the adverse health consequences resulting from producing energy. The following estimates help set the framework for how health care providers approach energy efficiency: (1) the health care sector produces about eight percent of the nation's carbon dioxide output and spends about \$8.5 billion on energy annually; (2) the pollution from providing for this sector's annual 73 billion kWh "conventional" electricity use and 341 trillion BTUs for heating and cooling causes premature deaths, respiratory and cardiac illnesses, and other health-related damages, which add billions of dollars annually in health costs to the public; and (3) the EPA estimates that the health care sector's energy use could be reduced by thirty percent without sacrificing quality of care (hospitals use about twice the energy per square foot compared to most office space).⁵³

1. Energy Efficiency as a Health Mission

Several organizations of health care providers adopted commitments to guard the public health through environmental sustainability and energy

53. See *Healthcare Sector*, *supra* note 7 (estimating that the health care sector produces eight percent of the United States' carbon-dioxide output); see also *Healthy Hospitals, Healthy Planet, Healthy People: Addressing Climate Change in Health Care Settings*, WORLD HEALTH ORG. & HEALTH CARE WITHOUT HARM 5, 10 (2009), available at http://www.noharm.org/lib/downloads/climate/Healthy_Hosp_Planet_Peop.pdf (discussing the health care sector's large carbon footprint); *Issues: Climate and Health*, HEALTH CARE WITHOUT HARM, http://www.noharm.org/us_canada/issues/climate/ (last visited Sept. 25, 2011) (discussing the adverse health consequences of climate change) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment). Health Care Without Harm (HCWH) is a coalition of more than 430 organizations in 52 countries, including hospitals and health care systems, medical professionals, and other groups. See *About Us*, HEALTH CARE WITHOUT HARM, http://www.noharm.org/us_canada/about/ (last visited Sept. 29, 2011) (giving details about the organization) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment). Pursuant to the belief that health care should "do no harm," HCWH works "to transform the health care sector, without compromising patient safety or care, so that it is ecologically sustainable and no longer a source of harm to public health and the environment." *Id.* One of its core goals is to "address climate change by improving energy practices and reducing the overall climate footprint of the health care sector." See *Health Care Sector Supporting Chemical Reform Legislation on Eve of Hearing*, HEALTH CARE WITHOUT HARM (July 28, 2010), http://www.noharm.org/us_canada/news_hcwh/2010/jul/hcwh2010-07-28.php (attempting to transform the health care sector without compromising the safety or care of patients); see also *Mission and Goals*, HEALTH CARE WITHOUT HARM (July 28, 2010), http://www.noharm.org/all_regions/about/mission.php (expressing HCWH's desire for the health care sector to do no harm).

efficiency. While the cost savings for hospitals and other health care facilities from energy efficiency provide a strong financial incentive, health care organizations point to deeper moral obligations, including the Hippocratic Oath for the ethical practice of medicine—“I will do no harm or injustice to [my patients]”⁵⁴—and their leadership role in society on health issues.

The American Medical Association (AMA) adopted resolutions stating that it is “committed to environmental stewardship and the reduction of environmental hazards that adversely affect the health of the public”;⁵⁵ supports “building practices that help reduce resource utilization and contribute to a healthy environment” and “community-wide adoption of ‘green’ initiatives and activities by organizations, businesses, homes, schools, and government and health care entities”;⁵⁶ and “[e]ncourages physicians to assist in educating patients and the public on environmentally sustainable practices[] and to serve as role models for promoting environmental sustainability.”⁵⁷ The AMA observed that the health care community has made strides, including energy efficiency, to reduce

54. *Greek Medicine: The Hippocratic Oath*, NAT’L INST. OF HEALTH, http://www.nlm.nih.gov/hmd/greek/greek_oath.html (last visited Sept. 25, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); see also *Making the Business Case for Energy Management in Healthcare*, U.S. EPA, http://www.energystar.gov/index.cfm?c=healthcare.business_case (last visited Oct. 23, 2011) (“There is a direct link between healing the individual and healing this planet We will not have healthy individuals, healthy families, and healthy communities if we do not have clean air, clean water, and healthy soil.” (quoting Lloyd Dean, MA CEO Catholic Healthcare West)) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment). Compare Lois Gibbs, *Citizen Activism for Environmental Health: The Growth of a Powerful New Grassroots Health Movement*, 584 ANNALS AAPPS 97, 108–09 (2002) (activists against hospital environmental harms demand that doctors satisfy their obligation to “first do no harm”), with Michael McCalley, *Medical Activism and Environmental Health*, 584 ANNALS AAPPS 145, 151–52 (2002) (“The Judeo-Christian codes of medical ethics focus on individual patients and do not provide a clear basis for claims that physicians have social responsibilities.”).

55. See CAROLYN B. ROBINOWITZ, AMA COUNCIL ON SCIENCE AND PUBLIC HEALTH: GREEN INITIATIVES AND THE HEALTH CARE COMMUNITY 2 (Resolution 409, A-07, CSAPH Report 1-1-08) (2008), available at <http://www.ama-assn.org/ama1/pub/upload/mm/443/csaph1i08.pdf> (describing the achievements and goals of the AMA).

56. *Id.* at 9.

57. H-135.938 *Global Climate Change and Human Health*, AMA COUNCIL ON SCIENCE AND PUBLIC HEALTH at 118–19 (Health and Ethics Policies of the AMA House of Delegates) (2010), available at <http://www.ama-assn.org/ama1/pub/upload/mm/2010i/handbook-plus-addendum.pdf>.

pollution, increase energy conservation, and improve the health of the public.⁵⁸

Similarly, the American Academy of Pediatrics adopted a policy statement on energy conservation:

Pediatricians are dedicated to the promotion and protection of children's health. Climate change threatens the health, welfare, and future of current and subsequent generations of children. Pediatricians can incorporate considerations of the effects of climate change on health into their professional practice and personal lives in many ways Emphasize energy conservation in your workplace, encourage and model reduced dependency on automobile travel, and consider the environmental and energy costs when making major purchases for your practice or institution.⁵⁹

Finally, the World Health Organization's Department of Public Health and Environment emphasized the sector's responsibility to reduce the harms to health from its energy uses and to reduce the sector's carbon footprint causing climate change:

Hospitals are energy- and resource-intensive enterprises that, as they operate today, contribute substantially to climate change while inadvertently contributing to respiratory and other illnesses. Procurement, resource use, transportation and other policies and practices contribute to the health sector's significant climate footprint. By reducing this footprint and moving toward carbon neutrality, the health sector can demonstrate the path forward in response to climate change, thereby playing a leadership role in advocating for a healthy and sustainable future.⁶⁰

58. See ROBINOWITZ, *supra* note 55, at 3–4 (identifying specific areas in which the health care community has achieved energy efficiency and noting other areas in which the health care industry can improve energy efficiency).

59. American Academy of Pediatrics, *Policy Statement: Global Climate Change and Children's Health*, 120 PEDIATRICS 1149, 1151 (2007), available at <http://aappolicy.aappublications.org/cgi/reprint/pediatrics;120/5/1149>.

