Approved: 3-6-08
Date

MINUTES OF THE SENATE UTILITIES COMMITTEE

The meeting was called to order by Chairman Jay Emler at 9:30 A.M. on February 6, 2008 in Room 526-S of the Capitol.

Committee members absent:

Committee staff present: Raney Gilliland, Kansas Legislative Research Department
Cindy Lash, Kansas Legislative Research Department
Mike Corrigan, Revisor of Statutes
Ann McMorris, Committee Secretary

Conferees appearing before the committee:
Cheryl Semmel, Exec. Director , United School Administrators
Gary George, Olathe School District
Patrick Smith, Attorney, KCC
Tom Thompson, Sierra Club
Ron Hammerschmidt, Director of Environment, KDHE
Eileen Smith, Kansas Solar Electric Cooperatives
Joe Spease, Overland Park
David Springe, CURB

Others in attendance: See attached list

Chair continued hearing on:
SB 515 - electric generation, transmission and efficiency and air emissions

Neutral
Cheryl Semmel, Exec. Director , United School Administrators, requested removal from **SB 515**, Section 6 which mandates new public school buildings constructed after July 1, 2009 meet certain specifications. This section also requires that districts reduce water consumption by 25%. There are other technical aspects of Section 6 that raise significant concerns for districts. (Attachment 1)

Gary George, Olathe School District, commented on parts of Section 6 that had significant concerns to them. They are also concerned with the sections that deal with school district energy efficient construction and use. In addition to the concerns about cost of new buildings, they questioned how it applied to renovations and additions to existing buildings. They asked that Section 6 as it applies to local school districts be removed or dramatically addressed to cover some of the issues we are concerned about. (Attachment 2)

Patrick Smith, Attorney, Kansas Corporation Commission, provided an executive summary of **SB 515.** The KCC recommended changes in Section 34(a) and 34(f) and provided language. He discussed Sunflower Electric Power Company's intent. He summarized that there are substantial unintended consequences related to the proposed changes in K.S.A. 66-104d, as drafted. If the legislature elects to move forward with this bill, the suggested changes from KCC would eliminate many of the unintended consequences identified by the KCC while maintaining the intent of the bill. (Attachment 3)

Written testimony from
Steve Kearney, Waste Management (Attachment 4)

Questions - Are we ever going to be at a time when we are not in the middle of a building project that requires energy efficiency? A. One possible way is to say that the bill will apply to a bond issue after a certain date.
Q. Do you see trouble exceeding the water standards? A. Concerned on sites that are already purchased. Q. Do you know if your current plans for buildings would meet the standards required in the bill? A. No.

Opponents:

Tom Thompson, Sierra Club, who presented testimony written by Craig Volland, Chair, Air Quality Committee, of the Kansas Chapter, Sierra Club. This bill does not truly address the issue of greenhouse gases. He cited several advantages to Sunflower that would allow them to take credit for extra space on new transmission lines, they would get carbon credit on each dollar spent on research projects and they get three times the actual carbon avoided for conversion of cultivated land to pasture. (Attachment 5)

Ron Hammerschmidt, Director of Environment, KDHE, stated there are a number of regional initiatives to deal with greenhouse gas issues. These programs are developing to establish greenhouse gas programs that focus on cap and trade programs with market-driven prices. We do have a number of concerns: (1) in Section 10 with the use of the term "effective facility" and suggested language be changed to "affected electrical generating facility"; (2) you may want to look at the definition of reconstruction; (3) Sections 10 and 12 do address the permitting process but does not address who is going to do the regulation of the offsets; (4) in Section 10 it gets back into some exemptions; (5) Section 33 which amends the Kansas Air Quality Act; (6) in Section 30 there are some different rules for Kansas over the Federal Clean Air Act. (Attachment 6)

Eileen Smith, Kansas Solar Electric Cooperatives, provided background on solar energy programs throughout the world and statistics on the conservation projects in various buildings. She concluded by saying the time frame is impossibly short to make a well informed decision and recommended the bill be tabled pending further review. (Attachment 7)

Joe Spease of Overland Park opposes **SB 515** and believes wind power is the best thing for Western Kansas. He cited the closing of a "clean coal" plant because of the uneconomical costs of the plant. Future federal carbon taxes will make Holcomb uneconomical. The Holcomb plant would destroy the need for wind power out west. The future is in clean energy. (Attachment 8)

David Springe, CURB, believes that the majority of customers do not simply want the lowest cost power, regardless of source. The provisions of this bill equally impact every utility in Kansas. Because of the complexity of the carbon off set scheme created by this legislation, CURB is uncertain whether this bill will result in a proper balance among resource decisions, environmental concerns and consumer rate impacts. CURB believes that the legislature should create and fund a third party, non utility, energy conservation program to provide energy conservation and energy efficiency measures to Kansas consumers. CURB has many concerns and would support further study of the mechanism created in this bill. (Attachment 9)

Questions from the committee: Is cost the main issue? What are the pitfalls of the carbon fee? If you were looking for lower costs, would you say spend a $1 on research rather than $3 on the carbon charge? Lee requested list of coal plants that have not been used and a list of those that are under construction. What is Sunflower - who are the co-
ops?

Adjournment.

Respectfully admitted,

Ann McMorris, Secretary

Attachments - 9

SENATE UTILITIES COMMITTEE GUEST LIST

DATE: FEBRUARY 6, 2008

Name	Representing
Karl Wurz	Kearney & Associates
Joe Skeese	self
Jared Fowler	Quon Ethanol
Clare Gustin	Sunflower Electric
Bill Wehrman	Hinkle & Williams
David Springe	Curb
Ray Hammerschmidt	KCC
Steve Miller	Sunflower
Kaidden M. Landy	Earth Peace Systems
Cheryl Semmel	USA/Kansas
Gary George	Olathe USD
Eileen M. Smith, M. Arch.	KS Solar Electric Co-ops
Tom Thompson	Sierra Club
Diane Gjersted	Wichita - USD 259
Shai Albrecht	KOKE
Bob Vancrum	TriSlate Gas T
TERRY HOUSTON	KFB
Ron Hammerschmidt	KDHE

SENATE UTILITIES COMMITTEE GUEST LIST

DATE: FEBRUARY 6, 2008

Name	Representing
STEVE KEARNEY	WASTE MANAGEMENT

USA Kansas
United School Administrators of Kansas
515 S. Kansas Avenue Suite 201
Topeka, Kansas 66603
Phone: 785.232.6566
Fax: 785.232.9776
Web: www.usa-ks.org

Testimony on
S.B. 515

Senate Committee on Utilities

February 6, 2008

Presented by:
Cheryl L. Semmel, Executive Director, United School Administrators of Kansas*

Thank you for the opportunity to appear before you this morning. I would like to make clear to members of this committee that I am not here in opposition to or as a proponent of **S.B. 515.** I am here to speak to a specific section of the bill that would significantly impact school districts.

S.B. 515, Section 6 mandates that "new public school buildings, where construction commences on or after July 1, 2009, be designed, constructed, and certified to achieve energy consumption levels that are at least 25 percent below the levels established under the American society of heating, refrigerating, and air-conditioning engineers (hereinafter "ASHRAE") standard or the 2006 international energy conservation code (hereinafter "IECC"), if such levels of energy consumption are life-cycle cost-effective for such buildings." This Section also requires that districts reduce water consumption by 25 percent.

We believe that the mandates in this legislation place an undue burden on school districts, especially insofar as they exceed the ASHRAE or IECC standards. **We respectfully request that this Section be removed from the proposed legislation.**

Many Kansas school districts have adopted energy management programs, implemented energy-saving strategies, and adopted environmentally-preferable practices. Districts have taken voluntary steps to ensure that public school buildings and facilities, especially those newly constructed, are designed to increase energy efficiency and reduce consumption to the maximum extent practicable given resources available. Several districts are building facilities to meet the Leadership in Energy and Environmental Design (LEED)[1] certification standards and purchase products that have the Energy Star designation.

Beyond this basic premise, there are other technical aspects of this Section that raise significant concerns for districts, including:

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[1]Green Building Rating System developed by the U.S. Green Building Council

1) The timeline for implementation

The provisions of this bill are applicable to any building or structure where the construction commences on or after July 1, 2009. The legislation stipulates that the Secretary of Administration will develop rules and regulations for compliance; however, the bill does not specify a timeline for promulgation of the rules or provide for public feedback during the process.

2) The undetermined and unfunded compliance costs for implementation

This year (FY 2008), twenty-five (25) districts have scheduled bond elections for construction of and renovations to school buildings and facilities. To-date, eleven (11) initiatives have passed and nine (9) are scheduled to be voted upon later this year. Last year (FY 2007), ten (10) districts successfully passed bond issues. In most cases, the bond initiatives include projects scheduled for construction with the next 3-5 years. Cost estimates for these projects do not include the mandates proposed in the bill and [in 2007] were approved, by taxpayers, with the expectation that these projects would be completed within a specified time period and at the projected cost. In fact, in future bond elections, increased costs may make it more difficult for districts to fund new construction. The alternative may be to continue operating less efficient facilities.

While school districts have been voluntarily implementing energy efficiency and cost savings programs, they are doing so within the constraints of limited budget authority and resources allocated for construction costs. Section 6 requires public school districts to meet the proposed standards "if such levels of energy consumption are life-cycle cost-effective for such buildings."

If districts are required to meet these additional compliance standards, we believe that this legislation should include language that holds the state responsible for any additional compliance costs.

3) The determination of life-cycle cost-effectiveness

This standard for implementation is ambiguous. We recognize that determining true cost-effectiveness requires a life-cycle perspective; however, it also requires that all costs and benefits of a given project be evaluated and compared over its economic life. The challenge and uncertainty lies in how best to determine the true costs and benefits of implementing standards.

It is reasonable to expect that the provisions of this bill will increase building design and construction costs. Architectural and engineering modifications during the design and building phases are major contributors to the overall cost of capital projects. The methodology employed for calculating the "life-cycle" cost effectiveness, unless specified, will produce varied determinations about how long it would take districts to realize any benefit.

Ultimately, additional costs, if not funded by the Legislature, will likely result in higher local mill levies and raise the cost of state aid for bond and interest.

The potential excess costs associated with the requirements of this bill – through increased construction costs, change orders, and additional land requirements (for run-off and reuse) – could negatively impact a district's ability to fulfill its obligation and commitment to constituents.

We strongly encourage the committee to consider the fiscal impact Section 6 would have on districts and, equally as important, the potential and unintended impact this may have on school districts and local taxpayers. Again, we respectfully request that this Section be removed from the proposed legislation.

This testimony was submitted
on behalf of
United School Administrators of Kansas (USA|Kansas)
Kansas Association of School Boards (KASB)
Kansas Families for Education (KFE)
Kansas National Education Association (KNEA)
Schools for Quality Education (SQE)
Schools for Fair Funding (SFF)
Blue Valley School District (USD 229)
Kansas City (KCK) School District (USD 500)
Olathe School District (USD 233)
Shawnee Mission School District (USD 512)
Topeka School District (USD 501)
Wichita School District (USD 259)

FY 2007 Bond Elections
(Passed)

USD	USD Name
239	No Ottawa Co
240	Twin Valley
308	Hutchinson
323	Rock Creek
375	Circle
416	Louisburg
266	Maize
372	Silver Lake
410	Hillsboro
505	Chetopa

FY 2008 Bond Elections
(Passed as of December 31, 2007 and Pending)

(Passed, as of December 31, 2007)

USD	USD Name
101	Erie
233	Olathe
458	Basehor-Linwood
265	Goddard
267	Renwick
437	Auburn-Washburn
442	Nemaha Valley
491	Eudora
373	Newton
203	Piper
335	North Jackson

(Pending)

USD	USD Name
406	Wathena
467	Leoti
281	Graham County
470	Arkansas City
495	Fort Larned
476	Copeland
250	Pittsburg
402	Augusta
487	Herington

Source:
Kansas State Department Education, Division of Fiscal and Administrative Services
February 4, 2008

Olathe
Unified School District 233

Olathe School District
Testimony provided by Dr. Gary George
Senate Bill 515
February 6, 2008

We are present today as a neutral party with respect to Senate Bill 515, but we do have some concerns with those sections of the bill that relate to construction of new schools.

