

## MINUTES OF THE SENATE UTILITIES COMMITTEE

The meeting was called to order by Chairman Jay Emler at 9:30 A.M. on February 7, 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:

Sen. Chris Steineger  
Walt Chappell, Wichita  
Scott Heidner, American Council of Engineering Companies (ACEC)  
Reid Nelson, Topeka  
Tim Liebert, Professional Engineer, Overland Park  
Margaret Thomas, Kansas Natural Resource Council  
Brian Sifton, Lawrence  
Rick Jenkins, Overland Park  
Dr. Richard Gordon, Independent Scientist, KC, Mo.  
Robert Eye, Attorney, Topeka for Sierra Club  
Grover Norquist, Americans for Tax Reform  
Alan Cobb, Americans for Prosperity, Kansas  
Karl Peterjohn, Kansas Taxpayers Network

Others in attendance: See attached list

Chair continued hearing on **-HB 515- electric generation, transmission and efficiency and air emissions**

Opponents

Senator Chris Steineger offered an amendment from **SB 553** Clean Coal Compromise which focuses on developing the best and final generation of coal-fired power plants; building the Kansas power grid to enhance power exports; and developing methods to harvest and reuse Co<sup>2</sup> and other pollutants. (Attachment 1)

Walt Chappell, Wichita, stated **SB 515** is being set forth as an economic development bill which it is not. Advantages of wind and solar energy in Western Kansas would bring far more economic development. He quoted statistics as to the number of jobs this type of development would bring and the number of craftsmen that would be needed.

Scott Heidner, American Council of Engineering Companies (ACEC), spoke only to new sections 6 and 7 of the bill. He pointed out in new Section 6 the problem with the word "certified" and urged this be amended to remove the word "certified". He strongly urged the committee to clarify the language so the direction will be more clear. He also endorsed the amendment for new Section 7 which was offered by Corey Peterson. (Attachment 2)

Reid Nelson quoted KSA 65-3012 language regarding the powers of the Secretary of KDHE to deny permits for the proposed coal plants. He also noted the provisions for carbon tax are without any practical effect; the only thing uncertain in the regulatory framework is coal; Sunflower should be audited prior to consideration of this bill. (Attachment 3)

Tim Liebert, Professional Engineer, Overland Park, questioned the proposed CO<sup>2</sup> to algae to biodiesel process. He recommended the House and Senate take prudent and responsible action to search out the best science and engineering that can be found to advise them on matters of energy policy. He provided copy of an article on CO<sup>2</sup> Sequestration by Algae Reactors which he had researched and written. (Attachment 4)

Margaret Thomas, Kansas Natural Resource Council, advocated sustainable rural development and sustainable use of our natural resources. (Attachment 5)

Brian Sifton, Lawrence, spoke for students in general and their concerns about the future when they would be the leaders. What could they look forward to if this bill based on the need for short term economic development and equity for Western Kansas were passed and overlooks the much larger issue of long term quality of life and equity among generations? (Attachment 6)

## CONTINUATION SHEET

MINUTES OF THE Senate Utilities Committee at 9:30 A.M. on February 7, 2008 in Room 526-S of the Capitol.

Rick Jenkins, Overland Park urged the committee to "First do no harm". He stated that free-market capitalism is the best thing that could happen in our state. ([Attachment 7](#))

Dr. Richard Gordon, Physicist, Kansas City, Mo., asked the committee to consider his points within the context of economic consequences of global warming. He noted the IPCC (Intergovernmental Panel on Climate Change) 4<sup>th</sup> Assessment Report contained three points which are more forceful than previous reports. He asked the committee to put aside calls for increased coal fueled energy production and move toward a future where climate change is no longer a threat to the economic and social vitality of the state. ([Attachment 8](#))

Robert Eye, Attorney, Topeka for Sierra Club, stated **SB 515** would be the first state legislation to accelerate global warming and undo 2007 gains. This bill would require the state to issue a permit even if the pollution would cause imminent harm. He argued that this bill will ensure Kansas continues to lag far behind other states who are promoting clean energy, creating green-collar jobs, and solving global warming. ([Attachment 9](#))

Grover Norquist, Americans for Tax Reform, voiced concern that **SB 515** would be extremely damaging from a taxpayer's standpoint and would have lasting disastrous ramifications for businesses and consumers alike. He felt the carbon tax was not the only troublesome provision but that additional burden would arise from statutory regulations on consumers and businesses. He summed up his remarks by stating the long term ramifications of this bill would set a bad precedent. ([Attachment 10](#))

Alan Cobb, Americans for Prosperity, Kansas, opposed **SB 515** because of the creation of an emissions cap and the careation of a "carbon tax". ([Attachment 11](#))

Karl Peterjohn, Kansas Taxpayers Network, spoke against the new carbon charge which he felt is for all intents and purposes a new tax. The people of Kansas do not need new taxes. ([Attachment 12](#))

The following presented written testimony only:

Opponents:

Donn Teske, President, Kansas Farmers Union ([Attachment 13](#))

Jack Glaves, DCP Midstream ([Attachment 14](#))

Trudy Aron, AIA Kansas ([Attachment 15](#))

Colin Hansen, Kansas Municipalities ([Attachment 16](#))

Paul Snider, Kansas City Power & Light ([Attachment 17](#))

Jim Ludwig, Westar Energy ([Attachment 18](#))

Hudson Luce, Topeka ([Attachment 19](#))

Dr. John Heinrichs, Fort Hays State University ([Attachment 20](#))

Proponent:

Leslie Kaufman, Kansas Cooperative Council ([Attachment 21](#))

Questions from the committee; global warming survey, alternates on conservation, wind and nuclear; who would pay the carbon tax; how is a tax different from a fine or fees? How are rules enforced if there isn't a fine to use to enforce it.

Introduction of Bills

Senator Reitz described two bills

1. Relates to conservation 7rs2089
2. Directed at nuclear energy and move in the right direction 7rs1880

Moved by Senator Reitz, seconded by Senator Apple, the committee introduce 7rs2089 and 7rs1880. Motion carried.

Senator Petersen requested an electric generation bill.

Moved by Senator Petersen, seconded by Senator Apple, introduce an electric generation bill as requested by Senator Petersen. Motion carried.

Adjournment.

Respectfully submitted,

Ann McMorris, Secretary

Attachments - 21

# SENATE UTILITIES COMMITTEE GUEST LIST

DATE: FEBRUARY 7, 2008

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Name	Representing
- Kari Presley	Kearney & Associates
<del>Wendy</del>	KAPA-KRMCA
Mayorie Van Buren	Kansas Rural Center
Bill Cutler	Epoka Chapter - Sierra Club
Christy Andrews	AFP KS
<del>T. Erin Patta</del>	Sen. Derek Schmidt
Scott Heidner	ACEC Kansas
Steve Keane	WASTE MANAGEMENT
Jennifer Holladay	K.U. ENVIRONS
Gregory R. Dillon	K.V. Environs
Lacey Johnston	KU Environs
Michelle Bond	KU Environs
Robert Kraft	Self (Doc of Day)
James Carlson	Cap-Journal
Loey Lawrence	Capitol Consulting group

# SENATE UTILITIES COMMITTEE GUEST LIST

DATE: FEBRUARY 7, 2008

Name	Representing
- Carol McDowell	Tallgrass Ranchers
Tom Thompson	Sierra Club
Sam Funk	GPACE
Peg Liebert	True Blue Women
Tim Liebert	Professional Engineer (Retired)
Margaret Thomas	Prairie Village Environmental <sup>Com.</sup>
Carey Maynard-Moody	KS Chapter Sierra Club
Dr. Richard Gordon	Tall Grass Ranchers
Kristin Riitt	Johnson County Climate Protection
Joe Duk	KC BPU
MARC Conkern	" " "
Jennifer Byer	True Blue Women
Susan Pavlakis	Green Team UCOP Sustainable Sanctuary Coalition, Gaia
Brian Siftan	students
Reid Nelson	myself
Ron Hammerschmidt	KDHE
<del>Bob</del> Susan Kelly	KDHE
Marge Pether	KCC
Maid Herlett	CEP



CHRIS STEINEGER  
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TOPEKA

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## SB 553 Clean Coal Compromise

### Assumptions:

- China, India, and MANY other countries will continue to burn coal for a long time.
- Kansas should become a major exporter of clean energy.
- Transition to wind power and other clean energies will take several decades.

### SB 553 focuses on:

- developing the best and final generation of coal-fired power plants;
- building the Kansas power grid to enhance power exports; and
- developing methods to harvest and re-use CO2 and other pollutants.

### Methodology:

- SB 553 is HB 2711 minus many sections.  
To use an analogy, it's the difference between a big SUV and a small hybrid car.
- Sections deleted:
  - ▶ all language which allows anything less than ultra super critical technology;
  - ▶ most language relating to OFF SETS except those for power grid construction and carbon mitigation;
  - ▶ language which puts new restrictions on secretary;
  - ▶ all language related to net metering; and
  - ▶ all language related to merchant power plants

Senate Utilities Committee  
February 7, 2008  
Attachment 1-1

SENATE BILL NO. 553

By Committee on Ways and Means

AN ACT concerning the environment; relating to carbon dioxide emission offset.

*Be it enacted by the Legislature of the State of Kansas:*

Section 1. (a) Sections 1 through 3, and amendments thereto, shall be known and may be cited as the carbon dioxide emissions offset act and shall not be construed to be part of the Kansas air quality act.

(b) As used in the carbon dioxide emissions offset act:

(1) "Affected facility" means a fossil-fuel-fired steam electricity generating unit of more than 250 million British thermal units per hour heat input other than:

(A) A facility owned or operated by the federal government;

(B) a facility located on tribal lands; or

(C) any other facility exempt under section 111 of the federal clean air act.

(2) "Construct" or "construction" means physical on-site construction of an affected facility.

(3) "Owner or operator" means any person who owns, leases, operates, controls or supervises an affected facility subject to any standard or requirement of the Kansas air quality act, K.S.A. 65-3001 et seq., and amendments thereto, or any rules and regulations promulgated thereunder.

(4) "Potential-to-emit" means the maximum capacity of an affected facility to emit carbon dioxide under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit carbon dioxide, including any reduction equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be

treated as part of its design.

(5) "Qualified owner or owners" means:

(A) An individual who is a Kansas resident;

(B) any of the following entities, all members of which are individuals who was Kansas residents: A limited liability company which is organized under the Kansas revised limited liability company act (K.S.A. 17-7662 et seq., and amendments thereto), a corporation organized not-for-profit under the laws of this state or a cooperative organized under the cooperative marketing act (K.S.A. 17-1601 et seq., and amendments thereto), the electric cooperative act (K.S.A. 17-4601 et seq., and amendments thereto) or the renewable energy electric generation cooperative act (K.S.A. 17-4651 et seq., and amendments thereto);

(C) a Kansas political subdivision or local government including, but not limited to, a municipal electric utility, or a municipal power agency on behalf of and at the request of a member distribution utility, a county, a city, a school district, a public or private higher education institution or any other local or regional governmental organization such as a board, commission or association;  
or

(D) a tribal council.

(6) "Reconstruct" or "reconstruction" means any rebuilding of an emission source within an existing affected facility which generates electricity from fossil fuel that would result in an increase in carbon dioxide emissions from such facility.

(7) "Ultra-supercritical pulverized coal technology" means a steam generating facility operating at or above 4,500 pounds per square inch and at or above 1,200 degrees fahrenheit.

Sec. 2. (a) Any affected facility to be constructed or reconstructed on or after January 1,

2008, shall comply with the emission limitations provided for herein if the potential-to-emit from the proposed affected facility equals or exceeds 250,000 tons per year of carbon dioxide.

(b) Except as otherwise provided herein:

(1) On and after the date on which the initial performance test of an affected facility is completed or required to be completed, whichever occurs first, neither the owner nor the operator of such affected facility shall on an annual basis cause to be discharged into the atmosphere from such affected facility any gases containing carbon dioxide in excess of the following emission limits:

(A) For an affected facility using solid fuel, carbon dioxide in excess of 1,300 pounds per net megawatt hour;

(B) for an affected facility using liquid fuel, carbon dioxide in excess of 1,000 pounds per net megawatt hour; and

(C) for an affected facility using gaseous fuel, carbon dioxide in excess of 800 pounds per net megawatt hour.

Sec. 3. (a) For affected facilities not meeting the carbon dioxide emission limitations set forth in section 2, and amendments thereto, the owner or operator shall be deemed to be in compliance if the emissions in excess of such limitations are mitigated or offset by any of the following means or methods in the amount of the credit as provided below:

(1) For development of carbon reduction, storage or utilization projects, an offset credit shall be received for the reduced, avoided, displaced, captured, stored or sequestered carbon dioxide as follows:

(A) For capture of carbon dioxide emitted from an affected facility using chilled ammonia, amine capture and coal gasification, an offset credit equal to two times the actual carbon dioxide



tonnage captured; or

(B) for storage of carbon dioxide emitted from an affected facility using deep aquifer injection, depleted oil or natural gas field injection, enhanced oil or gas recovery, carbon capture sequestration or pipeline projects for the transportation of carbon dioxide to be used for enhanced oil or gas recovery or carbon storage, an offset credit equal to three times the actual carbon dioxide tonnage sequestered, stored or displaced.

(b) For transmission system improvements located inside or outside Kansas, including direct-current converters or ties, which enable or enhance the development in whole or in part of renewable resources electricity generating facilities located in Kansas, an offset credit shall be allowed as follows:

(1) The carbon dioxide offset credit from any project shall be based on the incremental available transfer capacity, expressed in mega-volt-amperes, which may be available for renewable energy transfers as a result of such project. Such determination of available transfer capacity must be demonstrated by an engineering study performed by, or in accordance with procedures developed by, the southwest power pool or other reliability, planning or regional transmission organization, if any, in the affected transmission grid or grids.

(2) Such carbon dioxide offset shall be determined by taking the additional transmission capacity, expressed in mega-volt-amperes, multiplied by a 0.9 power factor, multiplied by the rate of the affected facility's expected carbon dioxide release rate expressed in pounds per megawatt hour, multiplied by a 40% capacity factor, multiplied by 8,760 hours per year, to be recalculated on an annual basis. The owner or operator of the affected facility shall be entitled to an offset credit whether it owns or leases the transmission facility.

(c) An owner or operator of an affected facility shall receive an offset credit for the retirement of other electricity generating units located in Kansas which are permanently removed from service on or after July 1, 2008, and which combusted the same fuel as the affected facility. The owner or operator shall state, in a written format prescribed by the permitting authority, those units that have been permanently retired on a specific date and the fossil-fuel capability of such unit. Such offset credit is only applicable if fuel utilized by the affected facility is the same fuel as that utilized by the retired electricity generating unit.

(d) Before July 1, 2009, the secretary of the Kansas department of health and environment shall adopt such rules and regulations to implement this section and sections 1 and 2, and amendments thereto, including, but not limited to, monitoring, reporting and recordkeeping requirements, consistent herewith as deemed necessary to ensure conformance with the provisions of this section and section 2, and amendments thereto. The secretary shall consult with the state corporation commission in the promulgation of such rules and regulations. The secretary shall not defer nor delay the issuance of any construction permit pursuant to the Kansas air quality act, and amendments thereto, pending the establishment of such rules and regulations. The limitations under this act shall not be set forth in any construction or operating permit to be issued under the Kansas air quality act.

Sec. 4. This act shall take effect and be in force from and after its publication in the statute book.

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AMERICAN COUNCIL OF ENGINEERING COMPANIES  
*of Kansas*

Affiliated with:  
American Council of Engineering Companies  
Kansas Society of Professional Engineers  
National Society of Professional Engineers  
Professional Engineers in Private Practice

## TESTIMONY

TO: SENATE UTILITIES COMMITTEE

FROM: SCOTT HEIDNER  
EXECUTIVE DIRECTOR  
ACEC KANSAS

RE: SB 515

DATE: FEBRUARY 7, 2008

Chairman Emler, members of the committee, thank you for the opportunity to share our input on SB 515. My name is Scott Heidner, and I am the Executive Director of the American Council of Engineering Companies of Kansas (ACEC Kansas). We are the association that represents private consulting engineering companies in Kansas. We have approximately seventy five member companies, employing several thousand Kansans.

Our testimony today applies only to new sections 6 and 7 of the bill. We appear today as neither a proponent or an opponent of the bill in its entirety, but to urge you to amend or delete new sections 6 and 7. We support the intent, but there are several ambiguities and problems.

