




**Iowa Association
of Municipal Utilities**

**Interim Legislative Committee on
Energy Efficiency
Municipal Utility Plans and Programs**

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November 13, 2008**

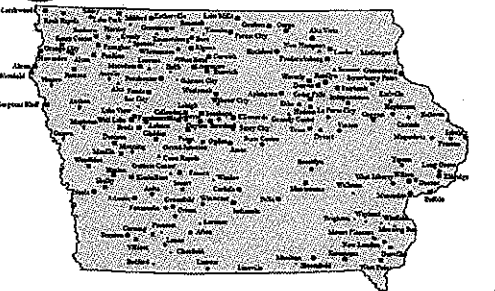
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Who We Are

136 Electric Utilities
49 Gas Utilities



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EE Assessment of Potential

- Assessment of energy efficiency measures with disaggregation to individual utilities
- Municipal Focus
 - Residential
 - Commercial
 - Industrial
 - Municipal Water & Wastewater Systems
 - Street Lights & Traffic Signals

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Participants in IAMU study

- 121 electric; 51 gas/propane utilities
 - All municipal natural gas systems plus one propane distribution utility and one coop natural gas utility
 - All municipal electric utilities, except those in Missouri River Energy Services (MRES) plus Amana Society Service Company and one electric cooperative (MRES study results will be reported jointly with IAMU)

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Assessment Status/Timeline

- Current: Study underway; measures list complete
- November 2008: Screening measures for cost-effectiveness with and without value of avoided CO₂ emissions
- December 2008: Estimate economic potential
- January 2009: Progress Report to IUB

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Assessment Timeline Cont.

- January 2009: Evaluate innovative program delivery
 - Community based comprehensive programs
 - Advanced education & outreach
- February 2009: Allocation of achievable results to individual utilities
- March 2009: Final assessment report to members

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Utility Outreach

- December 2008: Nine regional meetings
 - Summarize assessment progress and timeline
 - “Prime pump” for setting efficiency goals
- March 26, 2009: Member workshop
 - Present results of assessment
 - Guidance on setting EE goals and improving EE programs
 - Municipal best practices

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EE programs expanding

- 84 members have added at least one new EE program in the last two years. These programs include:
 - Customer education (*Eco@Home* is one example)
 - Low-income assistance
 - Residential audits
 - Industrial audits
 - Online audits
 - Residential and commercial high efficiency appliance rebates


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EE programs expanding

- More new programs:
 - New construction programs
 - Furnace, air-source and geothermal HVAC rebates
 - Commercial and industrial lighting rebates
 - Residential building envelope rebates
 - Weatherization kits
 - Change-a-Light; Change the World
 - Custom CFL programs
 - Rate design to promote energy efficiency

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Best Practices - Examples

- Quality Install (Cedar Falls, Waverly, Indep. HVAC sizing)
- Education/Outreach (IAMU *Eco@Home*)
- Retail Rate Design (Waverly inverted rates)
- Innovative Financing (Woodbine 0% financing)
- Advanced Metering (Osage industrial data access)
- Community mobilization (Osage weatherization)
- Cross-utility programs (Ames Smart Energy/Water)


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Things to do or do Better

- Replicate best practices where they make sense
- Improve measurement & verification (time consuming, expensive, especially for small systems – joint approaches needed)
- Develop more/better low-income and rental housing programs


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Rental Property

- Utility rates are regressive as funding source for public policy
- Low-income and renters pay disproportionately for benefits they don't receive
- Unless efficiency improvements reach these customers, EE programs result in a form of redistributive injustice


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Rental Housing - Possibilities

- Uniform disclosure of building energy costs
- Higher minimum standards for new construction
- Defined floor for building inefficiency (what is not acceptable?)
- EE *Certificates of Occupancy*
- New forms of self-liquidating financing


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Climate Change

- IAMU endorses joint statement with investor-owned utilities and cooperatives
 - Economy wide solutions
 - Reasonable price impact
 - More, but realistic, renewable energy
 - R&D Investment
 - Timely implementation of cap and trade
 - Federal solutions in global context


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Integrating Climate Policies

- EE assessment includes evaluation of cost-effectiveness with CO₂ constraints
- IAMU's "Town Meeting Kit" stresses carbon risk in support of aggressive energy efficiency services (Excerpts of draft presentation follow.)