At the outset, let me be clear that the Olathe School District is a "green" district. We recognize our social responsibility to provide energy efficient school buildings. We have had an energy management program in place for 15 years. During that time we have "cost avoided" over $13M in utility expenses. We have been recognized as a leader in this area. We are constructing our new elementary schools to meet the LEED certification requirements. In addition, six of our schools have received the Energy Star awards from the Environmental Protection Agency. We purchase computers that have the Energy Star certification. Our energy manager is involved in new construction planning. We are experimenting with "green" custodial chemicals. We have recycling bins at virtually all schools for both school and neighborhood use.

As indicated above, we are very supportive of energy conservation measures. However, we do have several concerns with the sections of SB515 that deal with school district energy efficient construction and use.

1. The Olathe School District is growing rapidly and currently constructs more buildings at a faster rate than any other district in the state. The provisions of this bill are of critical importance to us. The tax payers of high growth school districts, such as Olathe, will bear a disproportionate share of the cost of compliance with this legislation. The lack of clarity on some issues, the impact on existing bond issues, the potential impact on sites already acquired, and the cost of compliance create significant concerns for us and our patrons.

2. The Secretary of Administration is to develop rules and regulations for new construction, but there is no timeline of when these rules and regulations will be completed or if any input from school districts will be permitted.

3. There is no provision in the bill for the state to provide technical assistance for school districts.

4. The bill requires regulation of external water use. It is not clear how, or if, this will impact building sites our board of education has already acquired.

5. The Olathe School District passed a $138M bond issue on October 15, 2007. Cost projections for this bond issue were completed in the winter and spring of 2007. This bond issue will cover three to four years of construction. However, SB515 calls for the new requirements to go into effect in July 2009. This will mean expensive change orders that will be borne by our taxpayers. There should be a provision in the bill that the new regulations apply only to construction funded by bond issues that occur in the future.

6. It is not clear how the new requirements would apply to renovation of existing buildings and additions to older buildings.

7. The method of determining "cost effective" measures is unknown.

8. Finally, the Olathe Board of Education has taken legislative positions on local control and unfunded mandates. This bill is in conflict with the Board's position on these issues.

In summary, we suggest that the school energy section of SB515 be amended to address the concerns raised or be deleted from the bill.

Thank you for your consideration of our concerns.

KANSAS
CORPORATION COMMISSION

Kathleen Sebelius, Governor
Thomas E. Wright, Chairman
Michael C. Moffet, Commissioner
Joseph F. Harkins, Commissioner

February 6, 2008

EXECUTIVE SUMMARY: SB 515

SB Bill 515, specifically Section 34, as drafted, would essentially allow any utility in Kansas to restructure and deregulate to the detriment of customers who have no representation at the decision-making level of their utility, which goes far beyond the intent of this bill. As drafted, this language would significantly alter the long standing regulatory governing public utilities in Kansas. Furthermore, the changes, as drafted could undermine protective measures taken in specific prior Orders of the Commission approving agreements among interested utilities and parties.

- If the Legislature determines SB 515 should be enacted, Section 34 should be narrowly tailored to eliminate unintended consequences.

- If the proposed language contained in Section 34 remains unchanged, any public utility in Kansas could simply alter its corporate structure, become a limited liability company, and evade regulation by the Kansas Corporation Commission and customer representation traditionally provided in a cooperative.

- By accepting the recommended changes of the Kansas Corporation Commission the Legislature will maintain the intent of Section 34 without compromising the ability of the Kansas Corporation Commission to regulate entities remaining under its jurisdiction and control.

- If the Legislature enacts SB 515, the Kansas Corporation Commission recommends the following changes to avoid unintended results that are contrary to the intent of the bill and negatively impact Kansas ratepayers:

Section 34(a) should read: "As used in this section, 'cooperative' means any **corporation organized under the electric cooperative act, K.S.A. 17-4601 et seq., and amendments thereto, or which becomes subject to the electric cooperative act in the manner therein provided**; or **any limited liability company or corporation providing electric service at wholesale in the state of Kansas, owned by four or more electric cooperatives that provide retail service in the state of Kansas.**"

Section 34(f) should read: "Nothing in this section shall be construed to affect the single certified service territory of a cooperative or the authority of the state corporation commission, as otherwise provided by law, over a cooperative with regard to service territory**; charges, fees or tariffs for transmission services;** sales of power for resale**, other than sales between a cooperative as defined in subsection (a), that does not provide retail electric service and an owner of such cooperative;** wire-stringing and transmission line siting, pursuant to K.S.A. 66-131, 66-183, 66-1,170 et seq., or 66-1,177 et seq., and amendments thereto.

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KANSAS
CORPORATION COMMISSION

Kathleen Sebelius, Governor
Thomas E. Wright, Chairman
Michael C. Moffet, Commissioner
Joseph F. Harkins, Commissioner

February 6, 2008

TESTIMONY BEFORE THE SENATE UTILITIES COMMITTEE

SB 515

Chairperson Emler and Distinguished Members of the Committee:

My name is Patrick T. Smith. I am Litigation Counsel for the Kansas Corporation Commission ("KCC" or "the Commission"). I am appearing today on behalf of the Kansas Corporation Commissioners and Staff.

My purpose in testifying before you today is to express the Commission's concerns regarding Senate Bill 515, specifically Section 34 containing amendments to K.S.A. 66-104d that, as drafted, would significantly alter the long standing KCC regulatory framework governing public utilities in Kansas. Furthermore, the changes, as drafted could undermine protective measures taken in specific prior Orders of the Commission approving agreements among interested utilities and parties.

My testimony will explain the unintended consequences of the proposed language, and the effect on Kansas customers. I will also discuss changes to the language of Sec. 34 of SB 515 that we believe could successfully mitigate the unintended consequences but still achieve the original intent of Sec. 34 should the bill move forward in the legislative process.

I. Sunflower Electric Power Company's Intent.

Commission Staff met with representatives of Sunflower Electric Power Company ("Sunflower") in mid-January to discuss what would become Sec. 34 of SB 515. Sunflower expressed its intent to establish a means for certain companies, including Sunflower, MKEC, and their common owner cooperatives, to opt-out of KCC regulation in favor of self-regulation by the cooperative. As two entities essentially owned by the same 6 electric cooperatives, the intent was to allow Sunflower and MKEC to have unregulated exchange of power, resources and compensation with their mutual owner cooperatives.

However, the actual language of Sec. 34 of SB 515, as currently proposed, is overbroad and has far-reaching, unintended consequences beyond the specific intended purpose expressed by Sunflower. For example, C-corp utilities such as Southern Pioneer could opt-out of regulation without providing any customer representation at the decision-making level thus leaving those customers unprotected and without say in the rate-making process.

II. Sec. 34 – Amendment to K.S.A. 66-104d

Sec. 34 has two subsections, (a) and (f), that are of particular concern to the KCC:

Subsection (a)

Subsection (a) amends K.S.A. 66-104d which is the statute authorizing cooperatives with fewer than 15,000 customers to opt-out of regulation by the KCC. The proposed amendment would open the definition of such cooperatives to "any member-owned corporation or limited liability company" providing electric service either at retail or wholesale. This would eliminate the 15,000 customer cap on cooperatives and open up the op-out authority to utilities with other corporate structures. Although the intent was to encompass Sunflower (a large member-owned company cooperative) and MKEC (an LLC), the proposed language goes well beyond this intent and could potentially allow any Kansas utility to restructure and opt-out of KCC regulation. Many regulated utilities could argue they are a "member owned company" or simply convert to an LLC and opt-out of KCC regulation.

The KCC has two specific concerns with this unintended consequence:

1) Utility customers would not have any representation in the decision-making process for their rates or utility operation.
2) The proposed amendments would leave large Kansas utilities open to purchase by private ownership and and avoiding KCC or cooperative regulation at the expense of customer protections.

The KCC's only interest in this bill is to point out these unintended consequences and recommend to the legislature that if SB 515 moves forward in the approval process, the definition of a "cooperative" that may opt-out of KCC regulation should be limited to the intended category of Kansas utilities: **Any corporation organized under the electric cooperative act, K.S.A. 17-4601 et seq., and amendments thereto, or which becomes subject to the electric cooperative act in the manner therein provided; or any limited liability company or corporation providing electric service at wholesale in the state of Kansas, owned by four or more electric cooperatives that provide retail electric service.**

This would limit the ability for a utility to opt-out of KCC regulation without proper customer representation at the decision-making level. (*i.e.* It would only allow a true cooperative, as defined by the electric cooperative act, to regulate itself.) This would also limit self-regulation to LLC's that are owned by multiple retail electric cooperatives (MKEC).

Subsection (f)

Subsection (f) amends K.S.A. 66-104d(f) which maintains the KCC's jurisdiction over a cooperative with regard to key issues such as service territories, transmission services, sales of wholesale power, and transmission siting. The proposed amendment to subsection (f) inserts an exception to KCC jurisdiction for sales of wholesale power "between a member-owned generation and transmission cooperative and a member of such cooperative." This language is

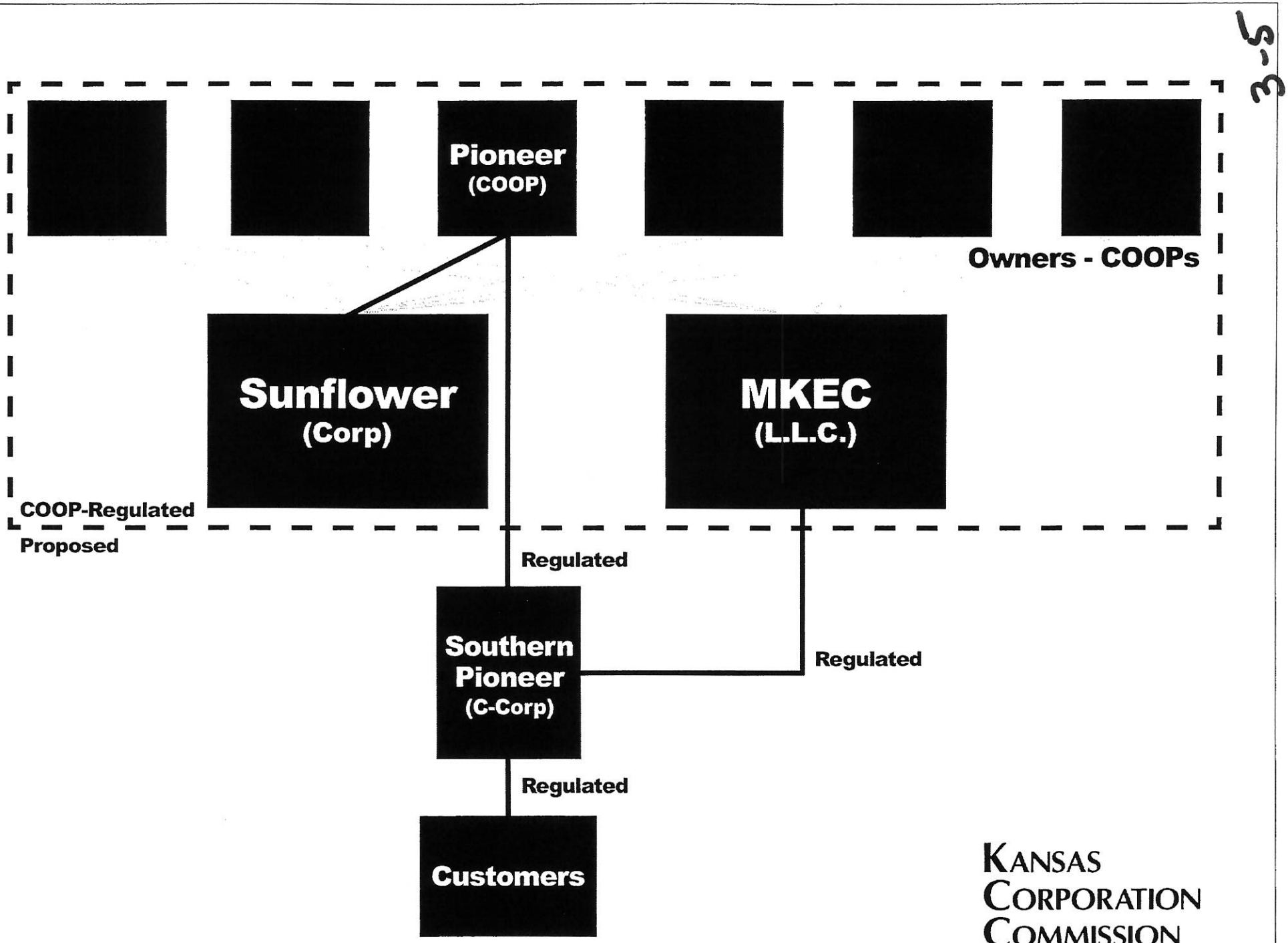
intended to allow entities such as Sunflower, MKEC, and their member-owners to transact business in a self-regulated manner as determined by the member cooperatives.