In new section 6, the bill requires rules and regulations be adopted requiring certain energy standards for state construction projects, specifically that they be “designed, constructed, and certified” to meet certain energy efficiency levels. This is going to present serious problems for both the design professional and the owner of the facility, in this case the state. The problem is specifically with the word “certified”.

Professional liability insurance policies will not cover contracts which require the design professional to “certify” the performance of the product. The same is true of words such as “warranty” or “guarantee”. Engineers are rightly held to very high standards, but are not in a position to offer such assurances on the performance of the final product. They are not present at every step of construction and are generally not in control of how the final product is used.

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February 7, 2008  
Attachment 2-1

This problem is even more prevalent with the type of energy efficiency systems envisioned under this bill. These systems in many cases will require complex construction, and specific requirements on usage once constructed. The design professional is not in a position to ensure either of these things. When annual audits are conducted, and a building is found to be out of compliance, the designer will not have been in a position to ensure that the systems and instructions have been properly used.

The results of requiring such an assurance can be disastrous due to the fact that it is not insurable. A claim against a design professional, when not covered by their professional liability policy, can result in economic losses far beyond what most firms can pay. In such a case the owner, in this case the state, also is unable to recoup monies that are owed. It is truly a lose-lose situation.

We recognize that the bill asks the Secretary of Administration to enact rules and regulations which may further define some of these issues, but we strongly urge you to clarify this language in the bill so the direction will be clearer. Either removing the word "certify", or making it clear that the "certification" is in no way a requirement of the design professional, would make this language more effective.

We realize that this section is part of a larger public policy question, and we have no desire to be an impediment to your pursuit of broader policy questions. However, there are two options available which would solve this issue. The committee can address the language here, or you can delete this section of the bill. This language already exists in SB 452, so this policy question can still be studied by the legislature this session even if it is stripped from this bill.

With that, we would urge you to amend or strike this language, and would be happy to stand for any questions. Thank you.



## TESTIMONY

**Testimony on Senate Bill 515****by Reid Nelson****A. Kansas will get all the pollution from these plants and almost none of the power.****B. The Courts Should Resolve the Conflict**

It appears that the Secretary of KDHE did indeed have legal authority for issuing the decision to deny the permits for the proposed coal plants.

The discretion of the Secretary of KDHE to deny a permit is extremely broad, set forth by K.S.A. 65-3012,

“Notwithstanding any other provision of this act, the secretary may take such action as may be necessary to protect the health of persons or the environment (1) Upon receipt of information that the emission of air pollution presents a substantial endangerment to the health of persons or to the environment....”

In addition, Proponents of this Bill, Sunflower Power, Tri-State, and Finney County Board, have filed a case in the Kansas Supreme Court (See attached), and have requested that the court determine whether Secretary Bremby overstepped his authority. This is a legal question, and calls for the court to make a legal decision. This Bill would short circuit that process, contrary to the Separation of Powers in our Constitution. If proponents of the power plant truly, and in good faith, question Secretary Bremby's authority, it should allow the legal case to run its course.

**Effect of Massachusetts v. E.P.A.**

Some proponents of this Bill have questioned whether Secretary Bremby's finding - that annual emissions of 14 million tons of carbon dioxide would be a danger to human health - was accurate. Mr. Bremby's decision is supported by the most recent ruling by the United States Supreme Court. In Massachusetts v. E.P.A. the Supreme Court held that, 1) carbon dioxide is “air pollution”; 2) carbon dioxide is harming human health and welfare; and 3) the EPA is required to set regulations for carbon dioxide emissions from new cars, or it must give adequate reasons - which so far it failed to provide to the Court - for its refusal to do so.

Regarding endangerment, the Massachusetts court clarified that carbon dioxide was harmful, stating, “The harms associated with climate change are serious and well recognized.” The opinion notes that in the late 1970's, “congress began devoting serious attention to the possibility that carbon dioxide emissions associated with human activity could provoke climate change.” Opinion at 4.

### **The Provisions for Carbon Tax are Without any Practical Effect**

Next, I would point out that the Bill purports to be a compromise between concerns for the environment, and proponents of the building of coal power plants. However, in reality, several provisions completely nullify any attempt at compromise. Section 12 (a)(2)(A) allows tax credit for twice the amount of CO2 captured by the capture-and-storage project. However, as Sunflower readily admits, no capture-and-storage projects actually work.

Section (c) gives credit for one ton of CO2 for every dollar wasted on an R& D project that fails to produce any useful result.

### **Regulatory Certainty**

The only thing uncertain in the regulatory framework is coal. The U.S. Supreme Court has cleared the way for the EPA to regulate carbon dioxide, and the next president will likely do so. The question is not whether prices for coal produced energy will rise, but how much.

### **Renewables and Transmission**

Sunflower has stated that these coal plants will drive the transmission line construction, and help renewables find a market in the west. But SPP has publicly stated the market for wind is in the east, and SPP plans on these transmission lines regardless of coal construction.

### **Sunflower should be Audited Prior to Consideration of this Bill**

AS this Commission is aware, Sunflower has defaulted on millions of dollars in loans in the past. (See attachment) In light of the “sub prime” fiasco, the company should be audited prior to any act by the legislature that commits Kansas’ energy future to this company.

IN THE COURT OF APPEALS  
OF THE STATE OF KANSAS

SUNFLOWER ELECTRIC POWER CORPORATION )

*Petitioner,* )

v. )

THE KANSAS DEPARTMENT OF HEALTH AND )  
ENVIRONMENT )

and, )

RODERICK L. BREMBY, IN HIS OFFICIAL CAPACITY AS )  
SECRETARY OF THE KANSAS DEPARTMENT OF HEALTH )  
AND ENVIRONMENT, )

*Respondents.* )

TRI-STATE GENERATION AND TRANSMISSION ASSOCIATION, )  
INC. )

*Petitioner,* )

v. )

THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT )

and, )

RODERICK L. BREMBY, IN HIS OFFICIAL CAPACITY AS )  
SECRETARY OF THE KANSAS DEPARTMENT OF HEALTH )  
AND ENVIRONMENT, )

*Respondents.* )

BOARD OF COUNTY COMMISSIONERS OF FINNEY COUNTY, )  
KANSAS AND GARDEN CITY AREA CHAMBER OF COMMERCE, )  
INC., )

*Petitioners,* )

THE KANSAS DEPARTMENT OF HEALTH AND )  
ENVIRONMENT )

and, )

RODERICK L. BREMBY, IN HIS OFFICIAL CAPACITY AS )  
SECRETARY OF THE KANSAS DEPARTMENT OF HEALTH AND )  
ENVIRONMENT )

*Respondents.* )

Case No. 07-99567-AS

Case No. 07-99566-AS

Case No. 07-99568-AS

## Testimony

To: Senate Utilities Committee  
From: Tim C. Liebert, B.S., M.S., P.E. (retired) Chemical Engineering  
Re: Senate Bill 515  
Date: February 7, 2008

Chairman Emler and members of the committee, thank you for the opportunity to present the results of a small study I conducted on the economics of the CO<sub>2</sub> to algae to biodiesel process proposed by proponents of the Holcomb power plant as a means of mitigating greenhouse gas emissions from this facility.

My qualifications to speak to this issue are as follows:

Lead Process Engineer, methyl ester units, FPG oleo chemicals plant, Kuantan, Malaysia. This plant was the largest methyl ester (biodiesel) facility in the world at the time and may still be. Converted palm kernel oil to biodiesel for use as feedstock to manufacture detergent chemicals. Black and Veatch – Overland Park, Kansas

Lead Process Engineer, methyl ester unit revamp, Procter and Gamble, Kansas City, Kansas. This revamp allowed the Kansas City plant to produce biodiesel from coconut oil imported from Southeast Asia, and allowed purification of low glycerin tallow methyl esters. The distillation unit designed for this facility was the source of the technology currently used to manufacture biodiesel for the largest distributor of biodiesel in the United States. Black and Veatch – Overland Park, Kansas

Consultant, Procter and Gamble Sacramento ester and alcohol plant revamp. Conducted front-end design of revamp that expanded production rates of this methyl ester and fatty alcohols plant.

Because of my experience in biodiesel plant design, and the technology of fats and oil in general, I was curious about the proposed CO<sub>2</sub> to algae to biodiesel process. Since I could find no information about the bioreactor technology other than press releases, I made a few simple calculations from first principles. I then located a few outside sources that allowed confirmation of the results of my calculations. Essentially, I found that if you take GreenFuels published yields, you can see they are higher by about a third than what one can expect the maximum yield of algae to be, on average (6% solar energy efficiency is the maximum to expect for a design basis). However, if you are to accept their yield figures adjusted for Kansas sunlight, you can readily calculate that to mitigate 40% of the CO<sub>2</sub> output of the two Holcomb plants will require 91.6 million square meters of bioreactor surface area (35 square miles). Estimating the cost of the bioreactors at \$100 per m<sup>2</sup>, this translates to a capital cost for the algae farm of over \$9.1 billion.

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There is no conceivable reason to give any further discussion to the merits of feasibility of CO2 to algae technology using the bioreactor method – it is much too expensive. A ten-minute calculation by any responsible engineer could have produced this result years ago. That this technology has gotten so far along in the minds of the legislature and Kansans exposed to the press coverage on this subject is scandalous.

I recommend that the House and Senate take prudent and responsible action to search out the best science and engineering that can be found to advise them on matters of energy policy. Bad engineering will result in bad policy, and that is what Kansas will have if the current course is not altered.

Senate bill 515 should be tabled. The House and Senate should appoint a commission to study the scientific, technical and financial aspects of how Kansas is to obtain the electrical energy it needs to sustain its growth and provide its citizens with a safe and readily available electrical supply, as well as protect the health and welfare of its citizens.

Thank you again for the opportunity to address this committee. I have attached a paper that summarized the concepts covered by my research.

Tim C. Liebert  
Overland Park, Kansas  
[tliebert@birch.net](mailto:tliebert@birch.net)  
913-383-3644

## CO2 Sequestration by Algae Reactors

Calling it unproven technology understates its problems

Tim C. Liebert, P.E. (retired) Chemical Engineering

Considerable hype surrounds the potential to reduce greenhouse gas emissions by using the carbon dioxide in stack gases to produce algae. Such schemes would remove the CO<sub>2</sub> from stack gases, bubble these gases through ponds or tubes exposed to sunlight where the algae would grow by familiar photosynthesis. All of us have seen ponds clogged with algae during the summer and can easily imagine this being literally a 'green' solution that would allow us to continue burning fossil fuels. Unfortunately, getting from here to there is not that easy.

Renewable energy is catchall term for solar energy collection and conversion to useful heat and work. Most of us are familiar with conventional forms of renewable energy: Solar, wind, ethanol, biodiesel, wood, or hydrogen. CO<sub>2</sub> to algae is another such form; that is, sunlight is used to reduce CO<sub>2</sub> to carbon, thereby allowing the re-oxidation of the carbon by combustion to CO<sub>2</sub>, potentially backing out some portion of imported petroleum by converting some the oil in algae to biodiesel. There is no evidence at this time that such a scheme is not technically possible, but it is important to look at the fundamentals of the CO<sub>2</sub> to algae process on the scale of the Holcomb plant to better understand how it fits into the pool of renewable energy methods from which our future will draw to maintain our way of life.

Since all renewable forms of energy come from sunlight, an important parameter is the conversion efficiency from solar radiation to heat or work of different forms of renewable energy. Solar cells (photovoltaics) can have efficiencies from 10 to 30 percent. Thermal collectors that heat a fluid, such as hot water heaters, have efficiencies of 50 to 80%. Current research in photovoltaics looks toward reducing the manufacturing cost and improving efficiencies. Biomass (ethanol, biodiesel, wood) has an average conversion efficiency of 0.1%. Agricultural crops are in the range of 1 to 2%. Do to the low efficiency, biomass requires long growing seasons and large crop growing areas to generate the quantities of energy needed to be economic or significant. Sugarcane production in Brazil has an efficiency of about 8% and for this reason is an economic form of CO<sub>2</sub> mitigation in that region. Hydrogen as a renewable resource is produced electrolytic ally by taking electricity from a renewable generator (wind turbine, photovoltaic cell) and converting water to hydrogen and oxygen with about a 50% efficiency (overall the efficiency is 50% of the efficiency of the source of electricity, so is 5 to 15% overall).

The strong interest in CO<sub>2</sub> to algae results from it alleged photosynthesis conversion efficiency of as much as 12%. This 120 times the average of all biomass; hence, the stampede of interest, research capital and press coverage. However, the only long term study conducted by NREL of algae farms resulted in an average efficiency of about 1.3%. The theoretical maximum conversion efficiency of biomass is 12%, so the press releases purporting to achieve efficiencies at the maximum physical limit must be viewed with skepticism. The 'bioreactor' technology hyped as a method of cleaning the Holcomb plant stack gases has a probable efficiency of 6% or the capability of yielding 61 gm algae per square meters per day (61 gm/m<sup>2</sup>/d). GreenFuel (GreenFuel Technologies Corporation) reported having achieved an average of 98 gm/m<sup>2</sup>/d over a 19 day period in tests outside Phoenix.<sup>1</sup> Adjusting for the lower incident radiation in Kansas (83 gm/m<sup>2</sup>/d), this number appears somewhat high for a design basis, sustainable over an entire year. However, if we accept the adjusted GreenFuel yield, this

would require 91 million m<sup>2</sup> of reactor area (35 square miles) to remove 40% of the CO<sub>2</sub> output of the two coal plants planned for Holcomb.

A credible estimate for the cost of the GreenFuel greenhouse design (bioreactor) is approximately \$100 per square meter. Hence, the capital cost of CO<sub>2</sub> sequestration by algae for the proposed two 700-megawatt plants over \$9 billion. One source<sup>2</sup> projected that biodiesel would have to sell for over \$800 per barrel for such a plant to be economic. No wonder the proponents of the Holcomb plant will not include commitments to construct the algae reactors in their permit applications.

One might be led to believe that there is justification for further research and that such research might lead to an economically justified project. Unfortunately, this is not the case. There is no reasonable scenario that would cause either the capital cost or the efficiency of CO<sub>2</sub> mitigation to significantly improve to a level that would make the process commercially feasible. Any suggestion that the CO<sub>2</sub> to algae to biodiesel process is close to commercial implementation must be vigorously challenged as erroneous and misleading. Further, to say that the technology is unproven is to overstate the case: the process is not feasible, and any claims to the contrary can be disproved.

The legislative supporters of the algae to biodiesel solution for the Holcomb plant greenhouse gas emissions can be faulted for not doing the necessary homework to investigate the claims of the process sponsors, but were most likely well intentioned in their desire to find a reasonable compromise that would allow construction of the plant while minimizing the health and environmental damages caused by the enormous release of CO<sub>2</sub>. It is less clear how Sunflower Electric, that had extensive engineering and technical resources at its disposal, could have been duped so badly.

The enormity of the proposed CO<sub>2</sub> mitigation facility and its cost is a vivid example of the scale of the problem caused by the stack gases from coal fired power plants. This is a compelling reason that environmental organizations fiercely oppose any new expansion of coal power plants. Whatever sequestration or mitigation technology is proposed is going to be massive, expensive and require enormous resources that may further compound the problem of climate change, not necessarily improve it.

1. Dr. Otto Pulz, Performance Summary Report, Evaluation of GreenFuel's 3D Matrix Algae Growth Engineering Scale Unit, September 2007.
2. Dimitrov Krassen, Ph.D., GreenFuel Technologies: A case Study for Industrial Photosynthetic Energy Capture. <http://algae-thermodynamics.blogspot.com/2007/03/how-can-one-not-like-greenfuel.html>



### Algae bioreactors

35 square miles of surface area to sequester 40% of carbon dioxide from two 700 MW coal fired power plants

91.6 million square meters

\$9.16 billion at \$100 per square meter



**Testimony on S.B.515**  
**Senate Utilities Committee**  
**February 7, 2008**

**Prepared by: Margaret Thomas, 8401 Roe, Prairie Village, KS 66207 913-341-5805**  
**MargaretGThomas@gmail.com**

Good morning. I am Margaret Thomas and I have lived in Kansas since 1973. I am against this legislation from 3 viewpoints: 1) as a specialist in sustainable rural economic development at Midwest Research Institute in Kansas City where I worked for almost 30 years; 2) as a member of the board of the Kansas Natural Resource Council, which has been an advocate for the sustainable use of Kansas' natural resources since 1981, and 3) as chair of the Prairie Village Environmental Committee, where I have been working for climate protection.