60. WORLD HEALTH ORG. & HEALTH CARE WITHOUT HARM, *supra* note 53, at 4 (“It is clear that the health sector can also play a leadership role in *mitigating* climate change—that is reducing its magnitude and consequences—by getting our own house in order.”). “By doing so the health sector will create a series of health, economic and social co-benefits that improve the health of the population in addition to the traditional role of the health sector in the delivery of quality health care.” *Id.*

2. *Some Energy Efficiency Actions by Health Care Providers*

The confluence of the fundamental mission of health care providers with their huge energy footprint spurs this sector to increase its energy efficiency, going beyond the legal requirements and likely beyond financial incentives for cost savings.⁶¹ Such mission-driven actions can be seen in some group programs and specific implementations.⁶²

One indication of the penetration of energy efficiency programs in this sector is that over 300 healthcare and senior care facilities were EPA ENERGY STAR Partners as of October 10, 2011.⁶³

Along with the Hospital Energy Alliance launched by the U.S. Department of Energy in 2009,⁶⁴ the U.S. health care industry formed several organizations to promote energy efficiency.⁶⁵ These efforts reflect a combination of incentives based on cost reductions and health care mission.⁶⁶ A group under the American Hospital Association, the American

61. See ROBINOWITZ, *supra* note 55, at 9 (pointing out numerous approaches to educate the public and take specific action that go beyond the legal requirements and financial incentives for health care providers).

62. See *Mission and Goals*, *supra* note 53 (showing a mission-driven action in a group program); see also Gibbs, *supra* note 54, at 109 (showing a specific implementation by Kaiser Permanente as significantly changing “healthcare purchases” and noting that “these will change the waste stream”). Some analysts believe that mission-driven activities, however, are still lacking in the profession as a whole. See McCalley, *supra* note 54, at 145 (noting that the physician profession “has not found solidarity with other classes and groups in pursuit of environmental health, human rights, or universal access to health care”).

63. *Buildings & Plants Partner List Results: Healthcare and Senior Care Facilities*, U.S. EPA, http://www.energystar.gov/index.cfm?fuseaction=PARTNER_LIST.showPartnerResults&leaders_yn=N&poy_yn=N&success_yn=N&resultsPerPage=20&partner_type_id=HSC&cntry_code=US&s_code=ALL (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

64. See *Department of Energy Announces the Launch of the Hospital Energy Alliance to Increase Energy Efficiency in the Healthcare Sector*, U.S. DEP’T. OF ENERGY (Apr. 29, 2009), <http://energy.gov/articles/department-energy-announces-launch-hospital-energy-alliance-increase-energy-efficiency> (providing information about the launch of Hospital Energy Alliance).

65. See WORLD HEALTH ORG. & HEALTH CARE WITHOUT HARM, *supra* note 53, at 11 (citing specific organizations that have partnered together to combat climate change in health care); see also *Healthcare Associations*, U.S. EPA, http://www.energystar.gov/index.cfm?c=healthcare.bus_healthcare_associations (last visited Sept. 17, 2011) (providing a list of healthcare organizations dedicated to environmental sustainability in general) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

66. See American Hospital Association (AHA), *Sustainability Roadmap for Hospitals*, SUSTAINABILITY ROADMAP (2010), <http://www.sustainabilityroadmap.org/> (last visited Jan. 3, 2011) (“Every hospital has a different mix of drivers and motivators for taking on sustainability as a goal.”) (on file with the Washington and Lee Journal of Energy, Climate,

Society for Healthcare Engineering, manages an Energy Efficiency Commitment program that tracks facilities' energy usage and has recognized twenty-nine hospitals and medical office buildings achieving a ten percent or greater reduction in energy consumption.⁶⁷ One hospital pledged to decrease carbon dioxide emissions 30% by 2018 and has taken actions indicative of plus factors, including a fleet of hybrid vehicles, a full-time sustainability officer, volunteer "green champions" throughout the hospital, and a commitment to share best practices with local organizations.⁶⁸ This group also provides a Healthcare Energy Guidebook, plus other resources,⁶⁹ and publicizes the outstanding achievements in energy efficiency gains by some facilities.⁷⁰

and the Environment). The AHA continued: "For some, being in compliance in a high-risk regulatory environment is a driver. Others are responding to external pressure to address environmental issues like climate change or resource conservation. Some simply want to be better environmental stewards. Most are looking for cost savings. Whatever your motivations, we can all probably agree that using less energy and less water and generating less waste can both save money and contribute to cleaner air and water and a healthier environment." *Id.*; see, e.g., MICHELLE GOTTLIEB & NANCY DICKERMAN, CHAPTER 7 FIRST DO NO HARM: ENVIRONMENTAL RESPONSIBILITY IN THE NICU, NICQ 2007: IMPROVEMENT IN ACTION 1, 11 (2007), available at http://www.vtoxford.org/quality/ebook/NICQ_2007_Chapter_7.pdf (providing Kaiser Permanente mission statement as an example of environmental responsibility based on healthcare mission).

67. See American Society for Healthcare Engineering (ASHE), *ASHE's Energy Efficiency Commitment Initiative*, INSIDE ASHE 35, 35 (2007), available at http://www.ashe.org/resources/inside_ASHE/pdfs/2007/15_1_f_energy.pdf (describing to members the opportunity for recognition if this ten percent reduction is achieved).

68. See EPA Honors New York-Presbyterian Hospital for Environmental Sustainability and Energy Efficiency, N.Y.-PRESBYTERIAN HOSPITAL (Mar. 23, 2010), <http://nyp.org/news/hospital/epa-environmental-energy.html> (saluting New York Presbyterian Hospital's commendable efforts in achieving environmental sustainability).

69. ASHE, HEALTHCARE ENERGY GUIDEBOOK 1 (2004), available at http://www.ashe.org/e2c/pdfs/energy/heg_full.pdf (providing market knowledge to help hospitals save money); see *ASHE Resources*, ASHE, <http://www.ashe.org/resources/> (last visited Sept. 15, 2011) (providing other resources) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); ASHE, *The Midas Touch: How the Best Just Keep Getting Better*, INSIDE ASHE 44, 44 (2006), available at http://www.ashe.org/resources/inside_ASHE/pdfs/2006/ia_v14n4_energystar.pdf [hereinafter ASHE, *The Midas Touch*] (illuminating specific successful energy reductions by hospitals as a result of ASHE's efforts).

70. ASHE, *ASHE's Energy Efficiency Commitment*, INSIDE ASHE 35, 35 (2007), available at http://www.ashe.org/resources/inside_ASHE/pdfs/2007/15_1_f_energy.pdf (announcing ASHE's new E2C commitment to energy efficiency); *ASHE Recognizes Health Care Facilities for Reduction in Energy Consumption*, ASHE (April 22, 2011), <http://www.ashe.org/e2c/rec/awards.html> (recognizing 13 health care facilities for their leadership in reducing energy consumption); ASHE, *Pair of Aces: New York Presbyterian and Houston Shriners Hospitals Win 2007 ENERGY STAR Awards*, INSIDE ASHE 31, 31–33 (2007), available at

Another group, Health Care Without Harm, participated in developing “Green Guide for Health Care,”⁷¹ including a 2007 report “A Prescriptive Path to Energy Efficiency Improvements for Hospitals.”⁷² As of June 2010, 196 projects were registered with the “Green Guide.”⁷³ In August 2010, about seventy health care facilities began participating in a pilot project to test energy demand management and other recommendations.⁷⁴ One pilot facility became the first LEED Platinum hospital through a \$5 million dollar initiative to achieve that certification;⁷⁵ among other features, it

http://www.ashe.org/resources/inside_ASHE/pdfs/2007/15_3_d_aces.pdf (showcasing two hospitals that found success in energy reduction); ASHE, *The Midas Touch*, *supra* note 69, at 44 (discussing hospital success stories); EPA Honors New York-Presbyterian Hospital, *supra* note 68 (reporting how one hospital was recognized for its efforts).