If the legislature decides to move forward with this bill, the Commission's concern is that the definition of "cooperative" in proposed subsection (a) would allow unregulated transactions involving electric distribution companies that do not have customer representation in the decision-making process regarding retail sales rates. In order to protect customers that are not represented in the cooperative, the KCC recommends an amendment to subsection (f) to tie the definition of a generation and transmission "cooperative" to the KCC's definition in subsection (a) and limit the self-regulated transactions to those between the generation and transmission cooperative and its member-owners (the Sunflower/MKEC scenario). Such language would read: **Nothing in this section shall be construed to affect . . . the authority of the state corporation commission, as otherwise provided by law, over a cooperative with regard to . . . sales of power for resale other than sales between a generation and transmission cooperative, as defined in subsection (a), that does not provide retail electric service and an owner of such cooperative.**

III. Conclusion

In sum, there are substantial unintended consequences related to passage of the amendments to K.S.A. 66-104d, as drafted. If the legislature elects to move forward with this bill, the suggested changes herein would eliminate many of the unintended consequences identified by the Kansas Corporation Commission while maintaining the intent of the bill.

Thank you for the opportunity to appear before you today. I am happy to entertain any questions that you may have.


Pioneer
(COOP)
Owners - COOPs
Sunflower
(Corp)
MKEC
(L.L.C.)
COOP-Regulated
Proposed
Regulated
Southern
Pioneer
(C-Corp)
Regulated
Regulated
Customers
KANSAS
CORPORATION
COMMISSION

Senate Bill 515

Current Proposed Language

Sec. 34. K.S.A. 66-104d is hereby amended to read as follows: 66-104d. (a) As used in this section, "cooperative" means any ~~cooperative as defined by K.S.A. 17-4603, and amendments thereto, which has fewer than 15,000 customers and which provides power principally at retail~~ *member-owned corporation or limited liability company providing electric service either at retail or wholesale in the state of Kansas.*

(f) Nothing in this section shall be construed to affect the single certified service territory of a cooperative or the authority of the state corporation commission, as otherwise provided by law, over a cooperative with regard to service territory, charges, *fees or tariffs* for transmission services, sales of power for resale *other than sales between a member-owned generation and transmission cooperative and a member of such cooperative*, wire stringing and transmission line siting, pursuant to K.S.A. 66-131, 66-183, 66-1,170 et seq., or 66-1,177 et seq., and amendments thereto.

KCC's Proposed Language Amending SB 515

Sec. 34. K.S.A. 66-104d is hereby amended to read as follows: 66-104d. (a) As used in this section, "cooperative" means any **corporation organized under the electric cooperative act, K.S.A. 17-4601 et seq., and amendments thereto, or which becomes subject to the electric cooperative act in the manner therein provided;** ~~*member-owned corporation*~~ *or* **any** *limited liability company* **or corporation** *providing electric service* ~~*either at retail or*~~ **at** *wholesale in the state of Kansas*, **owned by four or more electric cooperatives that provide retail electric service.**

(f) Nothing in this section shall be construed to affect the single certified service territory of a cooperative or the authority of the state corporation commission, as otherwise provided by law, over a cooperative with regard to service territory~~,~~; charges, *fees or tariffs* for transmission services~~,~~**;** sales of power for resale *other than sales between a* ~~*member-owned*~~ *generation and transmission cooperative*, **as defined in subsection (a), that does not provide retail electric service** *and* ~~*a member*~~ **an owner** *of such cooperative*~~,~~**;** wire stringing and transmission line siting, pursuant to K.S.A. 66-131, 66-183, 66-1,170 et seq., or 66-1,177 et seq., and amendments thereto.

TESTIMONY ON BEHALF OF WASTE MANAGEMENT

TO: SENATE UTILITIES COMMITTEE

FROM: STEVE KEARNEY

SUBJECT: SB 515

DATE: 2/5/2008

Chairman Emler and members of the Committee thank you for your work on this important matter. As many of you are aware, Waste Management is a leader not only in converting landfill gas to energy, but also in waste-to-energy initiatives.

Waste Management currently supplies landfill gas to more than 100 beneficial-use gas projects in North America, providing the equivalent of more than 475 megawatts of energy—enough to power more than 400,000 homes as well as saving the equivalent of nearly seven million barrels of oil per year.

Additionally, Waste Management through its subsidiary Wheelabrator, uses trash to generate electricity at 17 waste-to-energy plants across the nation. Waste-to-energy reduces municipal solid waste by 90% and saves valuable space in landfills.

On behalf of Waste Management I am suggesting two friendly amendments to this measure that would incorporate these technologies into this measure.

1. On page 9, line 16, "biomass" is cited as one of the *renewable distributed generation sources* referred to in the bill. The term biomass is not defined elsewhere in the bill and Waste Management respectfully suggests that the definition be broadened to include landfill gas. We propose language be added after the word biomass on page 9, line 16, as follows:

   "which includes, without limitation, landfill gas, an anaerobic digester system, and an energy recovery facility used to capture the heat value of mixed municipal solid waste or refuse-derivrd fuel from mixed municipal solid waste as a primary fuel"

2. On page 9, lines 14 and 15 "waste-to-energy" is not included as a *renewable distributed generation source* and we respectfully suggest it be included in any definition of "renewable resources", including this one.

Thank you in advance for your consideration of these important amendments. I am available to answer any questions you may have.

Testimony on House Bill 2711 by Craig Volland, Chair, Air Quality Committee of the Kansas Chapter, Sierra Club, Before the Senate Utilities Committee, Feb 6, 2008

A close examination of this bill shows that it is specifically designed to allow Sunflower to build their Holcomb project without significantly altering their current plans. It provides merely the grand illusion of actually addressing greenhouse gas emissions from the project. For example the Holcomb partners can obtain about 40% of the credits they need solely from existing wind farm projects in Kansas including one project built in 2001. They can take credit for any extra space on new transmission lines whether it is actually used for renewable energy or not. They get a ton of carbon credit for each dollar spent on research projects for a period ten years, whether they actually reduce or offset any emissions or not. That works out to only 10 cents per ton of carbon credits for expenditures they have already made on their algae reactor. They get three times the actual carbon avoided for conversion of cultivated land to pasture. This is convenient, since they must do this anyway on 30,000 acres whose water rights they obtained to run the coal plant. Why three times? Where did that come from? And so on.

The fact is, Holcomb would emit 11 million tons per year of carbon dioxide before this bill is passed, and it would emit 11 million tons per year after the bill is passed. That doesn't count the carbon emissions from burning diesel fuel to haul in 6.2 million tons of coal from Wyoming for 50 years and then haul back the empty coal cars.

The real question, and the White Elephant in the room nobody is talking about, is why Sunflower is still trying to build coal plants at all. Over 50 coal plant proposals in the US were abandoned or placed on hold in 2007 due primarily to soaring construction costs and the impending regulation of carbon by the US Congress. Westar put their coal plant proposal on hold last year and starting building wind farms. Just last week the US Department of Energy cancelled the FutureGen advanced coal-burning technology project because of massive cost increases.

In Monday's testimony in the House Utilities Committee, Sunflower CEO Earl Watkins stated that the Holcomb project would cost in the range of 5 cents/kwh. That's what a coal plant cost a year and a half ago, but not today. In recent KCC testimony Westar said that a new coal plant for start up in 2016 would cost from 7.5 to 8.0 cents/kwr.[1] Adjusting for plant size and a 2013 start date, Holcomb will likely cost about 6.7 cents/kwr.

That doesn't include the cost of impending carbon regulation by the US Congress which will trump anything the Kansas legislature comes up with. Experts estimate that this regulation will add about $25 per ton of CO2, or an increase of over 35% for coal plant like Holcomb.[2] The Wisconsin PSC estimated a cost of $22/ton in a decision last year.[3] So now we are up to 9.2 cents/kwhr. *That's wholesale cost.* Wall Street is so alarmed that just this week they announced they would make it harder to finance coal plants.[4]

Midwest Energy President Ernie Lehman said that residential electricity rates are higher in western Kansas , averaging 10 cents/kwhr. His own company's rates, though, at 8.1 cents, are less than the 8.4 cents I pay in Kansas City, Kansas. But I think current retail rates are beside the point. What matters is what going to happen to rates in the future. The Holcomb project, far from lowering electricity rates in western Kansas, will saddle the region with an increasingly expensive and obsolete coal burning technology for 50 to 75 years.

Something else Earl Watkins said made me realize, as a former financial analyst, what the central problem really is. Sunflower is unable to accrue equity and raise capital on their own. So we are at the end of a long struggle where Sunflower has been trying to leverage their meager physical assets to make a little money. Mr. Watkins recounted how the current Holcomb project began with a plan to sell the 660 MW Sand Sage project to Enron or other energy marketers. That fell through when the deregulation craze died. Next they came up with the current grandiose scheme, three times larger (2100 MW), so they could earn the down payment for the modest 200 MW they need for Kansas.

I'd hate to be in Earl Watkin's shoes. He's in charge of an entity that's neither fish nor fowl, neither a public entity with access to public funding nor an entrepreneurial, private corporation. Sunflower is, as recently described by the Rural Utility Service, a "financially troubled borrower" struggling under a dysfunctional business model. [5]

Instead of aiding and abetting the misconceived Holcomb project that threatens the future of our children and grandchildren, the legislature and the Governor should agree on an independent consultant to look into these financial questions and search for a long term solution for Sunflower's inability to raise capital and get beyond their chronic financial difficulties. Then the legislature and the Governor should agree on independent consultants to help prepare a comprehensive energy plant for the state, one that captures the possibilities of rapidly developing and environmentally sound energy strategies rather than one that saddles the state with technologies of the past.

References:

1. Michael Elenbass, Westar Energy, Direct Testimony, KCC Docket 08-WSEE-309-PRE, Oct 1, 2007.
2.. D. Schlissel & E. Hausmann, Synapse Energy Economics, Inc., "New Coal Plants vs the Future," Jan. 21, 2008. Mid-case estimate in 2020 = $25/ton CO2, approx. equivalent to 2.5 cents kwhr.
3.Wis. PSC ruling on Point Beach Nuclear plant ownership transfer. Ref.#82880. Sept. 25, 2007.
4. Jefrey Wall, "Wall Street Shows Skepticism Over Coal," WSJ. Feb. 4, 2008.
5. USDA Rural Utilities Service, "Defendant's Motion to Dismiss," Civil Action No. 07-1860 (EGS), US District Court for the District of Columbia, Jan. 31, 2008, Introduction, page 3.

KANSAS
DEPARTMENT OF HEALTH
AND ENVIRONMENT

Kathleen Sebelius, Governor
Roderick L. Bremby, Secretary

www.kdheks.gov

Testimony on Senate Bill 515

Presented to
Senate Utilities Committee
By
Ronald F. Hammerschmidt, Ph.D.
Director, Division of Environment

February 6, 2008

Chairman Emler and members of the Committee, I am Ron Hammerschmidt, Director of KDHE's Division of Environment. I am pleased to appear before you today to present testimony on SB 515.