**First, as an advocate of sustainable rural development, I need to tell you the era of cheap electricity from coal is over. I urge you to read the testimony submitted by Dr. Ezra Hausman, a climate scientist and expert in electricity markets from Synapse Energy Economics who was to have testified yesterday in the House committee (his flight from Boston was cancelled).**

Nationally, the cost of constructing new plants is already sharply increasing by a factor of 2 or more because of rising global demand for materials, labor, and expertise for all kinds of large, capital-intensive projects. Secondly, the inevitable federal regulation of CO2 emissions will impact these new plants for their lifetime. I quote Dr. Hausman: "Whatever the form of the final legislation it will mean a cost for carbon emissions that is likely to be in the hundreds of millions of dollars per year for new, large coal-fired facilities. Coal-fired resources face an enormous risk of becoming uneconomic as a result. That is why companies whose shareholders bear the risk are not proposing to build new coal plants. Cooperatives and regulated utilities should be held to the same standard of prudence. They should protect their ratepayers by not making risky and uneconomic infrastructure investments with their money."

But the good news for economic developers is that there are better ways than coal plants to generate jobs and income in our communities. According to the National Renewable Energy Laboratory, Kansas could see economic benefits of \$7.8 billion through 2030 if the US adopts a renewable energy standard requiring that 20% of our electricity comes from clean renewable energy by 2030. Kansas can adopt a renewable portfolio standard on its own! New local jobs during construction would be over 23,000. New long-term jobs for Kansans would be over 3,000. We could have a comprehensive energy plan and a rural revitalization effort that positioned us to breathe life into our rural communities with sustainable community-based economic development strategies – through savings with energy efficiency investments, and by stimulating renewable energy technologies and manufacturing, green business development, and training for the energy jobs of the future.

**Second, as an advocate for sustainable use of our natural resources,** I have brought copies of a statement from Dr. John F. Heinrichs, Chair of the Department of Geosciences at Fort Hays State University since 2006. Dr Heinrichs would have liked to have presented his statement in person but the extreme fast track of this legislation has made it impossible for this legislative body to receive the best information and education from experts like Dr. Heinrichs.

Dr. Heinrichs has also been chair of the Ellis County Wellhead Protection Committee – an organization charged with protecting water supplies in Ellis County – for 4 years. He also worked with the Docking Institute of Public Affairs on an extensive analysis of the economic impact in southwestern Kansas of depletion of the Ogallala aquifer.

The proposed plant will consume 16,000 acre-feet of water annually, or over 5 billion gallons, all withdrawn from the Ogallala. For comparison, the City of Hays, with 20,000 inhabitants, uses about 2,000 acre-feet per year. Garden City uses 6,000 to 7,000 acre-feet per year. Thus, the proposed power plants would consume well over twice as much water each year as the largest city in southwestern Kansas. Furthermore, the water use by the proposed power plants is consumptive, meaning that the water will be lost to evaporation. Sunflower has purchased sufficient water rights for the new units. However, unlike irrigation, the use of water for evaporative cooling eliminates the possibility of any of the water returning to the aquifer. This water that would otherwise have been used for agriculture could have returned to soil below the root zone, where it could eventually move laterally to streambeds and provide precious moisture for plants and wildlife.

The Ogallala aquifer is vital to the economy of southwestern Kansas, and yet in places it has a useful life of as little as 25 years before withdrawals become economically unfeasible. In addition, the aquifer is strongly interconnected, so that depletion in one area often results in depletion elsewhere. The proposed plants prevent the entire region from developing a sustainable plan for using their most important natural resource. SB515 does not directly address water consumption of new generating facilities, and in fact ignores the valuable work done by local and regional planning and regulatory bodies such as Groundwater Management Districts.

Dr. Hienrichs urges that the legislation be modified (1) to require that water use by new generating facilities be nonconsumptive, and (2) to require that plans for new or reconstructed generating facilities be approved by local and regional bodies such as Groundwater Management Districts and Wellhead Protection Committees.

I quote Dr. Heinrichs: “Not making such changes to the legislation will, in my opinion, result in permanent and severe harm to a critical resource and in turn damage the way of life for the entire region.”

**Third, I am a volunteer working in my city to reduce greenhouse gas emissions in every way practical.** Beginning 2 years ago we began planning how to get our cities to sign the US Mayors Climate Protection Agreement. We researched, pleaded with city managers to purchase models to use our data, met with our mayors and administrators,

and made presentations before city councils about the urgency of global climate change and the need for our communities to do their part to reduce greenhouse gas emissions. Our phase I work culminated last November when 20 mayors from our region were part of 376 mayors from all 50 states to sign the agreement, bringing to 729 the communities that have pledged to do their part to reduce CO2 emissions.

Please understand: we are looking at the microlevel ways to reduce CO2 through greater efficiency – like insulation, draft stoppers in chimneys, lighting, less driving and more carpooling, reducing car idling, keeping tires inflated, eating more local food, that sort of thing. Thousands of volunteer hours have been expended with the aim of doing good for us all at the local level. Typical annual CO<sub>2</sub> emissions are 16,290 pounds per household, assuming approximately 900 kWh per month. We were working to reduce these by 20%, or 3260 pounds per household, by the end of 10 years. If our many volunteers worked for the next 10 years, we hoped to save 3260 pounds or 1.63 tons of CO<sub>2</sub> per household per year. There are 10,000 households in Prairie Village. We were excited – we might save the atmosphere 16,300 tons of CO<sub>2</sub> a year!

Can you see where I am going with this?

It is this. What is the point of all this work when it would represent less than 1 percent of the CO<sub>2</sub> from the proposed plants? If we accomplished our goal in every household in the state we could save 1,700,000 tons a year – but what is the point if this is about 15% of the annual emissions from these plants?

What is the point? Why should we encourage people in northeast Kansas to conserve energy when southwest Kansas wants to build new coal plants? Does this argument sound familiar? Of course, just substitute “southwest Kansas” for northeast Kansas, and “China” for southwest Kansas. It is the same argument I heard in the House Utilities Committee hearing yesterday – if China is going to go ahead and build coal plants, why should southwest Kansas take action to reduce CO<sub>2</sub>?

Senators, of course there is something terribly wrong with that argument. There are as many economic as environmental reasons to stop churning out greenhouse gases. But I would like to know, there is a meeting tonight of our climate protection volunteer group. Should I even bother to go?

We must say “no” to perverse economics that will burden ratepayers with excessive costs, to an increase in greenhouse gas emissions for which Kansans will find it nearly impossible to overcome, and to irreversible losses of critical natural resources. There is a success story for all of us, just within our reach. Please, please take it.

Thank you.

*Margaret Thomas*

Margaret Thomas

5-3

Brian W. Sifton  
2413 Ousdahl #16  
Lawrence, KS 66046  
February 7, 2008  
Public Hearing concerning HB 2711 and SB 515

I would like to begin by thanking this committee for inviting us to provide testimonials. As a student, it is with great pride that I get to stand in front of you today and voice concerns I have about House Bill 2711 and Senate Bill 515. It is energizing to be able to participate democratically, and while I certainly do not assume that I speak for students everywhere, I would like to think I could give you a young person's perspective.

My friends and I were not around when cities were electrified. We were not yet born when many of this country's power plants generating 100's of megawatts were first constructed. We did not get to watch the stories of 3-Mile Island or oil embargoes on the news. Our experience with energy has largely been one of being fortunate enough to take it for granted. However, our experience with energy has also been directly tied to our generation's most pressing concern: climate change. Consider that a freshman entering college this fall would have been born the year the first Intergovernmental Panel on Climate Change report was released. We have witnessed, largely in our lifetimes, the cultural, economic, political, and scientific stories behind climate change unfold. Last year, the most recent IPCC report cited a 90% certainty that the climate was changing due to human activity—especially the combustion of fossil fuels. The Stern Report, released 14 months ago, found that the global GDP required to reverse the trends of climate change would be at least quintuple if industrialized nations wait even a decade. These reports, like so many others, have all indicated to an alarming degree that not aggressively responding to climate change would be economically devastating and that we will be dealing with it for decades to come.

Do not mistake the students you've seen roaming these halls, attending the committee meetings, and talking to their Representatives and Senators, for environmentalists. In addition to whatever concern they might have for environmental preservation, they are humanists—humanists that are concerned about their inability to decouple themselves from changes caused by changes in atmospheric composition. We are the ones who will watch our aging infrastructure and coastal cities get battered by increasingly intense weather events in parts of this country. We are the ones who will watch our fellow Kansans out west, who are already economically troubled, face even greater obstacles as Western Kansas sees a decrease in precipitation and crop yields and an increase in pressure on groundwater sources. We are the ones who will hear about our relatives in California facing water shortages as the winter snowpack no longer provides enough water. We are the ones who will pay increasingly higher prices for food as overnight temperatures increase and pests, blights, and other crop diseases survive and thrive. We are the ones who will have to pay the toll for the lost political capital as a result of foot-dragging. Arguing for the passage of this bill based on the need for short term economic development and equity for Western Kansas overlooks the much larger issue of long term quality of life and equity among generations.

It has been intimated that this bill was crafted without the multi-party compromise that its proponents would have us believe and also that it is to be passed with as little input as possible. Additionally, the bill explicitly strips the Secretary of the KDHE of the power to deny permits. I was not present when the bill was written. As such, I do not know firsthand the conditions under which it was written. However, I would like to outline the national political climate this bill is being proposed in. In the last 7 years we have witnessed an administration at the federal level that has set a new standard in a lack of transparency. We have witnessed an administration at the federal level collude with business interests and natural resource companies to write legislation behind closed doors. We have witnessed an administration at the federal level change the rules if they did not like the outcome of the old rules. We have witnessed an administration at the federal level that has edited scientific reports to justify their policies or lack of policy-making. We are here today, and according to reports published in newspapers statewide 2/3 of Kansans are behind us, to say emphatically...the last thing we want are new coal-fired power plants in Kansas, and the second to last is duplicity from legislatures. If any of the intimations hold true, then please forgive us if we hold our legislatures to a higher standard of conduct than a president with a 25% approval rating.

If the issue of allowing new coal-fired power plants in Western Kansas is an economic development issue, I would like to ask, what are the other options the legislature has discussed? Surely there is something that can be done that does not trade short-term regional equity for long-term intergenerational equity. There are more people living now than have lived in all of human history—a testament to our creativity, ingenuity, and goodwill towards one another. While numerous divergent paths of individual decision making have been passed over through time, there are still an infinite number of realities possible in the future. It is up to each of us, participating in our different roles, to decide which reality will be best for my great grand children to make decisions in. These parallel issues of energy and climate change are by no means intractable and I am here today to offer these suggestions for the time being while our generation is preparing for our moment to lead: be brave and be creative when you imagine our future.

Senate Utilities Committee  
February 7, 2008  
Attachment 6-1



## Testimony from Rick Jenkins on SB515

I am Rick Jenkins, a member of Holy Spirit parish in Overland Park, father of five. My wife and I have owned and operated a successful local business for 18 years. My wife now runs dad-to-day operations. I felt called to facilitate our society's transition to clean energy to stave off and reverse the trends of Climate Change. The National Academy of Sciences has reported not only that we humans are responsible for dangerous trends but those trends are accelerating faster than modeled in their 2004 report.

I am certified by RESNET and the DOE to educate builders and certify their work for Tax Credits and Energy Star labeling. I work with home owners, builders, real estate agents and lenders. I am certified in residential wind, solar electric and solar hot water installations and believe strongly in geothermal as a basic way to heat and cool our homes. I continue to deepen my relationships with practitioners of these technologies in California, Colorado, North Carolina and Florida because they are on the front lines of currently viable residential renewable energy. These are all proven and currently available.

**Why am I here? Because many of our state legislators have vowed publicly to fight the Governor and KDHE Secretary Rod Brimby regarding the harm which will come from expansion at Holcomb. I am sorry you don't like the diagnosis the doctor has provided. First do no harm.**

[It is the opinion of many scholars that Hippocrates did, in fact, originate the phrase, but did so in his *Epidemics*, Bk. I, Sect. XI. One translation reads: "Declare the past, diagnose the present, foretell the future; practice these acts. As to diseases, make a habit of two things – to help, or at least to do no harm."]

As you go about your duties and establish the rules of business in my state, remember that a wholesome environment and a healthy democracy are intertwined. It is documented by Robert F. Kennedy, Jr. and others that our national government has abandoned its' historic mission- to create communities that are models for the rest of humankind. "It [the federal government] has systematically muzzled, purged, and punished scientists and other professionals whose work impedes corporate profit taking. Environmental injury is deficit spending-- loading the costs of pollution-based prosperity onto the backs of the next generation."

Teddy Roosevelt said: "The nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased, and not impaired, in value."  
Why are you allowing the coal electric industry to use you like this?

**Free-market capitalism is the best thing that could happen in our state.** The coal-burning utilities are imposing the costs of clean-up on us that should, in a free market be reflected in the price of energy when they bring it to the marketplace. By avoiding these costs, the

utilities are able to enrich their shareholders and put their more contentious and efficient competition out of business. We must force Sunflower to "internalize its' costs the same as they internalize their profits."

Why would you shove this dirty bill upon us with consequences for the rest of our children's' lives? Money. Lobbyists with money and power. Traditional energy sources have served us well and should be maintained in a least harmful manner until new technologies are in place. Much money and time has been spent on feasibility studies for this 3.5 billion dollar project and your friendly lobbyists want desperately to recoup that investment, not to mention the pile of profit you allowed yourselves to dream about. Stop fixating on the money. Let it go. There is a better way.

What is the right way? Good health and real local economies. In stead of committing to new plants that pollute for fifty years, provide tax incentives for residential efficiency testing and energy efficiency upgrades. That makes way for 100 times the 350 job from your dirty coal plants all over the state in every local community. Lenders should be empowered to refinance homes as they become much more energy efficient and also add the aforementioned proven residential technologies of geothermal, wind and solar. The money you charge polluters can be used not only to clean up damages done, but also to maintain the grid for inter-connection of residential solar and wind electricity.

Every house in every community in Kansas can be retrofitted with higher efficiency features in order to greatly reduce our needs. Each house can also employ geothermal, wind power, solar electricity or solar hot water to move toward zero carbon footprint. But that all requires you to de-subsidies mature dirty fossil fuel industries. The people you represent need good, honest jobs to challenge them and keep them busy and their families fed. Improving our housing stock keeps more money in our local economies for more local businesses.

If you pass this bill then renewable energy alternatives and inventions will not be needed, used, nor improved on, local economies will not come back and health care costs will rise. If it has terrible side effects then don't subsidize it and empower it to charge energy rent for the next fifty years. It's not like we can move to get away from the cumulative effects of green house gasses. Let the true free market work.

Franklin Roosevelt warned that "the liberty of a democracy is not safe if the people tolerate the growth of private power to a point where it becomes stronger than their democratic state itself. That in its' essence, is fascism." That's why I'm here. Scrap this proposed legislation and separate yourself from the other team that's been trying to fix the game.



**Comments to the Kansas State Senate Committee on Utilities by Dr. Richard T. Gordon**  
Thursday, February 7, 2008

Esteemed Committee Members, Staff and Guests:

My name is Dr. Richard Gordon. Thank you for the opportunity to speak on this important issue. I come to you today as a physicist who has spent his career in industry. In large part, this has been quantifying risk and advising the insurance industry of the risk from natural catastrophes. As such, I understand the importance of business growth and economic development. The consequences of global warming and the subsequent climate change are equal opportunity in their severity. The consequences will affect the economy as seriously as any other aspect of their extent. It is within this context of the economic consequences of global warming, that I would like you to consider my points.

The Intergovernmental Panel on Climate Change (IPCC), in their 4<sup>th</sup> Assessment Report released in 2007, makes three important points which differ in their forcefulness from previous IPCC reports:

1. Warming of the climate system is unequivocal. Scientifically, this means undeniable, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level.
2. Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in human induced greenhouse gas concentrations.
3. Distinct human influences now extend to other aspects of the climate, including ocean warming, continental-average temperatures, temperature extremes and wind patterns.

