Legislative Services Agency

MINUTES

Energy Efficiency Study Committee

October 18, 2007 First Meeting

MEMBERS PRESENT:

Senator Robert M. Hogg, Co-chairperson
Senator Joe Bolkcom
Senator Hubert Houser
Senator Mary A. Lundby
Senator Rich Olive
Representative Nathan Reichert, Co-chairperson
Representative Bob Kressig
Representative Brian J. Quirk
Representative Chuck Soderberg
Representative Ralph C. Watts

MEETING IN BRIEF

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I. Procedural Business

Call to Order — Opening Remarks. Temporary Co-chairperson Senator Hogg called the first meeting of the Energy Efficiency Study Committee to order at 8:58 a.m.

In his opening remarks, temporary Co-chairperson Hogg noted that Iowa expended $11 billion last year on energy, with 40 percent of those dollars leaving the state. He recommended that the Committee make a policy recommendation of setting a goal for the state of achieving $9 billion in energy savings, or $3,000 per Iowan, over a 10-year period, with an annual reduction in energy usage of at least 1.5 percent. He suggested the goal could be met without lessening the state's standard of living through a combination of more effective energy efficiency education and improved state energy efficiency policies.

Committee Business. The Committee unanimously adopted rules. Upon the motion of Senator Bolkcom, seconded by Representative Kressig, members of the Committee elected temporary Co-chairpersons Senator Hogg and Representative Reichert as permanent co-chairpersons of the Committee.

Adjournment. The meeting was adjourned at 4:30 p.m.

Next Meeting. The second of the two authorized Committee meetings is scheduled to be conducted on November 13, 2007, in the Supreme Court Chamber at the Statehouse.

II. Iowa Utilities Board (IUB) Requirements and Oversight/Utility Energy Efficiency Efforts

IUB Studies. Ms. Joan Conrad, IUB Legislative Liaison, provided a status report regarding two studies mandated by H.F. 918, enacted during the 2007 Legislative Session: one study relates to consumer knowledge of energy use and energy efficiency, and methods for increasing such knowledge, with the objective of reducing consumer energy utilization; and the other study is to determine the status and effectiveness of energy efficiency programs in the state offered by all public gas and electric utilities. Both studies are on schedule for submission of final reports to the General Assembly by January 1, 2008. The consumer study is being conducted by the Center for Social and Behavioral Research at the University of Northern Iowa. Two-thirds of the 1,200 interviews have been conducted, with the remainder scheduled to be finished this month. Preliminary results will be determined in December. Data for the energy efficiency study has been collected and preliminary results obtained, though work is still being done to collect information from other states and national studies and to formulate more detailed figures.

Ms. Conrad indicated that energy efficiency programs developed by Iowa utilities target three specific areas: electric energy savings (measured in megawatt-hours or MWh), electric peak demand savings (measured in peak megawatts or MW), and natural gas savings (measured in thousand cubic feet or Mcf). She provided information about each area's programs and summarized the statutory jurisdiction of the IUB regarding energy efficiency and the statutory requirements for investor-owned utility energy efficiency plans. She emphasized that every $1 spent on energy efficiency returns $2 in benefits.

In response to questions, Ms. Conrad noted that Iowa is one of the top two states in the country in energy efficiency expenditure and the state has had energy efficiency programs in place since 1991. The money spent for the programs is recovered through customer rates. The energy efficiency costs can be high in the initial year, but the savings accrue annually. Ms. Conrad suggested energy efficiency should be seen as a fuel source. She also noted that biofuels should be considered, along with the increase in greenhouse gases, and the costs of what Iowans wish to accomplish. In discussion, Senator Bolkcom questioned whether the costs for avoiding peak demand times might be better spent on other energy efficiency efforts and he requested more information about load management investment and the state's involvement. Representative Soderberg asked Ms. Conrad for data relating to the value of saving avoided demand costs.

Investor-owned Utility (IOU) Energy Efficiency Plans. Mr. Jack Clark, Vice President of the Iowa Utility Association, briefed the Committee on the joint and individual planning activities of the investor-owned utilities, and Ms. Jennifer Easler, Attorney, Office of Consumer Advocate (OCA), provided an overview of the plan review and approval process. Mr. Clark noted that state statute requires public utilities to conduct an assessment of energy and capacity savings potential (Code section 476.6). The assessment of resource potential protocols are established nationwide. He suggested that the active participation of OCA and its consultation throughout the study process will narrow the contested issues litigated, while increasing the possibility of reaching settlement on broader issues.

Ms. Easler noted that Vermont is a model energy efficiency state. Lighting is the number one source of potential energy savings, while cooling and appliances are close behind. The plan proposals in Iowa must include comprehensive programs for customer classes, program design and implementation, performance objectives and goals, budget, promotion, and coordination, for example, of trade allies and builders. The assessment of a plan's potential takes nearly a year. After a plan is approved and implemented, IUB periodically meets with IOU and stakeholders to review the results of the implementation. The OCA monitors and evaluates the plans to determine whether the plans are achieving results and whether IOU is taking all reasonable actions to cost-effectively and prudently implement the plan. The plans are living documents that can be amended. The plans result in .08 percent savings. Ms. Easler also noted that early involvement of OCA helps to define and often resolve issues. She exhibited five binders to demonstrate the average size of a plan. Utilities are often achieving savings far above goals, though some expenditures exceed savings and more can always be done. In response to a question, Ms. Easler noted there is a lack of uniformity in the programs. She suggested that progress could be made if all new home builders used the same definition for "energy-efficient home."