71. See About GGHC, GREEN GUIDE FOR HEALTHCARE (GGHC), <http://www.gghc.org/about.php> (last visited Sept. 15, 2011) (providing background information about the Green Guide for Health Care) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *About Us*, HEALTH CARE WITHOUT HARM, http://www.noharm.org/all_regions/about/ (last visited Sept. 15, 2011) (providing information about HCWH) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

72. See GGHC, GREEN GUIDE FOR HEALTH CARE RELEASES PRESCRIPTIVE PATH TO ENERGY EFFICIENCY 1 (Dec. 19, 2007), available at http://www.noharm.org/lib/downloads/climate/GGHC_Prescrip_Path_PR.pdf [hereinafter GGHC, PRESCRIPTIVE PATH TO ENERGY EFFICIENCY] (utilizing a peer-reviewed methodology for hospitals to achieve a 14% energy improvement over a building standard).

73. See GGHC, 2009 ANNUAL REPORT: ACCELERATING THE GREENING OF HEALTH CARE 15 (2009), available at <http://www.gghc.org/documents/misc/AnnualReportv6.pdf> [hereinafter GGHC, ANNUAL REPORT] (“As of June 2010, 196 projects are registered with the *Green Guide*, representing over 40 million square feet of construction.”).

74. See HEALTH CARE WITHOUT HARM & PRACTICE GREENHEALTH, ADDRESSING CLIMATE CHANGE IN THE HEALTH CARE SETTING: OPPORTUNITIES FOR ACTION 3, available at http://www.noharm.org/lib/downloads/climate/Addressing_Climate_Change.pdf (discussing how many health care facilities are operating sustainably); GOTTLIEB & DICKERMAN, *supra* note 66, at 1 (noting that the health care sector is “well poised to emerge as leaders in modeling health and sustainability”); GGHC, PRESCRIPTIVE PATH TO ENERGY EFFICIENCY, *supra* note 72, at 1 (announcing the details about one of the projects of Green Guide to Health); GGHC, 2009 ANNUAL REPORT, *supra* note 73, at 15 (noting the success of the Green Guide for Health); *The v2.2 Operations Pilot Program Forges Forward*, GGHC NEWSLETTER, <http://www.gghc.org/enews/newsletters.php?nlid=35> (last visited Sept. 28, 2011) (“The *Green Guide for Health Care’s Operations Pilot program*, launched in August 2010 in collaboration with Practice Greenhealth, comprises about 70 healthcare facilities large and small, primarily hospitals in the US and Canada.”) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment). “This first-of-its-kind program positions participating pilots to test-drive the 121 credits of the *Green Guide v2.2 Operations Section*.” *Id.*

75. See U.S. DEP’T OF ENERGY, INTEGRATED BUILDING DESIGN CRITICAL TO HIGH PERFORMANCE HOSPITALS 1, 2 (2009), available at http://apps1.eere.energy.gov/buildings/publications/pdfs/energysmarthospitals/esh_improving-designfs.pdf (highlighting Dell Children’s Hospital of Central Texas, the first LEED Platinum hospital). LEED (Leadership in Energy and Environmental Design) is a building

operates a combined cooling/heating power plant (natural gas-fired turbine cogenerating 4.5 megawatts of electricity and heat) that is seventy-five percent more efficient than coal-fired electric power generation plants and makes weekly incentive payments to workers for recycling construction waste (indicating plus factors).⁷⁶ Another health care system certified its GHG emissions with the California Climate Action Registry and is deploying fifteen megawatts of solar power across fifteen facilities with a long (twenty year) expected payback.⁷⁷

Practice Greenhealth members (over 1,000 hospitals and health care systems) made commitments to sustainable, eco-friendly practices.⁷⁸ This group conducts annual reviews for environmental excellence awards and offers tools, benchmark reports, and seminars to promote sustainable practices.⁷⁹ The twenty-four winners of its top award level in 2011 achieved

certification system developed by the U.S. Green Building Council in 2000. It seeks to promote sustainable building and development practices through rating systems. LEED Platinum is the highest level. See *What LEED Is*, U.S. GREEN BUILDING COUNCIL, www.usgbc.org/DisplayPage.aspx?CMSPageID=1988 (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

76. See ED MARDIAT, *DELL CHILDREN'S MEDICAL CENTER OF CENTRAL TEXAS PACKAGED HYBRID CHP ENERGY PLANT 1*, 1–38, available at http://www.gulfcoastcleanenergy.org/Portals/24/Events/Hurricane_2006/DellChildrensHospital.pdf (providing statistics and methods for achieving LEED status).

77. See *Green Guidelines Take Root in Austin*, MCGRAW-HILL CONSTRUCTION (2007), http://texas.construction.com/features/archive/0702_cover.asp (describing one such facility); MARDIAT, *supra* note 76, at 9–10 (describing the benefits of the LEED facility); *Kaiser Permanente to Install Solar Power Systems at 15 Facilities*, ENVTL. LEADER (March 30, 2010), <http://www.environmentalleader.com/2010/03/30/kaiser-permanente-to-install-solar-power-systems-at-15-facilities/> (noting that Kaiser Permanente, in collaboration with Recurrent Energy, will be facilitating these solar power upgrades). The long payback for this investment in terms of energy savings, together with participation in the California Climate Action Registry, suggest that the health care system gave weight to plus factors related to sustainability.

78. See *About*, PRACTICE GREENHEALTH, <http://practicegreenhealth.org/about> (last visited Sept. 17, 2011) (stating a primary principle as environmental stewardship) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); see also Mark Sanchez, *The Greening of Health Care*, BUS. REV. W. MICH. (Jan. 7, 2007, 9:00 AM), http://www.mlive.com/business/west-michigan/index.ssf/2010/01/the_greening_of_health_care.html (providing an interview with Gary Cohen, the HCWH co-executive director, about Practice Greenhealth).

79. See *Tools & Resources*, PRACTICE GREENHEALTH, <http://practicegreenhealth.org/tools-resources> (last visited Sept. 17, 2011) (providing the tools, reports, and seminars for sustainable practice) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *Awards*, PRACTICE GREENHEALTH, <http://practicegreenhealth.org/awards> (last visited Sept. 17, 2011) (listing award qualifications) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *Award Winners*, PRACTICE GREENHEALTH, at 1–2, <http://practicegreenhealth.org/awards/award-winners> (last visited Sept. 17, 2011) (listing

at least a twenty-five percent recycling rate and demonstrated leadership in sustainability.⁸⁰

C. Schools Embrace Energy Efficiency in Their Mission to Prepare Students and Lead

Educational institutions comprise a third large sector of society that has embraced increased energy efficiency as central to its mission. Schools at all levels recognize their social obligation to teach energy efficiency.⁸¹ Moreover, many schools understand that implementing energy efficiency measures in their buildings and operations goes hand-in-hand with their educational mission.⁸²

award winners) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

80. See *Award Types*, PRACTICE GREENHEALTH, at 3, <http://practicegreenhealth.org/awards/award-types> (minimum qualifications for the Environmental Leadership Circle award).