The bill focuses primarily on matters of electricity generation and transmission and efficiency and conservation measures. I will confine my testimony to the sections of the bill that would expand the department's authority to address carbon dioxide emissions in Kansas and those sections that have a direct effect on the Kansas Air Quality Act, which the Kansas Department of Health and Environment implements.

I would like to first direct your attention to Sections 10-12, pages 6 - 12, the Carbon Dioxide Emissions Offset Act. Across the United States, a number of legislative and executive branch efforts are underway to address carbon dioxide emissions, generally in the form of cap and trade programs. These state and regional efforts are in various stages of development. Kansas currently is a signatory to the Midwest Governors' Greenhouse Gas Accord and a member of The Climate Registry. The Western Climate Initiative and the Regional Greenhouse Gas Initiative (RGGI) are similar efforts to establish greenhouse gas programs that focus on cap and trade with market-driven pricing. These markets could include either an allocation of allowances or an auction or a combination of the two.

This act would establish an efficiency standard for new sources but would not implement a cap on carbon dioxide emissions in Kansas. This differs from other state and regional initiatives that are establishing a cap that then encourages facilities to implement efficient generation based on market forces. In addition, by fixing the maximum price of carbon offsets at $3/ton, the act would artificially set the price of carbon rather than allowing market forces to determining the price which, in effect, discourages carbon reductions.

Section 10 of the bill contains new definitions. In keeping with the expressed intent to keep this act separate from the Kansas Air Quality Act and to distinguish between the language used in the existing federal and state air quality laws, the department recommends that the term "affected facility" at Section 10, subsection (b)(1), page 6, lines 12-18, be changed to "affected electrical generating facility." The inclusion of the definition for "reconstruct" or "reconstruction" at Section 10, subsection (b)(7), page 7, lines 24 - 27, as well as the applicability criteria established in Section 11, page 7, lines 34 – 37, bring reconstructed facilities within the scope of the Carbon Dioxide Emissions Offset Act (Offset Act), which could have significant impacts on existing facilities. It is not clear whether all or part of an existing facility would be subject to emissions reductions or offsets.

Sections 10 and 12 of the bill imply a permitting process in several places, but the bill does not clearly establish one. Section 10, subsection (b)(5), pages 6-7, includes the concept of limiting CO2 emissions from facilities through hours of operation or the type of material combusted. This type of restriction is normally placed in a KDHE permit to make it enforceable. In addition, the phrase "permitting authority" is referenced once in Section 12, subsection(e), page 10, lines 21-29, where credits for permanently retiring facilities are discussed. The proposed Offset Act would not be part of the Kansas Air Quality Act and therefore, the CO2 limits/reductions could not be conditions in an air quality permit. In order to implement the program as envisioned by this bill, the state would need permitting and enforcement authority.

Section 10, subsection (b)(1)(C), page 6, lines 17 and 18, exempts sources from being defined as an "affected facility" if they are exempt under section 111 of the federal clean air act. This language would exempt several fossil-fuel-fired steam electricity generating units currently operating in Kansas that were built prior to promulgation of the new source performance standards by EPA.

I would now like to address Sections 30 – 33, pages 21 – 25, which amend the Kansas Air Quality Act. In Section 30, a new subsection (t) is proposed for addition to the list of the secretary's powers and duties in K.S.A. 65-3005. The secretary would be authorized to implement the federal clean air act (CAA), apparently in its entirety. The department currently implements only portions of the CAA. The department is uncertain whether the intent of subsection (t) is to extend the scope of Kansas's implementation of the CAA to other regulatory programs, such as small engine standards, vehicle emission standards, volatile organic compound (VOC)-content standards for paints, etc.

The department notes that several existing sections (e, i, q, and r) of K.S.A. 65-3005 refer to "the prevention, abatement and control of air pollution" as the bases of the Kansas Air Quality Act. In the policy statement made in Section 30, page 21, lines 17 and 18, however, the bill inserts new terms, "prevent the deterioration of air quality." This terminology is similar to the CAA terms, "prevention of significant deterioration (PSD)," which apply to the federal

preconstruction permits the department issues to major stationary sources. The similarity of language may create further confusion as to the intended scope of subsection (t).

Section 30, page 21, lines 22 – 23, limits the scope of the secretary's authority by restricting Kansas's implementation of the CAA to being no more stringent, restrictive or expansive than is required by the CAA. Using PSD permits as an example, Kansas regulation K.A.R.28-19-350 does not implement all of the federal requirements for PSD. For example, Kansas implements Kansas-specific requirements for stack heights, air quality analysis, and visibility monitoring, which depart from the federal PSD requirements. Unlike the federal PSD rules, Kansas regulations do not require permit applicants to file environmental impact statements. The department is also concerned that a number of regulatory and voluntary programs it has implemented to prevent air pollution would be prohibited from expanding beyond the scope of the CAA. Examples of ongoing programs include: Sustainable Skylines Program; Blue Skyways Program; and the Kansas City Clean Air Action Plan.

The current air quality regulations address permitting requirements for major and minor stationary sources across a range of industrial activities in Kansas. Permits are issued for construction of the emissions source as well as for the source's operation. The department issues prevention of significant deterioration (PSD) permits, new source review (NSR) permits, and Title V operating permits to major stationary sources and construction and operating approvals for minor stationary sources pursuant to current Kansas regulations that have met the requirements for adoption under Kansas law and have met the requirements of the United States Environmental Protection Agency for inclusion in the state implementation plan required by the CAA. The last sentence of (t)(1)(A), page 21, lines 25 – 28, would require the department to seek the enactment of legislation in order to adopt air quality regulations that would be more stringent, restrictive or expansive than the CAA. This provisions of the bill would disable the department from performing one of the core elements of the Kansas Air Quality Act, that is, prevention. The department would no longer have available the ability to take flexible and innovative approaches to air quality control.

Subsection (t)(1)(B), page 21, lines 32 – 35, provides an exception for non-attainment areas to the restrictions on the secretary's authority imposed in subsection (t)(1)(A). While the department acknowledges the need for this exception, we must note that the primary purpose of the Kansas Air Quality Act is to avoid federal designation of any area of Kansas as non-attainment. Such a designation means that the area does not meet the National Ambient Air Quality Standards and comes at a significant cost not only to the industries subject to further emission restrictions but to the public, in terms of health and restrictions on their personal activities, i.e., gasoline purchases, lawn mowing. The bill language would allow the department to take action only after non-attainment occurs rather than taking a preventative approach to avoid designation as non-attainment. The department is currently developing administrative

regulations to implement contingency measures in a Kansas City maintenance plan, which is part of the state implementation plan to avoid a non-attainment designation.

With respect to Section 31, which amends K.S.A. 2007 Supp. 65-3008a, it appears that there is an additional affirmation step required to affirm the issuance of any permit, and the terms and conditions thereof. The bill does not define the form or procedure to be used for this additional affirmation step.

I appreciate the opportunity to provide these comments and will stand for questions when the time is appropriate.

Eileen M. Smith, M.Arch.
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My name is Eileen M. Smith, M.Arch. I represent the Kansas Solar Electric Co~operatives founded in 2005 with the goal to evolve The K-SEC Model of 1,000 MWp Building-Integrated Photovoltaic [BI-PV] Solar in Kansas by 2020.
Please refer to the two-page $3.5 B K-SEC Business Plan Summary attached.

> *Through participatory processes and systemic methodologies, we build, enhance, and transform the capacity of ourselves, other people, and organizations to address complex societal issues and realize their highest aspirations for a greater social good.*
>
> Strategic Clarity Institute

First, I want to thank Secretary Bremby for his responsible decision to deny the Sunflower Coal Plant. There are several reasons that his decision is important and will go down in history as one of the turning points in energy industry regulation. First, Kansas legislators must take responsibility for putting Secretary Bremby in that position where they repealed the Siting Act in 2000 for all electric generation plants except nuclear energy. Please refer to the Minutes of the Senate Utilities Committee for the meeting held at 1:30 pm on February 3, 2000 in Room 531-N of the Capitol. Those minutes were approved on February 10, 2000 and I quote:

"He [Mr. Hamilton] stated that repeal of the Generation Siting Act does not repeal environmental or zoning requirements, which leaves the responsibility to local authorities and requires development be treated like manufacturing plants, with lower property taxes and competitive economic development incentives. He also urged repeal of the Generating Siting Act and quick action, as there is a stampede to build plants now, and it may be sometime before additional plants are built." He also stated that ". . . building a grid to Western Kansas, which would be very costly and the Holcomb experience of fifteen years ago, would scare off developers. Major power markets are either east or southeast of the state and Kansas can't sell into the Western Interconnection or most of Texas. . . . Sen. Steffes discussed building on top of the source of energy and inquired about coal plants, and if that was a consideration. Mr. Hamilton replied that coal plants are not environmentally friendly, that all merchant power plants will have to be gas powered; that declining costs can be credited to the costs of electrical power generation." [i]

At the time of those hearings I was an intervener in the California Public Utilities Commission rulemaking into the role of the Utility Distribution Company in Distributed Generation.[ii] We were just bracing for a spike in rates from what they called deregulation in an alleged competitive market dominated by monopolies. Energy Crisis began about three months later. It was terrible. I went to the hearings and heard of numerous people losing their businesses

and homes due to their electric bill tripling in one month. There is no such thing as a deregulated and truly competitive market. It is like a football game ---where you put the seasoned pros and the small local businesses together in competition, you had best have excellent regulatory enforcement in place to succeed.

In addition to the need to regulate the Siting of coal plants due to the Senate's own testimony regarding coal being environmentally unfriendly, there is no statement in K.S.A. 65-3012 that states the regulatory authority must *only* be issued in a crisis situation. However, it could be argued that the world is in a crisis and Secretary Bremby responded to that emergency situation where everyone in the world from banker to peasant is scrambling to reduce CO2 emissions and risks of related increased global warming. That emergency evolves larger from one alleged natural disaster after another. There were fourteen hurricanes in one year, unprecedented Tsunamis, the melting of icebergs, the first alleged global warming war in Sudan and extremely hot weather that you know is going to create a dust bowl in Kansas without extremely sensitive mitigation. We need to preserve water rights, now.

Secretary Bremby did not impose authority without gaining the consensus of statutory, judicial and other agency authority. April 2, 2007 the US Supreme Court issued a ruling in Massachusetts versus EPA stating that the EPA must enforce green house gases under the Clean Air Act first passed in 1963. Where before the vague requirement was for opponents of polluting coal plants had to prove that their plant would not pollute before a permit was provided, now businesses proposing coal plants must prove they are not going to add to the CO2 challenge driving global warming. For those that do not believe in global warming I would be glad to provide a bibliography of articles quoting numerous scientific and academic experts around the world that have no known connection or financial benefit for stating their case. However, even with the US Supreme Court decision to rely upon, Secretary Bremby still cautiously pursued an opinion by the Kansas Attorney General Morrison who stated per Attorney General Opinion No. 2007-31 that Secretary Bremby does in fact and did have on October 17, 2007 the authority under K.S.A. 65-3012 to deny or modify an air quality permit, or place a stay on issuance of an air quality permit until state or federal regulations are enacted that address the pollutant. Attorney General Paul J. Morrison indicated that the secretary may *'. . . deny the application pursuant to K.S.A. 65-3008b for specified reasons."* The US Supreme Court gave him not only the reasons to deny, but the responsibility to deny the coal plant permit. It is not only the environmental and health of Kansas people that are at stake, but it is the dignity and the economic stability that are jeopardized by those that want to ramrod these coal plants upon Kansas without proper authority or rational to do so. I would state that this is not a hearing for a coal plant this is a lynch mob in denial. Thereby, I would highly recommend that there be a cooling off period of six months to a year whereby the matter can be more responsibly considered where the stacks are very high from every perspective.