IOU Presentations — MidAmerican Energy. Mr. Rick Leuthauser, Manager of Energy Efficiency, MidAmerican Energy, provided an overview of the company's energy efficiency education and activities, offered case studies relating to assistance to customers, reviewed awards and recognition received by the company for its energy efficiency achievements, and reviewed the company's objectives for its 2009-2013 energy efficiency plan. The company's strategy for energy efficiency education is to increase emphasis on market transformation, to focus on educational activities that promote installation of high-efficiency equipment and structural improvements, and transform customer behaviors. He identified the company's residential and nonresidential

(business, new construction, and curtailment) energy efficiency programs and special initiatives the company has undertaken such as collaborations with IUB and the Iowa Finance Authority for weatherization projects. Since 1990, MidAmerican has invested $429 million in Iowa homes and businesses, and has saved about 800 million kilowatt-hours (kWh), which is enough to power about 80,000 homes. Also saved, 40 million therms, enough to heat 50,000 homes. The company eliminated 717,000 tons of greenhouse gas emissions, equivalent to removing an average of 10,000 cars from the road each year. The company has audited over 100,000 homes. One case study showed how free consulting assistance and rebates provided for commercial new construction by MidAmerican resulted in annual savings of 600,000 kWh and $48,000, and payback on the developer's investment of less than two years. The company has also offered assistance for comprehensive energy efficiency retrofits and improvements at manufacturing facilities. The objectives for its 2009-2013 plan are to expand infrastructure supporting energy efficiency efforts, emphasize integrated solutions, expand the scope of existing programs, and increase the emphasis on peak electric demand savings.

IOU Presentations — Alliant Energy. Ms. Sarah Else, Director of Renewable Energy Resources, Alliant Energy, reviewed Alliant's energy efficiency efforts and activities and its expectations for its next energy efficiency plan. Since 1990 Alliant has invested $409 million in Iowa homes and businesses, resulting in savings of over 1 billion kWh and 30 million therms, and the elimination of 1.2 million tons of greenhouse gas emissions, or enough energy to power 140,522 households for one year. The company in 2006 recycled 6,000 inefficient refrigerators, freezers, and room air conditioners by dismantling, then recycling, the refrigerant, mercury, and metal. She reviewed the historic savings in each of the energy areas, the company's awards, and its current program offerings to residential, commercial and industrial, and agricultural customers. The expectations for the next plan include an overall plan design approach, assessing renewable technologies and demand response approaches, investigating and promoting emerging technologies, and continued or increased emphasis on collaboration with other utilities, flexibility, listening to customers, relying on trade ally network to promote programs, exploring mechanisms to reach hard-to-serve segments, and adjusting programs based on process and impact evaluations.

IOU Presentations — Aquila. Mr. Matthew Daunis, Manager of Energy Efficiency Programs, Aquila, reviewed Aquila's company profile, past energy efficiency performance, current programs, recent highlights and successes, future program updates, and the energy efficiency and regulatory challenges facing gas utilities. He noted there is a high level of customer satisfaction in the company's residential and commercial and industrial programs and the company collaborates with other utilities to offer programs. In 2006 the company served over 15,000 Iowa households and 400 businesses, and generated over $7 million in net benefits — benefits above and beyond costs. The company's success is resulting in an expansion of its programs. Future program updates include an innovative space and water heating program and furnace replacement program. Mr. Daunis observed there is a general agreement that the current energy efficiency programs result in lower natural gas usage per customer, and those reductions in usage have a significant financial impact on utilities. Aquila, he said, recommends that any consideration of increases in energy efficiency program spending should mitigate the related reduction in utility revenues. The company favors revenue stabilization through an innovative rate design.

Rural Electric Cooperatives (RECs). Mr. Regi Goodale, Director of Regulatory Affairs, Iowa Association of Electric Cooperatives, observed that the association's members serve customers in all 99 counties, but vary in the types of customer they serve, with some, for example, serving irrigation and crop drying customers in different parts of the state. Fifty percent of the cooperatives experience their peaks in the winter because of the lack of availability of natural gas in rural areas. Cooperative programs are tailored to the communities they serve, though a number of cooperatives collaborate with each other, and on a national basis sometimes, to offer programs. The association offers a statewide Website as a service to its members and offers online energy audit tools to help customers determine how to reduce their carbon footprint. The association also collaborates with the Iowa Energy Center; has invested in automatic meter reading technology and in different rate structures; works with local schools and students to make them smart consumers; and works with builders and contractors, usually on a one-to-one basis. Touchstone Energy Cooperatives recently partnered with a community college to conduct a workshop for contractors. In 2006, cooperatives invested $12 million in energy efficiency efforts which resulted in $18 million in savings, or enough to power 12,000 homes in rural Iowa. Since 1992 the investment has totaled $93 million for a savings of 1,245 gigawatts. The association is working with its customers on combined heat and power systems.