81. See *Member Schools*, GREEN SCHOOLS ALLIANCE, http://www.greenschoolsalliance.org/schools_members.html (last visited Sept. 17, 2011) (providing examples of elementary school initiatives) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *PS 166 Goes Green*, PS 166, http://www.ps166.org/site_res_view_template.aspx?id=c69c691d-bcb9-4444-a43e-fcb6484285ce (last visited Sept. 17, 2011) (highlighting one school's sustainability efforts) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); Dennis Van Roekel, *President's Viewpoint—The Need for Green Schools*, NAT'L EDUC. ASS'N, <http://www.nea.org/home/30576.htm> (last visited Nov. 9, 2011) (providing the viewpoint of the leader of a national union of school teachers, faculty, and other school professionals on the need for sustainability programs in schools); *Illinois Sustainable University Compact*, OFFICE OF GOVERNOR PAT QUINN, http://www.standingupforillinois.org/green/compact_cu.php (last visited Sept. 17, 2011) (providing an example of secondary school initiatives) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *2011 Report Card*, THE COLLEGE SUSTAINABILITY REPORT CARD, <http://greenreportcard.org/report-card-2011> (last visited Sept. 17, 2011) (rating colleges on their sustainability efforts) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment). See generally *Citizenship and Pathways for a Green Economy: Remarks by Under Secretary Martha Kanter at the Sustainability Education Summit*, U.S. DEP'T OF EDUC. (Sept. 20, 2010), <http://www.ed.gov/news/speeches/citizenship-and-pathways-green-economy-remarks-under-secretary-martha-kanter-sustainab> [hereinafter *Citizenship and Pathways*].

82. See *Mission and History*, AM. COLL. & UNIV. PRESIDENTS' CLIMATE COMMITMENT (ACUPCC), <http://www.presidentsclimatecommitment.org/about/mission-history> (last visited Sept. 17, 2011) ("The college and university presidents and chancellors who are joining and leading the Commitment believe that exerting leadership in addressing climate disruption is an integral part of the mission of higher education . . .") (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

1. Energy Efficiency as a Mission of Schools

The American College & University Presidents' Climate Commitment (ACUPCC) is a leading example of the tie between the educational mission and energy efficiency in school buildings and operations.⁸³ The recitals not only acknowledge the need to reduce global emissions of GHG by eighty percent by mid-century at the latest, but also connect this need to the educational mission:⁸⁴

We believe colleges and universities must exercise leadership in their communities and throughout society by modeling ways to minimize global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality. Campuses that address the climate challenge by reducing global warming emissions and by integrating sustainability into their curriculum will better serve their students and meet their social mandate to help create a thriving, ethical and civil society.⁸⁵

Signatories commit to three types of actions.⁸⁶ First, they develop a comprehensive plan to achieve climate neutrality as soon as possible; the steps include (a) completing an inventory of all GHG emissions (including those emissions from electricity, heating, motor-vehicles, and air-travel) within one year and (b) developing an action plan within two years.⁸⁷

83. See *id.* (outlining the commitment of the ACUPCC); see also *AASHE Honors Campus Sustainability Champions*, ASSOCIATION FOR THE ADVANCEMENT OF SUSTAINABILITY IN HIGHER EDUCATION (AASHE) (Oct. 10, 2011), <http://www.aashe.org/highlights/press-releases/aashe-honors-campus-sustainability-champions> (stating that AASHE's "mission is to empower higher education to lead the sustainability transformation").

84. See *Text of the ACUPCC*, ACUPCC, <http://www.presidentsclimatecommitment.org/about/commitment> (last visited Sept. 28, 2011) ("These colleges and universities will be providing students with the knowledge and skills needed to address the critical, systemic challenges faced by the world in this new century and enable them to benefit from the economic opportunities that will arise as a result of solutions they develop.") (on file with the Washington and Lee Journal of Energy, Climate, and the Environment). The commitment continued: "We further believe that colleges and universities that exert leadership in addressing climate change will stabilize and reduce their long-term energy costs, attract excellent students and faculty, attract new sources of funding, and increase the support of alumni and local communities." *Id.* The ACUPCC added: "We further recognize the need to reduce the global emission of greenhouse gases by 80% by mid-century at the latest, in order to avert the worst impacts of global warming and to reestablish the more stable climatic conditions that have made human progress over the last 10,000 years possible." *Id.*

85. *Id.*

86. See *id.* (describing the types of actions committed to by signatories).

87. See *id.* (stating the first type of action). The first action is as follows:

Second, signatories take tangible actions to reduce GHG emissions while the plan is being developed; potential actions include establishing a policy that all new campus construction satisfy at least the LEED Silver standard, adopting an energy-efficient appliance purchasing policy, and purchasing or producing renewable energy (at least fifteen percent of total energy used).⁸⁸ Third, signatories publish their action plan, inventory, and periodic progress reports.⁸⁹

Initiate the development of a comprehensive plan to achieve climate neutrality as soon as possible[;]

[A]. Within two months of signing this document, create institutional structures to guide the development and implementation of the plan.

[B]. Within one year of signing this document, complete a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting, and air travel) and update the inventory every other year thereafter.

[C]. Within two years of signing this document, develop an institutional action plan for becoming climate neutral, which will include:

i. A target date for achieving climate neutrality as soon as possible[;]

ii. Interim targets for goals and actions that will lead to climate neutrality[;]

iii. Actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students[;]

iv. Actions to expand research or other efforts necessary to achieve climate neutrality[; and]

v. Mechanisms for tracking progress on goals and actions. *Id.*

88. *See id.* (stating the second type of action). The second type of action is as follows:

Initiate two or more of the following tangible actions to reduce greenhouse gases while the more comprehensive plan is being developed[;]

[A]. Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent.

[B]. Adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist.

[C]. Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by our institution.

[D]. Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.

[E]. Within one year of signing this document, begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources.

[F]. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution's endowment is invested.

[G]. Participate in the Waste Minimization component of the national RecycleMania competition[] and adopt 3 or more associated measures to reduce waste. *Id.*

89. *See id.* (stating the third type of action: "Make the action plan, inventory, and periodic progress reports publicly available by submitting them to the ACUPCC Reporting System for posting and dissemination").

The Green Schools Alliance is a similar environmental effort for elementary and secondary schools. Its mission addresses the broader context that there are more than 120,000 elementary and secondary schools in the United States that directly touch the lives of more than 80 million people every day.⁹⁰ Taxpayers spend about \$8 billion dollars on energy for schools each year (more than is spent on school textbooks and computers combined); green schools, however, can reduce these costs by an average of thirty-five percent.⁹¹ The Green Schools Alliance observed the multi-dimensional intertwining of the educational mission with energy efficiency:

The aggregate impact of school communities is sufficient to play a measurable role in helping to mitigate global warming and build a safe, sustainable future through the collective strength of individual action If inspired to think globally and act locally, students and their broader school communities, can be empowered to become stewards for the environment who can impact climate change and our future on this planet Teachers could incorporate their school's green features, such as energy, into their curriculum, providing students with hands-on learning opportunities about the environment, [and] educat[ing] their school communities about the important role each person can play to build a safe, sustainable future.⁹²

90. See *Welcome, GREEN SCHOOLS ALLIANCE*, <http://www.greenschoolsalliance.org/about.html> (last visited Sept. 17, 2011) (stating the general history of the organization) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); see also *The Opportunity: Sustainable Schools*, GREEN SCHOOLS ALLIANCE, <http://www.greenschoolsalliance.org/opportunity.html> (last visited Sept. 17, 2011) (“There are more than 120,000 public, private and independent pre-K to grade 12 schools in the United States alone that directly touch the lives of more than 80 million people.”) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *ENERGY STAR for K-12 School Districts*, U.S. EPA, http://www.energystar.gov/index.cfm?c=k12_schools.bus_schoolsk12 (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

