Approved: February 25, 2011
Date

MINUTES OF THE HOUSE ENERGY AND UTILITIES COMMITTEE

The meeting was called to order by Chairman Carl Holmes at 9:00 A.M. on January 25, 2011,in Room 785 of the Docking State Office Building.

All members were present except:
Representative Nile Dillmore-excused

Committee staff present:
Matt Sterling, Office of the Revisor of Statutes
Cindy Lash, Kansas Legislative Research Department
Renae Hansen, Committee Assistant

Conferees appearing before the Committee:
Tom Day, KCC
Michael Wegner-KCC
Dick Rohlfs, Westar
Roland Maliwat-KCP&L
Whitney Damron-Empire
Dave Holthaus-KEC
Colin Hansen-KMU
Hal Jensen-Westar
Joe Dick-BPU
Steve Gilkey-KCP&L

Others attending:
Forty-Eight including the attached list.

Informational Hearings on:
Net Metering-Discussion of regulations

Tom Day, KCC, spoke to the committee and introduced, Michael Wegner, KCC, chief of energy operations, (Attachment 1) who offered testimony to the committee on net metering. He gave an official definition of net metering. Mr. Wegner explained that net metering was covered in statutes 66-1263 and 66-1261. Additionally, he detailed some of the basic rules and regulations set forth by the KCC for the energy company and consumer to follow. He noted that the statues relate to the IOU's and commented that there are co-ops that provide net metering to their customers. He also included two other pieces of information:

- KCC Sample Application Form (Attachment 2)
- Rules and Regulations pertaining to Net Metering, Article 17 (Attachment 3)

Net Metering-Status of implementation

Dick Rohlfs, Director, Retail Rates, Westar, (Attachment 4), offered testimony explaining the process that Westar went through to develop their net metering policy. He thanked the KCC for working well with the industry to create the rules for net metering. Mr. Rohlfs testimony included a time line for the process that Westar went through to implement the ability to offer net metering to their customers including rules and regulations, but also the tariff process. He noted they have 66 customers participating in parallel generation.

Roland Maliwat, KCP&L, (Attachment 5), spoke to the committee on their involvement in net metering and parallel generation. He noted that as of today there are a total of 23 customers participating in the program.

Whitney Damron, Empire, (Attachment 6), spoke to the committee on the preparation for the net metering process. He noted that they do not currently have any customers on the Kansas side participating in the program but, they do have some customers in Missouri participating in net metering.

The minutes of the House Energy and Utilities Committee at 9:00 A.M. on January 25, 2011, in Room 785 of the Docking State Office Building.

Dave Holthaus, KEC, (Attachment 7), spoke to the committee on the Kansas Electric Cooperatives involvement in net metering. To date, they have all but one cooperative participating in net metering with one or more of their customers. He attributes the net metering participation to the sales of the small wind generating units in the Northeast part of Kansas.

Colin Hansen, Kansas Municipal Utilities, (Attachment 8), spoke to the committee about the process they went through to develop their net metering policy. He noted that members requested that the association develop a municipal net metering policy that was flexible enough that it could be implemented in each member community.

Questions were asked and comments made by Representatives: Don Hineman, Vern Swanson, and Forrest Knox.

In response to committee questions, Mr. Rohlfs explained the difference between net metering and parallel generation.

Smart Metering -Current and Future Installations

Hal Jensen, Westar, Director SmartStar Programs, (Attachment 9), spoke to the committee about the smart grid space. He offered a historical explanation of their technological upgrades to implement this project. He noted that the project is a $40,000,000 upgrade but about two thirds of that cost will benefit all customers in their footprint area. Additionally, they were awarded $19 million dollar grant money for this project from the federal government in support of this project. He explained Westars objective in moving through this smart grid process. He explained many of the ways they are trying to communicate the project to their customers in order to get them to participate fully in the program. He noted that the information on the web-page will give the customer information about their usage up to the day before. He included a time line for the smart meter project installations.

Joe Dick, Governmental Director, Kansas Board of Public Utilities (BPU), (Attachment 10) offered information to the committee on the progress they have made in implementing smart metering within their system. He noted their system is in its infancy.

Steve Gilkey, KCP&L, (Attachment 11), spoke to the committee on their smart meter project. He noted they received grant funding in the amount of $24 million from the ARRA for a demonstration project. He noted this is part of the urban revitalization project, and is being used in the core urban area of Kansas City Missouri. They noted that by the end of February they will have all the meters in. He commented that they have had number of energy fairs to educate the customers in the communities they serve.

Dave Holthaus, KEC. (Attachment 12), offered testimony explaining the smart metering program used within the electric cooperatives in the state of Kansas. He noted that in the cooperatives there are about 72,000 customers with smart meters. They can be read from the cooperatives main office. Smart meters allow them to cut costs by not having as many meter readers, and turning meters on and off can be done at the office. He noted that the advantage to customers is that the office can detect an outage and be on the way to deal with the outage before the customer even calls in.

Don Hellwig, Manager, DSO Electric Co-Op Solomon. Ks, (Attachment 13), offered the committee an opportunity to see a smart meter, and gave an example of the kind of data a smart meter can provide both the customer and the company.

Questions were asked and comments made by Representatives: Forrest Knox, Vern Swanson, Annie Kuether, Reynaldo Mesa, and Mike Burgess.

Introduction of Bills

Representative Reynaldo Mesa moved to introduce a bill concerning expanding tax credits for current and new ethanol production which would expire in July of 2011. Seconded by Representative Gail Finney. Motion carried unanimously.

The minutes of the House Energy and Utilities Committee at 9:00 A.M. on January 25, 2011, in Room 785 of the Docking State Office Building.

Representative Forrest Knox moved to introduce a resolution that would recommend stopping the EPA train wreck. Seconded by Representative Tom Sloan. Motion carried.

The next meeting is scheduled for January 26, 2011.

The meeting was adjourned at 10:45 A.M.

HOUSE ENERGY AND UTILITIES COMMITTEE
GUEST LIST

DATE: January 25, 2011

NAME	REPRESENTING
Mary Jane Stankiewicz	KS Assoc of Ethanol Processors
Nate Lindsey	Kearney & Assoc.
Corey Mohn	Commerce
Kimberly Svaty	KNEA
LARRY BERG	MIDWEST ENERGY
CLIFF GOSTIN	SUNFLOWER
Matt Spurgin	KCC
Doug Dalton	Westar Energy
Steve Gilfillan	Westar Energy
CLINT WILES	" "
LEWIS LENARD	WESTAR ENERGY
CODY BEARD	WESTAR ENERGY
HEATH ROBINSON	WESTAR ENERGY
JOE ZWIESLER	WESTAR
RON WILT	WESTAR
Michael Mortimer	Westar Energy
Chelsea Good	Pinegar Smith
Dan Murray	Federico Consult
Wes Ashton	Black Hills Energy

HOUSE ENERGY AND UTILITIES COMMITTEE
GUEST LIST

DATE: January 25, 2011

NAME	REPRESENTING
Colin Hansen	K A U
Joe Dick	KCBPU
Tom DAY	KCC
Colin Curtis	The Sandstone Group
Lon Stanton	Northern Natural Gas
Trudy Aron	AIA Kansas
Scott Jones	KCPC
Steve Gilkey	KCPL
Roland Majure	KCPL
Gary Denny	KCPL
Phil Wages	KEPCo
Dan Holthaus	KEC
Don Hellwig	DSO
Brett Bitner	KCC
Andy Fry	KCC
Judith Gadd	Capitol Advantage
Melvin Minor	"
Wade Hapgood	"
Whitney Damron	Empire District Electric

HOUSE ENERGY AND UTILITIES COMMITTEE
GUEST LIST

DATE: January 25, 2011

NAME	REPRESENTING
Mark Schreiber	Western
Paul Hentkowski	Western

Kansas House
Committee on Energy and Utilities

Presentation of:

Net Metering regulations, implementation status

Michael J Wegner, PE
Chief of Energy Operations
Kansas Corporation Commission

What is Net Metering?

1-2

- It is a process for customers who generate their own renewable electricity to purchase electricity from their Utility when they are generating LESS than they are using; and when they are generating MORE than they are using to deliver the extra electricity back to the Utility and reduce their billable usage.

Milestones

- Statutes 66-1263 through 66-1271.
- Net Metering and Easy Connection Act (NMECA)
- Passed into law on May 28th, 2009.
- Statute 66-1269 directed the Kansas Corporation Commission (KCC) to establish Rules and Regulations within 12 months.
- KCC approved Rules & Regulations on July 9th, 2010.

More Milestones

1-4

- Rules and Regulations were published in the Kansas Register on July 22nd, 2010.
- NMECA applies to the State's three Investor Owned Utilities (IOU's).
  - Kansas City Power and Light Company
  - Westar Energy
  - Empire District Electric Company
- Joint effort between Staff and each Utility to develop their Net Metering Tariff.

Next Step

- On January 20th, 2011 Westar and KCP&L submitted their NM tariffs to the KCC for approval.
- Docket's 11-WSEE-516-TAR (Westar) and 11-KCPE-517-TAR (KCP&L) have been opened.
- An Order approving these tariffs is expected soon.
- Empire District is expected to file soon.

Rules and Regulations

- 82-17-1 Provides definition to additional terms that were not defined in the statutes.
- 82-17-2 Provides additional requirements for each Utility including:
  - 1) Load research metering at the Utilities expense.
  - 2) Language connecting the Utilities current tariffs to the net metering tariff, in effect making the net metering tariff a rider.
  - 3) Outlined requirements for the Utilities application.

Rules and Regulations

- 82-17-3 Set forth requirements that must be included in the Utilities Net Metering tariff. Such as:
  - 1) Details for sizing the generator.
  - 2) Equipment needed to interconnect a net metering facility.
  - 3) Suitable location for Utility equipment.
  - 4) Manual disconnect switch.
  - 5) Utility notification by Customer about start-up testing and initial system energization.
  - 6) Customer is responsible for effects to the Utilities system.
  - 7) Written Interconnection Application.

Rules and Regulations

1-8

- 82-17-4 Reporting requirements:
  - 1) Every year reports are due March 1 listing all net metered facilities connected during the pervious calendar year.
  - 2) Type of generation.
  - 3) Year of interconnection.
  - 4) Any excess kWh's that expired.
  - 5) Generator size.
  - 6) Number and type of metering.
  - 7) Utilities retail peak and total rated net metering generation capacity.

Rules and Regulations

- 82-17-5 REC's. Neither the utility nor the customer are allowed to create REC's from the generation of renewable energy generated by a net metered facility.

Other Utilities (Co-ops)

1-10

- Midwest Energy, Docket 10-MDWE-424-TAR, order due March 7th, 2011.
- MKEC, Docket 11-MKEE-143-TAR, order due April 15th, 2011.
- KEPCo has recommended tariff language that Co-ops in the state have access to.