Municipal Utilities. Mr. Bob Haug, Executive Director, Iowa Association of Municipal Utilities (IAMU), reviewed for members the many programs offered by members of IAMU. The association expects to see a lot more effort in financing of measures, such as offering zero interest loans for the purchase of energy efficiency appliances. The association's members serve divergent customer bases, with some experiencing significant population declines, while others are experiencing rapid growth. Nearly 50 percent of IAMU's member utilities have fewer than 1,000 customers and the smallest have only part-time employees, so deployment of new energy efficiency programs and the increasing demands for recordkeeping and reporting can be a burden, though many, despite their size, have proven to be up to these tasks.

Mr. Haug opined that local control allows energy efficiency programs to address local needs and is a laboratory for innovation, but admitted that local control also means that some municipal utilities are leaders and innovators in energy efficiency, while efforts by other municipal utilities are below par. However, he noted that utilities are reevaluating energy efficiency in light of substantial changes in the power supply market and a newly emerging consensus about climate change.

In prior years, energy was relatively inexpensive and Iowa had excess electric generating capacity, making energy efficiency programs less than cost-effective. Now, however, growth in demand has used up excess capacity and the costs of producing electricity in new coal-fueled power plants, and with gas-fueled turbines, are high. Utilities are addressing changing market conditions by investing more in energy efficiency, which is now more cost-effective. The association is developing model ordinances that would set minimum energy efficiency standards as a condition for certificates of occupancy on rental property. In closing, Mr. Haug emphasized that the loss of local control over municipal utility programs would deprive Iowa of the value that comes when local citizens have the power to try innovative approaches that fit the needs of their communities, and stated his hope that municipal utilities would be given the opportunity to be innovative. He

provided members with a copy of the 2008-09 IAMU Work Plan for Energy Efficiency and Conservation and reviewed the association's recommendations, summarized as follows:

- Give municipal utilities a chance to respond to changing market conditions with stepped-up investments in energy efficiency efforts.
- Remember that utility customers ultimately fund investment in energy efficiency and they are already struggling to pay increasing energy costs.
- Consider the following policy changes:
    - Make future building energy efficiency building code certifications part of the records that transfer with the title.
    - Require commercial buildings to comply with the energy efficiency building code.
    - Establish minimum energy efficiency standards for rental property.
    - Enact measures to finance energy efficiency improvements for rental property and low-income households.

Office of Consumer Advocate. Mr. John Perkins, Consumer Advocate, OCA, emphasized that it is the rate-paying utility customers who actually fund utility energy efficiency programs, that OCA is the only authority statutorily mandated to represent consumer interests in relation to utilities, and that utilization of third-party entities to comply with statutory planning requirements and assist with program implementation might be cost-effective from the utilities' standpoint and objective from the standpoint of the customer. He noted that Iowa is in the top five states for per capita spending on energy efficiency. While the programs have worked well, more can be done. He suggested that innovative rate design is simply decoupling. Utilities are to be rewarded for selling less because asking a utility to cut back on therms used is counterintuitive. Third-party administration of energy efficiency programs would bring about more uniformity and concentrate expertise, and there are a number of agencies with the necessary expertise to run the programs.

In response to questions, Mr. Perkins noted that third-party administration of energy efficiency programs could be flexible, with utilities negotiating different contracts with the third parties and the third parties designing programs for different utility customers. He also noted that when local gas distribution facilities' return on investment for distribution is low, the facilities present their data to the IUB and a new rate is calculated. There is therefore no reason for surcharges, such as for infrastructure. He suggested the nine-month lag time in getting through the rate process makes companies behave more efficiently.

Energy Efficiency Savings/IUB Perspective. Mr. Gordon Dunn, Energy Efficiency Programs Specialist, IUB, distributed information summarizing electric energy, natural gas energy, and electric peak demand savings realized through implementation of utility energy efficiency plans. Mr. Dunn stated that the overriding goal in the planning process is cost-effectiveness, which includes consideration of ongoing future benefits in addition to and in comparison with current and future costs. He provided information about the benefits and costs of the programs to society, and noted that utilities leverage customer investment, which results in long-term benefits to society. He also noted that REC and municipal utility cumulative results indicate they achieved quite substantial savings in 2006. In response to a question, Mr. Dunn stated that the reason some other states may report higher returns on energy efficiency investments could be the result of using different data.

III. Energy Reduction Technology

Iowa Energy Center. Mr. Floyd Barwig, Director, Iowa Energy Center, located near Iowa State University, provided examples of potential energy efficiency savings in connection with buildings, transportation, industry, power generation, and renewable energy achievable through rapidly developing technological advances. He noted that buildings account for 38 percent of the primary energy use and more than 65 percent of electrical energy use in the United States, and the percentage grows every year. More determined visionary clients who are committed to integrating technological advancements in building designs are needed. As an example, he referenced IAMU and the building constructed to house the association. Energy reduction targets were incorporated in the building's design.