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Retooling for a Carbon Constrained Future


A Policymaker's Guide to Public Information and Input

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Purpose

To Assist municipal electric and gas utilities in educating citizen-owners about the value of community owned, locally controlled utilities in a changing energy environment.




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Why engage the citizens?

- Energy costs and volatility increasing
- Carbon emissions must be curtailed
- Opportunity to inform citizens of:
 - What's happening in the industry
 - Utility's energy efficiency programs
- Creates process for citizen input
- Builds community support




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What outcome expected?

- Informed citizens who will:
 - Feel empowered and support utility goals
 - Take advantage of energy efficiency programs and utilize more efficient technology
 - Value community control over their energy future




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What citizens need to know about natural gas

- Demand for natural gas, including gas for electric generation and ethanol production, is outstripping supply
- New gas supplies are harder to find and more expensive to extract
- Gas prices increasingly reflect world market for liquefied natural gas
- There is evidence that price volatility results in part from unregulated, speculative trading


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Gas costs with cap & trade

- Gas costs with a CO₂ cap & trade system are a function of: (1) cost/T CO₂; (2) increase in demand for electric generation, and; (3) decrease in demand due to rising cost.
- Gas estimated to increase \$1 for each \$19/T CO₂ – possibly \$1.50 to \$2 by 2020 (source AGA)


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What citizens need to know about electricity


- Deregulated wholesale power markets are not working well www.fairelectricrates.net
- Excess electric generating capacity has been used up and new plants are much more expensive
- Transmission is inadequate – costs reflect scarcity and new construction

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More about electricity costs

- Infrastructure costs continue to rise
 - World demand for copper, aluminum, steel, and concrete is increasing
 - Labor costs are rising due to retirements of baby-boomers and growing demand for engineers, line-workers, and other skilled labor




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Electricity costs and CO₂

- The environmental cost of massive carbon emissions will begin to be recognized in energy policy
- A cap and trade system will scale back emissions; permitted emissions will be priced and consumers will pay and/or reduce consumption through efficiency


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Generation costs - coal

- Old coal = ~2¢/kWh
- New coal = ~4¢/kWh
- Next coal = ~5¢/kWh
- New w/ \$25/t CO₂ = ~7¢/kWh

There are many variables; these costs are illustrative. Assumptions include new coal at \$2,600/kW, 9,750 heat rate, coal at \$1.25/T delivered, and 25 yr. financing at 4.5%. These costs do not include transmission or transformation & line losses.




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Coal – risk assessment

- To reach 60% CO₂ reduction by 2050, the near-term range of carbon penalty is \$22 to \$142/T. A Harvard study puts the estimate at \$60-\$85/T.
- Meeting requirements for 4 pollutants (SO₂, NO_x, particulates, & mercury) adds .7 to 1.36¢/kWh
- W/ low-end risks, coal = ~6½ ¢/kWh
- W/ mid-point risks, coal = ~12¢/kWh
- W/ high end risk, coal = ~19½ ¢/kWh

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Generation costs – gas


- Combined cycle gas turbines (CCGT) increasingly set the market price.
- CCGT w/\$5 gas = ~5.4¢/kWh
- CCGT w/\$8 gas = ~8.2¢/kWh
- CCGT w/\$10 gas = ~9.6¢/kWh
- \$8 gas + \$25/ton CO₂ = ~9.3¢/kWh

Example assumes 35% capacity factor and 7,000 Btu heat rate.
There are many other variables; these costs are illustrative