KCC Sample Form
Application/Agreement for Interconnection of a Net Metered Facility.

As required by K.A.R. 82-17-2(d) each utility shall enter into a written interconnection agreement with each customer-generator that is substantially similar to this form

APPLICATION/AGREEMENT
FOR INTERCONNECTION OF A NET METERED FACILITY
WITH CAPACITY OF TWO HUNDRED
KILOWATTS (200 kW) OR LESS

I. Instructions

For Customer-generators Applying for Interconnection:

If you are interested in applying for interconnection to [Utility Name]'s electrical system, first contact [Utility Name] for information related to interconnection of generation equipment to [Utility Name]'s system. You should understand this information before proceeding with this Application.

To apply for interconnection to [Utility Name]'s electrical system, complete Sections A, B, C, and D, with the plans and specifications describing the Net Metered Facility attached, and submit them to [Utility Name] at:

[Utility Mailing Address]

A processing fee of $_____ must accompany this application/agreement. This processing fee is non-refundable, unless the application is denied under K.S.A 66-1265(a).

For a Net Metered Facility of twenty-five kilowatts (25 kW) or less, the [Utility Name] will provide notice of approval or denial within thirty (30) days of receipt; for Net Metered Facility of greater than twenty-five kilowatts (25 kW) up to 200 kW, the [Utility Name] will provide notice of approval or denial within ninety (90) days of receipt. If this Application is denied, you will be provided with the reason(s) for the denial. If this Application is approved and signed by both you and [Utility Name], it shall become a binding contract and shall govern your relationship with [Utility Name].

For Customer-generators Who Have Received Approval of Net Metered Facility Plans and Specifications:

After receiving approval of your Application, it will be necessary to construct the Net Metered Facility in compliance with the plans and specifications described in the Application, complete Sections E and F of this Application, and forward this Application to [Utility Name] for review and completion of Section G at:

[Utility Mailing Address]

KCC Sample Form
Application/Agreement for Interconnection of a Net Metered Facility.

Prior to the interconnection of the Net Metered Facility to [Utility Name] system, the Customer-generator will furnish [Utility name] certification (as completed in Section E) from a licensed (Kansas) electrician or licensed (Kansas) professional engineer that the installation meets the plans and specification described in the application. If the application for interconnection is approved by [Utility Name] and the Customer-generator does not complete the interconnection within one (1) year after receipt of notice of the approval, the approval shall expire and the Customer-generator shall be responsible for filing a new application.

[Utility Name] will complete Section G and, upon receipt of a completed Application/Agreement form and payment of any applicable fees, schedule a date for interconnection of the Net Metered Facility to [Utility Name]'s electrical system within fifteen (15) days of receipt by [Utility Name] if electric service already exists to the premises, unless the Customer-generator and [Utility Name] agree to a later date. Similarly, upon receipt of a completed Application/Agreement form and payment of any applicable fees, if electric service does not exist to the premises, [Utility Name] will schedule a date for interconnection of the Net Metered Facility to [Utility Name]'s electrical system no later than fifteen (15) days after service is established to the premises, unless the Customer-generator and [Utility Name] agree to a later date.

For Customer-generators Who Are Transferring Ownership/Operational Control of an Existing Net Metered Facility:

If no changes are being made to the existing Net Metered Facility, complete only sections A, D, and F of this Application/Agreement and forward to [Utility Name] at:

[Utility Mailing Address]

Within fifteen (15) days of receipt, [Utility Name] will review the new Application/Agreement and, if the new Customer-generator has satisfactorily completed Application/Agreement and no changes are being proposed to the existing Net Metered Facility, utility shall approve Application/Agreement. There are no fees or charges for the Customer-generator who is transferring ownership or operational control of an existing Net Metered Facility, unless modifications are being proposed to that Net Metered Facility.

For Customer-generators Who Are Modifying an Existing Net Metered Facility:

If changes are being made to the existing Net Metered Facility, Customer-generator shall submit a new Application/Agreement and forward to [Utility Name] at:

[Utility Mailing Address]

[Utility Name] will review the new Application/Agreement and notify the Customer-generator within thirty (30) days whether the Application/Agreement is approved as submitted, or additional modifications are required. A processing fee of $_____ may be required with this

KCC Sample Form
Application/Agreement for Interconnection of a Net Metered Facility.

Application/Agreement. The processing fee is non-refundable, unless the application is denied under K.S.A. 66-1265 (a).

II. Application/Agreement

Section A. Customer-generator Information

Name: _____
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Service/Street Address (if different from above): _____
City: _____ State: _____ Zip Code: _____
Daytime Phone: _____ Fax: _____ Email: _____
Emergency Contact Phone: _____
[Utility Name] Account No. (from Utility Bill): _____ Number of meters: _____

Section B. Net Metered Facility Information

Manufacturer Name Plate (if applicable) AC Power Rating: _____ kW Voltage: ____Volts
System Type: Solar Thermal __ Wind __ Fuel Cell __ Thermal __ Photovoltaic __ Hydroelectric ___
Other (describe) _____
Service/Street Address: _____
Inverter/Interconnection Equipment Manufacturer: _____
Inverter/Interconnection Equipment Model No.: _____
Are required Net Metered Facility Plans, Specifications, & Wiring Diagram attached? Yes__ No __
Inverter/Interconnection Equipment Location (describe): _____
_____
Outdoor Manual/Utility Accessible & Lockable Disconnect Switch Location (describe):
_____
Existing Electrical Service Capacity: _____ Amperes Voltage: _____ Volts
Service Character: Single Phase __ Three Phase __

Section C. Installation Information/Hardware and Installation Compliance

Person or Company Installing: _____
Contractor's License No. (if applicable): _____
Approximate Installation Date: _____
Mailing Address: _____
City: _____ State: _____ Zip Code: _____
Daytime Phone: _____ Fax: _____ Email: _____
Person or Agency Who Will Inspect/Certify Installation: _____

The proposed Net Metered Facility complies with all applicable National Electrical Safety Code (NESC), National Electrical Code (NEC), Institute of Electrical and Electronics Engineers (IEEE) and Underwriters Laboratories (UL) standards for electrical equipment and its installation. As applicable to

System Type specified in Section B, these standards include, but are not limited to, UL 1741 and IEEE 1547. Also, the proposed Net Metered Facility complies with all applicable local electrical codes.

The proposed Net Metered Facility has:

1) A lockable, visible disconnect device, if required by the Utility, on the line side of the meter and accessible at all times to [Utility Name] personnel.
2) Functioning controls to prevent voltage flicker, DC injection, overvoltage, undervoltage, overfrequency, underfrequency, and overcurrent, and to provide for System synchronization to [Utility Name]'s electrical system.
3) An anti-islanding function that prevents the generator from continuing to supply power onto the [Utility Name]'s electric system when it is not energized or operating normally.

If the proposed Net Metered Facility is designed to provide uninterruptible power to critical loads, either through energy storage or back-up generation, the proposed Net Metered Facility includes a parallel blocking scheme for this backup source that prevents any backflow of power to [Utility Name]'s electrical system when the electrical system is not energized or not operating normally.

Installer Name (print): _____
Installer Name (signed): _____ Date: _____

Section D. Terms and Conditions
In addition to abiding by [Utility Name]'s other applicable rules and regulations, the Customer-generator understands and agrees to the following specific terms and conditions:

(1) Operation/Disconnection
If , at any time, in the reasonable exercise of [Utility Name]'s judgment, the operation of the Net Metered Facility is determined to be adversely affecting safety, power quality, or reliability of [Utility Name]'s electrical system, [Utility Name] may immediately disconnect and lock-out the Net Metered Facility from [Utility Name]'s electrical system. The Customer-generator shall permit [Utility Name]'s employees and inspectors reasonable access to inspect, test, and examine the Net Metered Facility.

(2) Metering and Distribution Costs
[Utility Name] shall provide metering equipment sufficient to measure the net amount of electrical energy produced or consumed by the Customer-generator. If it is necessary for [Utility Name] to install additional metering or distribution equipment to accommodate the Net Metered Facility, the Customer-generator shall reimburse [Utility Name] for the costs to purchase and install the additional equipment.

(3) Energy Pricing and Billing
The net electric energy delivered to the Customer-generator shall be billed in accordance with rate schedule(s) [Utility's Applicable Rate Schedules]. The electric energy delivered by the Customer-generator to [Utility Name] shall be credited in kilowatt-hours (kWh).

Net electrical energy measurement shall be calculated in the following manner:
(a) For a Customer-generator, [Utility Name] shall measure the net electrical energy produced or consumed during the billing period in accordance with normal Metering practices for Customers in the same rate class, either by employing a single, bidirectional meter that measures the amount of electrical energy produced and consumed, or by employing multiple meters that separately measure the Customer-generator's consumption and production of electricity;

(b) If the electricity supplied by the [Utility Name] exceeds the electricity generated by the Customer-generator during a billing period, the Customer-generator shall be billed for the net electricity supplied by the [Utility Name] in accordance with normal practices for customers in the same rate class;

(c) If the electricity generated by the Customer-generator exceeds the electricity supplied by the [Utility Name] during a billing period, the Customer-generator shall be charged a minimum monthly bill, as defined in [Utility's] tariff, and shall be credited for the excess kilowatt-hours (kWh) in accordance with the [Utility Name]'s tariff, with such credit to be applied in subsequent billing period(s).

(d) Any credits granted by subsection (c) shall expire when any of the following occurs:

i) End of calendar year
ii) Customer-generator's service is discontinued pursuant to the [Utility's] General Terms and Conditions.

(e) Any excess kWh earned shall only be applied towards energy consumption registered on the meter(s) assigned to the account specified in Section A.

(4) Initiation and Termination
This Agreement becomes effective when signed by both the Customer-generator and [Utility Name] and shall remain in effect unless terminated at any time under the following conditions:

(a) By the Customer-generator upon giving [Utility Name] a written notice at least thirty (30) days prior to the date of termination of the Agreement. In such event, the Customer-generator shall, no later than the proposed termination date, completely disconnect the Net Metered Facility from parallel operation with [Utility Name]'s system.

(b) By either party, if one party fails to comply with any of the terms and conditions of this Agreement. In such case, the other party may terminate this Agreement by giving at least thirty (30) days prior written notice which specifies the basis for termination.

(c) By mutual agreement of the Customer-generator and [Utility Name].

(d) By approval of the Commission, if there is a change in statute that is determined to be applicable to this contract and necessitates its termination.

(5) Modification
If any planned changes to the Net Metered Facility alter the specifications and/or information provided in Sections B and C of this Application/Agreement, Customer-generator shall submit to [Utility Name] a new Application/Agreement with all sections completed.