Mr. Barwig also discussed the development of alternative-fuel automobiles, school buses, and locomotives; and the advantage of colocation of manufacturing facilities. In response to a question, he noted it would be premature to set an energy efficiency savings goal for school buses at this time because although the savings for the new buses are projected to be 40 to 60 percent, the buses are precommercial prototypes. He observed that if everyone in the United States would simply inflate their automobile tires to the recommended levels, 1.6 billion gallons of fuel per year would be saved, or equivalent of all of the projected output predicted for the Arctic National Wildlife Refuge.

Mr. Barwig noted that 20 percent of the natural gas used in the state is used by biofuel plants. In Europe, waste heat from power plants is captured and used to provide more power. Incentives could be given to utilities to colocate their plants with other industries. Wind energy follows the school year, peaking over the winter months and unreliable in the summer months. Hydrogen can be used to store energy, but more work is needed on efficiencies of conversion before it can be fully utilized. In response to a question regarding new building construction, when orientation and arrangement of space is considered, the load of the building reduced, and then low-load met with energy-efficient technology, the building can operate with over 50 percent less energy use than a typical building code-compliant building.

Department of Natural Resources (DNR). Mr. Tommi Makila, Policy Planner, Energy and Waste Bureau, DNR, supplemented Mr. Barwig's presentation with a brief overview of energy efficiency program strategies being pursued by other states, specifically Delaware, Illinois, Minnesota, Vermont, and Wisconsin. He suggested there are two major options for utility energy efficiency programs: establishing energy savings targets for energy efficiency programs as in Minnesota and Illinois, or using a third party to run the energy efficiency programs as do Delaware and Vermont.

Minnesota is the most like Iowa: It had strong energy efficiency programs to begin with, is transitioning from spending goals to savings goals, and utilities have an annual energy-savings goal of 1.5 percent. Illinois has not had programs, but is ramping up quickly. Illinois expects to effectively stop electricity consumption growth by 2013. Vermont's per capita energy efficiency spending ($22.50) is more than double Iowa's ($9.76). "Efficiency Vermont" is an independent nonprofit funded by charges on utility bills, which vary by utility, and its programs and savings are audited and verified by outside entities. Delaware used Vermont as a model to create in 2007 the "Sustainable Energy Utility," which serves all energy users and all fuels. Its working capital is from tax-exempt bonds and charges on utility bills. It has a goal of 30 percent reduction in household

and business energy use by 2015. Wisconsin's system is a hybrid, with third-party and utility-run programs. Utilities fund and contract for programs directly with third-party administrators. There is a 1.2 percent spending requirement for all electric and natural gas utilities.

Mr. Makila offered arguments for both systems. Utility-run programs focus on end results and energy efficiency programs can be incorporated into utility resource planning — and he asked whether it makes sense to start from scratch if the utilities are running good programs. However, arguments for a third-party program recognize that there is an inherent tension in the current system, in that utilities are in business to sell energy, while the goal of energy efficiency programs is to sell less energy (which can be addressed through cost recovery). Also, energy efficiency is the sole focus of the third-party operation.

IV. Business and Industry Perspectives

Whirlpool. Mr. Brent Kramer, Manager, New Product Development and Facilities, Whirlpool Amana Division, emphasized that Whirlpool, the largest global manufacturer and marketer of major home appliances, is committed to energy and water efficiency because it makes good business sense. The company is energy and water efficient across a value chain that includes product design, manufacturing, distribution, and end of product life management. The company was the first appliance manufacturer to announce a global greenhouse gas reduction target in 2003: three percent reduction in overall global emissions from 1998 levels by 2008. Despite a 40 percent increase in sales, the company is on track to meet the goal. Meeting the target is equivalent to saving a train of coal cars 13,000 miles long. Home appliance energy efficiency has improved by 70 percent since 1972, with a correspondingly significant decrease in related energy consumption. The company maintains a formal global environmental management process to integrate environmental considerations into product design, employee training, monitoring operations, and manufacturing processes. All plants must comply with a rigorous compliant audit process that assesses environmental risks and health and safety criteria.

Mr. Kramer described the Energy Star Program and noted that Whirlpool is the only two-time appliance manufacturer winner of the Energy Star Partner of the Year Sustained Excellence Award. He advocated the offering of incentives for discontinuation of outmoded appliances and promoting the purchase of new Energy Star qualified appliances. Whirlpool supports legislation that would provide a long-term sales tax exemption for clothes washers, refrigerators, and dishwashers because the purchase of those appliances result in energy and water savings, and consumers realize instant savings without paperwork. A long-term exemption is preferable to short-term sales tax holidays because it encourages quick market transformation and energy efficiency awareness and because the timing of appliance purchases (often due to breakdown or home renovation) is often not amendable to short-term incentives.

Vermeer Manufacturing Company. Mr. Dell Collins, Director of Facilities, Vermeer Manufacturing, noted that the family-owned business produces agricultural, environmental, industrial, and construction industry machinery. He summarized recent energy improvements made at the company and stated that the company has identified as one of its goals a commitment to energy efficiency, from both an environmental stewardship and cost reduction perspective. However, he also noted the difficulty manufacturing firms have in implementing energy

conservation projects because such efforts compete for capital allotment from limited financial resources. Conservation can result in savings, though, as evidenced by the $360,000 per year Vermeer saved by implementing a major compressed air leak program. The program also resulted in increased air quality in the production areas. It is estimated that more efficient florescent lighting will save the company an additional $230,000 per year.