In the meantime, I would suggest that the other projects proposed be furthered along with a solar chimney, wind energy and a cooperative alliance with the Kansas Solar Electric Co~operatives to assure 10% BI-PV Solar in Kansa by 2020. In addition to the 1,000 MWp solar

K-SEC is proposing for Kansas, there is an opportunity for Sunflower Cooperatives to provide diversity to the energy mix in Kansas by the development of two or three 200 MWp Solar Chimneys and Wind Energy in Western Kansas. See the prototype developed in Spain and the proposed project being built in Australia at this time. The solar chimney creates a vacuum with a plexi glass surface over an open space about four feet deep.

There is a deadline to become a coal sequestration demonstration project that is due March 3, 2008. Apply for funding via that avenue to install the sequestration demonstration upon the existing coal plant in Holcomb. When we see that it works effectively, then we can consider using it for a larger coal resource, but not until then. We have too much CO2 emissions as it is.

In 2004, the KDHE issued warnings for the women and children not to eat the fish in Kansas lakes and rivers due to coal mercury accumulation. We are not giving up coal by cutting back in this case. Kansas already depends on coal-fired power for 80% of the electricity we consume. Use this crisis as an opportunity to justify the evolution of a new mix of renewable energy into the Kansas marketplace. Kansans spent substantial time testifying Fall 2007 and in 2005 related to the KCP&L coal plant being built in Missouri. In the meantime, we have not had any review to investigate and further The K-SEC Model while the media and community groups, academic speakers and scientific experts are holding one forum after another related to their concerns with C02 emissions. This is not a personal battle to squelch Sunflower Corporation's aspirations, this is an appeal to assure they are making sound, safe and healthy decisions environmentally and economically.

For more information about The K-SEC Model please refer to the February BI-PV N.E.W.S.Letter linked on the K-SEC website listed herein with K-SEC's address and phone number and see the 8" x 10" photograph included for you of the historic 30,000 SF BI-PV Solar Roof installed on the Georgetown University Intercultural Center in Washington, DC in 1984. This roof generates a MWh of demand-site fuel-free non-polluting solar electricity a day in the dense urban center of Washington, DC. Amoco Oil took over Solarex and their patents that year. PV production fell from 10,000 kWp to 3,000 kWp. From 1992 to 1995, the German States initiated a 1,000 Solar Roofs Program and the industry has continued to grow slowly since then. BI-PV is affordable, however like any other product it will be less expensive when deployed on a large scale basis. 100 MSF in Kansas will provide many benefits to Kansans.

Demand-side fuel free solar electricity is now a necessity due to its unique ability to the tremendous dependency on electricity, today and the volatility in the world. 10% BI-PV Solar in Kansas will increase Homeland Security, Emergency Preparedness, Environmental Integrity, Technology Expertise and it will bring 1,000 jobs to Kansas. K-SEC renewable cooperatives will produce, install, monitor, maintain and manage the solar resource from the 1,000 MWp BI-PV of generators for fifty years. Thus, it is also an excellent research and development program using the consumer lab which is far more effective and economic.

Renewable technology is no longer a partisan issue. Everyone in the world needs to be and wants to be involved in furthering sustainable technology. Please the two pages from the SEPA Record [Solar Electric Power Association] entitled "The Integration of Solar Electric into Buildings Solar Electric at the White House and Around the World." The article is written by Steven Strong, AIA an architect from Cambridge, Massachusetts. He founded the Solar Design Associates in the 1970s and is a BI-PV solar energy guru.

The primary hurdle we are facing in this proceeding is the need to make a decision regarding complex consequential issues in an impossibly short time-frame to influence a time-span of fifty to one hundred years or more. There is no immediate emergency need for the electricity resource being proposed. It will not harm the proposal to give it a six to twelve month hiatus for further consideration to encourage the use of more renewable energy in Sunflower's generation portfolio. However, there are emergency conditions related to the impact of CO2 emissions from coal-fired power plants on global warming and health hazards.[iii] Representative Vaughn Flora expressed that sentiment when he proposed a bill for a moratorium on coal-fired power plants in Kansas per HB 2219 proposed in 2007.[iv]

Conclusion – Time Frame is impossibly short to make well-informed decision
Recommendation – Table Decision-Making Process Pending Further Review

In an attempt to provide the greatest good in relation to the 360 seconds I am allotted to speak, I skimmed Senate Bill 515 and House Bill 2711. I think this bill is too complicated and important to be used as retaliation for The Bremby Decision that was issued on sound legal authority with a far more cautious position than the legislators who drafted this bill in an attempt to overstep the authority of the Kansas Attorney General, Secretary Bremby, the US Supreme Court and the EPA. We hear your concern, and that is another reason to wait.

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[i] *Minutes of the Senate Utilities Committee,* February 3, 2000 called to order by Sen. Pat Ranson at 1:30 pm in Room 531-N of the Capital as approved Feb 10, 2000

[ii] *ElectriCity BEYOND THE CURVE OF DEREGULATION* written by Eileen M. Smith, M.Arch. Ethos of Commerce Publishers Ltd. ISBN 0-9741412-9-1 released April 23, 2005

[iii] *EPA Announces Preliminary Enforcement Priorities for Fiscal Years 2008, 2009, and 2010,* Technical Resources, Air Pollution Consultant, Aspen Publishers, Inc. 2007 websites provided for references: www.epa.gov/compliance/data/planning/priorities/index.html Information on OECA at http://www.epa.gov/compliance

U.S. EPA, 2006-2011 EPA Strategic Plan: Charting Our Course; Sept. 30, 2006 www.epa.gov/ocfo/plan/plan.htm

[iv] *House Bill No. 2219 by Committee on Energy and Utilities* Session of 2007, Kansas Representative Vaughn Flora

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KANSAS SOLAR ELECTRIC CO~OPERATIVES [K-SEC]

Founder and Director Eileen M. Smith, M.Arch. E-MAIL: K_SEC@yahoo.com

The K-SEC Model *. . . the safest experiment in the energy industry, today!*

K-SEC STATEWIDE NON-PROFIT COOPERATIVE WILL FACILITAE A K-SEC RENEWABLE COOPERATIVE IN EVERY COUNTYOF KANSAS PER KSA CH17-4651

MISSION

The K-SEC Model is focused on Demand-Site Fuel-Free Noise-Free Non-Polluting BI-PV Solar. We will install 1,000 MWp Building-Integrated Photovoltaic [BI-PV] Solar ElectriCity in Kansas by 2020 w/Battery Back-Up and will Monitor + Maintain + Manage this BI-PV Solar Resource for 50 Years from completion of Phase I in 2010 to 2070. K-SEC is structured upon K.S.A. Chapter 17-4651 to 4681 Renewable Cooperatives.

PROGRAM OBJECTIVES AND ESTIMATED COSTS

- K-SEC *leases* Consumer Roof for BI-PV Solar w/Battery Back-up for 50 Years
- Consumer *pays only for structural modification* if needed to install solar
- K-SEC *manages* Grid Connection, Wholesale Net Metering and Solar Commerce
- K-SEC *provides* Quality High-Tech Jobs w/Installation Training in Every KS County

Phase I Demonstration = 1% of ElectriCity Consumed in Kansas BI-PV Solar by 2010

$46 M
a. Install 1 MSF BI-PV Solar = 10,000 SF BI-PV in 105 Counties of KS by 2010

Phase II Foundation = 10% of ElectriCity consumed in Kansas BI-PV Solar by 2020

$3 B
a. Establish Two 50 MWp BI-PV Manufacturing Museums in KS by 2009
b. Install 100 MSF BI-PV Solar = 1 MSF in 100 Counties of Kansas by 2020

Phase III Manage + Monitor + Maintain 1,010.5 MWp Solar Resource 2010 to 2070

$550 M
a. Equity Lease of Roof w/Battery Back-Up for @ 500 SF BI-PV Solar X 50 Yrs
b. Manage BI-PV Wholesale ElectriCity Commerce of K-SEC Solar Resource
c. Monitor 1,01.5 MWp Solar Resource for Maintenance and R & D
d. Develop BI-PV Engineering Degree Offerings at KS Universities by 2015

$3.596B INVESTMENT = FULL-COST DISPATCH VALUATION TO 2070

- Create 21st Century Jobs = Reduce Dependency on Fossil Fuels + Foreign Commodities
- Avoid Coal-fired Health Hazards$ Mercury Toxins, CO2 Emissions & Global Warming
- Assure KS | US Global Competitiveness BI-PV Solar Plus 50 Years R & D Data

20% Dual Use Demand-Site Fuel-Free Secondary Roofing Material -$0.60 Watt or -$6 SF = -$600 M
15% Funded by Homeland Security and Emergency Preparedness -$0.50 Watt or -$5 SF = -$500 M
15% Environmental Integrity & Local KS BI-PV DG Expertise -$0.50 Watt or -$5 SF = -$500 M

50% Full Cost Dispatch Values of the K-SEC Program -$1.60 Watt or -$16 SF =-$1.6B

TOTAL EST. COST 1010.5 MWp BI-PV Solar ElectriCity w/BBU $3.596 B -$1.6B = $1.996B

1. Kansas has renewable wholesale metering incentive of *150% avoided cost of electricity*
2. *KS wholesale | avoided cost* =$0.035 KWhX150% =0.05 kWh w/increased incentive *peakAC demand*
3. 1,000 MWp X5 SunHrs Day =5,000 MWh DayX260Days Yr =1,300 GWhYrX$50,000 GWh=$65M YR

TOTAL EST. SOLAR INCOME w/1,010.5 MWp BI-PV= $65 MYr X 50 YR = $3.25B X 20%

Projected 20% Cost of Living Rate Increase Over Fifty Years = $650 M + $3.25 B = $3.9B

KANSAS SOLAR ELECTRIC CO~OPERATIVES [K-SEC]

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P.O. Box 2 ~ Lawrence, Kansas 66044 ~ URL: www.geocities.com/Solar_Electric_Cooperatives

The K-SEC Model . . . *the safest experiment in the energy industry, today!*

K-SEC STATEWIDE NON-PROFIT COOPERATIVE WILL FACILITATE A K-SEC RENEWABLE COOPERATIVE IN EVERY COUNTY OF KANSAS PER KSA CH17-4651

K-SEC Phase I Demonstration PRE-DEPLOYMENT SCHEDULE
GOALS December 2007 to May 2008

Following activities are to be repeated for and in each of the 105 Kansas Counties

A. Solar Fair to be held in and for each of the 105 counties of Kansas
B. Establish 21 Phase I K-SEC Renewable Cooperatives per K.S.A. Ch 17-4651 to 4681
   a. Pursuant to K.S.A. Ch 17-4653 Five core board members incorporate 21 Renewable Cooperatives = 105 core board members = one incorporator for each KS County
   b. Upon making commitment K-SEC core board member pays $500 Dues
      $200 x 5 State Dues = $1,000 X 21 Renewable Cooperatives = $21,000
      $300 X 5 Local Dues = $1,500 X 21 Renewable Cooperatives = $31,500
C. Per K.S.A. Ch 17-4658 in 2 yrs @ incorporator installs 100 kWp BI-PV
   100 kWp /10 WSF = 10,000 SF BI-PV per 105 Phase I K-SEC incorporators
D. Help establish two BI-PV technology fabrication, design and training centers in KS
E. Help to Determine Potential Locations to Establish two 50 MWp BI-PV Manufacturing Museums
F. Help to Establish Kansas Silica Resource and Location for PV Grade Silicon Refinery

DETAILOF PROGRAM COSTS/INCOME & JOB DEVELOPMENT OPPORTUNITIES

PHASE I DEMONSTRATION 10.5 MWp or 1 MSF = 1% BI-PV Solar in Kansas by 2010

10,000 SF BI-PV Solar in 105 Counties of KS = 10.5 MWp BI-PV or 1 MSF = 1% Solar in KS by 2010
10,000 SF BI-PV /50 WKS = 200 SF BI-PV Installed Every WK X 105 Counties = 21,000 SF WK