(6) Transfer of Ownership/Operational Control
The Application/Agreement shall survive the transfer of ownership or operational control of the Net Metered Facility to a new Customer-generator if the new Customer-generator agrees to comply with the terms and conditions of the Application/Agreement and notifies [Utility's Name] by completing sections A, D, and F no less than thirty (30) days before the transfer. Within fifteen (15) days [Utility Name] will review the new Sections A, D, and F and, if approved, [Utility Name] will then complete Section G and forward a copy of the completed Application/Agreement back to the new Customer-generator, thereby authorizing the new Customer-generator to operate the existing Net Metered Facility.

(7) Dispute Resolution
Disputes between the Customer-generator and [Utility Name] that cannot be resolved by the parties by other means may be brought to the Kansas Corporation Commission by either party, through complaint procedures as described in K.A.R. 82-1-220.

(8) Testing Requirement
[Utility Name] may require net metered facilities to be tested according to IEEE 1547 that provides testing specifications and requirements. If testing is required then IEEE 1547.1 will be utilized to verify conformance to IEEE 1547.

(9) Insurance
[Utility Name] may not require a Customer-generator to purchase additional liability insurance. However, Customer-generators may have legal liabilities not covered under their existing insurance policy in the event the Customer-generator's negligence or other wrongful conduct causes personal injury (including death), damage to property, or other actions and claims.

[Utility Name] shall not be liable directly or indirectly for permitting or continuing to allow an attachment of a Net Metered Facility or for the acts or omissions of the Customer-generator that cause loss or injury, including death, to any third party.

I have read, understand, and accept the provisions of Section D (1) – (8) of this Application/ Agreement.

Customer-generator (print): _____
Customer-generator (signed): _____ **Date:** _____

KCC Sample Form
Application/Agreement for Interconnection of a Net Metered Facility.

Section E. Electrical Inspection

The Net Metered Facility referenced above satisfies all operational requirements noted in Section D.
Inspector Name (print): _____
Inspector Certification: Engineer/Electrician License No._____ State: _____
Signed (Inspector): _____ Date: _____

Section F. Customer-generator Acknowledgement

I have a Net Metered Facility installed on my premises and I have been given warranty information and/or an operator's manual for this facility. Also, I have been provided with a copy of [Utility Name]'s applicable tariff and interconnection requirements. I am familiar with the operation of the Net Metered Facility.

I agree not to operate the Net Metered Facility in parallel with [Utility Name]'s electrical system until this Application/Agreement has been approved by [Utility Name].

I agree to abide by the terms of this Application/Agreement and to operate and maintain the Net Metered Facility in accordance with the manufacturer's recommended practices as well as [Utility Name]'s interconnection standards applicable to Net Metering. If, at any time the Net Metered Facility is operating in an unusual manner, I shall disconnect the Net Metered Facility and not reconnect it to [Utility Name]'s electrical system until cleared to do so by [Utility Name].

Customer-generator (print): _____
Customer-generator (signed): _____Date: _____

G. Application Approval

[Utility Name] does not, by approval of this Application/Agreement, assume any responsibility or liability for damage to property or physical injury to persons due to malfunction of the Net Metered Facility or the Customer-generator negligence.

This Application is approved by [Utility Name] on this _____day of _____ (month), ____ (year).
[Utility Name] Representative Name (print): _____
Signed [Utility Name] Representative: _____

ARTICLE 17. Net Metering

82-17-1. Definitions. The following terms used in the administration and enforcement of the Kansas net metering and easy connection act, K.S.A. 66-1263 through 66-1271 and amendments thereto, shall be defined as specified in this regulation.

(a) "Act" means the net metering and easy connection act (NMECA), K.S.A. 66-1263 through 66-1271 and amendments thereto.

(b) "Customer" means an entity receiving retail electric service from a utility.

(c) "IEEE" means the institute of electrical and electronics engineers, inc.

(d) "IEEE standard 1547" means the IEEE standard 1547, "IEEE standard for interconnecting distributed resources with electric power systems," published by the IEEE on July 28, 2003 and hereby adopted by reference.

(e) "IEEE standard 1547.1" means the IEEE standard 1547.1, "IEEE standard conformance test procedures for equipment interconnecting distributed resources with electric power systems," published by the IEEE on July 1, 2005 and hereby adopted by reference.

(f) "Net metered facility" means the equipment on a customer's side of a meter that meets the requirements in K.S.A. 66-1264(b)(1) through (b)(5), and amendments thereto.

(g) "Parallel operation" means a net metered facility that is connected electrically to an electric distribution system for longer than 100 milliseconds.

(h) "REC" means renewable energy credit, as defined in K.S.A. 66-1257 and amendments thereto. For purposes of these regulations, this term is reflected on a certificate representing the attributes associated with one megawatt-hour (MWh) of energy generated by a renewable energy resource that is located in Kansas or serves ratepayers in the state.

(i) "UL standard 1741" means the UL standard 1741, "inverters, converters, controllers and interconnection system equipment for use with distributed energy resources," published on January 28, 2010 by underwriters laboratories inc. and hereby adopted by reference. (Authorized by K.S.A. 2009 Supp. 66-1269; implementing K.S.A. 2009 Supp. 66-1268 and 66-1269; effective P-_____.)

ATTORNEY GENERAL

MAR 29 2010

APPROVED BY

DEPT. OF ADMINISTRATION

MAR 25 2010

APPROVED

3-2

82-17-2. Utility requirements pursuant to the act. (a) In addition to the requirements set forth in the act, any utility may install, at its expense, equipment to allow for load research metering for purposes of monitoring each net metered facility.

(b) Responsibilities for maintenance, repair, or replacement of meters, service lines, and other equipment provided by the utility shall be governed by the utility's current tariffs and terms of service on file with commission. This equipment shall be accessible at all times to utility personnel.

(c) Each utility's interconnection with a customer-generator's net metered facility shall be subject to the utility's current tariffs and terms of service on file with commission.

(d) Each utility shall enter into a written interconnection application or interconnection agreement with each customer-generator that is equivalent to sample forms available from the commission. Each agreement shall include the following information:

(1) Customer name, mailing address, service address, phone number, and emergency contact phone number;

(2) utility account number and number of meters associated with the account;

(3) information about the net metered facility, including AC power rating, voltage, type of system, address of the net metered facility, and the name

of the manufacturer and the model number of the inverter or interconnection equipment;

(4) information about the installation of the net metered facility, including the name and license number of the contractor who installed the facility, and verification that the net metered facility meets the standards in K.A.R. 82-17-1(c), (d), (e), and (i);

(5) information regarding dispute resolution opportunities available with the commission as specified in K.A.R. 82-1-20;

(6) information regarding periodic testing requirements necessary to meet the standards in K.A.R. 82-17-1(c), (d), (e), and (i); and

(7) verification by a licensed engineer or licensed electrician that the net metered facility has been installed in a manner that meets the requirements of all applicable codes and standards for that net metered facility. (Authorized by K.S.A. 2009 Supp. 66-1269; implementing K.S.A. 2009 Supp. 66-1265, 66-1269, and 66-1270; effective P-_____.)

ATTORNEY GENERAL
JUL 07 2010
APPROVED
MF

DEPT. OF ADMINISTRATION
JUL 06 2010
APPROVED

82-17-3. Tariff requirements. Each utility shall file a tariff with the commission setting forth the terms and conditions for net metering interconnection with a customer-generator. In addition to setting forth the terms and conditions required by the act, the tariff shall include the following information:

(a) Any specific criteria and guidelines for determining the appropriate size of generation to fit the expected load;

(b) a provision requiring the customer-generator to furnish, install, operate, and maintain in good repair without cost to the utility any relays, locks and seals, breakers, automatic synchronizers, disconnecting devices, and any other control and protective devices required by an applicable recognized industry standard that is clearly identified in the tariff or in a tariff that is already approved by the commission, or by any requirements adopted by federal, state or local governing authorities for the interconnection of net-metered facilities, for the parallel operation of the net metered facility with the utility's system;

(c) a provision requiring the customer-generator to supply, at no expense to the utility, a suitable location for the utility's equipment;

(d) a statement indicating whether or not the utility requires the customer-generator to install a utility-controlled manual disconnect switch located on the line side of a meter that has the capability to be locked out by utility personnel to isolate the utility's facilities if an electrical outage in the utility's facilities occurs. If a manual switch is required, the utility shall give notice to the customer-generator, as soon possible,

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when the switch is locked out or used by the utility. The disconnect switch may also serve as a means of isolation for the net metered facility during any customer-generator maintenance activities, routine outages, or emergencies;

(e) a requirement that the customer-generator shall notify the utility before the initial energizing or start-up testing, or both, of the net metered facility. The utility shall have the right to be present at these times;

(f) the requirement that, if harmonics, voltage fluctuations, or other disruptive problems on the utility's system can be directly attributed to the operation of the net metered facility, each problem shall be corrected at the customer-generator's expense. The utility shall provide to the customer-generator a written estimate of all costs that will be incurred by the utility and billed to the customer-generator to accommodate interconnection or correct problems;

(g) a requirement that no net metered facility shall damage the utility's system or equipment or present an undue hazard to utility personnel; and

(h) a requirement that the customer-generator enter into a written interconnection application or interconnection agreement with the utility, as specified in K.A.R. 82-17-2(d). (Authorized by K.S.A. 2009 Supp. 66-1269; implementing K.S.A. 2009 Supp. 66-1264, 66-1268, 66-1269; effective P-_____.)

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JUL 02 2010

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82-17-4. Reporting requirements. (a) Each utility shall annually submit to the commission, by March 1, a report in a format approved by the commission listing all net metered facilities connected with the utility during the prior calendar year, pursuant to the act.

(b) Each report shall specify the following information:

(1) Information by customer type, including the following for each net metered facility:

(A) The type of generation resource in operation;

(B) zip code of the net metered facility;

(C) first year of interconnection;

(D) any excess kilowatt-hours that expired at the end of the prior calendar year;

(E) generator size; and

(F) number and type of meters; and

(2) the utility's system retail peak in Kansas and total rated net metered generating capacity for all net metered facilities connected with the utility's system in Kansas. (Authorized by K.S.A. 2009 Supp. 66-1269; implementing K.S.A. 2009 Supp. 66-1265, 66-1266, 66-1269, and 66-1271; effective P-_____.)

ATTORNEY GENERAL

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MAR 2 5 2010

APPROVED

82-17-5. Renewable energy credit program. As specified in K.A.R. 82-16-6, neither utilities nor customer-generators may create, register, or sell renewable energy credits (RECs) from energy produced by a net metered facility that is used by a utility to comply with the requirements of the renewable energy standards act. Each utility shall inform a customer-generator if the utility does not intend to use the capacity of the customer-generator's net metered facility, in whole or part, to comply with these requirements for any specified calendar year or years. The utility shall provide this notice on or before October 1 of the year preceding the first such specified year. (Authorized by K.S.A. 2009 Supp. 66-1269; implementing K.S.A. 2009 Supp. 66-1271; effective P-_____.)