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What citizens need to know about renewables



- Renewable energy technology has improved dramatically, but:
 - Turbine manufacturing capacity is limited
 - Cost of materials (steel, copper, alum. alloys) is rising
 - Transmission capacity is limited
 - Wind does not coincide with peak use

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Cost of Alternative Energy


Cost of Renewables

- Wind (Iowa 20-year) = ~5 – 6.5¢/kWh
- Solar PV & Thermal = ~15 - 30¢/kWh
 - PV potential to drop to ~5¢/kWh

Cost of Nuclear Energy

- Current facilities = ~11 – 15¢/kWh

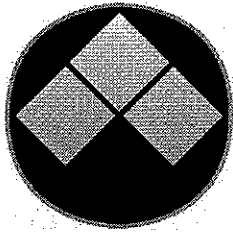
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What citizens need to know about energy efficiency (EE)

- Energy efficiency is the single most important and lowest cost resource
- Assessment of cost-effective EE is under-way and will be completed by early 2009
- Cost of EE must be recovered in rates
- EE will hold down cost of energy, even as rates increase
- EE programs should be widely distributed

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Supplemental Remarks Regarding Energy Efficiency Programs for Residential Rental and Low-Income Properties and Implementation of Climate Change Policy

What we need to start doing or do better. We have been asked to comment on best practices as well as program ideas that our members are not currently offering. To some extent these are the same lists. One of the values that come from local control of municipal utilities is that our members are constantly experimenting with new ideas. The best of these ideas are typically replicated by others, but that process takes time. The evaluation of energy efficiency potential that is now underway will measure costs and benefits of a wide range of programs. We believe the study will speed adoption of best practices, where local conditions are similar.

Local conditions among our members vary widely. For example, in April, MidAmerican Energy testified to the IUB (EEO-08-02) that new residential and commercial construction programs were projected to contribute 20 percent of total electric savings and over 1/3 of total natural gas savings. MidAmerican Energy serves some of the fastest growing communities in Iowa. Our members include some communities in which new housing starts just aren't happening. Programs and savings projections for MidAmerican's growing load centers or for growing municipal utilities such as Waukee Gas, Cedar Falls Utilities, Ames, or Sioux Center simply don't apply to small communities with declining populations.

There are other program areas that are not being addressed adequately anywhere. I would like to focus on one of these – the need for programs that address efficiency in low-income and rental property. An obvious fact worth repeating is that the money utilities use to pay for energy efficiency programs is part of the cost for each kilowatt hour or therm of gas. As a source of revenue for environmental or social policy, utility rates are very regressive. Some renters, especially those with low-incomes, pay disproportionately for energy efficiency benefits that they never receive. How many renters want rebates for a new furnace that they can't take with them at the end of the lease? Where is the incentive for landlords to install the most efficient appliances or to add insulation and weatherization, when it's the renter who pays the utility bill? Where is the justice in taxing citizens through utility rates to help finance efficiency measures in the McMansions that fill many new subdivisions? If we do nothing to improve efficiency for renters and those who can't afford new appliances and advanced heating and cooling systems, we really engage in a process of redistributive injustice.

We are looking at several ways to begin addressing this problem. First, the amount of electricity and heating fuel used in the 12 most recent consecutive months should be clearly and uniformly disclosed in any offer to rent a residence. Such a requirement would help the market provide an incentive for energy efficiency in rental property. This part of the solution would likely require legislative action in the form of an amendment to the uniform landlord-tenant act.

Second, there needs to be a limit on energy inefficiency. Tougher energy efficiency standards for new construction will help. For existing property, we have developed a model ordinance that would require the owner of rental housing to hold and periodically renew a certificate of occupancy. To receive the certificate, the property would have to meet minimum standards for the age or condition of the refrigerator, HVAC equipment, insulation, and weatherization. Here the key will be to make the standard tough enough to have an impact on energy use, but not so tough as to eliminate affordable housing. The new housing standards will have to come from changes to and enforcement of the energy building code. We assume the certificate of occupancy concept would be adopted by city ordinance.

