BEFORE THE
DEPARTMENT OF ENERGY

DOE-QTR RFI

In Re:

AVAILABILITY OF DEPARTMENT OF ENERGY – QUADRENNIAL TECHNOLOGY REVIEW FRAMING DOCUMENT AND REQUEST FOR PUBLIC COMMENT

COMMENTS OF THE
COUNCIL OF NAIMA

Angus E. Crane
Executive Vice President, General Counsel
NAIMA
44 Canal Center Plaza, #310
Alexandria, VA 22314
(703) 684-0084
acrane@naima.org

Kevin Koonce
Director, Government Affairs
and Communications
Council of NAIMA
44 Canal Center Plaza, #310
Alexandria, VA 22314

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COMMENTS OF THE COUNCIL OF NAIMA ("CNAIMA") ON THE DEPARTMENT OF ENERGY'S AVAILABILITY OF DEPARTMENT OF ENERGY – QUADRENNIAL TECHNOLOGY REVIEW FRAMING DOCUMENT AND REQUEST FOR PUBLIC COMMENT DOE-QTR RFI

INTRODUCTION

The Council of NAIMA ("CNAIMA") presents the following comments in response to the Department of Energy's ("DOE") Availability of Department of Energy – Quadrennial Technology Review Framing Document and Request for Public Comment, DOE-QTR RFI.

CNAIMA has been formed as a voluntary Council within the North American Insulation Manufacturers Association. CNAIMA represents all the types of insulation products and, as such, is the unified voice of the North American insulation industry. CNAIMA promotes the use of insulation to achieve energy savings and attendant economic and environmental benefits, including emissions reductions. CNAIMA's members are Bayer MaterialScience; CertainTeed Corporation; Dow Chemicals; Fiberlite Technologies, Inc.; Huntsman International, LLC; Icynene Inc.; Johns Manville; Knauf Insulation; Nu-Wool Co. Inc.; Pactiv Building Products; Roxul Inc.; Thermafiber, Inc.; U.S. Borax Inc.; and U.S. GreenFiber, LLC.

CNAIMA appreciates the opportunity to provide comments on DOE's Quadrennial Technology Review Framing Document. DOE has identified six strategies to address national energy goals. Among those six strategies are three identified as stationary strategies, including "increase building and industrial efficiency." CNAIMA's comments will focus on the tremendous energy savings derived from increased efficiency. While DOE's Framing Document emphasizes increasing efficiency of power plants and vehicles, CNAIMA urges a broader consideration of building energy efficiency through the use of thermal insulation. CNAIMA believes its comments offer valuable information that can significantly bolster the concerted efforts by DOE to address national energy goals. CNAIMA's comments recommend specific investments in and incentives for end-use energy efficiency that, if adopted, can increase energy savings. These recommended steps are founded upon the significant energy savings that can be achieved through increased building insulation (residential, commercial, and industrial).

CNAIMA, as the unified voice of the insulation industry, is particularly qualified to make these recommendations to DOE.

BUILDINGS ARE THE LARGEST USERS OF ENERGY

Energy efficiency improvements in homes, buildings, and industry are an important component of achieving DOE's national energy goals. Buildings are the largest users of energy.

In testimony before the Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce of the U.S. House of Representatives, William Fay, Executive Director of the Energy Efficient Codes Coalition, stated that "homes and commercial buildings are this nation's largest sector of energy use and – because of the close relationship between greenhouse gases and energy consumption – also the largest US source of anthropogenic greenhouse gases. Suffice it to say that buildings – and particularly residences – represent one of the last great frontiers of wasted energy."[1]

Since homes and commercial buildings consume the majority of the nation's energy, these structures must become an integral part of any successful effort to improve energy efficiency. DOE, along with various other federal and state governmental bodies, put installation of insulation at the top or in the top five suggestions for energy savings. Why? Cost-effectiveness and immediate availability. These two attributes are discussed in greater detail below.

INSULATION IS A COST-EFFECTIVE AND READILY-AVAILABLE RESOURCE

Energy efficiency is a resource. Indeed, insulation products are resources. In fact, energy efficiency, including insulation, has been deemed the greatest untapped resource available to address the current energy crisis and climate change.[2] Unlike other energy efficiency measures, such as energy efficient appliances or energy saving light bulbs, insulation, once installed, requires no additional energy to save energy.