The one aspect of climate change that has most touched me is that the consequences are coming much more quickly than the climate models forecast. As an example, the Northwest Passage in Canada was forecast to be free of ice for the first time by about 2020. It was free of ice this past summer. In the U.S. there is now a long-term trend toward an earlier spring, with earlier flowering and reproduction of plant and bird species. Most alarming, the frozen Arctic tundra is thawing, releasing carbon dioxide to the atmosphere in a feedback loop that could ultimately accelerate global warming. There are many other examples to be found of global warming consequences coming faster than predicted. Recently, Dr. Kevin Trenberth, of the National Center for Atmospheric Research, offered an opinion as to why the climate models may be getting the time frame of global warming effects wrong. Dr. Trenberth found that none of the models used by IPCC has a baseline set to the current observed state of the oceans and atmosphere and that none of the climate models corresponds even remotely to the current observed climate.

In fact, the baseline of the climate models are set to an average derived from data from about 1850 to present. This apparent disconnect of the model predictions from the effects being observed has led me, along with a doctoral student from the University of Colorado, to start a research project to quantify where the predictions are wrong and to try to adjust the predictions to the observed state of the climate. I discussed this research with my colleague Dr. Kerry Emanuel of the Program in Atmospheres, Oceans and Climate at the Massachusetts Institute of Technology and one of the top atmospheric scientists in the country. Dr. Emanuel wrote me:

"I share your worry that the climate models may be getting the present change wrong in some significant ways, and do think it is time for people outside the climate modeling to start looking over their shoulders at what the models are really doing."

My research has started to yield preliminary results. Foremost among these results is a pointing to the year 2030 for significant effects to be felt. This is in stark contrast to the IPCC reports, which have focused on the year 2100. Some corroboration for 2030 as a date when significant effects will be seen came this week, with a publication in the journal *Science* by a team from Stanford University. In their paper, the Stanford scientists predict severe effects on crops in Africa and South-East Asia by 2030, due to global warming.

I am here to ask you to consider the very real risk for profound economic and societal consequences that the State of Kansas will experience due to global warming. Moreover, to consider the consequences if significant global warming effects are felt by 2030 not 2100. Kansas has a tradition of leadership dating back to abolition. I am here today to ask this committee to again put Kansas in a leadership position, by making the correct decision for the future. I am asking the committee to put aside calls for increased coal fueled energy production and instead, to move toward a future where climate change is no longer a threat to the economic and social vitality of the state. Thank you for your time.

Senate Utilities Committee  
February 7, 2008  
Attachment 8-1

**Testimony of Robert Eye, on behalf of Sierra Club,**  
**on Senate Bill No. 515**  
**before the Senate Committee on Utilities, February 7, 2008.**

Chairman Emler, Ranking Member Lee and Members of the Committee:

I am here to testify in opposition to Senate Bill 515 for the simple reason this bill would undo the one major action the state of Kansas has taken to date to do its fair share to solve the problem of global warming. Rather than building on the progress we made in 2007, this bill would actually increase the state's total global warming emissions at least 10-15 percent, and threatens to make Kansas the coal capital of the Nation.

The bill would also ensure that Kansas will fall even further behind the dozens of other states that are moving beyond coal, embracing technical innovation, clean energy and family-supporting jobs. This bill, if enacted, will be held up by our children as they ask in disbelief: "You did what in the face of scientific warnings about global warming?"

We urge the Committee to slow down and not rush this bill.

This 37-page bill is filled with numerous changes to state law that will affect Kansans statewide, has unknown fiscal impacts, and is being rushed through with little opportunity for meaningful public review. At a minimum, the public should have more time – at least as much time as Sunflower's lobbyists have had over the past several weeks – to review and critique this bill.

The Bill Would Be the First State Legislation to Accelerate Global Warming And Undo 2007 Gains

This bill would undo the one major step Kansas took in 2007 to limit global warming pollution. Last year as many other states moved forward to limit global warming pollution from coal plants, autos and other sources, KDHE Secretary Rod Bremby had the courage to listen to science, carefully consider his legal responsibilities, and then reject the Sunflower coal plant, the nation's largest proposed new source of global warming pollution. Secretary Bremby's decision came at the same time that other states were also rejecting coal plants because of the global warming threats, including Florida, Oklahoma, and Washington. Nationwide, in 2007 31 coal plants were rejected or abandoned in 2007. Idaho even imposed a complete moratorium on new coal plants.

Senate Bill 515 would reverse course and allow the massive Sunflower coal plant to proceed. The Sunflower coal plant – which is proposed as 2100 megawatts, would emit more than 14,000,000 tons of carbon dioxide annually for 50 years. This compares to Kansas' total 2003 global warming emissions, from all sectors, including cars and trucks, at 101 million metric tons (MtCO<sub>2</sub>e). This bill is far outside of the mainstream. No other state is proposing to reinstate previously-rejected plans for new coal plants and increase global warming pollution. In fact, numerous utilities inside and outside of Kansas are turning against coal plants because of costs and environmental concerns. This includes Westar and Board of Public Utilities, right here in Kansas. According to the

Edison Electric Institute, in the 3<sup>rd</sup> Quarter 2007 over 10,000 megawatts of new electric generation were proposed by investor-owned utilities, but no coal.

Not only would this bill allow the nation's largest new source of global warming pollution to move forward, it would also extend a welcome mat to other coal plant developers who have had their plants rejected in other states. Under this bill Kansas could become the coal plant capital of the Midwest.

#### The Bill Would Require the State to Issue A Permit, Even if the Pollution Would Cause Imminent Harm

Section 30(t) (2) is a particularly insidious provision long sought after by the polluter lobby. Existing state law, K.S.A. 65-3012, has provided the Kansas Health Department with the authority to deny a permit if a proposed project would threaten human health or the environment. This is the provision the Department relied on to reject the Sunflower coal plant. This bill strips the Health Department Secretary of that authority and requires the state to issue a permit even if the Secretary determined that the proposed project would threaten Kansans' health.

#### The Bill Puts Kansans' Health In the Hands of Bush Administration

The Bush Administration has the worst environmental record of any Presidency in history, and has been roundly chastised by Democrats and Republicans alike. Most recent, Republicans, including Senator McCain, and Governors Crist, Pawlenty, and Schwarzenegger, have criticized the Administration's refusal to address global warming pollution. Yet this bill turns over environmental protection in Kansas to the Bush Administration.

This bill (section (t)(1)(A)) prohibits the State of Kansas from regulating global warming pollution unless the federal government acts first. It prevents the State from taking action where the federal government has failed to act. Even though the United States Supreme Court told the Bush Administration that it was obligated to regulate carbon dioxide, the US EPA has refused to take action and under this bill Kansas would be prohibited from acting.

For example, this bill prohibits Kansas from adopting the same clean car standards already adopted or proposed in 28 other states.

#### The Carbon "Offsets In This Bill Are an Affront to Kansans

The bill alleges to require carbon "offsets" for new coal plants and implies that these offsets will help reduce global warming pollution in Kansas. This is false. This bill represents the worst type of legislation – its authors declare that it is written to fix a problem when in fact it is written to exacerbate the problem. These "offset" provisions are designed so broadly as to allow business as usual for Sunflower and the coal lobby.

The bill simply gives credits for spending money – struggling ratepayer’s money – without any accountability. Here are some, but by no means all, of the worst examples:

The bill gives two tons of “credit” for every ton of carbon dioxide captured using chilled ammonia and other technologies at a coal plant. But the bill does not require that any captured carbon dioxide is safely disposed of and does not contribute to global warming. There is such a carbon capture facility being tested at the We Energies’ Pleasant Prairie coal plant in Wisconsin – it simply vents any captured carbon dioxide back into the atmosphere. Section 12 (a)(1)(2)(A).

The bill gives a one and a half ton credit for wind projects constructed in Kansas anytime in the past seven years, i.e. gives credit for prior actions and does nothing to cut current global warming emissions. Section 12 (a)(1).

The bill allows a one ton credit for every dollar spent on educating the public about energy conservation (including outside of KS), without any accountability requirements to ensure that such education actually achieve reductions in global warming pollution. Section 12 (d).

The bill allows a ton of “credit” for each dollar spent on research projects to develop new technology to capture carbon, even if the research “did not result in the development of successful technology.” Section 12 (c).

#### This Bill Will Ensure Kansas Continues to Lag Far Behind Other States

Aside from Secretary Bremby’s rejection of the massive Sunflower coal plant, Kansas is falling further and further behind the rest of the country as dozens of other states are promoting clean energy, creating green-collar jobs, and solving global warming. Other states are adopting standards for clean cars, renewable energy standards, and carbon trading programs. This bill does none of that and would set Kansas even further back nationwide. Compare what other states are doing:

- Global Warming Action Plans – 35 states have developed and adopted, or are currently working on state action plans to curb global warming pollution. Not Kansas.
- Clean Cars – 28 states have adopted or are proposing to adopt clean car standards that curb global warming emissions. Not Kansas.
- Clean, Renewable Energy Standards – 21 states have renewable energy standards to boost investment in clean, renewable energy and create green-collar jobs. Not Kansas.
- Carbon Trading – 21 states are working on regional carbon trading programs. To her great credit, Governor Sebelius has stepped forward and signed the Midwest Governors Greenhouse Gas Accord along with other Midwest Governors. But the Governor can’t implement this accord without action by the Kansas Legislature. This bill does not even mention the Midwest Governors’ Accord or provide any

authority for the state to move forward and work with its neighbors to implement the Accord.

While some may argue that SB 515 is an attempt to “balance” the state’s energy mix, in reality, it guarantees the place of coal irrespective of the environmental, health or financial costs. Such a policy choice ignores the solid evidence that greenhouse gases, including CO<sub>2</sub>, cause global warming. And while some members of this committee may ignore or disagree with the evidence and conclusions of the Nobel Prize winning Intergovernmental Panel on Climate Change (IPCC) and mounting proof from many other sources of the relationship between burning coal and global warming, investment bankers are aware of it and are acting accordingly. Several large investment banking houses have recently announced that they will tighten lending requirements for coal projects in recognition that coal costs are going to have to factor in environmental and health considerations. As these costs are honestly accounted for the case for efficiency and renewable fuels becomes even more compelling.

Thank you for the opportunity to testify and I will do my best to answer any questions.

Robert V. Eye  
Irigonegaray & Associates  
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## AMERICANS *for* TAX REFORM

Grover G. Norquist  
*President*

Statement by Grover Norquist  
President of Americans for Tax Reform

submitted to the

**Kansas State Senate  
Utilities Committee**

regarding

**SB 515**

February 7, 2008

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Thank you Chairman Emler, Ranking Member Lee and Members of the Committee,

My name is Grover Norquist, and I am president of Americans for Tax Reform, a national taxpayer advocacy organization based in Washington, DC.

**I am here today to submit testimony in opposition to Senate Bill 515, which has been cross-filed with House Bill 2711.**

While these bills may have been a well-intentioned effort to broker a compromise addressing last year's rejection of the Holcomb air permit, this compromise contains several provisions which are extremely damaging from a taxpayer's standpoint, and would have lasting disastrous ramifications for businesses and consumers alike.

First and foremost, these bills would put in place statutory emission caps coupled with a punitive first-in-the-nation carbon tax. The cost of this tax on fossil fuels will be passed on to consumers, in the form of higher rates for electricity, and increased cost for goods manufactured in Kansas. Those hit hardest are the ones who may be least able to afford these added costs - most notably the poor, senior citizens, and those on fixed incomes.

The history of taxation is riddled with taxes that were once codified into law under the assumption that they would only have a minimal effect, but, once on the books, they ballooned into massive burdens on taxpayers.

Some may argue that state would receive no additional revenue under the emissions threshold put forth by these bills.

One need look no further than the personal income tax. Put in place by the U.S. Congress in 1913 with rates beginning at 1 percent and rising to 7 percent for taxpayers with income in excess of \$500,000, the tax hit less than 1 percent of the population at the time. Today, almost 60 percent of the population is subject to the income tax.

Recently, the Alternative Minimum Tax, has gotten under immense fire precisely because of its morphing into a threat to millions of Americans' wallet. The AMT, too, was originally designed to capture a small number of wealthy taxpayers who were not captured by the income tax, affecting less than 1 percent.

The Spanish-American War Tax - the "temporary" 3 percent tax still on your telephone bill - provides another example, imposed in 1898.

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Make no mistake, if this tax is put on the books, however little revenue it may generate in the beginning, it will stick around and ultimately balloon, and taxpayers are once again on the losing side.

Russian dramatist Anton Chekhov once observed that if a gun is hanging on the wall in the first act, it will always go off by play's end. The same applies here.

Businesses and investors faced with the decision of whether to locate or invest in Kansas will be greeted with a sword of Damocles hanging over their heads. There is no guarantee that the threshold will not be lowered, opening the floodgates for taxpayer dollars to rush into state coffers.

However, the carbon tax is not the only troublesome provision in this legislation. An additional burden on consumers and businesses would arise from statutory regulations contained in the bill, regulations that ultimately will drive up the cost of energy, and the cost of goods manufactured in Kansas.

Again, it will be your constituents who will feel the pinch: when they commute to work, drive their kids to school, shop for groceries, or do business.

By imposing absolute caps on CO2 emissions paired with costly offsets, this energy compromise puts the legislature in the position of improperly picking winners and losers.

The bill also prohibits the expansion of new coal-fired merchant power plants, while granting exemptions for government utilities or cooperatives, thereby placing independent entities at a competitive disadvantage, and undercutting Kansas in the global economy.

Already, the cost of doing business is too high in Kansas. Every year, Americans for Tax Reform Foundation calculates "Cost of Government Day," the day of the calendar on which the on which the average American has earned enough in cumulative gross income to pay for his or her share of government spending (total federal, state, and local) *plus* the cost of regulation.

Kansans had to work 186 days of the calendar year – until July 5<sup>th</sup> - to pay for the combined cost of spending plus regulation. Increased taxation and regulation only stand to aggravate the situation and harm Kansas's competitiveness in the long run.

Businesses will think twice about investing and locating in Kansas, and the state can simply not afford to further jeopardize its competitiveness – be it in relation to other states, or foreign countries.

**In sum, the long-term ramifications of this bill, which would set a bad precedent not only for the State of Kansas, but for the rest of the nation, lead us to urge you to reject SB 515.**

Rather than rushing a well-intentioned, but ill-conceived compromise this week, I urge you to vote against these measures and work towards drafting an energy bill that will allow for Kansas to thrive and prosper.

Thank you for allowing me to address your committee. I would be happy to address any questions that you might have.



# AMERICANS FOR PROSPERITY

## KANSAS

February 7, 2008

Members of the committee,

I am Alan Cobb, Kansas State Director of Americans for Prosperity, a free market grassroots public policy group with more than 12,000 members in Kansas.

We oppose Senate Bill 515 and House Bill 2711 because of the creation of an emissions cap and the creation of a "Carbon Tax". It would be the first such tax in the nation to penalize new energy production. It is hard to overstate the negative significance of creating the first carbon tax in the United States.

If passed, these bills will create higher energy bills and more government bureaucracy.

Kansas should not serve as a test case for environmental policies far outside the mainstream of opinion or economic reality. Becoming the first state to compromise on such a tax would only serve to compromise our economic future.

Many people believe that these bills will create regulatory certainty. That is incorrect. Looking at the debate in a broader sense, this compromise would further weaken regulatory certainty in Kansas. Why? Because Sunflower followed the regulatory process and was denied. In its place, this is a short-term fix as a concession prize, highlighting that regulated industries in Kansas and potential capital investments coming into the state can follow the process only to be denied or have the regulations altered with new restrictions placed upon them by the administration or the Legislature.

Do we need and want these plants, yes, but not at the expense of future economic growth.

Lawmakers should go back and craft a bill that gets the plants built without new caps and without instituting the first in the nation carbon tax. In its current form, the bill will serve as an albatross to future growth in Kansas.

Passage of this bill will further impede economic development through measures that stifle certain industries and increase energy costs on households, businesses and government services.

Americans for Prosperity is strongly opposed to the higher taxes and burdensome government regulations that would result if this bill is passed.

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**KANSAS TAXPAYERS NETWORK**

**web:www.kansastaxpayers.com**

**P.O. Box 20050**

**316-684-0082**

**Wichita, KS 67208**

**Fax 316-684-7527**

February 7, 2008

**Testimony Opposing S.B. 515**

By Karl Peterjohn, Executive Director

S.B. 515 would restore a legal environment where it would be possible to build an expansion at the Holcomb coal fired electrical power plant in western Kansas. This is a laudable goal and KTN supports this intent. It is a terribly sad comment on the sad state of the rule of law in Kansas that this legislation is even necessary.