		Cost Per $County
GIS Database 50,000 SF BI-PV Potential in 105 KS Counties	$0.005 Watt or $0.05 SF = $52,500	$500
Statewide 10.5 MWP BI-PV Fabrication/Training Facility	$0.75 Watt or $7.50 SF = $7.875 M	$75 G
1 MSF PV Roofing Materials Manufactured 10 WSF [15 WSF]	$1.25 Watt or $12.50SF = $13.125M	$125G
1 MSF Balance of System Components (replace 3 X 50 Years)	$0.60 Watt or $6 SF = $6.3 M	$60 G
4,200 X 3 Battery Back-Up Every 250 SF BI-PV (3 X 50 Years)	$1.20 Watt or $12.00 SF = $12.6 M	$120 G
1 MSF BI-PV Solar Packaged and Delivered to Installation Site	$0.25 Watt or $2.50 SF = $2.625 M	$25 G
1 MSF BI-PV Solar Architecturally Installed w/BBU by 2010	$0.35 Watt or $3.50 SF = $3.5 M	$35 G
SUBTOTAL COST 1 MSF BI-PV installed in KS w/BBU or 1% Solar	$4.41 Watt or $44.05 SF = $46.358 M	$440.5G

PHASE II FOUNDATION PRODUCE & INSTALL 1,000 MWp 2010 to 2020 $2.75 B

1,000 MWp BI-PV Solar at 10 WSF w/Conservative Estimate of 10 WSF = 100 MSF BI-PV in Kansas by 2020
100,000 SF BI-PV Each Year in 100 Counties X 10 Years from 2011 to 2020 = 100 MSF BI-PV for KS by 2020
2,000 SF BI-PV installed Every Week X 50 Weeks Year in 100 Counties 2011 to 2020 = 10% Solar for KS

		Cost Per $County
GIS Database 1 MSF BI-PV in 100 KS Counties by 2020	$0.005 Watt or $0.05 SF = $5 M	$50 G
Two 50 MWp BI-PV Manufacturing Museums = 100 MWp Year	$0.05 Watt or $0.50 SF = $50 M	$500 G
100 MSF PV Roofing Materials Manufactured 10 WSF [15 WSF]	$1.00 Watt or $10 SF = $1 B	$10 M
100 MSF Balance of System Components (replace 3 in 50 Years)	$0.60 Watt or $6 SF = $600 M	$6 M
400,000 X 3 Battery Back-Up Every 250 SF BI-PV (3 X 50 Years)	$0.75 Watt or $7.50 SF = $750 M	$7.5 M
100 MSF BI-PV Solar Packaged and Delivered to Installation Site	$0.25 Watt or $2.50 SF = $250 M	$2.5 M
100 MSF BI-PV Solar Architecturally Installed w/BBU by 2010	$0.35 Watt or $3.50 SF = $350 M	$3.5 M
SUBTOTAL COST 100 MSF BI-PV in KS w/BBU or 10% Solar	$3.01 Watt or $30.10 SF = $3.005 B	$30.05M

PHASE III Monitor+Maintain+Manage 1,010.5 MWp Solar Resource in KS 2010 to 2070 + R&D

		Cost Per $County
Monitor +Maintain + Manage BI-PV 2010 to 2070	$0.50 Watt or $5.00 SF = $500 M	$5 M
BI-PV Arch/Engineering Degrees at KS Universities by 2015	$0.05 Watt or $0.50 SF = $50 M	$500 G
50 Years Manage 1,010.5 MWp BI-PV Wholesale Solar Resource	$0.55 Watt or $5.50 SF = $550 M	$5.5 M

All the Latest News About Utilities and Their Involvement in Photovoltaics

The SEPA Record

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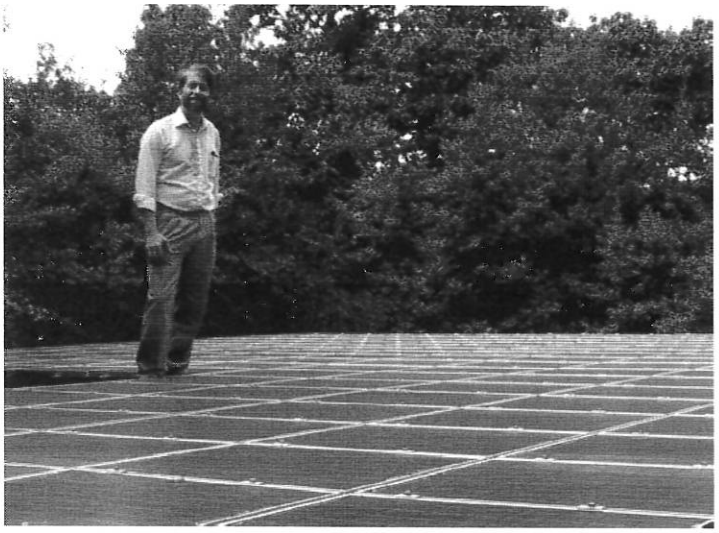
The Integration of Solar Electric into Buildings

Solar Electric at the White House and Around the World



Steven Strong, President of Solar Design Associates, stands with the 10-kWp PV array his firm designed to feed solar-generated power into the White House distribution system; it was completed this summer.

By Steven J. Strong

Ed. Note: There are three recently installed solar systems at the White House in Washington, D.C. a building-integrated PV system and two solar thermal systems. These systems, designed by Solar Design Associates, highlight the importance of using solar energy integrated with the building structure. Completed this summer, the roof-top PV system features modules from Evergreen Solar and was installed by Aurora Energy.

There is a growing consensus that distributed PV systems that provide electricity at the point of use will be the first to reach widespread commercialization. Chief among these distributed applications are PV power systems for individual buildings.

Interest in the building integration of PV (known as BIPV), where the PV elements actually become an integral part of the building, often serving as the exterior weathering skin, is growing worldwide. With reduced installation costs, improved aesthetics, and all the benefits of distributed generation, building-integrated PV systems are the prime candidate for early widespread market adoption.

Innovative architects the world over are now beginning to integrate PV into their designs and PV manufacturers are responding with modules developed specifically for BIPV applications, including integral roof modules, roofing tiles and shingles, modules for vertical curtain wall facades, sloped glazing systems, and skylights.

Designing with BIPV

The earliest BIPV system was a 7.5-kWp residential application completed in 1980. The Carlisle House, as it became known, was designed by Solar Design Associates and cosponsored by the Massachusetts Institute of Technology and the U.S. Department of Energy. This future-oriented house was all-electric with no fossil fuel burned onsite. The surplus electricity it produced was exported to the local utility grid via a "net metering" arrangement, using the grid in lieu of onsite storage.

Other early projects in the United States included the 200-kWp Solarex (now BP Solar) facility in Frederick, Md. (1982), and the 325-kWp Georgetown University Intercultural Center in Washington, D.C. (1985). Aggressive efforts in Europe and Japan begun in the early 1990s have pulled the technology forward toward

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Two New Solar Facilities Dedicated in the State of Texas

By Jordan Parker

A U.S. and a Dutch energy service provider have joined to install two new solar electric systems in Texas. Both facilities were dedicated recently.

Green Mountain Energy Company, the nation's largest and fastest growing retail provider of cleaner electricity, and Nuon, the Netherlands's largest utility and a leader in renewable energy development, have teamed up to harness the power of the sun to generate pollution-free electricity. The two new solar facilities are at the Winston School in Dallas and in the Upper Kirby District Foundation building in Houston.

The Winston School, in Dallas, Texas, houses a 57-kW roof-mounted photovoltaic system. Data generated by the photovoltaic system is incorporated into the school's educational curriculum.

The Winston School, on Royal Street in Dallas, hosts a 6,600-square-foot, 57-kilowatt rooftop solar array. The facility located atop the Upper Kirby District Foundation building on Richmond Avenue in Houston is a slightly smaller array covering 6,085 square feet, and is rated at 43 kilowatts.

Each installation is larger than a professional basketball court. Over their 20-year expected lifetime, these systems will prevent 6,355 tons of carbon dioxide, 24 tons of nitrous oxide, and 45.4 tons of sulfur dioxide emissions from entering the environment.

The Winston School, a co-educational college preparatory school serving "bright students who learn differently,"® will be the first Green Mountain Energy Company solar site to incorporate real-time data from the PV system into its curriculum. The school participates in various community projects, including a solar car program designed to develop self-esteem through a real sense of accomplishment. The program also helps other schools in Texas, around the nation, and all over the world learn how to start their own solar programs, through quarterly workshops and their solar website.

Their main project is the Winston Solar Challenge, an international education program designed to teach children the technology and physics behind a road-worthy solar vehicle. The Challenge consists of both cross-country races and closed-track races at the Texas

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Austin Energy Brings Green Pricing to Texas

Austin Energy has proven itself as a leader in the utility industry by establishing a successful, innovative, green pricing program.

The utility's success with green power dates back to its Solar Explorer program in the mid-1990s. Solar Explorer facilitated the installation of 28 PV systems on customer rooftops. The systems were utility-owned, but leased to the customer for 10 years at a nominal rate of $15 to $30 per month. Following the success of Solar Explorer, in January 2000 Austin Energy launched GreenChoice, a green pricing program that offers customers the option of purchasing 100 percent of their energy from renewable sources at a premium price.

Austin Energy secures long-term contracts with suppliers of renewable energy to purchase energy at a fixed price for the duration of that contract. The energy generated from these sources is branded "Austin Energy," and the utility earns renewable energy credits for that generation. Because Austin Energy receives the renewable energy at a fixed price, it offers customers who sign onto the GreenChoice program a fixed-fuel charge for the duration of that customer's contract, usually 10 years.

Electricity prices have fluctuated dramatically since the inception of the program; in some cases, the fuel charge has been markedly higher than the fixed rates of early GreenChoice participants. Cus-

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A ground-mounted PV array provides shading for the taxi stand at the Austin airport as part of Austin's Energy green pricing program.

Building-Integrated PV Systems

(continued from page 1)

broader commercial acceptance. Today, designers and engineers from more than 15 countries are participating in coordinated international activities, under the International Energy Agency's expert working group, to develop and implement BIPV programs.

It is essential to appreciate the context within which solar electricity can best function in a building. BIPV systems are only a part of the solution. We must address both sides of the energy use equation: supply *and* consumption. To maximize the solar contribution, the building should be designed to use energy most efficiently, with every aspect in the design process assessed with consideration for reducing the energy impact of the building. Energy generated from renewable resources will contribute a great deal more to an energy-efficient building. Only within the context of a comprehensive energy-conscious "whole building" design strategy can BIPV achieve its full potential.

In the past, incorporating PV into a building design required unwelcome trade-offs and concessions in the architectural design process. Today, as PV manufacturers match products to building-industry standards and architects' requirements, this is changing. Companies in the United States, Japan, and Europe are actively pursuing new module designs that displace traditional building materials.

In the mid-1990s, Solarex (now BP Solar) developed a line of pre-engineered building-integrated PV components for commercial building facades and sloped glazing applications, called PowerWall™, in conjunction with architectural curtainwall giant Kawneer of Atlanta, Ga. United Solar Systems (Troy, Mich.) fashioned its triple-junction amorphous silicon (a-Si) PV into roof shingles and standing-seam architectural metal roofing. BP Solar is currently developing a line of transparent thin-film modules suitable for overhead glazing systems and vision glass. Other architectural module designs employ glass-superstrate, crystalline modules with space between the cells and opaque backings, to provide diffuse daylighting along with their electric production.

These new building-integrated photovoltaic components are providing a window into the future of solar architecture. With the right design, the sunlight falling on a building and/or its site can provide much or all of the power it requires. In urban areas, you can only imagine the power which will be generated by incorporating PV into the thousands of square kilometers of empty flat roofs and other available building surfaces which receive generous amounts of sunlight just waiting to be harvested.

A good example of the integrated design approach is the new Cofrin Academic Center designed for the University of Wisconsin at Green Bay by Hellmuth, Obata, and Kassabaum (HOK). The facility features a student lounge whose south-facing sloped glass atrium and curtain wall incorporate the first U.S. application of insulated "solar electric glass." Solar Design Associates worked closely with HOK's green design group in their St. Louis office to design and integrate the BIPV system with the building design and then worked with the curtain wall, glazing, and PV manufacturers over a two-year period to develop the first-of-its-kind transparent, insulated PV glazing elements for use in architectural glazing systems. The solar electric glass provides daylighting, cooling load mitigation, glare control, *and* solar-generated renewable power for the building.