ATTORNEY GENERAL

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Net Metering at Westar Energy

House Energy and Utilities Committee

Presented by Dick Rohlfs

Westar Energy

January 25, 2011

Westar Energy

Net Metering

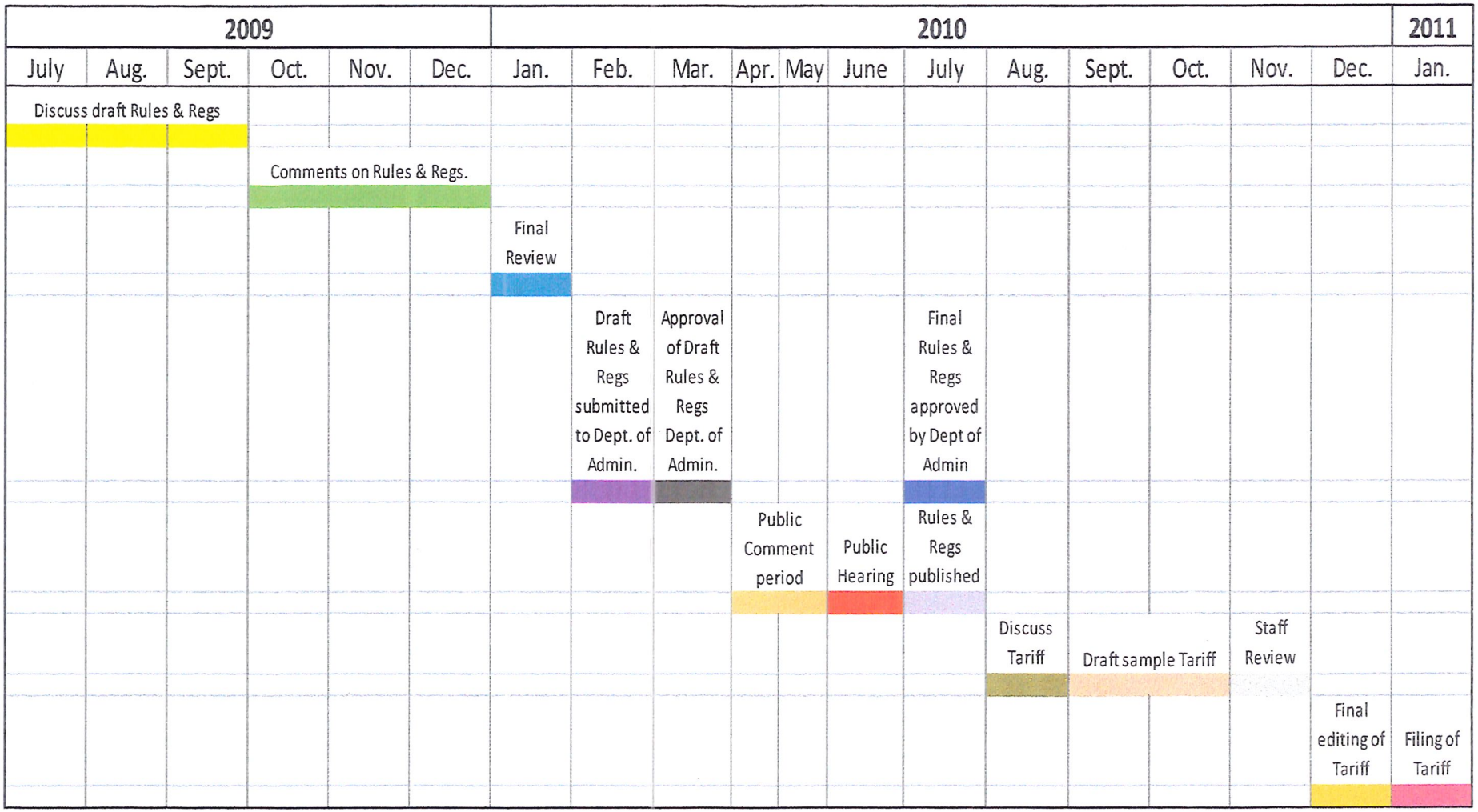
4-2

Net metering means service to an electric consumer under which excess electric energy generated by the consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility consumer during the applicable billing period.

Net Purchase and Sale

Net purchase and sale (aka Parallel Generation) differs from net metering only slightly. In this arrangement a meter records the excess energy generated by the consumer from an eligible on-site generating facility and delivered to the local distribution facilities. The consumer is compensated for this excess energy at the utilities avoided cost.

Time Line



Westar Energy

4-4

Time Line

a. Discussions between KCC Staff, utilities and interested parties in preparation of drafting rules and regulations – July 2009 through September 2009

b. Review and comments on draft rules and regulations – October through December 2009

c. Final Review by Staff of draft rules and regulations January 2010

d. Draft Rules and Regulations submitted to Department of Administration and Attorney General – February 2010

e. Draft Rules and Regulations approved March 2010

f. Final Rules and Regulations approved by Department of Administration and Attorney General July 2010

g. Public comment period April-May 2010

h. Public hearing on draft Rules and Regulations June 2010

i. Utilities and Staff met to discuss framework of tariff August 2010

j. Utilities draft sample tariff – September and October 2010

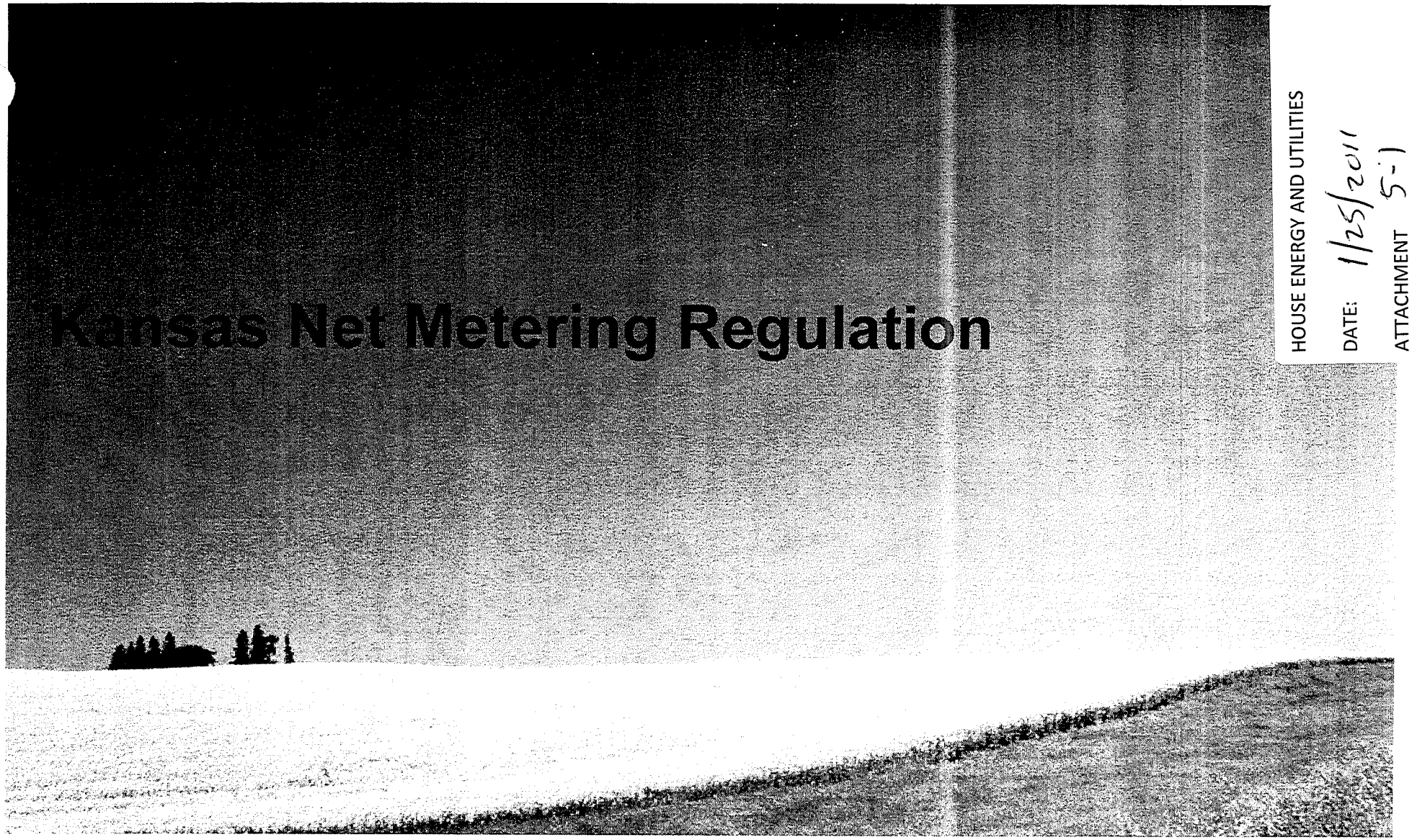
k. Staff review of draft tariff – November 2010

l. Final editing and discussion of tariff December 2010

m. Filing of tariff January 2011

Parallel Generation

- 66 customers on Parallel Generation tariff in 2010
- Westar will be contacting these customers following approval of the tariff to inform them of the Net Metering option.