He recommended that the General Assembly facilitate education for companies regarding energy efficiency opportunities, establish a clearinghouse or preapproved listing of energy efficiency consultants and resources, and provide ample financial incentives for energy conservation programs not directly tied to utilities. He described his frustration when wind generation tax benefits were all used before Vermeer could contemplate initiating a wind generation program. In response to a question, he offered that tax incentives dedicated to manufacturing would be worth consideration by the General Assembly. He noted that Vermeer considered partnering with an educational institution on a wind generation project.

Alcoa. Mr. Tim Wilkinson, Vice President, Alcoa Company, provided an overview of the company's status as a major supplier of aluminum sheet and plate for the aerospace and auto industries and for military and space applications, and described internal energy efficiency programs employed by the company that have resulted in significant electrical energy consumption reductions. The company has been told that it is one of the state's largest single-source users on the MidAmerican grid, using 426 million kWh, or enough power to supply 50,000 residential homes. The company recently identified $1.5 million in potential energy savings, but only $130,000 in electrical energy savings. Iowa's mandated energy efficiency program for industrial users, he stated, is outdated and inefficient and is an energy tax masked as an energy efficiency program. Since January of 2000, the program has cost the company $3.7 million, and the company has received only $350,000 in rebates. He emphasized that the company continues to pay large amounts into the program, but economic paybacks are now difficult or impossible to obtain.

Mr. Wilkinson stated that Alcoa wants the ability for large industrial customers to petition IUB for an exemption from paying for a rate-regulated utility's energy efficiency plan that has automatic adjustment mechanisms; wants IUB to be authorized to grant such a petition for large industrial customers who have a high load factor and have made significant efforts to identify, evaluate, and implement cost-effective energy efficiency measures; or to pay some minimum amount based upon the company's usage. Such action, he said, would demonstrate that the General Assembly will make every effort to keep the cost of doing business in Iowa competitive and Alcoa's plant viable. In response to a question, Mr. Wilkinson admitted that he could not say that the company has achieved every possible efficiency, but he stated the company is very efficient and is a leader in greenhouse gas reduction goals.

Iowa Retail Federation. Mr. Jim Henter, President of the Iowa Retail Federation, provided additional information regarding the federal Energy Star Program. Products that meet strict energy efficiency criteria set by the United States Environmental Protection Agency and the United States Department of Energy are eligible for Energy Star designation, and currently more than 50 categories of products are eligible for the Energy Star designation. In 2006, the program resulted in avoided greenhouse gas emissions equivalent to those from 25 million automobiles, saved

Americans $14 billion on their energy bills, and saved 170 billion kWh or almost 5 percent of the total 2006 electricity demand. Energy-efficient choices can save families about one-third on their energy bill with similar greenhouse gas savings, without sacrificing features, style, or comfort.

Iowa can promote the purchase of Energy Star products by partnering with businesses, associations, and citizens to provide programs that promote public understanding of energy needs and reduce consumption; and by implementing an Energy Star sales tax holiday for October 2008 to facilitate the purchase of energy-efficient products.

V. Energy-efficient Buildings and Construction Concepts and Technology

Green Design. Ms. Kate Schwennsen, Associate Dean, College of Design, Iowa State University (ISU), discussed energy consumption and efficiency challenges and concepts applicable to buildings. She warned that unless prompt action is taken to lessen fossil fuel carbon dioxide emissions, the planet will experience additional warming of 20 to 30 degrees Celsius this century. Ms. Schwennsen stated that buildings are the top cause of greenhouse gas emissions today; residential, commercial, and industrial buildings contribute approximately 43 percent of carbon dioxide emissions into the atmosphere. The figure is even higher once emissions expended in the construction process, transport of materials, and the manufacture of building products are added. Building design, construction, materials, and operation consume more energy than any other part of the nation's economy. Of all the electricity consumed in the United States, 76 percent is used to operate buildings.

During the next 30 years, three-quarters of the built environment will be either new or renovated, creating a unique opportunity to incorporate green building design concepts into building construction. In 2005, the American Institute of Architects (AIA), of which Ms. Schwennsen is a past president, adopted a policy that reflects a desire to achieve a minimum 50 percent reduction from the current level of fossil fuel consumption used to construct and operate new and renovated buildings by the year 2010, and to promote further reductions of remaining fossil fuel consumption by 10 percent or more in each of the following five years so that the nation is carbon neutral by 2030. Green design benefits, Ms. Schwennsen noted, include local and global environmental benefits such as improved air and water quality; economic benefits such as increased worker productivity and local economic activity; health and safety benefits such as better indoor air quality; and community and municipal benefits such as less demand for landfills and decreased transportation development. Steps to accomplish green design are relatively simple and costs are lessening as contractors and manufacturers become more green. She provided a number of examples of green design projects that received recognition from the AIA Committee on the Environment. In response to a question, she noted that constructing tighter buildings does not result in mold problems if the construction is done correctly.