This legislation contains a fatal flaw. A new carbon charge is contained within this bill. It is for all intents and purposes a new tax. S.B. 515 creates a new charge on electrical generation using coal in certain circumstances. Sadly, this establishes a terrible precedent.

While KTN supports the building of the power plant, we strongly oppose the creation of any new Kansas taxes. At a time when energy prices have been rising rapidly, the idea of adding any additional costs would be a problem for Kansans who are struggling to pay for energy, higher food, and taxes. This legislation begins the process of taxing energy.

There are many other carbon dioxide emitters who would not be initially taxed under this legislation. Let me list some of the other generators of carbon dioxide in Kansas: the living, breathing people of Kansas—including every legislator and conferee on this bill all exhale carbon dioxide; other mammals; motorized vehicles and motors in general; wood fired fireplaces; energy users from ethanol, petroleum refining, manufacturing, and industry in general. Eventually, the proponents for carbon taxes will want to see new charges placed on everything emitting carbon dioxide but the largest sources, coming from Mother Nature cannot be taxed.

The people of Kansas do not need any new taxes. The people of Kansas do not need higher taxes to be passed through to them in the form of a higher cost for their purchases of energy in all its myriad forms. When the first income tax was being debated in Washington in the early part of the 20<sup>th</sup> century, an effort was made to place a lid of 10 percent on the maximum rate for any income tax. Sadly, this effort to create this limit failed in congress.

The initial federal income tax was imposed only on a small segment of the population. In less than a decade the income tax metastasized into a huge burden impacting almost all Americans and has largely continued to do so to this day. S.B. 515 creates a similar type of charge and raises the risk of history repeating itself in a way that would be very harmful to the Kansas economy and to the people of this state. KTN strongly urges this committee to remove this new charge from S.B. 515.

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**SB515**

**2-7-2008**

**Testimony before the Kansas Senate Utilities Committee.**

Thank you Chairman Emler for allowing me to present my testimony here today.

My name is Donn Teske & I currently serve as Kansas Farmers Union president and I am here today to testify in opposition to SB515.

Kansas Farmers Union policy supports renewable energy and environmental stewardship. We feel that both of these are threatened if SB515 is passed into Kansas law.

Carbon emissions are a serious issue but water is also. In the case of the Holcomb plant the water of the Ogallala, a precious, non-renewable resource will be mined for the purpose of exporting energy out of state, whereas energy plants in other areas use surface water in which the evaporation is part of the cycle. Also there is concern about the value placed on the water.

In my opinion the renewable parts of SB515 are pretty much token and the guidelines placed on coal generation easily met.

Of course as we all know the issue that makes SB515 so controversial is Global warming and whether mankind is causing or contributing to it. There are a lot of pretty smart people in the world that are convinced man is causing global warming and that the future is threatened by it, and I believe them. With the fast pace of this bill through your committee I have to assume that you do not.

I hope very much that you are right and I am wrong for I worry much about my off-springs future world.

Regretfully, in this instance it will not do us any good to get back together a hundred years from now to figure out who was right. If you were right then

whatever we did was fine, however if I was right then you were a contributing factor to the ruin of your grandchildren's world when you could have been leaders in global responsibility.

During this bills discussion much has been made about off-setting and / or capturing the emissions from coal generation, partially from agricultural practices sequestration. This is an area I know a little about. Farmers Union is now, as I understand it, the largest agricultural carbon sequestration aggregator in the United States. And in Kansas I'm pretty much the guy running around for Farmers Union working on this.

But it can only do so much. To put things in perspective I hear that the proposed Sunflower project at Holcomb would emit 11 million tons of Carbon per year. Farmers Union now has 1.6 million acres of land enrolled in the Carbon Sequestration program at rates that run from .2 tons of sequestration per acre to .6 tons. If one averages them out to .4 tons per acres then the entire national program of Farmers Union to date is off-setting approximately 640,000 tons of carbon per year. This is a little under 6% of just this one proposed plants emission!!! Talk about an act of futility!

Also, the value being placed on carbon penalties in this bill is a joke and I feel would draw coal generation to Kansas like a magnet. Three dollars a ton?? Last year it was almost five dollars on the CCX and this is really just a market that is starting to get it's legs under itself. Our European neighbors are paying more like TEN times this amount! When Congress enacts a Cap & Trade how relevant do you think three dollars a ton will be?

Again, I hope you're right, otherwise I don't envy your legacy.

I urge you to stop SB515

Thank you and I will be happy to address any questions.

Statement of Jack Glaves  
Regarding Senate Bill 515 and House Bill 2711  
on behalf of DCP Midstream  
February 7, 2008  
to the  
House and Senate Utility Committees

I represent DCP Midstream, the parent company of National Helium (NH), the single largest consumer on the old Aquila/WPK system in southwest Kansas. That system was acquired by Sunflower Electric Power Corporation through its separate entity known as Mid-Kansas Electric Company (MKEC).

Please refer to the attached "talking points", from our perspective, for a summary of the issues involved.

The Kansas Corporation Commission (KCC) has recognized that Section 34 of Senate Bill 515 and House Bill 2711 is problematic, but the proposed amendment, in our view, does not suffice to ensure continued regulatory overview for the protection of the former Aquila customers.

Section 34 of SB 515 and HB 2711 de-regulates the involved cooperatives, including MKEC and, potentially, Southern Pioneer Electric Company, which are the contracting parties with my client in a pending 5 year service agreement for the NH plant near Liberal, under which it takes electric service at tariff prices as well as other services. That plant has an estimated electrical cost requirement, over the five year term, of approximately \$85 million.

If adopted as currently written, Sunflower, MKEC and other cooperatives on these systems could be de-regulated. MKEC which, by order of the KCC, adopted the old Aquila rates would not be regulated by the KCC, if it elects to de-regulate, after the

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effective date of this bill. Under this legislation until such time as the service territory in question is “spun down” there would be no regulation of these utilities.

In the case of National Helium, this regulatory free status would continue until the transfer to Southern Pioneer of the Aquila assets from MKEC would occur. It is uncertain when that transfer will take place and could, in any event, be obviated by Southern Pioneer electing to change its business status to one which would make it a entity subject to the Electric Cooperative Act (K.S.A. 17-4601) which, under Section 34, relieves them of KCC jurisdiction.

The bottom line is that Section 34 affords the opportunity for a substantial regulatory gap for all of the former Aquila customers that are not “members” of Southern Pioneer since it is not currently a cooperative and thus not subject to the “opt out” provision of Section 34(g). All of the reasons for utility regulation are ignored for these customers that would be left to fend for themselves.

Section 34 of SB 515 and HB 2711 needs serious consideration. We believe the KCC proposal is inadequate to safeguard the old Aquila system customers. Section 34 should be eliminated or modified to clearly preserve KCC jurisdiction to assure compliance with existing orders, stipulations and agreements or directives pertaining to the acquired Aquila assets for the benefit of the affected customers.

We stand ready to assist in this endeavor, but we need time to receive considered judgment by all concerned in order to formulate a reasonable solution.

Respectfully submitted:

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Jack Glaves  
DCP Midstream

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## TALKING POINTS

### SENATE BILL 515 and HOUSE BILL 2711

The following points are relevant to the discussion of Senate Bill 515, and particularly Section 34 (beginning on page 26) of the bill.

Senate Bill 515, as we read it, would deregulate cooperatives under the terms and conditions of Section 34 and would include Sunflower, MKEC, but not Southern Pioneer, as presently established. The reasons for the concerns of National Helium are as follows:

MKEC acquired the Aquila, Inc. WPK system electric territory, generation, transmission and local distribution facilities by KCC order dated February 23, 2007 in KCC docket 06-MKEE-524-ACQ. The following facts are relevant to that docket:

(a) Aquila and MKEC represented to the Federal Energy Regulatory Commission (FERC) that it should approve the transfer of FERC regulated facilities from Aquila to MKEC based upon the fact that MKEC would be fully regulated by the Kansas Corporation Commission.

(b) The order and stipulation in KCC docket 06-MKEE-524-ACQ approved that transfer to MKEC with conditions fully set out in the stipulation and agreement.

(c) From our best information, Aquila had not performed a fully allocated cost of service study on its system sold to MKEC since 2003-2004.

(d) The KCC transferred the Aquila/WPK certificates and franchises to MKEC, authorized and directed MKEC to serve the Aquila/WPK customers, granted MKEC a certificate to service the Aquila/WPK service territory and authorized MKEC to adopt Aquila/WPK tariffs on the day the agreement was approved by the commission.

(e) MKEC did not do a cost of service study nor has it established actual new rates for either itself or its member cooperatives at this time.

In other words, if deregulation was to occur under Senate Bill 515 and its companion House Bill the rates of the old Aquila/WPK system would be the rates in place for the ratepayers of MKEC without hearing before the KCC, opportunity to challenge and, certainly, without a fully allocated cost of service study.

Obviously, were this to happen there would be great concern on behalf of National Helium, a long standing and vital business in western Kansas, to not have rates established in a traditional regulatory environment.

Our presumption would be that rates would then be established by MKEC board or when service is spun down to its member cooperatives by the member cooperative boards. While not impugning any cooperative or board such deregulation under these conditions is of great concern to National Helium.

As we understand it, Brian Moline, Chair of the Alliance for Sound Energy and Policy, did not support Section 34 of Senate Bill 515 and its companion House Bill (see page 2 of Chairman Moline's remarks).

We understand a possible language change to Section 34 is being looked at by the KCC and will review the same when it is available.

In our opinion, a rush to judgment regarding Section 34 of Senate Bill 515 and its companion House bill is inappropriate and requires much more consideration than the short timeframe under which the legislature is considering this matter.

NATIONAL HELIUM PROPOSES THE FOLLOWING CHANGE TO THE KANSAS CORPORATION COMMISSION DRAFT PROPOSAL OF FEBRUARY 5, 2008 –

Section 34(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, fee 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, transmission line siting, and COMPLIANCE WITH THE EXISTING ORDERS, RULINGS, STIPULATIONS AND AGREEMENTS, OR DIRECTIVES OF THE KANSAS CORPORATION COMMISSION IN EFFECT PRIOR TO THE EFFECTIVE DATE OF THIS ACT, NOR AFFECT THE CONTINUING JURISDICTION OF THE STATE CORPORATION COMMISSION OVER RETAIL SALES TO NON-MEMBER CUSTOMERS OF A COOPERATIVE OR A SUBSIDIARY OR AFFILIATE THEREOF, pursuant to K.S.A. 66-131, 66-183, 66-1,170 et seq., or 66-1,177 et seq., and amendments thereto

February 7, 2008



TO: Senate Committee on Utilities  
FROM: Trudy Aron, Executive Director  
RE: Opposition to SB 511

President  
C. Stan Peterson, FAIA  
Topeka  
President Elect  
David S. Heit, AIA  
Topeka  
Secretary  
J. Michael Vieux, AIA  
Leavenworth  
Treasurer  
Nadia Zhiri, AIA  
Lawrence  
  
Douglas R. Cook, AIA  
Olathe  
Corey L. Dehn, AIA  
Topeka  
Dale R. Duncan, AIA  
Olathe  
S. L. Ferguson-Bohm, AIA  
Wichita  
John Gaunt, FAIA  
Lawrence  
David Livingood, AIA  
Lawrence  
Peter Magyar, Assoc AIA  
Manhattan  
Bruce E. McMillan, AIA  
Manhattan  
Hans Nettelblad, AIA  
Overland Park  
Gary Nevius, AIA  
Overland Park  
Wendy Ornelas, FAIA  
Manhattan  
Daniel Sabatini, AIA  
Lawrence  
Zach Snethen, Assoc AIA  
Topeka  
Daniel (Terry) Tevis, AIA  
Lenexa  
Jerry E. Volesky, AIA  
Topeka  
Eric Wittman, Assoc AIA  
Wichita

Good Morning Chairman Emler and Members of the Committee, I am Trudy Aron, Executive Director of the American Institute of Architects in Kansas. Thank you for allowing me to testify in opposition to SB 515.

AIA Kansas is a statewide association of architects and intern architects. Our 700 members are currently designing the facilities we will all use into the future. That is why our members are designing these facilities to leave a lighter carbon footprint on our environment. The goal of our national organization is to design facilities that reduce the fossil standard for all new facilities by 60% in 2010, reducing the standard by 10% each five years and be carbon-neutral in 2030. These targets can be accomplished by implementing innovative sustainable design strategies, generating on-site renewable power and/or purchasing (20% maximum) renewable energy and/or certified renewable energy credits. We are providing our members with the tools to reach these benchmarks.

The coal-fired plant authorizations in SB 515 are contradictory to what we can accomplish by designing and constructing our future facilities utilizing sustainable design and construction principles. Our members are passionate advocates for sustainable approaches to creating the built environment and minimizing our impact on the natural environment. We support the application of energy sources and technologies that minimize the consumption of fossil fuels and do not support the construction of additional coal-fired facilities

Coal is among our most polluting sources of energy. Now is not the time to give carte blanche to the electric utilities. We know caps on carbon emissions are coming from the federal government and we believe that it will be sooner rather than later. On my way in from home on Tuesday, I heard that three of our nations largest banks will require those seeking funding for coal-powered plans to meet "environmental principles" before they will fund new projects. These include using renewable resources instead of coal, following sound conservation principles and how future federal regulations may affect the financial viability of a project.

The construction of coal-fired power plants in southwest Kansas raises several concerns from the majority of our members:

Executive Director  
Trudy Aron, Hon. AIA, CAE

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Facsimile: 785-357-6450

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- Today's most environmentally efficient coal-fired power facility will still produce more carbon than allowed by the goal to be carbon neutral by 2030.
- For these plants to be as environmentally efficient as possible (which we believe they need to be if they do in fact get built) will require massive amounts of water. Where will that water come from? From an aquifer that is already being depleted?
- It is our understanding that the end result of the construction of these coal-fired power plants will be approximately 110 new jobs. Are 110 new jobs worth the cost to the environment?
- To construct these coal-fired power plants will require a massive amount of labor. Can this area of Kansas provide that labor force?

There are several sections of HB 2711 that we do support and hope will be offered as stand-alone bills. However, we cannot, in good conscience, support them when they are tied to the rest of the bill.

AIA Kansas is, however, ready and willing to help this committee draft legislation that will 1) support renewable energy and 2) provide substantial conservation of our resources.

I'll stand for questions at the appropriate time.





# kansas municipal utilities

*Submitted Testimony Provided the*

**Senate Utilities Committee**  
February 7, 2008

*Colin Hansen, Executive Director*  
*Kansas Municipal Utilities*

## Senate Bill 515

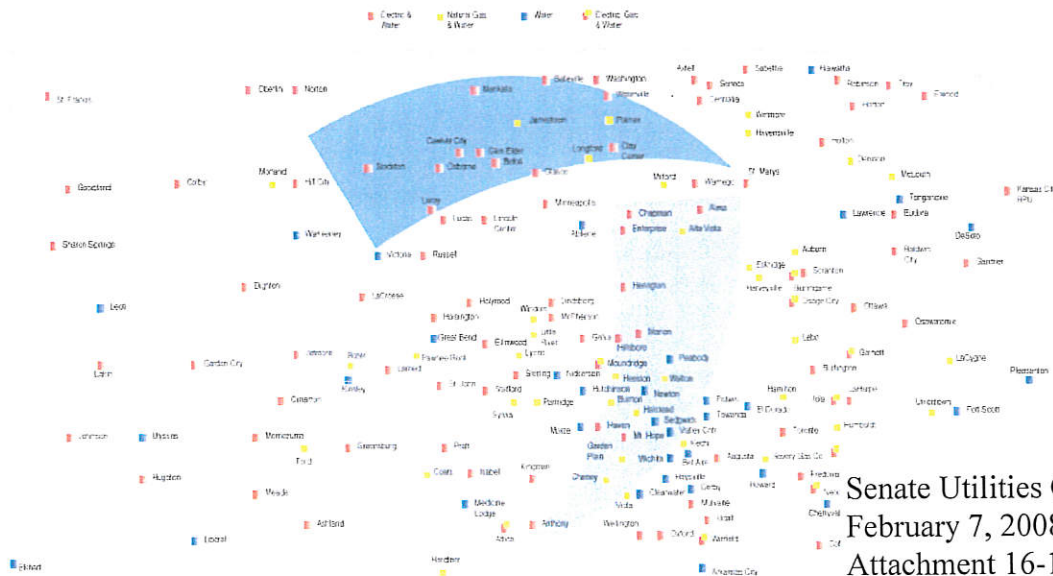
Chairman Emler and Members of the Committee:

On behalf of Kansas Municipal Utilities (KMU), I appreciate the opportunity to provide written testimony to the committee regarding Senate Bill 515.