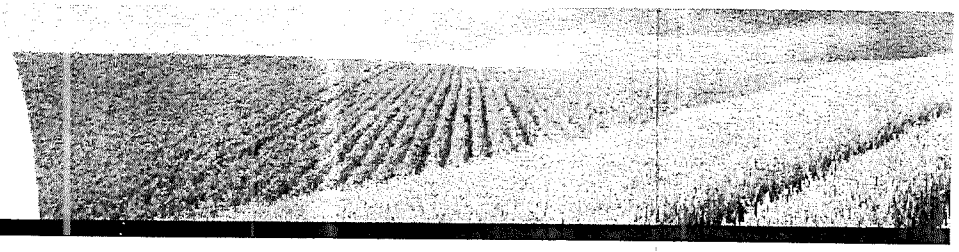
Kansas Net Metering Regulation

HOUSE ENERGY AND UTILITIES
DATE: 1/25/2011
ATTACHMENT 5-1

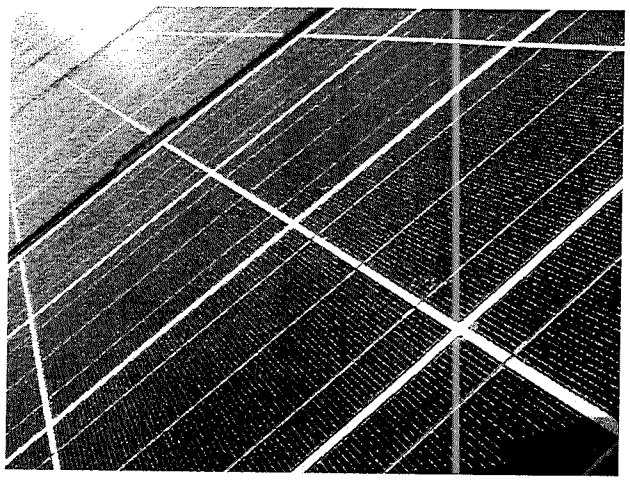
Kansas Energy and Utilities Committee

KCP&L
energizing life

Net Metering Regulation



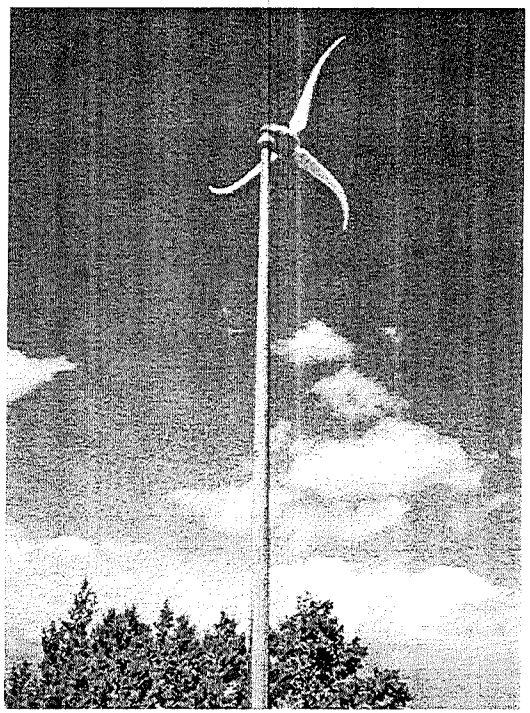
- Designed to provide customers an easier means to interconnect renewable generation to the grid
  - Clearly defined list of renewable sources
  - Defined generation size limits
  - Uniform utility application contents
  - KCP&L supported legislation and requirements for both Kansas and Missouri net metering regulation



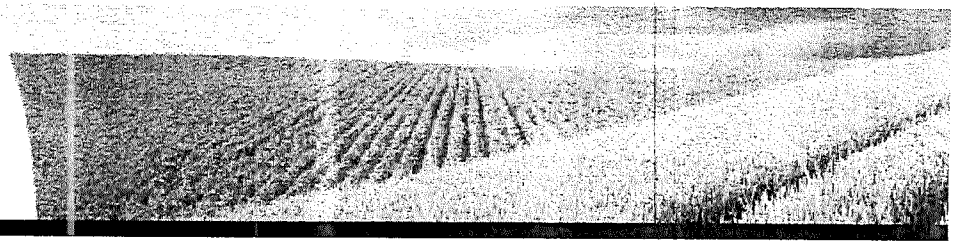
Net Metering Regulation

Net Metering Standards

- Customer-Generators
  - Residential – 25 kW or less
  - Non-residential – 200 kW or less
- Uniform Application Requirements
  - Input by utilities for critical application elements
- Standard Equipment Safety Requirements
  - UL 1741 and IEEE 1547
  - Lockable disconnects and anti-islanding
- Net Metered Billing
  - Excess generation credits
    - Carry excess kWh's over to subsequent billing periods
    - Expire at end of calendar year
  - True net metering

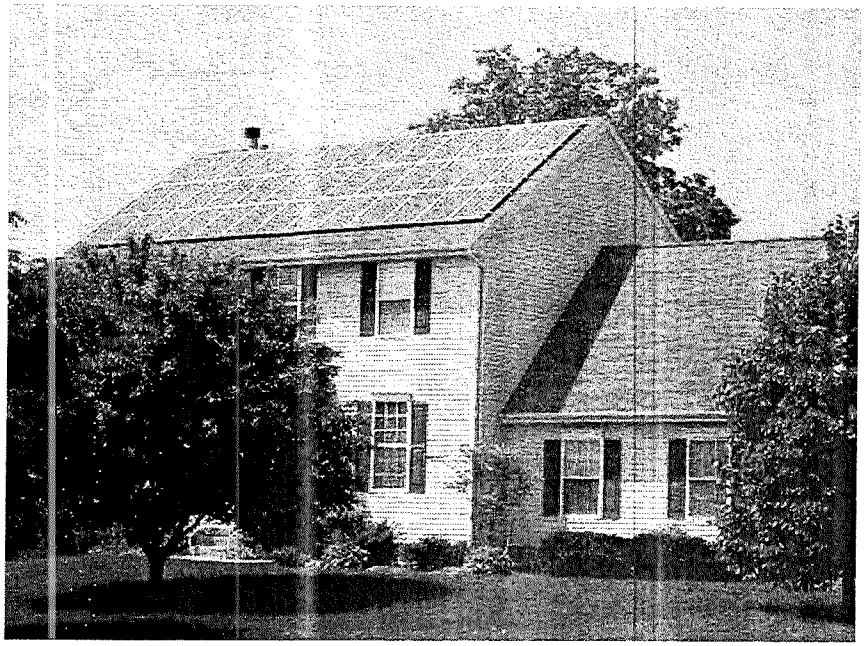


Net Metering Regulation

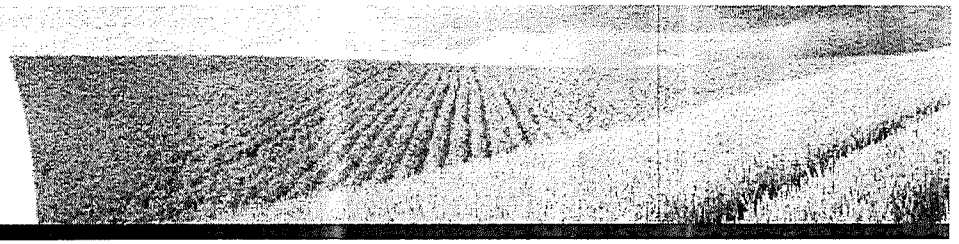


KCP&L Implementation Status

- Parallel Generation Contract Service
  - Available prior to HB2369
  - PG Tariff will remain in place in addition to the Net Metering Tariff
- Net Metering Renewable Tariff
  - Met with KCC Staff in October 2010
  - Filed tariff January 14, 2011
- Customer Participation
  - 13 customers added in 2010
  - 23 total customers on Parallel Generation



Net Metering Regulation



5-5

Next Steps

- KCC Staff to file a Report and Recommendation to the Commission for approval
- Commission Order expected within 30 days of filing date (mid-February) unless suspended to allow further review
- Tariff will become effective when approved by the Commission
- Communication to customers
  - Communication plan to inform customers of changes to net metering and their options

TESTIMONY

TO: The Honorable Carl Holmes, Chair
And Members of the House Energy and Utilities Committee

FROM: Whitney Damron
On behalf of The Empire District Electric Company

RE: Net Metering

DATE: January 25, 2011

Good morning Chairman Holmes and Members of the House Energy and Utilities Committee. I am Whitney Damron and I appear before you today on behalf of The Empire District Electric Company, a Kansas energy company headquartered in Joplin, Missouri.

Empire has had a net metering tariff on file with the KCC for some time. In 2009, the Legislature changed the net metering statutes (K.S.A. 66-1263 et. seq.) and Empire, along with other electric utilities in Kansas have been engaged in discussions with the KCC on implementation of that legislation.

At this date, Empire has two outstanding issues left to resolve with the KCC in regard to a new tariff on net metering; one issue is related to licensure of inspectors and the second issue is related to the timing and scope of inspections. We believe both issues will be resolved or are already agreed upon and Empire anticipates filing our revised tariff for net metering in a matter of days.

Empire currently does have customers utilizing the Net Metering and Easy Connection Act in Missouri, but does not have any net metering customers in Kansas at this time. Attached to my testimony is a copy of the Missouri Division of Energy Fact Sheet on this Act.

We would be happy to provide additional information should the Committee have specific questions in regard to Empire's tariff, policies or procedures relating to net metering,

WBD

About Empire:

Based in Joplin, Missouri, The Empire District Electric Company (NYSE: EDE) is an investor-owned, regulated utility providing electricity, natural gas (through its wholly-owned subsidiary, The Empire District Gas Company), and water service with approximately 215,000 customers Missouri, Kansas, Oklahoma and Arkansas. A subsidiary of the company also provides fiber optic services.

www.empiredistrict.com

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www.wbdpa.com ■ wbdamron@aol.com

HOUSE ENERGY AND UTILITIES
DATE: 1/25/2011
ATTACHMENT 6-1

Missouri Department of Natural Resources

Net Metering and the Easy Connection Act

Division of Energy fact sheet 5/2010

This fact sheet answers frequently asked questions about net metering in Missouri under the "Net Metering and Easy Connection Act" (http://www.moga.mo.gov/statutes/c300-399/3860000890.htm). The Missouri Public Service Commission (PSC) rule implementing net metering can be found at: http://www.sos.mo.gov/adrules/csr/current/4csr/4c240-20.pdf, pages 10- through 17.

Which utilities must provide "Easy Connection"?

The law applies to all electric regulated utilities(AmerenUE, Kansas City Power & Light Company, Kansas City Power & Light Company – Greater Missouri Operations, Empire District Electric Company) , municipal and rural electric cooperatives.

Municipal electric utilities and rural electric cooperatives are required by the law to adopt policies establishing a simple contract to be used for interconnection and net metering. For systems of ten kilowatts or less, the application process shall use an all-in-one document that includes a simple interconnection request, simple procedures, and a brief set of terms and conditions.

What is "Net Metering"?

Where net metering is available, it enables the customer-generator to export power that is in excess of immediate on-site needs to offset an equal amount of power supplied by the utility at a different time in the billing period. In this situation the customer is billed for the 'net' amount of power used that is in excess of power generated on-site.

If during the billing period, the customer generates more power than is used, the utility provides the customer a 'credit' for the surplus power. The credit is based on the cost the utility would have incurred to purchase the fuel consumed to generate an equal number of kilowatt-hours.

Which renewable energy sources are eligible?

To be eligible, electricity must be produced from wind, solar thermal sources, hydroelectric sources, photovoltaic cells and panels, fuel cells using hydrogen produced by one of the above named electrical energy sources, and other sources of energy that become available after August 28, 2007, and are certified as renewable by the Department of Natural Resources.

How much can the utility charge me for the "Easy Connection"?

The law provides that utilities shall not impose any fee, charge or other requirement not specifically authorized by the law or rules, unless it would also apply to similarly situated customers who are not customer-generators. The law requires the tariff or contract to be identical in rates, rate structure and monthly charges, and can not charge any additional standby, capacity, interconnection or other fee or charge that would be unique to a customer generator.