Ms. Schwennsen recommended that Iowa take the following steps:

- Adopt legislation to reduce carbon emissions of all renovations and newly constructed buildings by 60 percent by the year 2010 and become carbon neutral by 2030.
- Require state-funded building projects to meet green building standards.

- Provide tax incentives for the development and distribution of solar and other alternative energy sources.
- Mandate net billing by utility companies to encourage consumers to contribute to the grid.
- Provide tax incentives for owners who install renewable energy systems in their buildings.
- Support interest-free financing for the purchase of energy-efficient systems by offering state income tax credit on loans.
- Sponsor grants, incentives, and other programs for the promotion of high-performance school design and construction.
- Pass smart-growth legislation to encourage mixed-use, transit-oriented, and environmentally friendly development.
- Curb sprawl and direct growth to areas of the state with existing infrastructure and adequate planning.
- Support the revitalization of existing neighborhoods.

Contractor's Perspective. Mr. Mike Carroll, Vice President of the Hansen Company and 2007 Chairman of the Board of Directors of Master Builders of Iowa, discussed energy efficiency trends from a contractor's perspective and described the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed and administered by the U.S. Green Building Council. According to the council, LEED is a nationally accepted benchmark for the design, construction, and operation of high-performance green buildings. Mr. Carroll stated he was the first contractor in Iowa to become a LEED-accredited professional. He discussed the LEED requirements and suggested that encouraging, rather than mandating, sustainable and energy-efficient building designs that meet LEED certification requirements will promote green building design while minimizing potential subjectivity and narrowly missed project certification in some instances.

Owners are interested in and asking for energy efficiency, and sustainable design, features in construction projects. Mr. Carroll indicated that incorporating green or sustainable building concepts is not necessarily more complex, but requires additional knowledge, resources, and commitment, and that higher initial costs can be balanced by the long-term, ongoing benefits derived. Goals are also better than requirements, for example, because sometimes transporting green design materials from a distant producer is cost-prohibitive. He noted that the initial costs for green design measures can be 2 to 5 percent higher than standard building costs. However, the costs will come down as green design methods and materials become more common. In response to a question, he suggested that the state's energy efficiency requirements are insufficient, unless the outcome desired is the status quo. The state, he opined, is the perfect entity to take the lead in green design. He recommended taking the following actions:

- Assist schools with energy efficiency retrofits.
- Expand the marketing capabilities of the Iowa Energy Bank.
- Provide incentives for schools to perform energy efficiency audits.
- Maintain Iowa's competitive bidding stature to benefit the Iowa taxpayer.

Mr. Don Otto, Owner of DPO Construction, provided information regarding a new home constructed for a customer using green measures. The measures taken in the design and construction resulted in a home that costs less than $200 annually to heat, keeps 36,000 pounds of carbon dioxide out of the air, and feels fresh and comfortable. He stated those benefits will last throughout the lifetime of the house. He recommended that new basement floors be insulated to R-10; that home energy audits for existing homes include building envelope leakage and the entire heating system, including ductwork; and that appraisers be required to place a value on energy upgrades for both new and existing homes. He suggested tax incentives, utility rebates, and building code revisions to encourage or facilitate these measures.

Energy Conservation Building Codes and Requirements. Mr. Jim Lee, Engineer, Shive-Hattery, discussed the evolution of energy code development and adoption in the state and cited outdated forms and lack of review personnel as obstacles to participation in audit programs and loan qualification processes. The energy approval form developed in 1983 by the DNR is still the form used today, though it is now available online. While the old form does not prevent model implementation, he recommended that the form be updated and sufficient personnel hired to check for the forms when inspecting. He suggested the current process is little more than a rubber stamp. He also indicated that the energy efficiency savings derived from a building has as much to do with the building's operation as its construction, and that some form of monitoring on an ongoing basis to ensure effective and efficient building operation is needed. He also recommended that a baseline, currently the International Energy Conservation Code, should be determined, and then incentives offered to achieve more energy-efficient construction.

Alternative Project Delivery. Mr. Dave Harvey, Director, Control Technology and Solutions, cited a large need for energy efficiency retrofits of existing public buildings, and described the operation and merits of a performance-based energy efficiency contracting process incorporating competitive bidding and a written guarantee of energy and operational costs savings. He estimated that 80 percent of the public buildings in this state were built prior to 1980. He noted that though schools have any number of funding streams available, such as the physical plant and equipment levy (PPEL), the Iowa Energy Bank, and school infrastructure local option (SILO) sales tax, there are limited project delivery options. The condition of a school building, he stated, has a direct effect on how students learn.