Formed in 1928, Kansas Municipal Utilities (KMU) is the statewide association that represents the interests of 170 municipal electric, natural gas, water and wastewater utilities. In addition, KMU also helps represent Kansas Municipal Energy Agency (KMEA) and Kansas Power Pool (KPP), the state's two not-for-profit joint action agencies providing energy and transmission procurement services for member cities.

A municipal utility is owned by the city it serves. Service, rather than profit, is the utility's mission. Decisions about the operation of a municipal utility are made locally, by members of the community. As such, a municipal utility is uniquely able to respond to the community's needs, build on the community's strengths, and reflect and advance the community's values.

Municipal electric utilities operating in Kansas are very diverse in size and location. In total, we serve 235,382 customers or approximately 17% of Kansas citizens. We have electric utilities serving as many as 65,000 meters and as few as 23. Our members, as the figure below illustrates, stretch to the far corners of Kansas and everywhere in between.



Only the largest of the state's 119 municipal electric utilities, Kansas City Board of Public of Utilities (KCBPU), currently owns and operates baseload facilities. The rest of the state's public power systems operate as wholesale consumers, purchasing their electricity need on the open market through wholesale contracts. As such, municipal electric utilities are extremely sensitive to the availability of baseload energy. With many of our members' wholesale contracts expiring, we have had to become much more attuned to wholesale and baseload markets. Because of the difficulty in obtaining baseload energy, municipal systems have joined forces through state-authorized joint action agencies to aggregate loads of sufficient size to gain the attention of generators with baseload supplies.

In fact, a coalition of twenty-two municipal electric utilities is working directly with Sunflower Electric Power Corporation as joint owners in the Holcomb expansion project. The cities, formerly served at wholesale by Aquila, are participating in the second Energy Management Project (EMP #2), an initiative of the Kansas Municipal Energy Agency (KMEA). Their much-needed ownership share in the Holcomb expansion would equal 40 MW.

In addition, 63 municipal electric utilities own and operate local generating plants. The vast majority of these power plants operate small diesel or natural gas fired units that only operate during peak times or when transmission service is lost. Their function is to reduce the cost of capacity and in turn the overall cost of electricity to the citizens of the community. They also play a critical role in bolstering the reliability of the grid locally, regionally, and in several instances, statewide. Recent ice storms have illustrated the value of these locally-owned and operated power plants. We do not believe that it is the intent of this legislation to incorporate these small, largely backup units into the same regulatory standards as large baseload units.

KMU member utilities have expressed concerns about the proposed legislation. Most of the discussions have centered on the areas of solar net metering, the application of CO<sub>2</sub> emission standards, and the issue of regulatory certainty. As the Legislature works through this complex legislation, we would ask that the interests of the municipal systems be considered, particularly the many smaller systems that we represent and how they may be impacted by being required to comply with these difficult and potentially costly mandates.

In summary, the KMU membership recognizes that energy conservation and renewable energy need to be a key component in any utility's energy strategy. However, the need for low-cost and reliable baseload power remains a necessary reality. All of these components, as well as the reliability and peaking capacity provided by local municipally-owned power plants, need to be incorporated into a diversified and balanced electricity generation portfolio for the State of Kansas.

**Testimony of KCP&L  
Before the Senate Utilities Committee  
Regarding Senate Bill 515  
February 7, 2008**

Kansas City Power and Light understands the challenges involved in building a coal plant. KCP&L is currently constructing an 850 megawatt supercritical coal-fired electrical generating plant near Weston, Missouri. The plant, known as Iatan 2, is expected to come online in 2010, joining the existing Iatan 1, which came online in 1980.

Undertaking a major investment such as construction of a coal plant requires compromise by all parties. HB 2711 seeks to address those compromises upfront.

KCP&L does not offer policy analysis of the bill, but would like to bring attention to various sections that may have unintended consequences and request technical changes.

Issue 1 – to ensure the bill deals only with new generation plants, the following change is requested:

Page 6 - New Section 10(b)(1)

“Affected facility” means a fossil-fuel-fired steam electricity generating ~~unit~~ *emission source* of more than 250 million British thermal units per hour heat input other than:

- (A) A facility owned or operated by the federal government;
- (B) a facility located on tribal lands; ~~or~~
- (C) any other facility exempt under section 111 of the federal clean air act; *or*
- (D) *any existing emission source which commences operation prior to July 1, 2009.*

Issue 2 – the current heat rate used to describe coal plant specifications is not believed to be consistently achievable with Powder River Basin (PRB) coal. Ultra-supercritical coal technology, while more efficient than traditional pulverized coal unit designs, has not developed a long term operating record using PRB coal, which is the most widely used coal in Kansas. It is important that when considering incentives for coal unit efficiency that considerations for the

long-term reliability and maintenance cost of the unit also be valued as important considerations for customers.

Page 7 – New Section 10

(8) “Supercritical pulverized coal technology” means a steam generating facility operating at or above 3,600 pounds per square inch and less than ~~1,200~~ 1100 degrees fahrenheit.

(9) “High efficiency pulverized coal technology” means a steam generating facility operating at or above 4,500 pounds per square inch and at or above ~~1,200~~ 1100 degrees fahrenheit.

Issue 3 – Carbon offset values that differentiate between investments in Kansas and other states create regulatory challenges for utilities like KCP&L that operate in more than one state. Because emissions, or emission offsets, don’t stay where they are created, it is suggested the bill treat offsets the same.

Page 8 to 12 – New Section 12

Remove references to “in Kansas.”

KCP&L appreciates the opportunity to offer suggestions on this bill and urges the committee adopt the recommendations presented.

###

Paul Snider – KCP&L  
Manager, Kansas Government Affairs  
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17-2

**Testimony of James Ludwig**  
**Executive Vice-President Public Affairs and Consumer Services**  
**Westar Energy**  
February 6, 2008

The identical bills, HB 2711 and SB 515, were clearly written with the intent to permit construction of *new* baseload coal plants. In pursuit of that intention, Westar believes the proponents have inadvertently overlooked how this legislation affects *existing* fossil fuel power plants and that it ignores the biggest, most effective carbon mitigation source already in place in Kansas. We provide these comments to correct what we believe are unintended consequences and respectfully request that you accordingly amend this legislation.

Westar does not object to building new baseload generation in Kansas. We also agree that it has to be added in an environmentally responsible way. Although we have found a way to delay making a commitment to additional baseload generation for a few years, we acknowledge that it will eventually become imperative for Westar to add baseload generation to our system to assure reliable electric service to both our retail customers and our Kansas firm wholesale customers. In addition to new baseload resources in the future, Westar's plan to meet consumers' growing needs for electricity also includes new natural gas and renewable generation sources, energy efficiency, and enhancements of our existing nuclear and fossil fuel (coal and natural gas) plants.

**Net versus Gross CO2 Emissions per MWh**

On page 8, lines 2 through 7, the CO2 limits are described in pounds per net megawatt hour (MWh). Westar suggests using pounds per gross MWh. The intent of this section is to drive down the overall CO2 emissions. Using net MWh only captures those emissions for generation used for customers. Emissions attributable to auxiliary power, the typically large amount of power consumed by the power plant itself, are ignored. Auxiliary power is also called "station power" or "parasitic load." For example, we are in the midst of installing scrubbers at Jeffrey Energy Center (JEC) along with other modifications to reduce regulated air emissions. When the scrubbers are turned on, the amount of station power increases substantially without any increase in CO2 emissions. Thus the bills' use of net MWh as a way to measure carbon emissions would actually disadvantage JEC even though CO2 emissions did not increase. Stated another way, using net instead of gross MWh penalizes investment required by law to reduce other types of air emissions than CO2. The use of gross MWh would quantify actual increases/decreases in CO2 emissions, properly taking into consideration both consumer load and auxiliary power. Elsewhere in the bill, pounds per MWh are used without clarifying whether they are gross or net. We



believe use of consistent gross units will help prevent disagreements about compliance.

### **Conforming Definitions on Reconstruction with Current Law**

We suggest changing page 7, lines 24 – 27, to read:

"Reconstruct" or "reconstruction" means any rebuilding of an emission source within an existing affected facility which generates electricity from fossil fuel that would result in the significant emission increase of nitrous oxide and sulfur dioxide as defined under 40 CFR 52.21(b)(23) and increase carbon dioxide emissions from such facility.

We believe the current provisions in this legislation would trigger requirement of carbon mitigation for any type of modification of the affected unit that could impact fuel usage. This is much more restrictive than current federal regulation and Kansas policy. Our suggested change aligns this legislation on carbon mitigation to the similar federal regulations that set a threshold level for criteria pollutants below which no mitigation would be required. It would prevent triggering carbon restrictions at existing fossil fuel plants when only routine maintenance and capital expenditures were involved to keep the plant in good working order.

### **Credit for Carbon Mitigation Measures**

1. The single largest, most effective mitigation of CO<sub>2</sub> and other air emissions within the electric utility sector in Kansas today is the Wolf Creek Nuclear Generating Station. Wolf Creek has zero air emissions – no CO<sub>2</sub>, no other green house gases, no SO<sub>2</sub>, no nitrogen oxide, no particulates, no mercury. At the highest capacity factor of any plant in the state, its carbon mitigation may exceed all other types of electric utility mitigation combined. Each year, Wolf Creek's owners make substantial capital investments at the plant to keep it in good working order and retain its carbon mitigating effects. Yet this legislation does not acknowledge this fact. We believe it should recognize Wolf Creek by allowing its production to offset coal or natural gas-fired CO<sub>2</sub> emissions. Therefore, we suggest on page 9, line 7 to strike "constructed after January 1, 2008."

2. Some of the most environmentally pristine areas in Kansas today are found at Westar's power plants. The water quality at Coffey County Lake (Wolf Creek's cooling lake) is among the best in the state because of the watershed land management practiced by Wolf Creek's owners. The trees and grasslands surrounding the lake are excellent sources of carbon capture. The property on which Jeffrey Energy Center is located is also environmentally protected and stores carbon. Those properties and many other utility properties Westar owns are not in Westar's retail service territory. They are in the service territories of rural electric cooperatives. Westar has been a leader in restoring native prairie

at the National Tallgrass Preserve near Strong City. Some scientific studies show that native grassland restoration is as effective, if not more effective, than forest restoration in capturing and storing atmospheric carbon. But our efforts at the Preserve, and similar efforts in many of the nearly two hundred other projects for prairie restorations and tree plantings are outside our service territory. To grant more carbon mitigation credit to properties inside a utility's service territory than outside ignores two facts: (1) most of Westar's service territory is located within cities and towns where such opportunities for carbon mitigation are limited; and (2) CO2 emissions are atmospheric, and therefore mitigation efforts, whether inside or outside Westar's service territory, have the same beneficial effect. Discriminating in favor of one over the other has no scientific basis. Current bill language allows for a 3X multiplier credit for projects located in Kansas plus an additional 2X multiplier credit if the project is located in the utility's service territory. We suggest on page 9, amending line 28 through 31 to read, "equal to five times the actual carbon dioxide tonnage sequestered as a result of such projects in Kansas."

3. The section on the retirement of generating units should also be changed to allow for offsets from any retirements of fossil fuel plants, regardless if the same fuel is used in the replacement plant. In support of this suggestion, we return to the purpose of this section of the legislation – to mitigate emissions of carbon dioxide. Whether burning coal or natural gas generates the carbon dioxide should not matter. The goal is carbon mitigation. On page 10, lines 23 and 24 we suggest changing the date to July 1, 1995 and deleting "on or after July 1, 2008, and which combusted the same fuel as the affected facility." We also suggest deleting lines 27 through 30, beginning with "Such offset credit..." We have retired some of our natural gas units and believe that reduction in carbon dioxide emissions should have an offset value under this bill. We are replacing these old retired units with higher efficiency natural gas peaking units.

In future sessions, if this legislation becomes law, it will have many repercussions that will need to be addressed. It establishes the Kansas electric generation, transmission and efficiency study commission that will likely have to deal with other unforeseen consequences and developments. We respectfully request that the legislature address the unintended consequences we have identified this session.

Kansas Senate Utilities Committee

Topeka, KS

Room 526 South

February 6, 2008

Statehouse

Re: Senate Bill 515

To the Committee:

I oppose Senate Bill 515, and urge you to vote against it. This bill would remove the authority of the Kansas Department of Health and Environment to regulate CO2 emissions, and would allow SEPC to reapply for its permit for the Holcomb plant expansion. It would also provide a great disincentive for utilities to adopt solar power as a means of power production, by requiring utilities to reduce their rates in proportion to how much power is produced using solar.

The Committee had better hope that global warming is at least produced, in part, by human-produced CO2 and other greenhouse gases. If it is strictly a phenomenon of solar output, then we are in for difficult times. If on the other hand, as has been stated by the majority of atmospheric scientists, it is due in major part to man-made CO2 emissions, it is an issue which may and must be addressed by appropriate action, both by government, by utilities, and by consumers.

The Sunflower plant as proposed has many other adverse effects on the environment, amongst them the production of particulate matter of less than 2.5 microns in size, which can easily pass through the wet and dry scrubbers and which, if released in to the atmosphere, can travel for hundreds and thousands of miles downwind. In fact, the Pacific Coast states of California and Oregon are receiving high amounts of this particulate matter from coal-burning power plants in China. This particulate matter has been implicated in the increase of the incidence of childhood asthma, and in increased morbidity from both respiratory disease (including COPD) and cardiovascular events. The SEPC plant would be the largest coal-burning plant west of the Mississippi, and over 90% of its power would be sold out of Kansas. Meanwhile, the ill wind produced by the plant could cause adverse health consequences for Kansans downwind from the

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plants, and for citizens of other states, and cause increased health care costs for citizens and employers and decreased productivity due to illness.

In addition, the ash pit for the coal ashes would be placed directly on the sandy soil near the plant, without any liner or leachate collection system (see attached). Granted, the area receives very little rain, about 20 inches/year on average, but this water would percolate through the ash bed and perhaps contribute to the salinity problems in the Oglalla and alluvial aquifers, and perhaps further contaminate these aquifers, which are already becoming grossly depleted. Unless steps are taken to conserve these resources, it is likely that Western Kansas will revert to grassland, since the ability to pump clean, uncontaminated water in sufficient quantity will no longer exist. The ash pit would be in place for thousands of years and leach poisons (arsenic, mercury) into the groundwater; the power plant is intended to cease operations in 30 years after construction. Eventually Powder River Basin coal, which SEPC uses, will be depleted, both by normal demand, and by demand from synfuel plants which would be built if crude oil became expensive or difficult to get. So, for 30 years of cash flow, the Oglalla aquifer and the fertility of the soil for growing crops would be sacrificed for thousands of years. That doesn't seem like a very good deal.

The same winds which blow from the Front Range of Colorado eastward through Kansas could be used to power wind turbines which could produce more than adequate power for the use of Kansas consumers, instead of spreading a cloud of dangerous contaminants downwind, which would result in increased death and illness amongst Kansans and also decreased productivity and costs to employers for health care. In closing, I urge the Committee to look beyond short-term economic benefit for Sunflower Electric Power Corporation and its owners, and look instead to the long-term benefits in terms of health, sustainable wind turbine power, and the conservation of natural resources in Kansas.

Hudson H Luce, PhD

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19-2

## Observations and Conclusions

1. By analogy with the closed landfill at the Lawrence Energy Center, Permit #333, the leachate at the current landfill in Holcomb, Kansas, owned by Holcomb Common Facilities LLC (hereinafter referred to as "HCF Landfill" may contain up to 2900 mg/l of sulfate anion. Currently, all ground water monitoring wells at HCF Landfill are either upgradient or cross-gradient, which can be observed by plotting normals to the isopotential lines at the edges of the current landfill site as indicated on the groundwater flow diagrams for 1985, 2001, 2002, 2005, and 2006 (Figures 1-6) , ignoring the effects of Water Well #2 on the groundwater flow as noted in KDHE's Letter to Sunflower Energy Corporation ("SEPC") as of May 2, 2005 (Exhibits 1-3). Given that none of the groundwater monitoring wells (Figures 7-10) are downgradient (Exhibit EE), and none have been since initial deposition of fly ash at HCF Landfill in 1983, it is impossible to assess leachate concentrations of sulfates and other pollutants coming from HCF Landfill and going into groundwater. Since direct evidence is lacking, the only way to make this assessment is by comparison with a similar landfill. The landfill at Lawrence Energy Center ("LEC") denoted by "LEC Landfill #333" is such a landfill.