91. See *Welcome, supra* note 90 (describing ways for schools to reduce their costs); *The Opportunity, supra* note 90 (“According to the U.S. Department Of Energy, taxpayers spend \$8 billion dollars on energy for schools each year. Green schools reduce these costs by an average of 35%. Nationally, this equals nearly \$3 billion dollars, EACH YEAR.”). See generally *Citizenship and Pathways, supra* note 81; *EnergySmart Schools*, U.S. DEP’T OF ENERGY, <http://www1.eere.energy.gov/buildings/energysmartschools/about.html> (last visited Sept. 17, 2011); U.S. DEP’T OF ENERGY, *GUIDE TO OPERATING AND MAINTAINING ENERGYSMART SCHOOLS* iii–v, available at http://apps1.eere.energy.gov/buildings/publications/pdfs/energysmartschools/ess_o-and-m-guide.pdf.

92. *The Opportunity, supra* note 90.

The Green Schools Leadership Commitment and Pledge allows a school to choose between two levels.⁹³ The Climate Champion Level commits the school to reduce its carbon footprint by at least thirty percent within five years and achieve carbon neutrality by 2020.⁹⁴ The Climate Steward Level does not require a specific carbon footprint reduction; however, a school on this level should track its carbon footprint to achieve reduced emissions over time.⁹⁵ Like the ACUPCC, the Green Schools Alliance commitment involves establishing a comprehensive sustainability action plan, benchmarking energy usage and carbon emissions, taking short-term tangible actions, and reporting on progress.⁹⁶

Finally, the National Education Association, which has represented schools' faculty and staff for over 150 years, has embraced the mission-driven commitment to energy efficiency: "Green schools are also a great teaching tool. If we want children to learn that human beings have a responsibility to be good stewards of natural resources, we have to teach them by example. Green schools protect the environment by reducing energy consumption an average of 33%."⁹⁷ This group provides guides for curriculum resources directed at the schools' environmental practices (such as the schools' recycling programs),⁹⁸ hosts a national summit on preparing

93. See GREEN SCHOOLS ALLIANCE, A CALL TO ACTION 1, *available at* <http://www.greenschoolsalliance.org/images/docs/GSAClimatePledge.pdf> (describing the two commitment levels).

94. See *id.* (describing the Climate Champion Level).

95. See *id.* (describing the Climate Steward Level).

96. See *About Us*, GREEN SCHOOLS ALLIANCE, <http://www.greenschoolsalliance.org/about.html> (last visited Sept. 17, 2011) ("The GSA brings together ALL members of the school community with corporate, NGO and government partners, to develop programs that produce meaningful, quantifiable results—participants measure, reduce and report progress.") (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

97. Van Roekel, *supra* note 81. See *generally Our History*, NAT'L EDUC. ASS'N, <http://www.nea.org/home/1704.htm> (last visited Sept. 17, 2011) (indicating also the need to teach the next generation about environmental sustainability) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *Earth Day Curriculum Resources*, NAT'L EDUC. ASS'N, <http://www.nea.org/tools/lessons/earth-day-curriculum.html> (last visited Sept. 28, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *NEA's Green Across America Grants Winners 2010*, NAT'L EDUC. ASS'N, <http://neagreen.schools.groupsites.com/discussion/topic/show/397961> (last visited Sept. 28, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); Amy Buffenbarger, *NEA Hosts First Summit on Environmental Education*, NAT'L EDUC. ASS'N (Oct. 19, 2010), <http://neagreen.schools.groupsites.com/link/go/84090677>.

98. See *Earth Day Curriculum Resources*, *supra* note 97 (providing Earth Day activities for use by schools).

students to make choices about the environment,⁹⁹ and awards grants for innovative environmental programs in schools.¹⁰⁰

2. *Some Energy Efficiency Actions by Schools*

There are more than 675 signatories to the ACUPCC, educating over 5.6 million students (more than one-third of students in higher education in the United States).¹⁰¹ The signatory schools' current and planned emissions reductions would cut more than 33 million metric tons of carbon dioxide-equivalents per year.¹⁰² About two-thirds of the signatories have committed to, within two years, implement policies requiring purchases of ENERGY STAR products and mandate that all new buildings satisfy the LEED Silver standard.¹⁰³ In setting target dates for becoming climate neutral, fourteen percent adopted the aggressive target of 2020, fifteen percent set their goal to 2030, seven percent chose 2040, and thirty percent committed to 2050.¹⁰⁴ As with the covenants signed by religious congregations, these commitments are not conditioned on the schools' ability to find cost-justified actions.¹⁰⁵

99. See Buffenbarger, *supra* note 97 (recapping the NEA's Summit on Environmental Education).

100. See *NEA's Green Across America Grants Winners 2010*, NAT'L EDUC. ASS'N, http://www.neamb.com/assets/content/documents/NEA_Green_Across_America_Winners_2010.pdf (stating the winners from the Green Across America competition).

101. See *Signatory List by Institution Name*, ACUPCC, <http://www.presidentsclimatecommitment.org/signatories/list> (last visited Sept. 17, 2011) (providing the list of signatory schools for the president's climate commitment) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); ACUPCC, 2009 ANNUAL REPORT: CLIMATE LEADERSHIP FOR AMERICA: EDUCATION AND INNOVATION FOR PROSPERITY 2, 16, 18, 21 (2010), available at http://www2.presidentsclimatecommitment.org/reporting/documents/ACUPCC_AnnRep_2009.pdf; *Geothermal: Leading the Way in Alternative Energy*, BALL STATE UNIV., <http://cms.bsue.edu/About/StrategicPlan/YearThree/Green/Geothermal.aspx> (last visited Sept. 28, 2011) (describing one higher educational institution that has excelled in sustainability) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *2011 Report Card*, *supra* note 81 (rating colleges based on their environmental efficiency efforts).

102. See ACUPCC, 2009 ANNUAL REPORT, *supra* note 101, at 16 ("Extrapolating these averages across the entire signatory group, when the 665 ACUPCC institutions to date achieve climate neutrality they will eliminate an estimated 33,129,710 metric tons of CO₂ emissions per year.").

103. See *id.* at 18 (providing a bar graph illustrating the various commitments by signatories).

104. See *id.* at 21 (providing the emissions reduction strategies of various institutions).

105. See *id.* at 23 (quoting David Skorton, President of Cornell University: "If our core mission of learning, discovery, and engagement results in a more sustainable world, then we will have succeeded").