The first U.S. application of insulated architectural PV glazing was installed at the University of Wisconsin-Green Bay. The system, designed by Solar Design Associates, provides daylighting, cooling load mitigation, and solar-generated power to the new student center.

What's the Payback?

While the cost of solar electricity continues to drop and will soon be competitive in many areas, it is instructive to examine how we as architects invest our clients' resources. Every building that is designed and constructed (with the exception of corrugated metal self-storage warehouses and the like) has some portion of its design and construction resources allocated to make it special: to define and create a unique character or make a "statement" on behalf of the owner and/or designer.

This has traditionally been accomplished by using so-called "premium" building materials such as imported granite facades, marble interiors, curved glass walls, and made-to-order facade systems. The interesting thing to note is that many of these premium exterior cladding systems cost nearly as much as and, often, even more than a solar electric skin and none of them ever undergoes a return-on-investment analysis prior to being specified.

In the past, solar electricity has been subjected to unrealistic short-term payback demands. To justify the capital investments in PV, facilities managers have historically had to perform rigorous return-on-investment analyses based on utility savings because the funding came from their budgets while architects had to spend additional resources to construct a parapet screen to hide the unsightly PV arrays on the roof. The irony is that when a solar electric building skin is integrated, a cash flow stream is provided to the building owner on day one and for decades to come, whereas a granite facade will deliver only prestige.

Future Outlook

Today, there are more than one million homes worldwide using PV to supply or supplement their electricity requirements, although the majority are rural or remote off-grid applications. In addition, there are already many thousands of commercial buildings using integral or retrofit PV systems interfaced with the utility grid in Europe, Japan, and the U.S.

The potential opportunity for building-integrated PV systems is enormous, and many companies are now beginning to work on the development and commercialization of specialized BIPV components and systems. Residential and commercial BIPV will likely be the nearest-term large-scale markets for PV in the developed countries.

As building-integrated PV components become an integral part of the form and aesthetic of the built environment, these systems are helping to define a whole new architectural vernacular in environmentally responsive buildings whose primary design goal is to harvest their own energy. This new generation of buildings will contribute greatly to a more sustainable future for their owners, their communities, and society at large.

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Member Activities

AstroPower, Inc.

R&D Magazine named AstroPower's eight-inch Apex solar cell one of the 100 most technologically significant new products of the year. The APx-8 solar cell is the largest, most powerful solar cell available within the solar electric power industry, and is manufactured via the company's proprietary high-speed, continuous-sheet silicon-film process. Currently in commercial volume production, the APx-8 solar cell is suitable for a variety of applications, including building-integrated photovoltaics, and offers unmatched power in an eight-inch package.

AstroPower's SunUPS and SunLine Solar Electric Home Power Systems will now be featured in Home Depot stores throughout Long Island, N.Y., five stores in southern New Jersey, and four in Delaware. This expansion brings the total number of Home Depot locations that carry AstroPower's solar electric home power systems to 61. These include 18 stores in greater San Diego as well as 16 in the Los Angeles metropolitan area. Through displays at each of these stores, customers learn how easy it is to generate their own clean electricity with AstroPower solar electric home power systems.

Austin Energy

The number of Austin Energy customers subscribing to GreenChoice, a green pricing program offering clean renewable energy at a premium price, has climbed to over 150 businesses and more than 6,700 residential customers. Subscribers use more than 240 million kilowatt-hours of green power annually.

CSG Services, Inc.

The organizers of the Texas Renewable Energy Roundup turned to CSG Services to provide 100 percent solar power for the event. The electricity was generated by solar electric systems at ten public schools in Texas and transferred to the Roundup in the form of renewable energy certificates.

Evergreen Solar, Inc.

Evergreen Solar has partnered with Conservation Services Group to install 10-kW PV systems on four BJ's Wholesale stores in Long Island, N.Y. These systems receive rebates from Long Island Power Authority (see the story on page 15).

Hawaii Electric Light Company

As team leader of the Island of Hawaii Million Solar Roofs Initiative Partnership, HELCO was recently awarded a U.S. Department of Energy MSRI grant for $50,000 for several projects to increase the acceptance and use of solar technologies on the Big Island. The projects include workshops on solar technologies, designing and installing code-compliant PV systems, and integrating solar education curricula into school classrooms. Also, a one-kilowatt solar electric system was installed at a local public school in conjunction with the State Dept. of Education.

Additionally, HELCO is working with the County of Hawaii to install solar lighting at two remote county parks and has just completed a solar lighting system installed at the Hilo bay front restrooms. This project includes an educational kiosk featuring a display on the Million Solar Roofs Initiative and the Island of Hawaii MSRI Partnership. A third lighting project was recently completed at the Ka Hale O Kawaihae transitional shelter for the Catholic Charities Community and Immigrant Services to provide security for the shelter's parking lot.

Los Angeles Department of Water and Power

In unprecedented action to expand the LADWP Solar Incentive Program, the Board of Commissioners has approved measures that will increase incentive payment limits, extend the highest incentive levels for another year, and expand the program by allowing large customers to participate in both the LADWP incentive program and a rebate effort of another local utility.

Incentive payment limits for commercial and industrial customers were doubled from $1 million to $2 million per project and increased from $50,000 to $60,000 per project for residential customers. The highest incentive payments of $4.50 per watt and $6.00 per watt for systems manufactured in Los Angeles were extended for an addition year until the end of 2003. The overall solar program was extended to 2010.

North Carolina Solar Center

The N.C. State University Solar Center, with support from the National Renewable Energy Laboratory, recently completed *Case Studies on the Effectiveness of State Incentives for Renewable Energy*. This study details the performance of 10 financial incentive programs in six states and clarifies the key factors that influence the effectiveness of each at stimulating the adoption of renewable energy technologies. Based on a number of common themes that emerged regarding the effectiveness of all of the programs examined, the report makes several recommendations to policy makers to improve the effectiveness of incentive programs.

PowerLight Corp.

PowerLight has announced that it will install what is claimed to be the largest commercial solar rooftop electric system in North America at Toyota Motor Sales USA Inc. (Torrance, Calif.), headquarters. The 501-kW solar system, which covers 52,000 sq. ft. and features 3,300 PV tiles, will be installed by fall of 2002 at Toyota's South Campus expansion project.

"We are extremely pleased to see Toyota join the growing roster of leading companies that are realizing the benefits of deploying clean, reliable, and cost-effective solar power," said PowerLight President Daniel Shugar.

Wisconsin Public Service Corporation

This fall, three new high schools were added to the SolarWise for Schools program. Ashwaubenon, D.C. Everest, and Wabeno high schools each received two-kW solar electric rooftop installations. The SolarWise program now includes 18 schools, all of which use the solar electric systems as a tool in their educational curriculum.

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Cite View	Smith,Eileen M.	2007	Convenient truth : BI-PV solar architecture to protect earth's 21 miles of paradise
Cite View	Fettig,Tad	2006	Design e2
Cite View	Norton,Paul	2005	The Hathaway "solar patriot" house
Cite View	Prasad,Deo K.	2005	Designing with solar power : a source book for building integrated photovoltaics (BiPV)
Cite View	Smith,Eileen M.	2005	ElectriCity
Cite View	Eren,Halit	2004	Electronic portable instruments : design and applications
Cite View	Köster,Helmut	2004	Dynamic daylighting architecture : basics, systems, projects
Cite View	Edwards,Brian	2003	Green buildings pay
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Cite View	Eiffert,Patrina	2000	Building-integrated photovoltaic designs for commercial and institutional structures
Cite View	Fernández-Galiano,Luis	2000	Fire and memory : on architecture and energy
Cite View	Steemers,Koen	2000	Architecture, city, environment : proceedings of PLEA 2000 : July 2000, Cambridge, United Kingdom
Cite View	Ouden,C.den	1992	Building 2000
Cite View	Roaf,Susan	1992	Energy efficient building : a design guide
Cite View	20 Solar Energy Research Institute	1991	Energy-efficient industrialized housing
Cite View	Palz,W.	1990	1989 2nd European Conference on Architecture : science and technology at the service of architecture : proceedings of an international conference held at Paris, France, 4-8 December 1989

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Residential Photovoltaics

Building awareness and momentum for an alternative energy source

By Eileen M. Smith, M.Arch.

In 1992, I founded the Solar Development Cooperative to encourage timely mainstream deployment of quality building-integrated photovoltaics (BI-PV) supported by a reliable service industry in the United States and global marketplace. This article shares what I have discovered about the solar industry and will clarify the different types of solar energy, related technology and how systems can be architecturally integrated into homes.

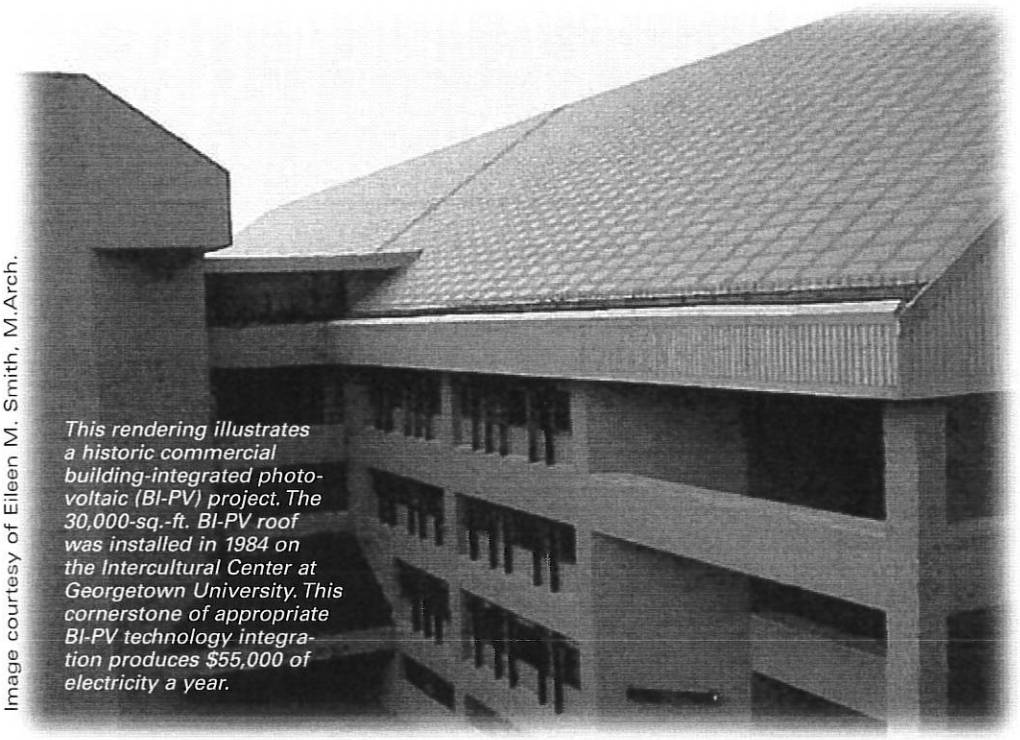

Image courtesy of Eileen M. Smith, M.Arch.

This rendering illustrates a historic commercial building-integrated photovoltaic (BI-PV) project. The 30,000-sq.-ft. BI-PV roof was installed in 1984 on the Intercultural Center at Georgetown University. This cornerstone of appropriate BI-PV technology integration produces $55,000 of electricity a year.

The question I have faced time and again from scientists to builders to homeowners is, "Why don't we use more solar energy?" During the 1970s Energy Crisis there was a strong attempt to transform the energy industry. Everyone celebrated Earth Day and became better-educated, but little happened. In fact, coal consumption in the United States doubled during the 20 prime years of Earth Day. In 1974, 99.5 percent of the electricity consumed by Americans was generated by fossil, nuclear and large hydro. By 1994, all other sources of electricity generation had only increased 0.1 to 0.6 percent. It is a complicated issue. We haven't figured out how to transition the energy industry.