Therefore, increasing energy efficiency through insulation is very cost effective. In *The Ecology of Commerce*, Paul Hawken asserts that "ceiling insulation and double glazed windows can produce more oil than the Arctic National Wildlife Refuge at its most optimistic projections; at about one-twentieth the cost, with four times the employment per unit of energy conserved versus the energy consumed by burning oil."[3]

The federal government gives weight to cost effectiveness in identifying emissions reductions because a cost effective measure does not present the usual impediments to implementation of an action plan.[4] Rather, cost effective measures help meet goals and objectives expeditiously without overburdening budgets.[5]

In "A Cost Curve for Greenhouse Gas Reduction," the *McKinsey Quarterly* reports "that almost a quarter of possible emission reductions would result from measures (such as better insulation in buildings) that carry no net life cycle cost – in effect they come free of charge."[6] As the graphic from the above-referenced article demonstrates, no other efficiency measure is as cost effective as building insulation.

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[1] Energy Efficient Codes Coalition, Testimony of William D. Fay Before the Subcommittee on Energy and Air Quality of the Committee on Energy and Commerce, U.S. House of Representatives, Thursday, July 17, 2008.

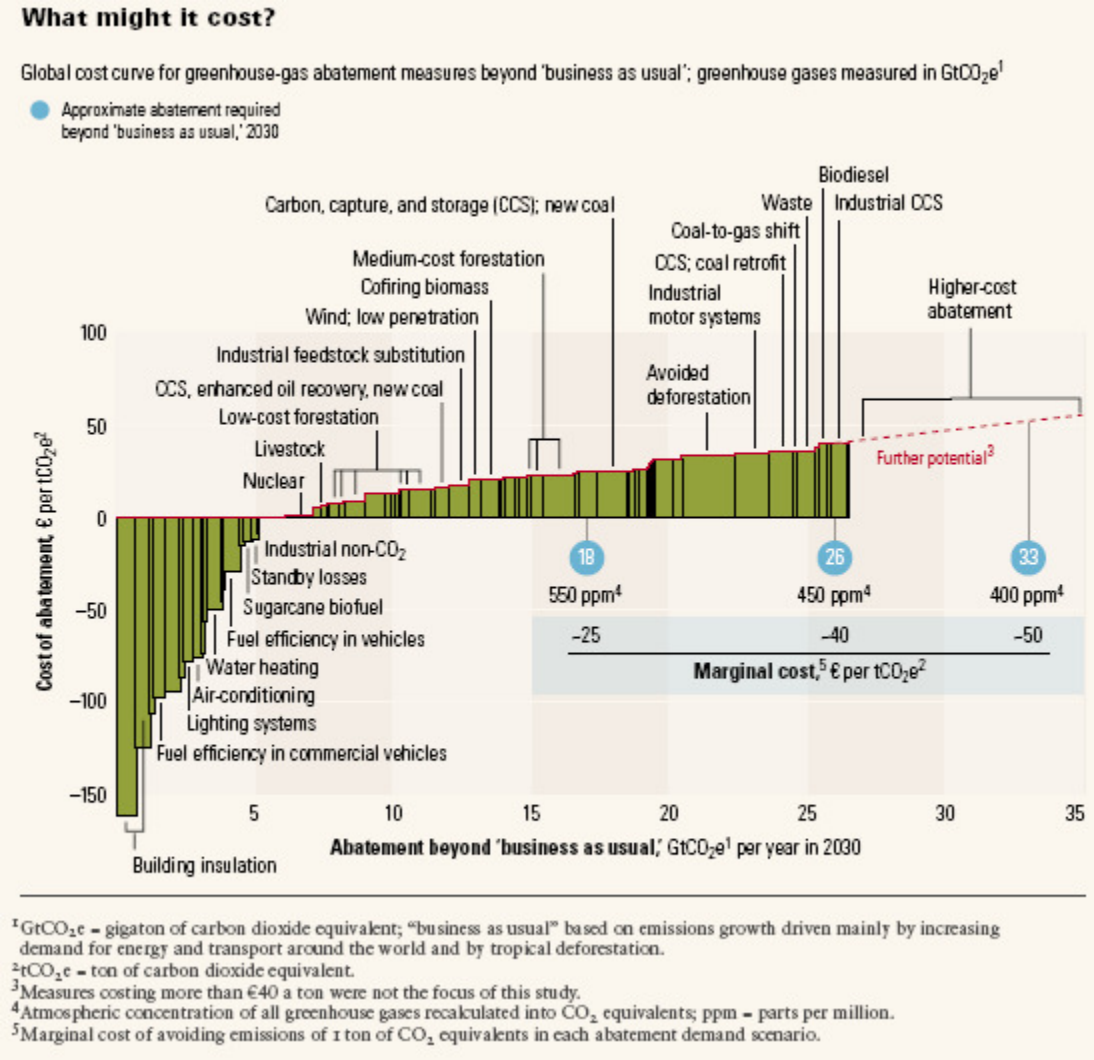
[2] "Transforming Energy Efficiency." www.duke-energy.com/docs/CGI - Fact-Sheet.doc, September 27, 2007.