LEC burns Powder River Basin coal, which is a low-sulfur coal, (Figure 11) and has a wet scrubber system. LEC ash was deposited in a slurry pond, then draglined out, and left to dry, until the compacted weight was 80 pounds per cubic foot.(Exhibit 4) SEPC burns Powder River Basin coal, and has a dry scrubber system.(Exhibit 5) The resultant ash at time of deposition in the HCF Landfill has a moisture content of 25%. The compacted weight of SEPC ash is 89 pounds per cubic foot.(Exhibit 6)

Currently, HCF Landfill occupies 31 acres; LEC Landfill #333 occupies 27.5 acres. The rainfall at HCF Landfill averages 19 inches per year with several 3 inch events; the rainfall at LEC Landfill #333 averages 37 inches per year, with proportionately more 3 inch events. HCF Landfill is sprayed with water on a regular basis to reduce fugitive dust emissions, as is LEC Landfill. Continual spraying of water at HCF Landfill, coupled with addition of water at the plant and at the disposal site, may lead to saturation of the fly ash deposited in the HCF Landfill. There may be a difficult choice to make, between leaching contaminants into the groundwater, and potential silicosis and respiratory diseases caused by inhalation of fine dusts from windblown fly ash.



HCF Landfill rests on a low strength unreinforced fly ash concrete liner, on top of "3 to 29 feet of loose to medium dense eolian (wind-deposited) soils of silts and sands ... underlain by alluvial sands and gravels with alluvial clay and silt layers." Vol. 3 Engineering Report, HCF Landfill Permit Application, see Exhibit. The eolian soils absorb water quickly, (Id.), but some subsidence may occur. (Exhibit BB) This subsidence may lead to a loss of support of the concrete liner, which may in turn lead to cracking of the liner. (See Addendum 1, Structural Applications of 100 Percent Fly Ash Concrete, D Cross, J Stephens, J Vollmer 2006) There is no leachate collection system at the solid waste landfill at HCF Landfill. (Exhibit AA.) LEC Landfill #333 rests on an in-situ compacted clay liner of varying thickness, with a 24" reinforced concrete drain pipe running downhill, north to south, through the landfill and ending at the BNSF railroad tracks. There are two sampling points for groundwater monitoring at LEC Landfill #333, a downgradient monitoring well (MW), and the discharge point for the underdrain(UD), also downgradient.

Groundwater values for sulfates at MW were measured every six months during the active phase of the landfill, from 1979 to 1996, and every year in the closure phase of the landfill, from 1997 until the present. These values are, for the active phase from 1979 to 1996 (in mg/l): 210, 269, 388, 184, 377, 519, 580, 430, 400, 380, 478, 580, 760, 800, 720, not reported, not reported, not reported, not reported, 1240, 890, 825, 550, 1100, 893, 1100, 716, 616, 868, 970, 862, 654, and 984. For the closure phase from 1997 to 2005, where the landfill was capped with 18 inches of low permeability clay and six inches of topsoil, planted in native grasses, the values for sulfates measured at MW are: No Flow, 722, 530, 510, 490, 570, 670, 710, 790, 1000, 1080, and 1200. (Figure 12)

Groundwater values for sulfates at UD were measured every six months during the active phase of the landfill, from 1984 to 1996, and every year in the closure phase of the landfill, from 1997 until the present. These values are, for the active phase from 1984 to 1996 (in mg/l): 1020, 1100, 1390, 1200, 1050, 2940, 240, not reported, not reported, not reported, not reported, 1430, 590, 597, 490, 360, 703, 1200, 194, 1370, 1368, 1490, 1270, 1240, 1070, and 1060. For the closure phase from 1997 to 2005, where the landfill was capped with 18 inches of low permeability clay and six inches of topsoil, planted in native grasses, the values for sulfates measured at UD are: No Flow, 1210, 1100, 910, 800, 10, No Flow, 640, 160, 670, and 604. (Figure 13)

KDHE found that the levels of sulfate were of concern (Exhibit CC) and in 2005, there was some discussion at KDHE on setting maximum allowable levels of sulfate in groundwater (Exhibit DD). The water wells which provide Holcomb with drinking water are 2-3 miles away from the landfill, and the groundwater is used by irrigators in the area, of which there are at least 30 in a 3-mile radius of the HCF Landfill property line.

Therefore, using the analogous information above, the sulfates concentrations found in the downgradient to the HCF Landfill can be estimated to be, during the active phase of the HCF Landfill, around 1200 mg/l, and in the closure phase of the landfill, around 1000 mg/l. Note that this holds even if HCF Landfill only receives 19 inches of rain per year as compared with 37 inches for LEC Landfill #333, since at least 21.5 inches of irrigation water per acre are required to sustain the chosen cover vegetation crop, sorghum, in the fine loamy sand cover at the HCF Landfill after a cell is in its closure phase (Addendum 2 and see also Waskom, R.M. 1994, "Best Management Practices for Irrigation Management", Bulletin XCM-173, Colorado State University Cooperative Extension and Colorado Dept. of Agriculture). Also note that during the active phase of the landfill, sufficient water to prevent fugitive dust emissions must be sprayed on the ash.

**2. The unreinforced fly-ash concrete liner underlying the landfill may be subject to cracking and fissuring due to uneven hydration, compaction, strength or thickness at time of liner formation, and also due to subsidence of eolian sands below the liner. Leachate, including sulfates, from the landfill may percolate through these cracks, travel vertically through the sandy soils and end up in the alluvial aquifer.** The HCF Landfill rests on a liner made by mixing six inches of fly ash with twelve inches of the fine loamy sand present at the site ("Tivoli sands") by means of a disc harrow, wetting the mixture and letting it set up to form a low strength unreinforced concrete. (Landfill Permit #420 1982). If this fly ash concrete is compacted immediately, the compressive strength is 1450 psi; if not compacted for four hours, the compressive strength is 162 psi; and if not compacted for 24 hours, the compressive strength is 103 psi. (Woodward/Clyde Consulting Report 1978). The preceding values assume a 30 second mixing period using de-aired water. (Id.) Field results may vary. If the mixing is not uniform, the quality, strength, and resultant thickness of the unreinforced concrete layer may vary, which may lead to various kinds of stresses being introduced into the loaded

finished liner. The eolian soil present at the site is subject to compaction and subsidence if wetted. If the underlying soil gives way under at points under the burden of the liner and the ash, the resultant unsupported unreinforced low-strength fly-ash concrete will deform under the load, develop cracks and fissures, and perhaps undergo complete failure so that holes form in the liner. (See Addendum 1, Structural Applications of 100 Percent Fly Ash Concrete, D Cross, J Stephens, J Vollmer 2006). This process may be accelerated by leachate entering the cracks and fissures in freeze-thaw cycles and mechanically exacerbating the cracks and fissures to the point of failure, although fly ash concrete is less susceptible to this process than concrete made with portland cement.

**3. There is extensive sulfate contamination in the alluvial aquifer associated with the Arkansas River. The majority of this area of contamination lies in western Finney and eastern Kearny counties, centered near Holcomb. Due to the lack of downgradient groundwater monitoring wells at the HCF Landfill, there is no direct evidence that the HCF Landfill contributed to this contamination; on the other hand, looking at the leachate sulfate concentrations observed in the downgradient monitoring wells at LEC Landfill #333, there is indirect evidence that indicates that the HCF Landfill could reasonably have been expected to contribute an unknown amount of sulfate contamination to that in the aquifer arising from other sources.** This problem has been extensively studied by research teams headed by Donald Whittemore, of the Kansas Geological Survey. The most recent report, "Hydrologic Responses to Pumping in the Upper Arkansas Basin and Effects of the Conservation Reserve Enhancement Program", presented to the Kansas Senate and House Natural Resources Committees in February 2007, is appended as Addendum 4. This report does not explicitly speak to the question of groundwater contamination from the HCF Landfill, perhaps owing to the absolute lack of downgradient groundwater monitoring data from the HCF Landfill. The levels of sulfate contamination are between 1500-2000 mg/l for most of the Arkansas River alluvium, from 15 miles west of Holcomb to 10 miles east of Holcomb. This level of sulfate contamination is seen all the way to the Colorado border, but appears to expand to roughly twice the width seen in western Kearny county starting at Lakin, roughly 15 miles west of Holcomb, and only narrowing back to the width seen in western Kearny county about 10 miles east of Holcomb. Whittemore 2007 at 8. It is possible that sulfate groundwater contamination from leachate from the HCF Landfill for a

period of 23 years at levels (by analogy to LEC Landfill #333) averaging 1200 mg/l may have contributed, perhaps significantly, to the existing sulfate contamination in the Arkansas River alluvial aquifer.

4. The closure plans for the various phases of the HCF Landfill call for 24 inches of local soil to be placed on top of the ash piles, and for sorghum to be planted as a cover crop, along with a mixture of native grasses. Sorghum requires at least 21 inches of irrigation water to survive (in addition to the 19 inches of average rainfall), and since the native soils are highly permeable, this water will act to quickly saturate the landfill, percolating through the soil into the ash pile. The roots of sorghum and native grasses are at least three feet long, which means they will penetrate the soil layer and come into contact with the highly alkaline ash. The result of this contact could be that the vegetation dies off, with the channels created by the withered roots acting as channels for more water to enter the landfill and percolate through to the groundwater below. Moreover, the dead plants will no longer act to hold the soil in place, creating the possibility of erosion of cap soil and exposure of the ash pile to the wind.

The local soils consist of either fine loamy sand containing 10-20% clays, 10% silts, and 70-80% sand which is indigenous to the area, to be taken from borrow areas nearby on the landfill property, or the Tivoli sands which contain no clays or silts, depending on which part of the permit application is examined. Both soils are unsuitable for growing crops without extensive irrigation, in excess of 21 inches per year, in addition to the local rainfall of 19 inches per year. Both soils are easily permeable, compared to the loamy clays seen at the LEC Landfill #333 site, which was covered with 18 inches of clay, and twelve inches of topsoil and planted in native grasses. The native grasses used at the LEC 333 site apparently are shallow rooting grasses, whose roots do not penetrate the clay cover to the ash pile. The annual rainfall of 37 inches per year appears to be adequate to ensure continued growth. The closure plans for inactive cells in the HCF landfill call for sorghum to be planted as a cover crop, along with indigenous native grasses, and for the cap to be fertilized with ten tons of manure per acre, which is roughly eight ounces per square foot, for a depth of about 1/2 inch. Sorghum roots generally extend down about five feet, and the native prairie grasses may have roots up to five feet long as well. Since the fine loamy sand soil layer is only two feet thick, and there is no underlying relatively impermeable clay layer, the roots can be assumed to penetrate down

into the ash pile, especially considering that the fine loamy sand will lose water quickly, either by percolation down into the ash pile or by evapotranspiration. The effect of the highly alkaline ash pile on the cover crops could well be expected to be deleterious to growth, and perhaps fatal to the cover crops. There are grasses and forage crops which grow well in highly alkaline soils, see Addendum 5, Soils and Water Salinity. Moreover, some of these crops are better adapted for arid and semi-arid regions in which alkaline soils predominate. The best plan, of course, is to select cover crops which will not have roots which extend through to the ash pile, and to discourage this kind of root growth by adding a comparatively impermeable layer of clay below the topsoil layer. It should be noted that even with 18 inches of clay and 12 inches of topsoil with native grasses planted (and thriving, from the pictures in the LEC landfill #847 permit application), the levels of sulfate in leachate and groundwater at the closed LEC Landfill #333 are still high, the values for sulfates measured at MW from 1997 to 2005 being: No Flow, 722, 530, 510, 490, 570, 670, 710, 790, 1000, 1080, and 1200 mg/l, and the values for sulfates measured at UD being: No Flow, 1210, 1100, 910, 800, 10, No Flow, 640, 160, 670, and 604 mg/l. These leachate concentrations reflects the lack of a liner sufficient to prevent leachate penetration and the lack of a leachate collection system.

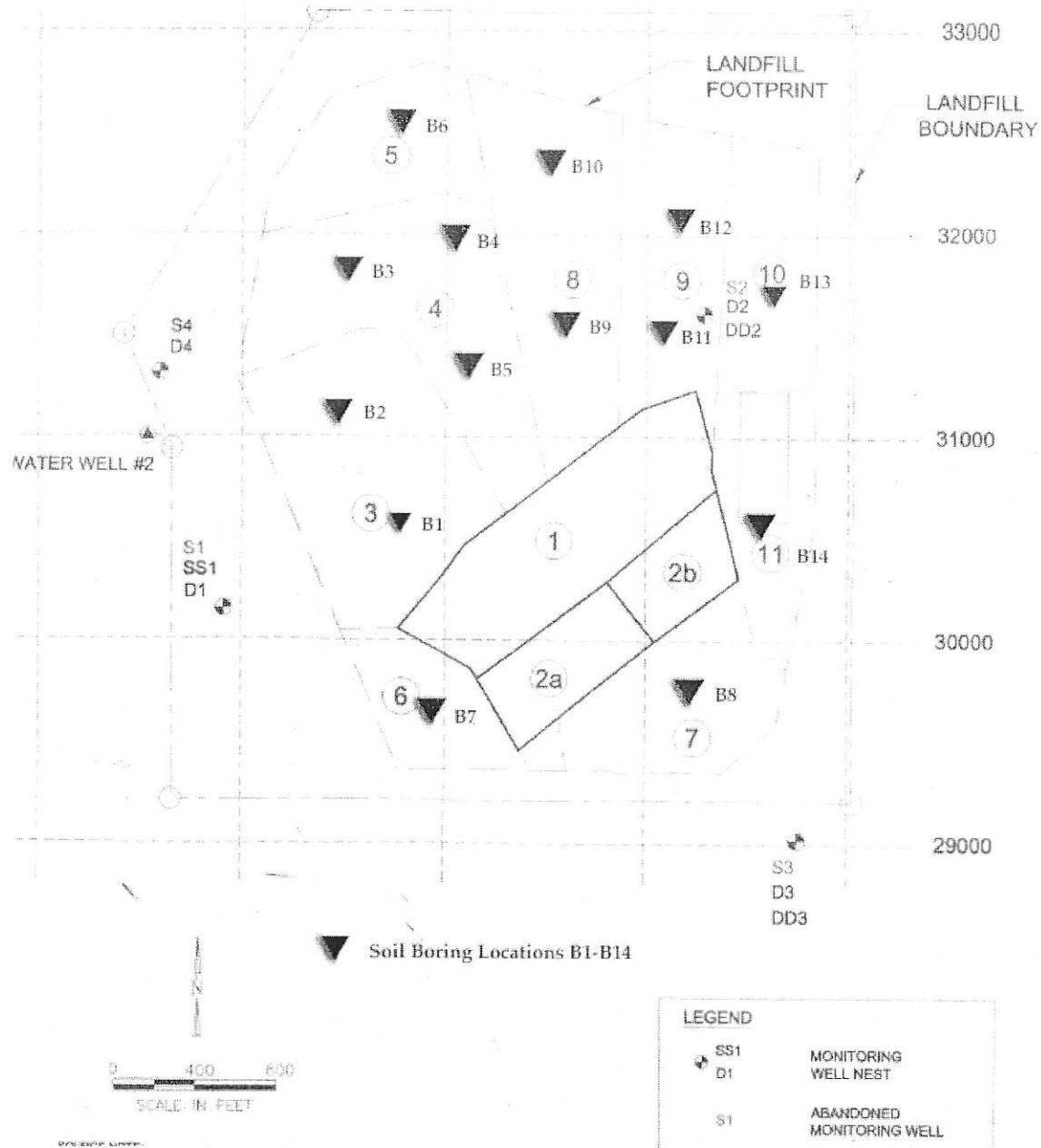
#### Suggested Permit Modifications

Given the observations and conclusions above, I now suggest the following permit modifications for the HCF Landfill at Holcomb Kansas:

**1. Soil boring tests to be performed for at least one location underlying each phase in the landfill, phases 3 through 11, inclusive, as shown in the map below. A boring log is to be made for each site, and the following tests are to be performed:**