The ACUPCC highlighted the achievements of several individual educational institutions that reduced their energy demand. One university's geothermal project requires a \$42.5 million investment; this investment is expected to yield about \$2 million dollars in savings in annual operating costs and cut the university's carbon footprint in half.¹⁰⁶ The ACUPCC report for 2009 observed the following:

Signatory schools are showing the rest of society how to work quickly toward climate neutrality. They are dramatically reducing operating costs, training clean energy workers, and spurring innovation in energy efficiency, transportation, and renewable power. They are teaching tomorrow's architects, business leaders, policy-makers, engineers, economists, and product designers how to operate society sustainably.¹⁰⁷

As for elementary, middle, and high schools, EPA listed about 1,000 schools as ENERGY STAR Partners and over 160 schools as ENERGY STAR Leaders (recognizing energy performance improvements) as of October 10, 2011.¹⁰⁸ The Green Schools Alliance, with more than 1,950 members, conducts an annual Green Cup Challenge.¹⁰⁹ Participating schools track and attempt to reduce their energy consumption over a period of four weeks.¹¹⁰ In the 2010 challenge, 143 schools participated and used

106. See e.g., *id.* at 16 (highlighting Ball State University's efforts); BALL STATE UNIV., *supra* note 101 ("When it's fully implemented, the geothermal system will replace four aging coal boilers, saving us \$2 million per year in operating costs and cutting our carbon footprint roughly in half."). The expected payback period (over 21 years) for this project indicates that the business case for this investment reflects plus factors related to sustainability.

107. ACUPCC, 2009 ANNUAL REPORT, *supra* note 101, at 2; see also SUSTAINABLE ENDOWMENTS INSTITUTE, GREENING THE BOTTOM LINE: THE TREND TOWARD GREEN REVOLVING FUNDS ON CAMPUS 5 (2011), available at <http://greenbillion.org/wp-content/uploads/2011/10/GreeningTheBottomLine.pdf> (surveying revolving funds for energy efficiency upgrade projects at fifty-two institutions of higher education, finding median annual return on investment of thirty-two percent).

108. See *ENERGY STAR Leaders and Awards*, U.S. EPA, http://www.energystar.gov/index.cfm?c=partner_list.accomplishments (last visited Oct. 23, 2011) (recognizing portfolio-wide energy efficiency improvements) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); see also *Buildings & Plants Partner List Results: K-12 Education*, U.S. EPA, http://www.energystar.gov/index.cfm?fuseaction=PARTNER_LIST.showPartnerResults&partner_type_id=CIK&cntry_code=ALL (last visited Oct. 23, 2011).

109. See *2011 Green Cup Challenge*, GREEN SCHOOLS ALLIANCE, <http://www.greencupchallenge.net/> (last visited Sept. 17, 2011) (providing information about the 2011 Green Cup Challenge) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

110. See *About the Green Cup Challenge*, GREEN SCHOOLS ALLIANCE, <http://www.greencupchallenge.net/about.html> (last visited Sept. 17, 2011) (providing general

on average five percent less energy than their baseline.¹¹¹ Twenty schools achieved reductions of fifteen percent or more.¹¹² Green Schools Alliance publicized the competition, the names of participants, and their achievements.¹¹³

IV. Recommendations to Expand Mission-Driven Energy Efficiency Actions

Many entities in the religious, health care, and education sectors embrace energy efficiency as intrinsic to their missions. These beliefs lead some entities operating in these sectors to earlier, more extensive adoption of energy efficiency measures.¹¹⁴ While capital budgets and standard lifecycle financial analyses shape the range of feasible and attractive energy efficiency measures for all entities, the mission-driven focus on energy efficiency likely raises the willingness to consider and devote resources to these actions.¹¹⁵

information about the Green Cup Challenge) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

111. See *Results from the 2010 Green Cup Challenge*, GREEN SCHOOLS ALLIANCE, <http://www.greencupchallenge.net/results2010.html> (last visited Sept. 17, 2011) (listing the results from the 2010 Green Cup Challenge) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

112. See *id.* (listing all schools above the fifteen percent threshold).

113. See *2011 Green Cup Challenge*, *supra* note 109 (detailing the competition); see also *Results*, *supra* note 111 (stating the results of the challenge); *Member Schools*, *supra* note 81 (stating the members of GSA); *Take Action! Make the Commitment*, GREEN SCHOOLS ALLIANCE, http://www.greenschoolsalliance.org/schools_join.html (last visited Sept. 17, 2011) (providing details for schools to join the Green Schools Alliance) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *PS 166 Goes Green*, *supra* note 81 (giving the details on one school that achieved an 18% reduction in energy use); Heather Clancy, *Green Energy Challenge Encourages Students to Learn, and Learn From, Conservation Habits*, SMARTPLANET (Jan. 13, 2010, 6:05 AM), <http://www.smartplanet.com/business/blog/business-brains/new-meaning-for-homework-green-energy-challenge-encourage-students-to-learn-and-learn-from-conservation-habits/4380/> (reporting on the Green Cup Challenge).

114. See *Why Build Green?*, *supra* note 50 (providing an example of extensive energy efficiency measures in religious institutions); ASHE, *The Midas Touch*, *supra* note 69 (providing an example of extensive energy efficiency measures in hospitals); *PS 166 Goes Green*, *supra* note 81 (providing an example of extensive energy efficiency in schools).

115. See John Harris, *New Paths to Business Value: Linking Environment, Health and Safety Performance to Strategic Sourcing*, GREENING THE SUPPLY CHAIN 47 (Joseph Sarkis ed., 2006) (“Strategic advantage, reputation and public good will are often labeled as ‘soft benefits’ because it is difficult to estimate their financial value precisely.”). Also, “the risk of [only considering the hardest of the quantifiable benefits] is that [the company] disregard[s] intangible benefits that may have added significant, albeit difficult to quantify, value” *Id.*

From the perspectives of environmental sustainability and public health, the federal, state and local governments should do more to mandate actions or reflect in market energy prices the harms from most energy production. Society must persist in pursuing helpful legislation and regulations.¹¹⁶ In addition, society needs to encourage mission-driven organizations and others to improve energy efficiency (resulting in lower GHG emissions) by overcoming the often inadequate standard financial considerations under current market prices.¹¹⁷ The following nine recommendations build on the missions and accomplishments in the religious, health care, and education sectors.

A. Expand the Penetration of Mission-Driven Commitments and Actions

Many religious congregations, health care providers, and schools did not participate in some of the most high-profile energy efficiency programs. For example, less than one percent of elementary and secondary schools participated in the EPA's ENERGY STAR Partners program,¹¹⁸ less than two percent of such schools joined the Green Schools Alliance,¹¹⁹ and only about ten percent of Green Schools Alliance members participated in the Green Cup Challenge in 2010.¹²⁰ Roughly ninety percent of the nation's colleges and universities, which enroll about two-thirds of higher education students in the United States, have yet to sign up to the ACUPCC.¹²¹ Similarly, while Interfaith Power & Light claims that it works with 10,000 congregations, only about 250 (2.5%) participated in that group's recent ten percent Challenge,¹²² and only about fifteen percent of that number of congregations participated in the EPA's ENERGY STAR Partners

116. See U.S. DEP'T OF STATE, CLIMATE ACTION REPORT, *supra* note 3, at 41–75 (finding that the government has not made adequate efforts to address energy efficiency problems).

117. See *supra* notes 84 and 85 and accompanying text (quoting the mission of the ACUPCC).

118. See *supra* notes 90 and 108 and accompanying text.

119. See *Schools Guiding Schools*, GREEN SCHOOLS ALLIANCE, <http://www.greenschoolsalliance.org/schools.html> (last visited Sept. 29, 2011) (stating that there are 1,989 member schools in the alliance) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

120. See *Member Schools*, *supra* note 81 (stating there are currently 1,989 member schools); *Results 2010 Green Cup Challenge*, *supra* note 111 (stating there were 144 participants in the 2010 challenge). Dividing the 144 participants in the 2010 challenge by the current number of members results in the percentage of school members that participated in the challenge.