As an alternative to local ordinances, uniform energy efficiency standards for existing rental property might be considered by the State Energy Efficiency Commission. If a workable enforcement mechanism could be found, such standards would also allow better use of the limited LIHEAP funds that are available in Iowa. Without improvements in rural rental housing, we will continue to subsidize owners of sub-standard rental property by supplementing their renter's heating expenses. Uniform standards would also address the relative lack of energy efficiency programs available to renters who rely on propane heating fuel. According to Iowa Dept of Human Rights, about 85,000 residents receive LIHEAP aid. Of these, about 10,000 use propane as the primary heating source.

Third, we need new forms of self-liquidating financing, that is: financing in which the efficiency measure is repaid by the energy savings. For rental property, that can be a hard sell. We can probably convince a landlord and a renter that it makes sense to install a more efficient furnace and to use most of the money that would have been used on fuel to repay the financing. The renter benefits by paying a little less for heating each month and perhaps by having a more comfort and reliability; the landlord benefits by having fewer service calls and complaints and making the total cost of renting more affordable.

In rough terms, repaying the replacement of an 80 percent thermally efficient furnace with one rated at 92 percent through the energy savings (with gas at \$4.50 per therm) takes 7 to 10 years, assuming a small portion of the savings are passed on to the occupant. The problem with these numbers is that rental properties may turn over several times during the financing period. How does a landlord or the utility get the second and subsequent renter to pay for energy he/she is not using? We think that we might be able to develop model rental forms that fully-disclose the deal and bind the new renter and/or the landlord to the terms of the repayment, but it could be difficult to sell the concept to all the parties involved.

To develop new financing mechanisms for energy efficiency and other programs that improve energy efficiency of rental properties, we call on the governor to convene another stakeholder process that includes utilities, financial institutions, low-income advocates, property owners, legislators, regulators and others. Whether the process proved successful or not, the outcome of such a forum would be instructive. If there is no political will on the part of these stakeholders to find new solutions to improve energy efficiency, then we might infer that there is a lack of will to tackle the larger issues of climate change and energy independence. It is better to know that sooner than later, because the solutions to these problems can't be funded exclusively from the pockets of

utility consumers through rates that require disproportionate contributions from those least able to pay.

How we are integrating climate change policy into energy efficiency programs.

We have also been asked to provide a statement on climate change. IAMU has worked with investor-owned utilities and cooperatives to adopt a joint position on climate change. I believe that statement has been provided to the committee. I would like to address the related question of how we are integrating climate change policy into our energy efficiency programs. We are developing a set of recommendations and materials that we currently describe as the "town meeting kit." The purpose of this project is to assist our members in informing citizens about changes in energy markets and energy policies, to reinforce the view that the municipal utility business model is one of providing energy services and not just providing kilowatt hours or therms, and to raise energy efficiency as the energy service of choice.

The expected impact of climate change policies is a principal argument in winning support for these goals. Let me call your attention to the colored portion of our handout and specifically the slides beginning with slide 22. What we describe here are rough estimates of the impact of a cap and trade or carbon tax on the cost of producing electricity and risks associated with next increments of fossil fuel. Let me preface my explanation of these slides by saying that our association supports construction of new coal-fueled power plants. Newer units are much more efficient than old ones. Some older units will have to be replaced. Demand for electricity continues to grow – take for example the refrigerator-sized load of some plasma television sets. However, the point of our discussion of energy costs and risks in a carbon-constrained economy is to begin a dialog about the cost of new capacity and energy versus the alternative cost of avoiding the next increment of generating capacity or the next kWh or therm of gas. It's our contention that efficiency is the lowest cost option and that cost-effective measures must be implemented as the least-cost solution for consumers and for the environment.

Bob Haug
Executive Director
11-13-08