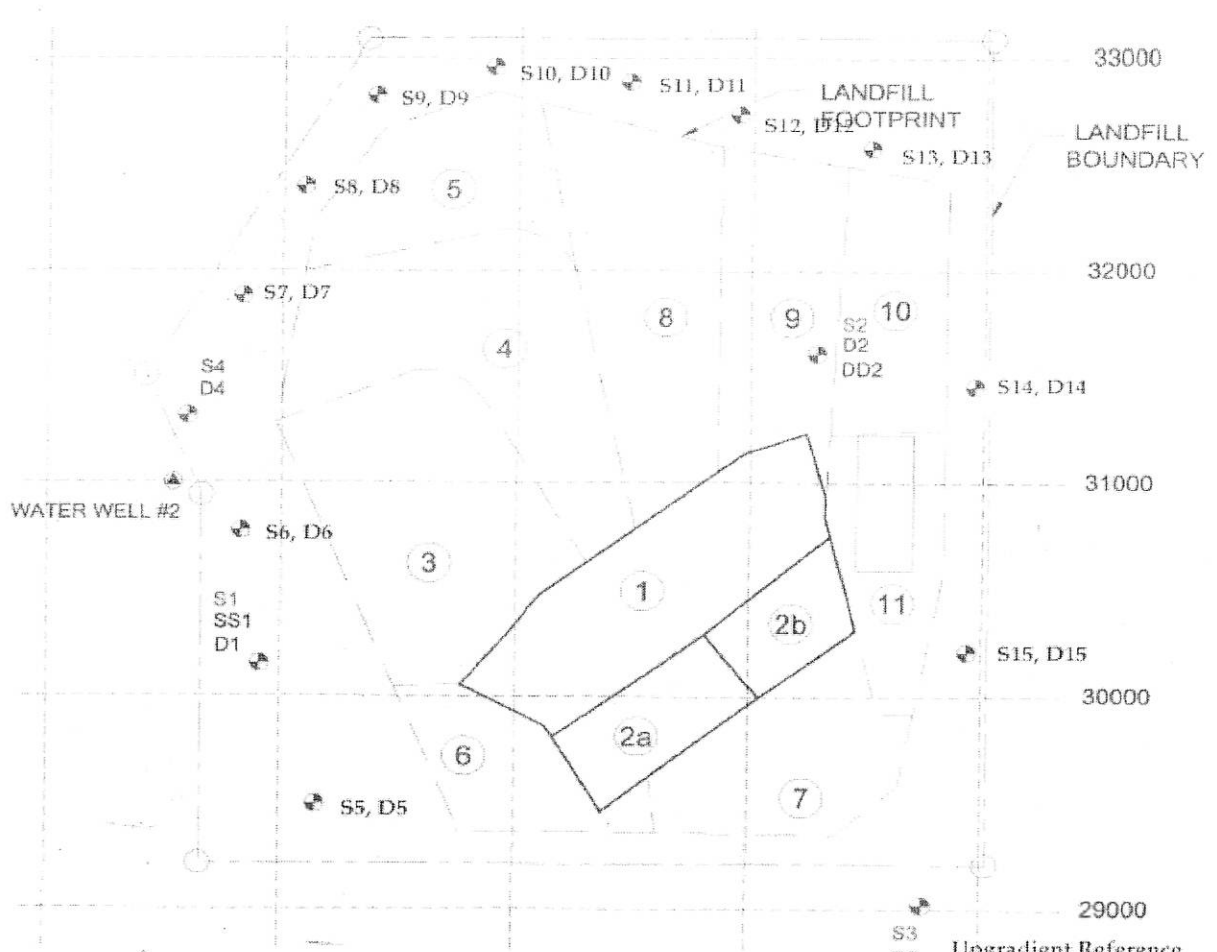
- a. Soil Compaction testing for both wet and dry soils;
- b. Permeability analyses;
- c. Hydraulic conductivity measurements;
- d. Measurement of hydraulic gradients;
- e. Soil bearing capacities, for both dry and wet soils; and
- f. Particle Size Distributions for all soil types encountered in the boring samples.





**Locations Of Soil Borings and Soil Testing Samples**

**2. Placement of Downgradient Groundwater Monitoring Wells.** I believe that the standard applied to the LEC Landfill #847 permit should be applied here as well, due to the analogous nature of the two landfills, and the potential harm which could result from possible additional sulfate contamination of groundwater arising from leachate originating at the HCF Landfill. It should be noted that the HCF Landfill is in an area designated as a Sensitive Groundwater Area by the State of Kansas. The LEC standard is to place a groundwater monitoring well every 500 feet (Exhibit FF).



S13, D13, S12, D12, S10, D10, S9, D9, S8, D8, S7, D7, and S4, D4 are downgradient with groundwater flow to the northwest; S14, D14, S15, and D15 are downgradient with groundwater flow to the east as found in 1940; and S1, D1, S4, D4, S5, D5, S6, D6, S7, D7, S8, and D8 are downgradient with groundwater flow to the west.

LEGEND	
⊕ SS1 D1	MONITORING WELL NEST
○ S1	ABANDONED MONITORING WELL
—	EXISTING PHASE 1/2

**SOURCE NOTE:**  
 THIS DRAWING WAS DEVELOPED FROM A DRAWING PROVIDED BY SUNFLOWER ELECTRIC POWER CORPORATION, GARDEN CITY, KANSAS. 1787-2-A01.DWG

**Location of Downgradient Groundwater Monitoring Wells**

Wells, both shallow and deep, are to be placed every 400-500 feet on the downgradient sides of the landfill, both historical (1940, 1985) and present. The present downgradient direction is toward the northwest, disregarding any possible influence from Water Well #2, which draws its water from the Oglalla Aquifer and not the alluvial groundwater. Hydraulic gradients, conductivities, and soil permeability should be measured at each well site, as well as the usual well boring log information.

**3. Construction of Liner and Leachate Collection System.** In view of the fact that quantities of water will be needed to keep down fugitive dust emissions during the active stage of the landfill, and that extensive irrigation will be necessary to ensure the survival of cover crops during the closure stage, it is reasonable to assume the landfill will have the same leaching characteristics as LEC Landfill #333, which had high levels of sulfate concentrations in its leachate in both its active and closure stages. Accordingly, in order to prevent further possible contamination of an already saline groundwater alluvial aquifer, and underlying aquifers as well, I propose that the liner system as designed for LEC Landfill Permit #847 be adopted for the HCF Landfill. This liner system, according to various modeling studies (Exhibits GG, HH), will reduce sulfate contamination from 1500 mg/l to 20 mg/l, which should have a negligible effect on the alluvial aquifer, given that the sulfate concentration at the upgradient monitoring wells S3 and D3 at the HCF Landfill site are in this neighborhood. (Figure XX)

Specifically, the following liner should be built:

From grade upwards, there should be

A. a layer of four feet of compacted clay as specified below; or a layer of two feet of compacted clay, and a layer of reinforced fly-ash concrete eight inches thick, with steel mesh reinforcement, on top of the clay layer;

B. a geotextile layer as specified below;

C. a leachate collection system, as specified below, in a matrix of granular bottom ash. The leachate collection system is to be laid out so that the leachate will flow with the direction of gravity towards a leachate collection tank, in which leachate is to be stored and then treated to remove sulfate and other contaminants; and finally

D. a one foot thick layer of granular bottom ash, on which the first two foot thick lift of fly ash may be laid.

This design will make it possible to spray any amount of water needed to control fugitive dust emissions onto the fly ash dump, without fear of contamination of a sensitive groundwater area. After closing, it will be possible to irrigate the cover crops on the cap so that they will be able to survive and perform the function of securing the cap against wind erosion, without fear of leachate contaminants entering the groundwater.

Observations and measurements of the anchor trench so that it is as specified in the construction drawings, that trench corners are rounded to limit stressing the geotextile, and that backfilling of the trench is performed as soon as possible and compacted with care so as not to damage the geotextile.

Measurements to confirm that the required overlaps of adjacent geotextile sheets were achieved.

As each geotextile roll is placed, it shall be inspected for tears, punctures, and thin spots. To accomplish this, the panels will be traversed by Contractor QC personnel and the Company in such a way that the entire surface is observed.

If the weather becomes unacceptable for installation of the geotextile, the Contractor QC personnel will stop the installation until conditions again become favorable, thus minimizing the potential for unacceptable installation.

**4. Construction of Cap at Closure of Landfill Phase.** Instead of using the highly permeable, high sand content, low fertility native soils to construct a cap for the landfill, I propose that the cap conform to the standard set by KHDE in Exhibit JJ, namely that the cap be constructed of at least 18 inches of clay, on top of which is placed 12 inches of topsoil. Moreover, I propose that some cover crop, chosen from the cover crops listed in Addendum 5, Soils and Water Salinity, be used instead of sorghum. Native grasses should only be used if they are not deep-rooting. Shallow-rooting prairie grasses do exist. Bermudagrass, which is commonly used on levees for its superior earth holding ability, not to mention its ability to survive both alkaline soils and arid to semi-arid conditions, could also be considered, keeping in mind that it is a highly invasive species and will spread rapidly, forming a tight mat of roots which will choke other species out.

#### Conclusion

If the permit modifications outlined above are incorporated into the permit, I believe that the possibility of worsening the already severe sulfate contamination of the alluvial groundwater aquifer in the Arkansas River area due to infiltration of sulfate contamination arising from the HCF Landfill will be substantially reduced. The modifications proposed for the liner and leachate collection system are drawn directly, with very little change, from the design of the newly permitted LEC Landfill Permit #847, as are the groundwater monitoring system, and soil boring sample testing modifications. Since these modifications have already been incorporated into another KDHE permitted landfill, they should be per se reasonable, and the modification of the HCF

**Testimony on S.B.515  
Senate Utilities Committee  
February 7, 2008**

**Prepared by:  
Dr. John F. Heinrichs  
Chair of the Department of Geosciences  
Fort Hays State University**

February 5, 2008

Dear Chairman Emler and Members of the Committee:

I have been on the faculty of the Department of Geosciences at Fort Hays State University since 1998 and Chair of the Department since 2006. Since 2000, I have been a member of the Ellis County Wellhead Protection Committee – an organization charged with protecting water supplies in Ellis County - and served as Chair of that Committee for four years. I also worked with the Docking Institute of Public Affairs on an extensive analysis of the economic impact in southwestern Kansas of depletion of the Ogallala aquifer. I write to you now as a private individual with deep concern over the implications of Senate Bill 515 in its present form for the quality of life we enjoy here in western Kansas.

Coal-fired power plants are large users of water, and the proposed Sunflower Electric plants near Holcomb are not exceptions. Sunflower admits that each of the two units will consume 8,000 acre feet of water annually, all of which will be withdrawn from the Ogallala. 16,000 acre feet converts to over 5 billion gallons. For comparison, the City of Hays, with 20,000 inhabitants, uses about 2,000 acre-feet per year. Garden City uses 6,000 to 7,000 acre-feet per year. Thus, the proposed power plants would consume well over twice as much water each year as the largest city in southwestern Kansas. Furthermore, the water use by the proposed power plants is consumptive, meaning that the withdrawn water will be lost into the atmosphere by evaporation. Sunflower has purchased sufficient water rights for the new units. However, peak water demand for the facility occurs at a time of year when recharge of the aquifer is at a minimum. Furthermore, unlike irrigation, the use of water for evaporative cooling eliminates the possibility of any of the water returning to the aquifer.

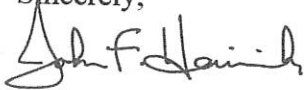
The Ogallala aquifer is vital to the economy of southwestern Kansas, and yet in places has a useful life of as little as 25 years before withdrawals become economically unfeasible. In addition, the aquifer is strongly interconnected, so that depletion in one area often results in depletion elsewhere. The saturated thickness of the Ogallala in the area around the existing Holcomb plant has declined substantially in recent years, and the additional withdrawals anticipated for the new units must inevitably reduce the amount of time during which the agricultural producers in the region can continue their livelihoods.

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These considerations mean that the proposed plants are not only unsustainable in their own right, but prevent the entire region from developing a sustainable plan for using their most important natural resource. HB 2711 does not directly address water consumption of new generating facilities, and in fact ignores the valuable work done by local and regional planning and regulatory bodies such as Groundwater Management Districts. I urge you to modify the legislation in two important ways: (1) to require that water use by new generating facilities be nonconsumptive and sustainable, and (2) to require that plans for new or reconstructed generating facilities be approved by local and regional bodies such as Groundwater Management Districts and Wellhead Protection Committees. Not making such changes to the legislation will, in my opinion, result in permanent and severe harm to a critical resource and in turn damage the way of life for the entire region.

Sincerely,

A handwritten signature in cursive script, appearing to read "John F. Heinrich".

Dr. John F. Heinrichs  
211 W 21 St.  
Hays, KS 67601

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## Senate Committee on Utilities

Feb. 6, 2008  
Topeka, Kansas

### SB 515 - energy generation and conservation.

Chairman Emler and members of the Senate Committee on Utilities, thank you for the opportunity to comment in support of provisions contained within SB 515. I am Leslie Kaufman, Executive Director for the Kansas Cooperative Council. The Kansas Cooperative Council represents all forms of cooperative businesses across the state -- agricultural, utility, credit, financial and consumer cooperatives.

The Council appreciates the work of the Committee leadership and the House Energy & Utilities Committee leadership in crafting this bill. Our association was very troubled by the decision by KDHE Secretary Bremby denying the air quality permit for the expansion of the Holcomb generating plant. We were concerned about the refusal to grant the permit when the station would meet all federal and state requirements and do so with no standard in law or rule to substantiate such reasoning. This, in turn has far-reaching negative implications for regulatory certainty in Kansas.

In recognition of the importance of energy production and usage to the Kansas economy, the KCC supports a balanced energy policy that provides regulatory certainty and considers cost to the consumer, reliability of service, and environmental stewardship. The KCC also supports initiatives which promote the development, use and promotion of economically viable renewable energy sources. We do support Sections 30 through 33 of the bill. You have all received testimony from the *Alliance for Sound Energy Policy*. We intended for the Kansas Cooperative Council to be included in the association listing on their testimony, but a communication error prevented that. Our electric cooperative members are certainly better equipped to comment on the utility aspects of SB 515, but the Council does want to note a concern we have in relation to the carbon offsets in the bill.

We do appreciate and applaud the bill's recognition of production agriculture's contributions to carbon sequestration. The Council supports initiatives that increase agriculture's ability to benefit from carbon sequestration and trading and the role cooperatives can play in that endeavor. We understand the bill directly treats cropland and pastureland evenly in terms of the multiplier used in calculating the carbon credit. We do have a concern, though, with the possibility for creating an indirect preference for idling land over continued cropping.

(over)

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The Mission of the Kansas Cooperative Council is to promote, support and advance the interests and understanding of agricultural, utility, credit and consumer cooperatives and their members through legislation and regulatory efforts, education and public relations.

In practical terms, the state is providing an incentive for turning cropland to grass if that land can also be enrolled in a government program that pays producers to quit farming. Production agriculture is still a core component of the Kansas economy, especially in western Kansas. It is important that we address the policy issues generated by the decision to deny the Holcomb permit. But, in our efforts to correct that wrong, we should avoid creating an indirect government incentive that favors idling crop land over continued production. As such, we would respectfully request conditioning the offset for pastureland (page 9, line 26) in a manner that prohibits the credit if such land is enrolled in a federal or state program that prohibits continued agricultural production. One way this could be accomplished is with the following addition:

Page 9, New Section 12, (a)(6)

“(6) for non-release agricultural related projects, using minimum till or no-till practices, conversion of cultivated land to pasture provided such land is not enrolled in a federal or state program that prohibits continued agricultural production, forest sequestration projects, and erosion, windbreaks or community beautification projects, an offset credit equal to three times the actual carbon dioxide tonnage sequestered as a result of such projects in Kansas, and two times the actual carbon dioxide tonnage sequestered as a result of such projects within the service territory of the owner or operator.”

If the above amendment would be accepted, I would note that under our reading of SB 515, New Section 12(g), grassland enrolled in a state or federal program prohibiting continued agricultural production could still qualify for a one-to-one credit for the carbon sequestered.

Thank you for allowing us to comment on SB 515. Please feel free to contact me if you have any questions regarding our testimony or position on the bill.

Leslie Kaufman, Executive Director  
Kansas Cooperative Council  
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