However, if a customer-generator's existing meter equipment cannot measure the net amount of electrical energy produced or consumed by the customer, the customer must reimburse the utility for the costs to purchase and install the additional equipment. The equipment can be initially paid for by the utility, and the total costs and a reasonable interest charge can be recovered over a 12-month billing cycle. A customer also must pay for any subsequent meter testing, maintenance or meter equipment change 'necessitated by the customer generator'.

The law allows a utility to require the system to have a switch, circuit breaker, fuse or other device that can easily be used to disconnect from the electric grid. For small systems (10 kilowatts or less), no additional controls or tests or distribution equipment or liability insurance can be required beyond what is authorized in the law.

What can the utility require me to do to make an "Easy Connection"?

An application must be accompanied by a plan that includes a wiring diagram and specifications for the generating unit. The customer must submit a certification from a professional electrician or engineer that the installation meets the interconnection requirements of the various codes and other requirements. The utility is required to review and respond within 30 days of receipt for small systems (10 kilowatts or less) and 90 days for all other systems (up to 100 kilowatts).

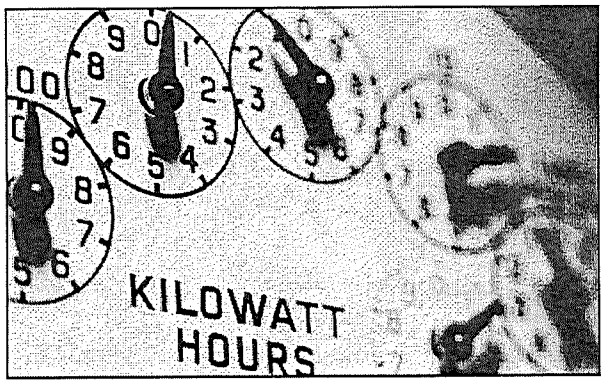
Are there Missouri businesses or contractors that sell or install renewable energy systems?

The department publishes a list of renewable energy businesses and contractors from Missouri and adjoining states. The **Missouri Renewable Resources Directory** is available from the department's Web site at: http://www.dnr.mo.gov/pubs/pub1292.pdf.

For More Information

For more information, please contact:
Missouri Department of Natural Resources
Division of Energy
P.O. Box 176
Jefferson City, MO 65102-0176
Jefferson City (573) 751-3443 or 1-800-361-4827
www.dnr.mo.gov/energy

Co-op Net Metering Program



House Utilities Committee

January 25, 2011

Dave Holthaus, KEC

Co-op Net Metering Background

- Co-ops develop net metering proposal (30 day true up/rather than annual)
- Legislature passed/vetoed in Holcomb bill
- Gov Parkinson agreement with Sunflower on Holcomb Plant (net metering for IOU's only)
- Co-ops voluntarily implemented their net metering plan
- Customers choice: Parallel Gen or Net Metering

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A Touchstone Energy® Cooperative

7-3

Co-op Net Metering Results

Quick Survey:

- All KS non-regulated Co-ops voluntarily offer net metering (-1)
- 1 year anniversary
- 56 member/generators net meter
- Communication: Public hearings, *Country Living Magazine*, newsletters, member inquiries and contact with current member generators

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Co-op Net Metering Numbers

Co-op	City	# of Net Metering Customers
L J E C	McLouth	14
Rolling Hills	Mankato/Belleville/ Ellsworth	10
Kaw Valley	Topeka	7
Flint Hills	Council Grove	6
Brown – Atchison	Horton	3
DS&O	Solomon	3
11 Additional Co-ops		13
TOTAL		**56**

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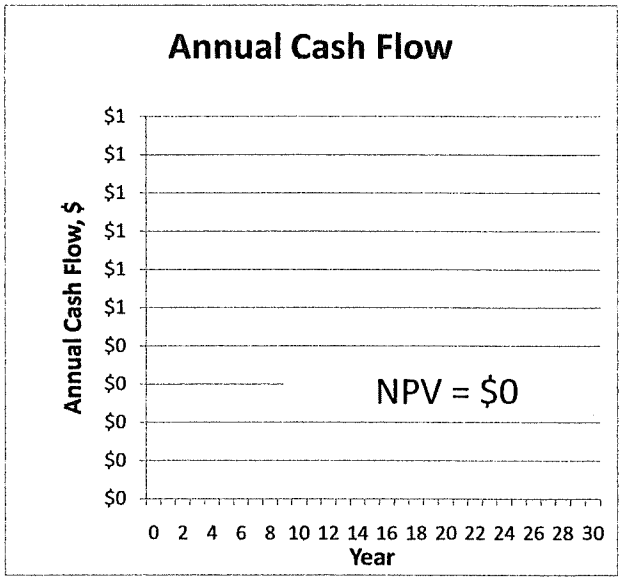
Small Wind Cash Flow Analysis

Model Inputs		
Project Investment		
Machine		
Rotor Diameter, ft.		
Installed Cost, $		$0
Less: USDA REAP Grant, %	0%	0
Net Project Cost		$0
Investment Tax Cr. (Yr. 1),%	30%	$0
Financing		
Down Payment, %		$0
Loan Amount		$0
Interest Rate, %		
Loan Term, yrs.	5	
Annual Loan Payment		$0
Energy Production		
Rated Capacity, kW		
Capacity Factor, %	25%	0
or		
Annual Energy Output, kWh		
Production used by model		0
O&M Cost		
Cost per kWh	$0.010	$0
or		
Pecent of Installed Cost	1.0%	$0
O&M Inflation Rate, %	3.0%	
Energy Consumption		
Annual Consumption, kWh		
Ret. Elec. Rate, $/kWh	$0.100	$0
Elec. Inflation Rate, %	2.0%	
Net Billing or Net Metering	NB	
Net Billing		
Offset Energy Factor, %*	70%	
Offset Energy, kWh		0
Import Energy, kWh		0
Export Energy, kWh		0
Import Cost		$0
Avoided Cost, $/kWh	$0.035	
Export Value, $/kWh	$0.053	0
Net Energy Cost		$0
Energy Savings**		$0
Net Metering		
Offset Energy, kWh		0
Import Energy, kWh		0
Net Excess Gen., kWh		0
Import Cost		$0
NEG Value, $/kWh	$0.000	0
Net Energy Cost		$0
Energy Savings**		$0
General Assumptions		
Project Life, yrs	30	
NPV Discount Rate, %	8.0%	

Year	Financing/ Tax Credit	O&M	Net Energy Savings	Annual Cash Flow	Cumm. Cash Flow
0	0			0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6		0	0	0	0
7		0	0	0	0
8		0	0	0	0
9		0	0	0	0
10		0	0	0	0
11		0	0	0	0
12		0	0	0	0
13		0	0	0	0
14		0	0	0	0
15		0	0	0	0
16		0	0	0	0
17		0	0	0	0
18		0	0	0	0
19		0	0	0	0
20		0	0	0	0
21		0	0	0	0
22		0	0	0	0
23		0	0	0	0
24		0	0	0	0
25		0	0	0	0
26		0	0	0	0
27		0	0	0	0
28		0	0	0	0
29		0	0	0	0
30		0	0	0	0
Total	0	0	0	0	

Net Present Value 0
Internal Rate of Return #NUM!



* Portion of production coincident with and available to offset consumption. (Dependent on wind availability and load consumption pattern.)

** Electricity bill without generator compared to electricity bill with generator.

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Feedback Version 1.1

KANSAS MUNICIPAL UTILITIES

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Written Testimony Submitted to the

House Energy & Utilities Committee
January 25, 2011

Colin Hansen, Executive Director
Kansas Municipal Utilities

Municipal Net Metering Policy

Chairman Holmes and Members of the Committee:

Last May, the members of Kansas Municipal Utilities (KMU) adopted a new voluntary municipal net metering policy. In Kansas, 119 municipal electric utilities – each with different billing systems, accounting software, staff capabilities and renewable energy policies – currently provide electricity to their customer-owners. As such, KMU members requested that the association develop a municipal net metering policy that was flexible enough that it could be implemented in each member community. The KMU net metering policy sets forth four different methods of compensating net metering customers for excess renewable energy that is generated:

1. Net Metering Credit – Energy (kWh) Credit
2. Net Metering Credit – Financial Credit at Retail Rate
3. Net Metering Credit – Financial Credit at System Average Energy Cost
4. Monthly Settlement

The net metering policy was largely structured using two primary examples: the Kansas City Board of Public Utilities (BPU) "Net Metering Policy for Renewable Energy Source Parallel Generation Systems" and "Interconnection Standards for Parallel Generation" developed by the Kansas Municipal Energy Agency (KMEA). Because many KMU members had already adopted the KMEA Interconnection Standards, the net metering policy was developed to augment these existing standards. The policy was developed over a three-month period by a task force of KMU members and adopted by the KMU Board of Directors in May 2010. Task force members included:

- Doug Allen, Sabetha
- Duane Banks, Russell
- Bobby Busch, Neodesha
- Bruce Bell, Coffeyville
- Doug Gerber, Goodland
- Dave Howard, Pratt
- William Johnson, Kansas City BPU
- J.D. Lester, Chanute
- Tim Maier, McPherson BPU
- Bob Mullendore, Kansas City BPU
- Jeff Oleson, Ottawa
- Bob Porter, Winfield
- Rod Willis, Sterling
- Jannsen Bruce, KMEA
- Larry Holloway, KPP
- Colin Hansen, KM

Thank you for the opportunity to provide this information.

HOUSE ENERGY AND UTILITIES
DATE: 1/25/2011
ATTACHMENT 8-1

Ordinance No. _____
Exhibit "A"

City of _____, Kansas
Electric Department

Net Metering
Policy & Procedures
for Customer-Owned
Renewable Energy Resources

8-2

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3. REQUEST 4
4. BILLING PRACTICES 5
5. APPLICATION FOR NET METERING 9
6. GLOSSARY OF TERMS 11
7. CITY ORDINANCE 13

1. INTRODUCTION

The provisions of this Net Metering policy shall apply only to Customer Generators with Renewable Energy Resources approved by the City.