A recent study by Penn State University determined that use of the alternative project delivery process could reduce total project costs by 6 percent, reduce total delivery time by 33 percent, and change order costs by 5.2 percent. Describing the process as an additional tool for public building owners, Mr. Harvey suggested that use of the process means energy efficiency and indoor air quality enhancement can be achieved, verified, and proven; upfront capital is not required and the cost of energy efficiency is paid through annual energy savings; proposals are solicited through a competitive process; and public entities select a bidder to provide energy upgrade services based on the best value when considering multiple factors such as initial cost, life cycle costs, performance guarantee, and quality. Local architects, engineers, and contractors can be used and there are many possible financing sources, including local banks and the Iowa Energy Bank. Mr. Harvey stated the federal government makes widespread use of the process, 44 states have enabling legislation, and the process has seen large-scale adoption by Iowa's private sector. The

process offers many benefits to Iowa, including providing additional tools and a proven approach to achieve energy efficiency, dramatically increasing the amount of energy efficiency investment in Iowa's public buildings, improving learning environments and occupant productivity, funding improvements with minimal risk and cost to taxpayers, and allowing Iowa to implement energy efficiency at a more rapid pace. In response to a question, he suggested that alternative projects delivery differs from performance-based contracts in that alternative projects delivery is more competitive.

Association Perspective. Ms. Flora Schmidt, Executive Director, Home Builders Association of Iowa, stated that while residential construction techniques have significantly improved the efficiency of newly constructed homes, most Iowans reside in housing constructed prior to 1980. She noted that the industry is going through a tough correction. In Iowa, 73 percent of the population own homes, while the percentage nationwide is 67 percent. The association began the process of adopting the International Energy Conservation Code immediately upon its release. The median price for a home in Iowa is $96,000. Every $5,000 increase in the price of a home means 23,000 fewer Iowans can afford the home. She recommended voluntary compliance with green building concepts and technology standards so that people are not pushed out of the market. She also called for enhanced consumer energy efficiency education, noting that consumers need to be aware of energy efficiency efforts and motivated to make the effort. In response to a question, she noted that most Iowans who are building homes are not building "mega-homes," but are building in the 1,600- to 2,000-square-foot range.

VI. Energy Efficiency Financing and Investment

Iowa Energy Bank. Mr. Makila provided an overview of the DNR's Iowa Energy Bank and the State of Iowa Facilities Improvement Corporation. He discussed the statutory requirements relating to the Iowa Energy Bank Program, and noted that the program serves schools, local governments, hospitals, private colleges, and nonprofits, and facilitates energy management improvements by offering technical assistance and facilitation of financial assistance. The program is intended to assist with the financing only for cost-effective energy efficiency and renewable energy measures. Most of the nine schools that own wind turbines utilized the program. Mr. Makila summarized a process beginning with a preliminary energy assessment, progressing to an energy audit or technical engineering analysis, and ending with financing either through private lending institutions or on a client-financed basis. The program has suffered from budget cuts in recent years.

Mr. Makila offered the following program enhancement suggestions: provide for more financial incentives to encourage program participation, funds to cover costs of studies, and the ability to offer lower interest or zero-interest financing; provide the ability to offer very low-cost or free assistance and audits to small facilities; and provide more resources for marketing. The State of Iowa Facilities Improvement Corporation (SIFIC) is organized as a nonprofit corporation, serves state facilities, has implemented $51 million in improvements since 1989, saved $120 million in energy bills, and its board is looking into the possibility of dissolving the corporation and incorporating it into the Iowa Energy Bank.

Alternate Energy Revolving Loan Program (AERLP). Mr. Barwig described the history and addressed the operation of the Alternate Energy Revolving Loan Program, which encourages development of alternate energy production facilities in the state. The program receives funding from a special assessment on Iowa's IOUs, has $5.9 million in base funding, and currently has $7.42 million total. Mr. Barwig identified a list of eligible technologies, including hydroelectric, wind, solar, and biomass. The program provides funding for residential, commercial, and industrial projects. The program involves a revolving fund structure, competitive application process, matching funds, managed partnerships with the banking community, and owner reporting requirements. ISU is the program's financial agent and the Iowa Energy Center administers the program. Mr. Barwig provided information relating to loan distribution by technology, loan terms, funds leveraging, annual energy generation impact, cash flow, outreach such as invited speaking events, program sustainability, and case studies.

Banking Industry Financing. Ms. Sharon Presnall, Senior Vice President, Government Relations, Iowa Bankers Association, and Ms. Elizabeth Grob, Attorney, Ahlers & Cooney, P.C., discussed financing aspects of Iowa Energy Bank projects. Ms. Presnall noted that the association represents 92 percent of the banks and savings institutions in the state. Energy efficiency projects are widely viewed within the banking industry as relatively easy and low-risk. The most common financing options or combinations entered into by school districts constructing new buildings or upgrading existing buildings with energy efficiency upgrades or retrofits are capital loan notes either repaid from the school's general fund or paid from the property tax portion of the voter-approved PPEL, or sales tax revenue bonds paid from revenues received from the SILO sales tax. Because capital loan notes are backed by the full faith and credit of the school district, banks can offer favorable interest rates. The sales tax revenue bonds typically carry a slightly higher interest rate. In discussion, Ms. Grob noted that a financial advisor for the Iowa Energy Bank works with schools to make the project loans more attractive to financial institutions. Ms. Presnall offered the following suggestions for encouraging school districts to conduct energy efficiency projects:

- Make available revolving loan fund dollars to provide zero percent financing to school districts to complete energy audits.
- Make sure the program is properly marketed to appropriate user groups such as the Iowa School Board Association, the Iowa School Buildings and Grounds Association, and the Iowa Association of School Business Officials.
- Consider funding to recommission preexisting mechanical systems to ensure they are operating properly.
- Consider incentives for schools to become LEED-certified.
- Allow schools to utilize board-approved PPEL funds to repay energy notes, which they cannot borrow against.