[3] Paul Hawken, *The Ecology of Commerce* (New York: Harper Business, 1993), p. 178.

[4] 70 Fed. Reg. 65,983, 66,007, 66,019, 66,020-24, 66,049, 66,056, and 66,059 (November 1, 2005).

[5] *Ibid*. at 66,006.

[6] Enkvist, Per-Anders, Tomas Nauclér and Jerker Rosander. 2007. "A Cost Curve for Greenhouse Gas Reduction." *The McKinsey Quarterly* 1: 38.



[1] $GtCO_2e$ = gigaton of carbon dioxide equivalent; "business as usual" based on emissions growth driven mainly by increasing demand for energy and transport around the world and by tropical deforestation.
[2] tCO_2e = ton of carbon dioxide equivalent.
[3] Measures costing more than €40 a ton were not the focus of this study.
[4] Atmospheric concentration of all greenhouse gases recalculated into CO_2 equivalents; ppm = parts per million.
[5] Marginal cost of avoiding emissions of 1 ton of CO_2 equivalents in each abatement demand scenario.

From a pragmatic perspective, insulation is easily installed and the materials are immediately available. As evidenced by the McKinsey report cited above, insulation delivers significant reduction in pollutants, specifically NOx, SO_2, and greenhouse gases.

Both the EPA and DOE websites state that up to 30 percent savings on heating and cooling energy can be saved through increased insulation. (http://www.energy.gov/insulationairsealing.htm; www.epa.gov/region1/eco/energy/heatingefficiency.html). Air sealing, an important companion to insulation, is also critical for achieving the maximum energy savings and shortest payback period.

LARGE-SCALE, UTILITY-FUNDED RESIDENTIAL RETROFIT PROJECTS AND NEW CONSTRUCTION BEYOND CODE SHOULD BE ENCOURAGED AS A COST-EFFECTIVE MEANS OF ACHIEVING EMISSIONS REDUCTIONS

Especially in the present weak economy, many homeowners do not have the ready capital to substantially upgrade their energy efficiency to achieve the DOE estimated 20 to 30 percent

reduction in heating and cooling demand that results with air sealing and additional insulation. While some homeowners could borrow the money for an energy-efficiency upgrade, they frequently do not have access to sufficient amounts of low-cost capital to achieve a reasonable pay-back period. Current energy efficiency tax credits under Section 25C of the Internal Revenue Code are set to expire on December 31, 2010, and, in any event, homeowners must wait until well into the year following the insulation purchase to enjoy the cost savings from the tax credit. Property-assessed clean energy ("PACE") funding is essentially no longer available after objections were lodged by federal mortgage regulators.[7]

Instead, utilities should be encouraged to directly fund and implement large-scale residential retrofit projects. Utilities should also be encouraged to directly fund energy efficiency beyond current code during new construction when air sealing and installing additional insulation is especially cost effective.[8] Such projects could be undertaken promptly by using off-the-shelf insulation and air sealing technology. Such residential retrofits are likely the cheapest and quickest way to achieve significant emissions reductions of all pollutants, including greenhouse gas emissions.

Because such large-scale residential retrofit projects would assist utilities in providing low-cost and reliable service to their customers, state Public Utility Commissions are likely to approve utility retrofit expenditures as an appropriate – if not preferred – means of reducing greenhouse gas emissions. This should especially be the case considering the side benefits of residential retrofit projects, which include at least the following:

- Reduction in home heating and cooling costs to consumers, which could also help consumers deal with higher rates that could come from switching to higher cost fuels;
- Increased in-home-occupant health and comfort;
- Creation of new jobs to complete the many retrofit projects (retrofit is much more labor-intensive than either new generation equipment or pollution abatement equipment, both of which tend to be capital-intensive);
- Increase in affordability of home ownership;
- Increase in home values;
- Reduction in dependence on foreign sources of fuel;
- Increase in reliability of electricity grid; and
- Enhancement of energy security and, hence, national security.