2. NET METERING GENERAL PROVISIONS:

a. The City shall offer Net Metering to its Customers that wish to generate electricity on the Customer's side of the meter using only renewable resources for energy sources.

b. Net Metering is intended for Customer Generators with a rated output of less than 25,000 watts (25 kW). Systems rated for more than 25 kW will be handled under a different process and may involve the local control area and regional transmission organization.

c. The City shall make Net Metering available to eligible Customer Generators within its service area on a first-come, first-served basis. The maximum total rated capacity in kW of customer generation that will be allowed on the City's system shall be restricted to not more than _____ percent (*example: one percent*) of the City's peak demand during the previous Annualized Period.

d. Customer Generators shall be equipped with properly approved City metering equipment that can measure the flow of electricity in both directions at the same rate, typically through use of a single bi-directional meter. Necessary metering will be supplied and installed by the City.

e. Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period exceeds the electricity supplied by the City in such billing period, the City shall settle with the Customer Generator for the excess kilowatt-hours (kWh) in accordance with the billing practices described in this policy.

f. If a Customer Generator formally terminates Net Metering, the City shall treat the end of the service period as if it were the end of the billing period and, if applicable, settle with the Customer Generator according to the appropriate billing practices.

g. The City shall provide Net Metering at non-discriminatory rates that are identical with respect to the applicable customer rate class, retail rate components, and any monthly charges, to the rates that a customer would be charged if not a Customer Generator.

h. The City shall not charge a Customer Generator any fee or charge, or require additional equipment or any other requirement, unless the fee, charge, or other requirement is specifically authorized under the terms of the Interconnection Agreement, this Policy or if the fee, charge or other requirement would apply to other customers that are not Customer Generators. Any insurance coverage that may be required is specifically exempted from this paragraph, however, and is subject to the terms of the Interconnection Standards for Parallel Installation and Operation of Customer-Owned Electric Generating Facilities.

i. Nothing in this Policy shall abrogate any Customer's obligation to comply with all applicable Federal, State, or local laws, codes, or ordinances; nor with the Standards, Service Regulations, and Policies of the City.

3. INTERCONNECTION STANDARDS

a. To qualify for Net Metering, Customer Generators must comply with the City's Interconnections Standards for Parallel Installation and Operation of Customer-Owned Electric Generating Facilities.

4. REQUEST

a. The Customer Generator shall make a request for Net Metering by completing the City's Application for Net Metering and the City's Application for Interconnection. The City may require additional details or clarifications as needed to properly evaluate the application.

5. BILLING PRACTICES *(City Must Select One of the Following Four Options)*

***Option #1**: Net Metering Credit – Energy (kWh) Credit*

a. **Positive Net Consumption.** Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period is less than the electricity delivered by the City during such billing period, after any offset from credited kilowatt-hours carried forward from prior billing periods, billing for the net energy supplied by the City will be made in accordance with the rate schedule applicable to the Customer's assigned rate class and all applicable riders.

b. **Negative Net Consumption.** Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period is more than the electricity supplied by the City in a billing period, the City shall credit the Customer Generator for the excess kilowatt-hours for use in subsequent billing periods.

c. Regardless of whether the Customer Generator is entitled to receive financial credit for excess electrical energy from a prior billing period, Customer Generators remain responsible for all charges incurred during each billing period including, but not limited to: customer charges, facilities charges, demand charges, environmental charges, transmission charges, any late payment charges, and any requirements for deposits or special charges or fees that may be applied.

d. Any net excess generation credit remaining in a Customer Generator's account at the end of each Annualized Period shall expire.

Option #2: *Net Metering Credit – Financial Credit at Retail Rate*

a. **Positive Net Consumption.** Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period is less than the electricity delivered by the City during such billing period, after any financial credit carried forward from prior billing periods, billing for the net energy supplied by the City will be made in accordance with the rate schedule applicable to the Customer's assigned rate class and all applicable riders.

b. **Negative Net Consumption.** Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period is more than the electricity supplied by the City in a billing period, the City shall credit the Customer Generator for the excess kilowatt-hours for use in subsequent billing periods. The excess kilowatt-hours will be credited to the Customer Generator's account on a monetary basis in accordance with the rate schedule applicable to the Customer's assigned rate class and all applicable riders.

c. Regardless of whether the Customer Generator is entitled to receive financial credit for excess electrical energy from a prior billing period, Customer Generators remain responsible for all charges incurred during each billing period including, but not limited to: customer charges, facilities charges, demand charges, environmental charges, transmission charges, any late payment charges, and any requirements for deposits or special charges or fees that may be applied.

d. Any net excess generation credit remaining in a Customer Generator's account at the end of each Annualized Period shall expire.

Option #3: *Net Metering Credit – Financial Credit at System Average Energy Cost*

a. **Positive Net Consumption.** Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period is less than the electricity delivered by the City during such billing period, after any financial credit carried forward from prior billing periods, billing for the net energy supplied by the City will be made in accordance with the rate schedule applicable to the Customer's assigned rate class and all applicable riders.

b. **Negative Net Consumption.** Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period is more than the electricity supplied by the City in a billing period, the City shall credit the Customer Generator for the excess kilowatt-hours for use in subsequent billing periods. The excess kilowatt-hours will be credited to the Customer Generator's account on a monetary basis in accordance with the System Average Energy Cost.

c. Regardless of whether the Customer Generator is entitled to receive financial credit for excess electrical energy from a prior billing period, Customer Generators remain responsible for all charges incurred during each billing period including, but not limited to: customer charges, facilities charges, demand charges, environmental charges, transmission charges, any late payment charges, and any requirements for deposits or special charges or fees that may be applied.

d. Any net excess generation credit remaining in a Customer Generator's account at the end of each Annualized Period shall expire.

Option #4: *Monthly Settlement*

a. **Positive Net Consumption.** Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period is less than the electricity delivered by the City during such billing period, billing for the net energy supplied by the City will be made in accordance with the rate schedule applicable to the Customer's assigned rate class and all applicable riders.

b. **Negative Net Consumption.** Whenever the amount of electricity delivered by an eligible Customer Generator in a billing period is more than the electricity supplied by the City in a billing period, the excess electric energy shall by retained by the City as a contribution to fixed costs associated with owning and maintaining the facilities required to provide electric service.

c. Customer Generators remain responsible for all charges incurred during each billing period including, but not limited to: customer charges, facilities charges, demand charges, environmental charges, transmission charges, any late payment charges, and any requirements for deposits or special charges or fees that may be applied.

d. Any net excess generation credit remaining in a Customer Generator's account at the end of each Annualized Period shall expire.

6. ELIGIBILITY:
Interconnection to the electric system shall be granted only to new or existing customers, in good standing, under the City's electric service schedules. All agreements hereunder shall be between the Customer Generator and the City and will not include third parties.

7. REQUEST:
The Customer Generator shall make a request by completing the attached documents entitled "Application for Net Metering" and "Application for Interconnection." The City may require additional information or clarifications as needed to properly evaluate the application.

8. SYSTEM EFFECTS:
The City will analyze the overall impact of the proposed generating facility on the transmission and distribution system. Such analyses will be based on Good Utility Practice to determine thermal effects, voltage ranges, power quality, system stability, etc.

9. SYSTEM UPGRADES:
As a result of the above analysis, the City will provide the Customer Generator with a cost estimate and projected timeframe for any system upgrades, to be paid for by the Customer Generator, that may be necessary to accommodate the generating facility.

10. CODES AND PERMITS:
a. The Customer Generator shall be responsible for procuring all building, operating and environmental permits that are required by any Governmental Authority having jurisdiction for the type of generating facility and for the necessary ancillary structures to be installed.
b. The equipment shall meet the standards listed in the attached document entitled "National Certification Codes and Standards".
c. The construction and facilities shall meet all local building and electrical codes.

11. CERTIFICATE OF COMPLETION:
Upon completion of the generating facility and prior to normal operation, the Customer Generator shall provide a signed copy of the attached document entitled "Certificate of Completion" as required by the Interconnection Agreement.

12. NORMAL OPERATION:
The Customer Generator may begin normal operation of the generating facility upon completion of all documentation, inspection by, and receipt of written approval from the City.

13. DEFINITIONS:
All capitalized terms and phrases throughout this set of standards shall be defined as indicated in the attached Glossary of Terms.

Application for Net Metering

This Application is considered complete when it provides all applicable and correct information required below. Additional information or clarification to evaluate the Application may be requested by the City.

Customer

Name: _____

Contact Person: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone (Day): _____ (Evening): _____

Fax: _____ E-Mail Address: _____

Customer Signature

I agree to abide by the terms and conditions of the City's Net Metering Policy & Procedures for Customer-Owned Renewable Energy Resources.

Signed: _____

Date: _____

For Office Use Only

Requirements for Approval of Net Metering

The City must verify that the following requirements are met in order for Customer Generator to qualify for Net Metering:

- ❑ Qualified Renewable Energy Resource
- ❑ Application for Interconnection
- ❑ Interconnection Agreement
- ❑ Certificate of Completion

City Signature: _____

Title: _____ Date: _____

Application ID number: _____

Glossary of Terms

Annualized Period – The City's twelve calendar month fiscal year; that is, from January 1 through December 31 of the same year.

Applicable Laws and Regulations – All duly promulgated applicable federal, state and local laws, regulations, rules, ordinances, codes, decrees, judgments, directives, or judicial or administrative orders, permits and other duly authorized actions of any Governmental Authority.

Customer – Any entity interconnected to the City's distribution system for the purpose of receiving retail electric power service from the City's distribution system.

Customer Generator – The owner or operator of a net metered facility which:

1) is powered by a renewable energy resource;
2) is located on a premises owned, operated, leased or otherwise controlled by the Customer Generator;
3) is interconnected and operates in parallel phase and synchronization with an affected utility and is in compliance with the standards established by the affected utility;
4) is intended primarily to offset part or all of the Customer Generator's own electrical energy requirements;
5) contains a mechanism, approved by the utility, that automatically disables the unit and interrupts the flow of electricity back onto the supplier's electricity lines in the event that service to the Customer Generator is interrupted.

Customer-Owned Generating Facility – The Customer's equipment for the production of electricity identified in the Interconnection Application.

Distribution System – The City's facilities and equipment used to transmit electricity to ultimate usage points including residential, commercial and industrial facilities directly from nearby generation points or from interchanges with higher voltage transmission networks which transport bulk power over longer distances.

Force Majeure – A Force Majeure event shall mean "any act of God, labor disturbance, act of the public enemy, war, insurrection, riot, fire, storm or flood, explosion, breakage or accident to machinery or equipment, any order, regulation or restriction imposed by governmental, military or lawfully established civilian authorities, or any other cause beyond a Party's control". A Force Majeure event does not include an act of negligence or intentional wrongdoing.

Good Utility Practice – Any of the practices, methods and acts engaged in or approved by a significant portion of the electric industry during the relevant time period, or any of the practices, methods and acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to be acceptable practices, methods, or acts generally accepted in the region.

Governmental Authority – Any federal, state, local or other governmental regulatory or administrative agency, court, commission, department, board, or other governmental subdivision, legislature, rulemaking board, tribunal, or other governmental authority having jurisdiction over the

Parties, their respective facilities, or the respective services they provide, and exercising or entitled to exercise any administrative, executive, police, or taxing authority or power; provided, however, that such term does not include the Customer or any Affiliate thereof.

Interconnection Application – The Customer's request to interconnect a new Customer-Owned Generating Facility, or to increase the capacity of, or make a material modification to the operating characteristics of, an existing Customer-Owned Generating Facility that is interconnected with the City's electrical system.

Net Metering - A bi-directional metering process using equipment sufficient to measure the difference between the electrical energy supplied by a Customer Generator to the City's Distribution System and the electrical energy supplied by the Customer Generator to the City and over an applicable billing period.