121. See *supra* note 101 and accompanying text.

122. See *IPL 10% Challenge Winners*, *supra* note 46 (“Approximately 250 congregations from thirty-eight states entered the 10% Challenge.”).

program.¹²³ Of course, the non-participants with regard to these groups and programs may embrace the energy efficiency goal and take commendable actions. Yet, there is room for improvement in the penetration of mission-promoting actions by entities in these sectors, leading to three recommendations.

1. Teach Energy Efficiency as a Core Value

The education and training of leaders in these sectors should raise the acceptance of greater energy efficiency as central to their missions.¹²⁴ Energy efficiency should be taught as a priority in lowering operating costs and also worthy of many plus factors.¹²⁵ These lessons should be part of the curriculum of graduate school programs in health care and education administration and management, as well as broader undergraduate and graduate programs in divinity, public health, medicine, and education.¹²⁶ Other organizations in these sectors should mobilize members to increase their energy efficiency. Entities should highlight energy efficiency in their mission statements and communicate this message to staff and others who use their facilities.

2. Alliances with Government Programs

Recognizing a greater propensity by entities in these sectors to adopt energy efficiency measures, government programs to promote energy efficiency should target these sectors with information, tools, awards, and other assistance. The U.S. Department of Energy's Hospital Energy Alliance and EnergySmart Schools programs, as well as the EPA's *Putting Energy into Stewardship* guide for congregations, illustrate such efforts.¹²⁷

123. See *supra* note 39 and accompanying text.

124. See e.g., U.S. DEP'T OF ENERGY, ENERGY SMART SCHOOLS, *supra* note 7, at 1 (asserting that energy-smart schools are beneficial for the community as a whole).

125. See EPA, THE LEAN AND GREEN SUPPLY CHAIN: A PRACTICAL GUIDE FOR MATERIALS MANAGERS AND SUPPLY CHAIN MANAGERS TO REDUCE COSTS AND IMPROVE ENVIRONMENTAL PERFORMANCE 1, 3 (Jan. 2000), available at <http://www.epa.gov/opptintr/library/pubs/archive/acct-archive/pubs/lean.pdf> [hereinafter EPA, LEAN AND GREEN] (stating the ability of energy efficiency to not only reduce costs but to also promote customer service).

126. See *Signatory List*, *supra* note 101 (indicating a general interest in environmental conversation by secondary schools).

127. See U.S. DEP'T OF ENERGY, ENERGY SMART SCHOOLS, *supra* note 7, at 1 (stating the objective of the publication); *ENERGY STAR Guide for Congregations*, U.S. EPA, http://www.energystar.gov/index.cfm?c=congregations_guidebook.congregations_guidebook (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

State and municipal programs should also contribute to actions in these sectors.

3. *Financial Support for Energy Efficiency*

The values in these sectors create a greater willingness to implement helpful programs, but many entities are struggling for funding. The not-for-profit organizations in these sectors do not benefit from some tax incentives that may be effective with households and for-profit businesses.¹²⁸ Energy efficiency programs through government grants and utility rebates should be available to congregations, health care providers, and schools. Also, foundations and private donors seeking to support these entities should target more of their gifts to energy efficiency actions. Capital expenditures to improve the energy efficiency of building systems and other measures have the dual benefits of decreasing operating costs and helping the organizations implement their values.¹²⁹ Financing to enable further energy improvements in these sectors could have multiple benefits in other sectors, as described below.¹³⁰

128. See, e.g., *Mayor Villaraigosa Announces \$2 Million LADWP Energy and Water Efficiency Audits and Retrofits for Nonprofit Organizations*, LADWP NEWS (Dec. 21, 2010), <http://www.ladwpnews.com/go/doc/1475/974971/> (utilizing funds from the federal American Recovery and Reinvestment Act to conduct audits for non-profit organizations); see also *Kane County Revolving Loan Fund for Energy Efficiency*, KANE COUNTY, ILLINOIS, <http://www.countyofkane.org/Pages/kcci/rlf4ee.aspx> (last visited Oct. 23, 2011) (providing an example of a program in an Illinois county that capitalizes eligible local government, public, and non-profit organizations through an Energy Efficiency and Conservation Block Grant as part of the American Recovery and Reinvestment Act) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *IFF Receives \$1 Million Grant to Reduce Energy Use by Area Nonprofits*, IFF.ORG (July 11, 2011), <http://www.iff.org/resources/content/4/7/documents/CMAP%20-%20IFF%20Grant%20Announcement--07%2011%2011.pdf>.

129. See e.g., *\$1 Billion Green Challenge Launches: Harvard, Stanford, Arizona State, and other leading universities commit \$65 million to new energy efficiency programs*, BILLION DOLLAR GREEN CHALLENGE (Oct 11, 2011), <http://greenbillion.org/launch/> (inviting financial support from institutions of higher education as well as foundations for green revolving funds); U.S. DEP'T OF ENERGY, ENERGY SMART SCHOOLS, *supra* note 7, at 6 (finding that "operating costs will fall, and teacher and student comfort (and, by extension, performance) will rise").

130. See U.S. DEP'T OF ENERGY, ENERGY SMART SCHOOLS, *supra* note 7, at 6 ("The value of broad-based benefits outweighs the value of energy saving alone, and project managers should include them in the cost-benefit analysis.").

B. Reach Suppliers to Entities with Mission-Driven Commitments

Religious congregations, health care providers, and schools are large energy users.¹³¹ Commitments covering their own operations are important and relatively easy to benchmark, monitor, and address through action plans. Affecting the operations of their suppliers would increase the impacts on energy demand but should not detract from commitments to improve the signatories' own operations.¹³²

Some companies selling products and services to entities in these sectors already embrace the environmental missions of their customers. For example, some pharmaceutical and hospital equipment suppliers have developed extensive environmental sustainability programs.¹³³ In addition to standard financial analysis of energy efficiency measures, these efforts reflect a combination of the attempt to attract mission-driven customers and adopt as a core corporate value that manufacturing health care products should not impair public health.¹³⁴ Similar principles should apply to providers of books, furniture, building systems, transportation services, and other supplies for religious and educational entities. To illustrate, religious congregations and schools purchase books describing nature and the environment; printers of such books should be driven to reduce the harms they cause to ecosystems.

131. See *IPL 10% Challenge Winners*, *supra* note 46 (showing efforts by religious organizations to offset large energy use); see also U.S. DEP'T OF ENERGY, *ENERGY SMART SCHOOLS*, *supra* note 7 (creating an organization to offset healthcare providers' large energy use); *id.* at ii (discussing large energy usage in schools).

132. See Khoo Hsien Hui et al., *Simulation and Modeling*, in *GREENING THE SUPPLY CHAIN*, *supra* note 115, at 343 (discussing the potential problems that could occur with an increased demand). The author notes that "[a]n increasingly deregulated power industry is scrambling to keep pace with strong customer demand. This has forced many manufacturers to have a vested interest in reducing the costs of energy, which often represent a substantial portion of their total operating expenses." *Id.*

133. See, e.g., *2009 Sustainability Report*, BAXTER CORPORATION, <http://sustainability.baxter.com/http://sustainability.baxter.com/> (last visited Sept. 25, 2011) (providing an example of one manufacturer's efforts) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment); *Environmental Performance*, JOHNSON & JOHNSON <http://www.investor.jnj.com/2009sustainabilityreport/environment/performance.html> (last visited Sept. 25, 2011) (providing another example of a supplier's environmental sustainability program) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

134. See MARDIAT, *supra* note 76, at 28 (stating that "Healthy Buildings result in healthier Staff & Kids").

Some organizations have adopted programs to “green the supply chain.”¹³⁵ Yet, this action is missing from several of the leading environmental commitments in the religious, health care, and educational sectors, leading to two recommendations.