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[7] Federal Housing Finance Administration, "FHFA Statement on Certain Energy Retrofit Loan Programs," July 6, 2010, available at http://www.fhfa.gov/webfiles/15884/PACESTMT7610.pdf.

[8] In fact, the National Renewable Energy Laboratory demonstrated that, in assisting in the post-tornado rebuilding of Greensburg, Kansas, new homes can be made up to 50 percent more energy efficient than current code without increasing the monthly combined mortgage payment and heating/cooling cost of the homeowner. See, Figure 7 and accompanying text in *Rebuilding Greensburg, Kansas, as a Model Green Community: A Case Study NREL's Technical Assistance to Greensburg June 2007 – May 2009*, National Renewable Energy Laboratory (November 2009, available at http://www.nrel.gov/docs/fy10osti/45135-1.pdf.

INCENTIVES FOR MORE INSULATION

In addition to direct utility funding of large-scale residential retrofit projects, DOE should also encourage affected utilities to pursue more effective incentives to encourage higher levels of residential energy efficiency.

CNAIMA offers below measures that will encourage individual and corporate decisions to improve energy efficiency and provide incentives to improve insulation in all types of buildings. Typically building owners will not have the resources to quickly implement the energy efficiency improvements needed to accomplish pollution reduction goals. This unfortunate fact is even more relevant in today's economy, which includes declining real estate values in both the residential and commercial markets. Therefore, strong incentives and attractive assistance programs are badly needed. CNAIMA offers the following as specific suggestions for incentive programs:

- In several Canadian Provinces, the provincial governments have declared a sales tax holiday on all purchases of insulation products. A well publicized campaign about tax free insulation products certainly offers consumers and building owners added incentive to upgrade insulation.
- A tax credit for the installation of insulation products in homes or other buildings, new or existing, has also proven to be an effective motivating factor in getting insulation upgrades in newly constructed homes and buildings and existing residences and businesses. These tax credits should be extended on the federal level and newly created in states without such an incentive.
- Local governments could offer incentive programs that encourage increased insulation in residential, commercial, or industrial buildings and processes, such as offering free home energy audits.
- States and local governments should be urged to adopt the most current residential and commercial energy codes promulgated by the International Code Council ("ICC") and the American Society of Heating, Refrigerating, and Air-Conditioning Engineers ("ASHRAE").
- States could offer incentives for local governments to adopt a more stringent building energy code or sponsor code training programs to insure adequate enforcement of existing codes.
- States could also help publicize or give recognition to utilities that offer customers a loan program to increase insulation or purchase some other energy savings device.
- As an alternative to utility loan programs or in conjunction with these local power providers' programs, states could also create a loan program through an appropriate government entity. Such loan programs generally attract consumers if they are interest free or if a low interest rate is offered.
- Another variation on loan programs might have the utility funding the immediate insulation upgrade or improvement with the building/home owner repaying the costs of the improvements through their monthly utility bills over an agreed upon time period.
- States could sponsor training programs on weatherization. In addition, states could construct a generic weatherization plan for residences throughout its jurisdiction and promote it through websites and other media.

That such incentives are warranted for insulation products is illustrated by CNAIMA's comments. As CNAIMA's comments demonstrate, energy conservation in buildings offers the most significant opportunity for savings and pollution reduction. Moreover, insulation is cost effective, and, perhaps even more appealing, insulation is a practical and immediately available resource. In other words, insulation and similar energy efficiency measures provide expeditious results. In fact, such improvements as insulation upgrades should be encouraged for immediate implementation, but if that is not feasible, perhaps a requirement that all existing homes re-sold must substantiate that the home being sold meets or exceeds existing energy code requirements.

CONCLUSION

Using large-scale residential energy efficiency retrofit projects and new construction beyond code are likely the most cost-effective and quickest way to achieve significant emissions reductions. Such retrofit projects will also have many important side benefits that make energy efficiency clearly in the public interest. Accordingly, DOE should not only allow utilities to use energy efficiency to increase energy savings, but DOE should, indeed, actively encourage them to do so.