VII. Office of Energy Independence

Ms. Roya Stanley, newly named Director of the Office of Energy Independence, provided an overview of energy efficiency in the state. She observed that there are numerous opportunities for energy efficiency and expressed her desire to have the state lead by example by driving the market, reducing energy costs which frees public money for other purposes, using the Iowa Power

Fund for research and development, and delivering programs based on technical integrity and transparency. She identified policy options, including investing in energy efficiency with utilities and relating to energy efficiency resource standards, combined heat and power, building energy codes, transportation policies, appliance and equipment efficiency standards, and tax incentives; summarized statutory authority relating to energy efficiency, statutory requirements relating to life cycle costs analysis, and Executive Order 41 establishing performance measures and goals for energy reduction efforts; and outlined various areas where the state has an opportunity to expand upon and build energy efficiency programs and policies, including new technology options relating to lighting and desiccant cooling. She also reviewed the Energy Star Program and the Building America Program, the goal of which is to develop cost-effective systems for new homes that can produce as much energy as they use. Ms. Stanley recommended that the state lead by reenergizing the Iowa Energy Bank and SIFIC, deploying marketing staff to promote energy efficiency programs, creating a funding stream to pay for marketing, and collaborating with utilities.

VIII. Materials Filed With the Legislative Services Agency

The following materials listed were distributed at or in connection with the meeting and are filed with the Legislative Services Agency. The materials may be accessed from the <Additional Information> link on the Committee's Internet Webpage:

http://www.legis.state.ia.us/aspx/Committees/Committee.aspx?id=217

1. Alcoa Presentation, Timothy Wilkinson, Vice President, Alcoa Company
2. Alliant Energy Presentation, Sarah Else, Director, Renewable Energy Resources, Alliant Energy
3. Alternate Energy Revolving Loan Program, Floyd Barwig, Director, Iowa Energy Center
4. Aquila Presentation, Matt Daunis, Manager, Energy Efficiency Programs, Aquila Inc.
5. Buildings and Climate Change, Kate Schwennsen, Associate Dean, College of Design, Iowa State University
6. Energy Efficiency in Iowa, Roya Stanley, Director, Iowa Office of Energy Independence
7. Energy Efficiency Planning Iowa's Investor-owned Utilities, Jack Clark, Vice President, Iowa Utility Association
8. Energy Efficiency Program Options, Tommi Makila, Senior Energy Policy Analyst, Iowa Department of Natural Resources
9. Energy Efficiency Results for Iowa Utility Programs, Gordon Dunn, Utilities Specialist, Energy Efficiency Programs, Iowa Utilities Board
10. Energy Star Indices for States, Flora Schmidt, Executive Director, Home Builders Association of Iowa
11. Energy-Efficient Construction Workshop Flyer, Regi Goodale, Director of Regulatory Affairs, Iowa Association of Electric Cooperatives

12. Home Energy Saver Energy Audit Webpage, Regi Goodale, Director of Regulatory Affairs, Iowa Association of Electric Cooperatives
13. Housing-The Foundation of Iowa's Economy, Flora Schmidt, Executive Director, Home Builders Association of Iowa
14. How Homes Become Green, Flora Schmidt, Executive Director, Home Builders Association of Iowa
15. Iowa Bankers Association Financing Presentation, Sharon Presnall, Senior Vice President, Government Relations, Iowa Bankers Association
16. Iowa Energy Bank Program, Tommi Makila, Senior Energy Policy Analyst, Iowa Department of Natural Resources
17. Iowa Retail Federation Presentation, Jim Henter, President, Iowa Retail Federation
18. IUB Requirements and Oversight of Utilities' Energy Efficiency Efforts, Jennifer Easler, Attorney, Office of Consumer Advocate
19. Master Builders of Iowa Presentation, Mike Carroll, Vice President, Hansen Company, Inc. and Chairperson, Master Builders of Iowa
20. MidAmerican Energy Presentation, Rick Leuthauser, Manager of Energy Efficiency, MidAmerican Energy
21. Municipal Utilities and Energy Efficiency, Bob Haug, Executive Director, Iowa Association of Municipal Utilities
22. Policy Recommendations, Bob Haug, Executive Director, Iowa Association of Municipal Utilities
23. Providing Additional Tools and Options for Energy Efficiency in Public Entities, David Harvey, Director, Control Technology and Solutions
24. Statutory Review Process of Iowa's Energy Efficiency Programs, Joan Conrad, Legislative Liaison, Iowa Utilities Board
25. Technology for Energy Efficiency, Floyd Barwig, Director, Iowa Energy Center
26. Toward Energy Efficient Homes in Iowa, Don Ott, Owner, DPO Construction
27. Vermeer Manufacturing Presentation, Dell Collins, Director of Facilities, Vermeer Manufacturing Co.
28. Whirlpool Presentation, Brent Kramer, Manager, New Product Development and Facilities, Whirlpool Amana Division

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