*1. Expand the Public Commitments in these
Sectors to Include Suppliers*

Groups and initiatives such as the Genesis Covenant, Practice Greenhealth, ACUPCC, and Green Schools Alliance should expand their members’ public commitments to include promoting energy efficiency practices by their suppliers. Some guidelines in these sectors already point to such considerations in certain procurements but could be expanded to a more comprehensive program of evaluations on suppliers’ energy and other environmental practices.¹³⁶

*2. Government Programs to Assist
Mission-Driven Customers Influence Suppliers*

Just as government programs should assist mission-driven entities in making their own operations energy efficient, so too should government programs support the efforts of these entities to evaluate and promote their suppliers’ energy efficiency. Entities in these sectors need information, tools, and other assistance in setting standards for their suppliers based on energy efficiency metrics and evaluating their performance. New forms of assistance can build on ENERGY STAR, a joint program of the EPA and the U.S. Department of Energy which provides technical information and tools to organizations and consumers for choosing energy-efficient solutions and best management practices.¹³⁷

135. See generally E. HUMES, *supra* note 12, at 181–83 (describing Wal-Mart’s “The Index” project to measure the sustainability of its operations, its suppliers, and the products sold in its stores); see also GREENING THE SUPPLY CHAIN, *supra* note 115; STUART EMMETT & VIVEK SOOD, GREEN SUPPLY CHAINS: AN ACTION MANIFESTO (2010); EPA, LEAN AND GREEN, *supra* note 125; Nicole Darnall et al., *Environmental Management Systems and Green Supply Chain Management: Complements for Sustainability?*, 17 BUS. STRATEGY & ENV’T 30 (2008).

136. See HEALTH CARE WITHOUT HARM & PRACTICE GREENHEALTH, *supra* note 74, at 5, 7–8 (finding that member organizations should choose transportation suppliers with efficiency/alternate fuel standards, buy green power from energy suppliers, and purchase only Forest Stewardship Certified lumber products).

137. See ENERGY STAR, ENERGY STAR OVERVIEW OF 2009 ACHIEVEMENTS 1 (2010), http://www.energystar.gov/ia/partners/annualreports/2009_achievements.pdf (noting the importance of partnerships that aim to increase energy efficiency); see also LG Electronics

*C. Assist Mission-Driven Organizations as
Role Models and Community Leaders*

Finally, the statements quoted in Section III show that religious congregations, health care providers, and schools pursue energy efficiency partly because of their perceived responsibilities as role models and community leaders. These entities could influence the energy usage decisions of many businesses and households in their communities (their staff, people who use their buildings and services, and others).¹³⁸ While getting their own operations in order should be the top priority, the energy efficiency work of such an organization should not stop until it has spurred similar projects throughout its community. Four recommendations address the opportunities of mission-driven entities to multiply their positive effects on the environment through outreach.

D. Expand the Public Commitments to Include Outreach

Public commitments in these sectors should include programs that encourage staff of businesses and community actions. The groups could provide materials to the staff and the public to explain the importance of energy efficiency to the entities' missions and how it can impact their own facilities and communities. The groups' materials could serve as a model for future communications to staff regarding energy goals and actions, as well as model press releases about the environmental and health benefits.

The individual entities in these sectors could provide further assistance to specific groups to help their communities undertake energy efficiency actions. In light of the value of energy efficiency for their missions, the organizations should use some staff time and resources to promote such actions by others. Facility tours could highlight the message of environmental sustainability, showcase specific energy improvements, and encourage actions by others.¹³⁹ The outreach could include sharing a description of the changes which had the greatest impacts; lists of equipment, software, and services acquired (including brand and supplier); explanations of the utility incentives for which the entity qualified and how to apply; names of energy auditors, architects, and contractors employed; and descriptions of types and sources of financing for these actions.

U.S.A. v. Dep't of Energy, 679 F. Supp. 2d 18, 37 (D.D.C. 2010) (upholding Department of Energy order to remove ENERGY STAR label from certain refrigerators).

138. See LIVERMORE, *supra* note 6, at 50–54 (“People seem to respond best when approached by a peer, someone they trust and can relate to, especially someone viewed as a leader in the community.”).

139. See *Why Build Green?*, *supra* note 50 (providing virtual and docent-lead tours, as well as guides to the congregation's green building projects).

1. *Advocate Government and Community Actions*

Religious congregations, health care providers, and schools should be leading advocates of energy efficiency through community and government actions. As illustrated by a letter from religious groups on federal climate legislation quoted in Section III.A.1,¹⁴⁰ organizations in these sectors should be leaders on federal, state, and municipal decisions affecting energy use and emissions. Moreover, individual entities should lead efforts such as organizing “go green” local citizens groups, participate in planning more mass transit, highlight the energy used and other environmental impacts of nearby businesses, join with shareholder activists to force corporations to report on their energy efficiency and emissions, and facilitate zoning for renewable energy sources.

2. *Direct Endowment Investments*

Mission-driven entities with endowments (such as universities) should direct their investments to companies demonstrating commitments to energy efficiency. Such investment programs could spur more efficient products, lower energy demand, and cleaner energy production.

3. *Government Programs to Assist Outreach*

Government programs should help religious congregations, health care providers, and schools demonstrate community leadership on energy efficiency. Awards from government agencies for entities that excel in energy improvements will help communicate the values and achievements.¹⁴¹ Tools, information, and other assistance from government agencies directed at these entities should include information on how to plan community outreach and how to implement energy programs.

V. *Conclusion*

The roles of energy efficiency in the missions of major sectors in society—for religious congregations, health care providers, and schools—should be recognized and encouraged. In aggregate, entities in each such

140. See *56 Religious Groups*, *supra* note 28 (showcasing a letter from religious groups calling for federal climate legislation).

141. See, e.g., *Battle of the Buildings: EPA’s National Building Competition*, U.S. EPA, <http://www.energystar.gov/index.cfm?fuseaction=buildingcontest.index> (last visited Oct. 23, 2011) (on file with the Washington and Lee Journal of Energy, Climate, and the Environment).

sector are major users of energy and cause harmful energy-related air emissions. Given that these sectors are respected community leaders, the missions of organizations in these sectors play a critical role in communicating their values, including their perspectives on the threats most energy production poses to the environment and human health. Some of these groups appear to admit that plus factors are a core reason to pursue greater energy efficiency. This approach to energy efficiency, however, should be communicated and fostered in others. This paper describes nine recommendations to expand the energy efficiency programs in these sectors and spread them to other sectors in the society.

More generally, society needs to understand the critical gaps in U.S. government-imposed limits on energy air emissions and the market failures in pricing GHG emissions and other environmental externalities from most energy production. While society must continue to pursue helpful legislation and regulations, it must also find ways to reduce climate change and other environmental harms. Typical financial cost/benefit analyses most entities utilize to consider energy efficiency opportunities are insufficient.

A broader approach based on social values and responsibilities would help society recognize and act upon these dangers to protect the environment and human health. An organization's mission and social leadership are critical elements which can and should be used to help achieve a more sustainable, healthy environment.