Industry involvement

Why do Distributed Generation (DG) solar energy consumers and building professionals need to know about energy agencies? Clint Eastwood installed a solar system on his golf course, but the California Public Utilities Commission (CPUC), California Energy Commission (CEC) and Utilities did not provide the cash rebate and net metering incentives contracted for and promised by legislation. Most of us do not have the notoriety Mr. Eastwood does to call a meeting with the governor to demand payment. A man who bought a solar system after hearing one of my workshops two years ago is still waiting to be paid his cash rebate of $20,000 from the CEC. Building professionals and homeowners should educate themselves about how the energy industry works before they purchase a solar system.

Utilities and legislation are regulated through administrative proceedings via public hearings facilitated by state energy agencies. Organizations, individuals, groups and political constituencies can get involved in these proceedings to impact this massive vacuum of commerce.

Documents can now be filed using e-mail, and energy agency proceedings can be monitored on the Internet. Consumers organized via Neighborhood Energy Watch Solution Groups, or NEWS Groups, have the ability to provide an infusion of mass direct official consumer intervention to successfully monitor and redirect energy commerce. NEWS Groups will naturally educate homeowners while reducing the likelihood of inappropriate administration of legislation. These groups empower consumer support groups to assist BI-PV DG designers and owners.

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TESTIMONY IN OPPOSITION TO
SB 515
BY
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Mr. Chairman and members of the committee,

Building the Holcomb coal plant is not the best thing for the economy of western Kansas. Developing wind power to its fullest extent would bring many times the financial benefit of a Holcomb plant to the people of western Kansas, according to a study provided by the Department of Energy's NREL. So why are some legislators working so hard to do what isn't in the best interest of western Kansas? I believe that the utility companies and energy providers, who have enormous influence in the decision-making process, are looking out for their own selfish interests at the expense of the people of Kansas. Here is information that suggests the Holcomb plant is wrong for Kansas.

FUTUREGEN SHUTS DOWN: Announced January 31, 2008, FutureGen's attempt to create a "clean coal" plant has failed because of the uneconomical costs of the plant. It proves what critics have said all along: Even if a clean coal plant could be successfully built and operated, the cost of electricity from it would be too expensive to compete in the market. Sunflower has projected an ability to provide "cleaner coal" that will suffer the same fate as FutureGen. There is no such thing as clean coal and there won't be for decades. Even if a project captures a decent amount of its CO2, the cost of its electricity will be far too expensive for the market, and the consumers of this power have no advocates (like CURB) to fight for better rates. This means that the Holcomb plant will not be reducing rates for the people of western Kansas. HOLCOMB IS UNECONOMICAL ON A RATE BASIS FOR WESTERN KANSAS.

CARBON TAX OR CAP AND TRADE: Every major candidate for president remaining in the race has said they support a carbon tax or a cap and trade program of some kind. A carbon tax will be reality soon. The tax on coal plants will likely be in the range of $20-$30/ton of CO2, which exposes the absurdity of the $3 rate proposed in SB 515. But my point is that this tax will either price the plant out of the market before it can be built, as has happened to about 40 plants around the country which have scrapped their building plans for this reason, or the rates for consumers will rise dramatically, hurting their pocketbooks in a devastating way. THE CARBON TAX WILL MAKE HOLCOMB UNECONOMICAL. ($25/ton of CO2 X 11,000,000 tons of new CO2 from the

expansion= $275 million / ~61,000 Sunflower metering points=~$4,500 per year per metering point).

HOLCOMB PLANT WOULD DESTROY THE NEED FOR WIND POWER OUT WEST: Building the Holcomb plant would destroy the need for wind power for many years. Looking ahead, realistically, will there be more demand for wind power or coal power? Are neighboring states more likely to say "no" to coal, and "yes" to wind power, or "no" to wind and "yes" to coal? If water supplies are depleted out west, as expected over time, will Kansas be better off with wind power or coal power (Holcomb's 8 billion gallons per year of water use from the aquifer)? What is likely to provide more revenue to our farmers throughout western Kansas: Wind power in dozens of counties, or one coal plant in Finney county? WIND POWER IS BEST FOR THE ECONOMY OF KANSAS.

I urge you to vote against SB 515 and work hard to make western Kansas the Saudi Arabia of wind. Thank you for hearing me.

Citizens' Utility Ratepayer Board

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SENATE UTILITIES COMMITTEE
S.B. 515

Testimony on Behalf of the Citizens' Utility Ratepayer Board
By David Springe, Consumer Counsel
February 6, 2008

Chairman Emler and members of the committee:

Thank you for this opportunity to offer testimony on S.B. 515. The Citizens' Utility Ratepayer Board is opposed to this bill for the following reasons:

CURB believes that the majority of customers do not simply want the lowest-cost power, regardless of source. CURB believes that most customers want reasonably-priced power from a balanced portfolio of resources, including increased levels of renewable resources and energy conservation. Consumers are becoming more concerned about issues related to carbon and the environment and are becoming more aware about the relationship between our consumption decisions and our resource needs.

It is clear that this bill is aimed at the Sunflower coal plant. However, the provisions of this bill equally impact every other utility in Kansas. The cost of building plants under this bill, along with the cost of remediation offsets and carbon taxes will eventually be included in consumer rates. Given the short time to review this bill, and the complexity of the carbon offset scheme created by this legislation, CURB is uncertain whether this bill will result in a proper balance among resource decisions, environmental concerns and consumer rate impacts. CURB believes that given the long life of any plant built today, further and more detailed consideration should be given to the details of the scheme created under this legislation. As such, CURB would support further study of the details proposed in this bill before moving this bill into law.

Section 34 of the bill eliminates the current cap on the size of an electric cooperative that can voluntarily opt-out of KCC regulation. Currently the larger electric cooperatives (above 15,000 customers) remain under KCC regulatory jurisdiction. Sunflower and KEPCO also remain under KCC regulatory jurisdiction. It is my understanding that the 15,000 customer level for the opt-out provision in the current law was created because of the cost impact of the regulatory process on small utility systems. There is no justification for a large electric cooperative to have this same opt-out provision to exempt itself from KCC oversight. CURB is concerned that customers that have historically had specific due process protections through the regulatory process, like the former Aquila electric customers, may lose those protections in the future.

Sections 13-28 of the bill address net metering. The language in these sections is the exact language contained in HB 2682. I have attached my recent testimony on HB 2682 before the House Utilities Committee that discusses issues with the net metering proposal.

CURB does support the sections of the bill related to increasing energy efficiency in Kansas. The bill also creates an "energy efficiency grant program" to be financed with the proceeds of the $3 tax on carbon emissions. [New Section 12 (h), Page 11] However, it is uncertain whether any tax proceeds will ever be collected under this bill, meaning that funding for the new energy efficiency grant program will be non existent, or, at best, inconsistent.

CURB believes that, on behalf of consumers, the legislature should create and fund a third-party, non-utility, energy conservation program to provide energy conservation and energy-efficiency measures to Kansas consumers. Several successful models exist in other states for this type of program. For example, Energy Outreach Colorado combines low-income energy assistance with weatherization and energy-efficiency programs. Efficiency Vermont is an independent, bid based supplier of energy-efficiency programs for Vermont consumers. These non-utility programs are customer-funded and successfully offer meaningful assistance to all customers, regardless of utility territory. These programs have proven both successful and popular. It is time that Kansas create a similar independent program to promote energy conservation in Kansas. CURB believes that if this bill is moved into law, it should also contain a more certain energy conservation program than is currently contained in Section 12.

For the above reasons, CURB supports further study of the mechanism created in this bill.

Citizens' Utility Ratepayer Board

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HOUSE UTILITIES COMMITTEE
H.B. 2682

Testimony on Behalf of the Citizens' Utility Ratepayer Board
By David Springe, Consumer Counsel
January 31, 2008

Chairman Holmes and members of the committee:

Thank you for this opportunity to offer testimony on H.B. 2682. The Citizens' Utility Ratepayer Board is opposed to this bill for the following reasons:

Current Kansas law, at K.S.A 66-1,184, regarding parallel generation services, represents the existing policy on payment to small generators for electricity placed on a utility grid. CURB supports the current law and the current economic framework for payments to small generators. Under the current law, customers that also operate small generators do not avoid paying the fixed costs necessary for the utility to remain ready, willing and able to supply power to the customer when needed. The current law does allow the payment of 150% of fuel cost, which is a 50% subsidy on fuel. This subsidy has to be made up by other customers. However, after numerous debates the legislature, as set forth in the current law, has determined that a mechanism that compensates a small generator for the utility's fixed costs, costs that are not being avoided, is the wrong economic policy.

Net metering (as opposed to parallel generation), as commonly used, involves netting the energy delivered by the utility and used by the customer against the energy generated by the customer and delivered to the utility. In simple instances, the customer meter spins backwards when energy is being delivered to the utility grid. Consider the example where a customer relies on and uses the utility system for a portion of the month and uses 1000 kilowatt-hours of energy. If the customer's generator runs for a portion of the month and puts 1000 kilowatt-hours of energy back on the utility system, netting the customer's usage against the customer's generation results in a utility bill for a net zero usage. The utility collects no revenue for any charge that is billed base on customer usage, but rather collects only the small monthly customer charge, which is not based on usage. The majority of a utility's fixed costs are recovered through charges based usage. The customer with the small generator in this example used the utility system for the month for free. Since the utility's fixed costs have not gone away, over time other customers are going to have to pay more in electric rates to offset the fact the utility is no longer receiving revenue from the small generator's use of the utility of the system.

To the extent that a proposed "net metering" law allows a person that has the financial means to afford a small wind turbine or photo-voltaic system to use the utility system but avoid

paying the fixed costs of that utility system, then CURB does not believe this is fair or equitable to those that do not have the means to afford this same technology.

H.B. 2682 at New Section 3 (a) [page 2, line 8], makes this new net metering law available on a first come first serve basis, subject to some overall limits on total availability. New Section 3 (b), [page 2, line 21], requires the utility offer a tariff or contract "*identical in electric energy rates, rate structure and monthly charges*" as a normal customer and specifically precludes charging an additional "*standby, capacity, interconnection or other fee or charge that would not otherwise be charged if the customer was not an eligible customer-generator*". Finally, New Section 5 (b) [page 3, line17] requires, in the situation where the electricity supplied by the utility is in excess of the electricity supplied by the customer-generator the utility must bill the customer for the "*net electricity supplied*". New Section 5 (c) [page 3, line] goes further to require that, where the customer-generator places more energy on the utility system than the customer uses, not only will the customer get a bill for only the small customer charge, but a credit to the customer's bill will be created "*in an amount at least equal to avoided fuel cost of the excess kilowatt-hours generated*", with this credit to be applied the following billing periods up to 12 months. Functionally, this means the utility now owes the customer.

When these sections are combined, a framework is created that allows a small customer-generator to avoid paying the fixed cost of utility service, other than a small monthly customer charge. These sections combined, if enacted, will clearly make small photovoltaic systems more economically attractive to those customers that can afford to purchase a system. These same sections also insure that some amount of the utility's fixed costs will be shifted to those customers that cannot afford this type of generation system.

The economic reality is that a person that uses the utility system creates the need for generation to be available, transmission to be available, distribution, transformers, meters and service personnel all to be available. Further, as long as the customer remains connected to the grid, the utility still has to plan for and incur costs in a manner to be able to serve that customer in the event the wind or photovoltaic generator ceases working at any time. A customer should not be able to avoid these fixed costs simply because the customer has the means to afford a small generation system.

For these reasons, CURB does not support HB 2682.

However, CURB does acknowledge that, while the economic principles outlined above are true, the level of allowed net metering in HB 2682 is capped. By definition there will be cost shifting and explicit subsidies created by this legislation. The legislature can decide that these subsidies serve a valid purpose. If the Committee does make the policy decision to create this type of subsidy for those that can afford photo-voltaic generation systems, CURB again asks that the Committee consider creating a customer funded third party non-utility entity that can focus on providing low income utility assistance and weatherization, energy conservation and energy efficiency measures to all Kansas customers.