Reasonable Efforts – With respect to an action required to be attempted or taken by a Party under the Interconnection Agreement, efforts that are timely and consistent with Good Utility Practice and are otherwise substantially equivalent to those a Party would use to protect its own interests.

Renewable Energy Resource - Electric energy produced from solar or wind resources, or other energy resources defined as renewable by Kansas statute.

System Average Energy Cost – The current average cost of fuel and purchased energy for the billing period as determined by the City.

System Upgrades – The additions, modifications, and upgrades to the City's Distribution System at or beyond the point of interconnection to facilitate interconnection of the Customer-Owned Generating Facility.

Adopted by the City Council / Board of Commissioners: _____ (*date*)

Revised: _____ (*date*)

(A copy of Ordinance No. _____ is attached)

ORDINANCE NO. _____

AN ORDINANCE ADOPTING NET METERING POLICY & PROCEDURES FOR CUTOMER-OWNED RENEWABLE ENERGY RESOURCES.

WHEREAS, The Governing Body of the City of _____, Kansas, finds that there is increasing interest in customer-owned renewable energy resources;

WHEREAS, Policies and procedures are necessary for the health, safety and welfare of the citizens and city employees for the interconnection of such customer-owned renewable energy resources with the City's electric utility system; and

WHEREAS, the Governing Body of the City of _____, Kansas, desires to enact certain uniform policies and procedures for such customer-owned renewable energy electrical generation.

NOW, THEREFORE, BE IT ORDAINED BY THE GOVERNING BODY OF THE CITY OF _____, KANSAS, AS FOLLOWS:

SECTION 1, There is hereby adopted the Net Metering Policy and Procedures for Customer-Owned Renewable Energy Resources

SECTION 2, Net Metering Customer Generators must meet all the applicable requirements of the City's Interconnection Standards for Parallel Installation and Operation of Customer-Owned Electric Generating Facilities in addition to the requirements of the Net Metering Policy and Procedures for Customer-Owned Renewable Energy Resources.

SECTION 3, This ordinance shall be effective upon its adoption and publication in the official city newspaper.

APPROVED AND ADOPTED by the governing body of the City of _____, Kansas, this _____ day of _____, 2010.

_____
Mayor

ATTEST:

_____
City Clerk

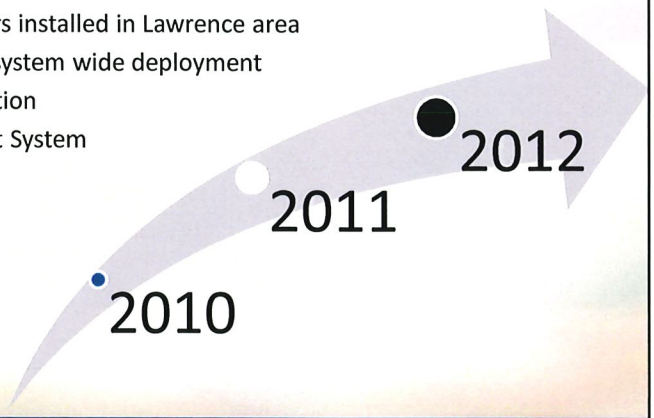
Westar Energy
SmartStar

State of Kansas
House Utilities Committee

January 25, 2011

What is SmartStar Lawrence?

- Westar's three-year smart grid pilot program
- On-line Customer Energy Portal available via westarenergy.com that shows up to date energy use and cost information
- 45,000+ smart meters installed in Lawrence area
- IT infrastructure for system wide deployment
- Distribution Automation
- Outage Management System



HOUSE ENERGY AND UTILITIES
DATE: 1/25/2011
ATTACHMENT 9-1

SmartStar DOE Grant

- American Recovery and Reinvestment Act of 2009
  - Contained approx. $3.4 B for smart grid investment
- DOE agreement signed March, 2010
  - Westar 1 of 100 selected from over 400 applicants
- SmartStar Lawrence cost - $40 million
  - 2/3 of cost for IT infrastructure that will support system wide deployment
- Grant awarded to Westar - $19 million
  - Maximum that could be awarded for our project based on total cost
- Monthly reimbursement of allowed expenses
  - Approximately $3.6M reimbursed to date

ENERGY.GOV/RECOVERY

Westar Energy SmartStar

SmartStar Lawrence Objectives

- Gauge customer participation, results and validate potential benefit from a system wide Smart Grid deployment
- Identify most effective customer products and services
- Confirm business requirements and processes necessary for smart grid operation
- Identify and/or confirm business partners for future deployment
- Confirm Smart Grid benefit assumptions prior to larger deployment
- Enable fact based decisions

Westar Energy SmartStar

Customer Communications

- Local media contact, regular and in person
- SmartStar website launch November 4
- Pre-Launch Awareness – Radio & Print
  - Q1 2011
- Full media campaign
  - Q2, 3 & 4 2011
  - CATV, Radio, Print, Cinema, Social Network, Online Banners
- Voice of the Customer
  - Customer feedback opportunity made easy
  - On-line chats with Lawrence Journal World
  - 2011 customer surveys online Q1 and Q2, focus groups Q1, Q4

Westar Energy SmartStar

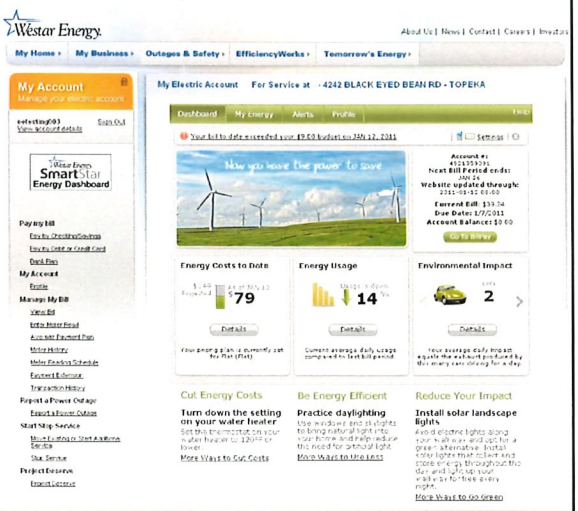
www.westarenergy.com/smartstar

Westar Energy SmartStar

What does SmartStar mean for me?

Your personal energy information online:

- Daily usage
- Daily cost
- Environmental impact
- Alerts and notifications
  - Bill budgets
  - High usage
- Residential launch first
- Business launch follows



SmartStar Lawrence Timeline

March 2010 DOE Agreement Reached

Spring 2010 IT Work Begins

Winter 2011 Pilot Meter Install

Spring 2011 Meter Install Web Portal Available

Summer 2011 Pilot Program Testing Begins

Fall 2011 Meter Install Complete

Summer 2012 Full Pilot Program in Place

- Business analytics continue to identify best mix of customer programs & services, business process changes and validation of benefits

Pilot Meter Neighborhood Deployment

- Neighborhood announced December 6, 2010
  - Direct mail piece to approximately 1500 customers
  - Informational open houses held on Dec. 14 & 15, 2010
  - Outbound calling made to remind customers of open houses
- Meter Exchange
  - Completed Jan. 10 - 21, 2011
  - Post card series and door hang tags for customers
  - Series of direct mail pieces before, during and following
  - Customer survey following meter exchange

Westar Energy SmartStar

Pilot Neighborhood

Westar Energy SmartStar

Pilot Service Programs

- Pilot programs on rates and technology
- Under development
  - Time of use rate options
  - In home devices (in home displays, two way thermostats)
  - Optional programs for customers
  - Customer recruitment in 2011
- Will work closely with interested parties

Westar Energy SmartStar

Westar Energy
Hal L. Jensen
Director SmartStar Programs
785 575 1842
hal.l.jensen@westarenergy.com

Smart Meter Presentation

Board of Public Utilities
Public Outreach Campaign

January 25, 2011

About BPU

- Established public water utility in 1909
- Formed electric utility in 1912
- First Board of Directors installed in 1929
- Current Service Area – 127.5 square miles
- Electric Customers – 69,336 Meters
- Water Customers – 56,809 Meters
- Electric Power Lines – 1402 Miles
- Water Pipes – 963 Miles

Presentation Goals

- What is our plan for building a smart meter system
- What benefits does it provide to the Utility
- What benefits does it provide to customers
- How will it impact current employees
- Does the technology work - who is using AMI
- Will there be any additional cost to customers

Smart Meter Terms

- **AMR** – Automatic Meter Reading
- **AMI** – Advance Metering Infrastructure
- **Smart Meter** – A solid state and programmable electric or water meter
- **Smart Grid** – The convergence of the electric grid and information technology

Communities That Have Smart Metering

- Kansas City, Missouri
- Overland Park, Kansas
- Olathe, Kansas
- Lawrence, Kansas
- St. Louis, Missouri
- Omaha, Nebraska
- Colorado Springs, Colorado
- Austin, Texas

BPU Smart Meter Project

- Replace every electric meter
  - For industrial, commercial, and residential accounts
- Replace every water meter
  - For industrial, commercial, and residential accounts
- Build wireless communications network
  - Collect meters to collectors
  - Use existing fiber to collect system to office computers
- Install software systems
  - Validate and distribute AMI data
  - Integrate billing system

Electric/Water Utility Benefits

- Collect hourly/load profile data
- Perform remote connect/disconnects
- Improve outage detection
- Detect water leaks
- Support distribution automation
- Realign staff to mitigate critical service needs
- Reduced operating costs
- Improve environmental footprint

BPU Customer Benefits

- Improve customer service
- Interactive web portals
- Promote time of use rates
- Integrate electric vehicles (charging stations)
- Integrate distributed solar generation
- Support energy audit/efficiency programs
- Integrate Home Area Networks (HAN)
- No additional cost to customers

Potential Financial Benefits

Real opportunity to assist customers in the face of rising energy and water costs

- Walk in Lobby – 750 Customers Daily
- Payment Arrangements – 14,000 Annually
- Calls Answered – 20,000 Calls Monthly
- Delinquent Disconnects – 43,200 Annually
- Theft of Services – 292 Annually
- Returned Checks – 2,756 ($1,446,487)
- Write Offs - $1,783,883 Annually

Socio-Economic Summary (2009)

Per Capita Income

- $24,838 (County) -vs.- $34,799 (State)

Unemployment (Feb. 2009)

- 12.6% (County) -vs.- 6.2% (State)

Poverty

- 20.2% (County) -vs.- 11.9% (State)

Health

- Rank lowest in the State

Traditional Role of a Public Utility

- Maintain Low Electric & Water Rates
- Provide Quality Customer Service
- Support Local Government
- Assist with Economic Development
- Contribute to Charitable Organizations
- Provide Jobs - Local Living Standards

Smart Meter Presentation

Thank You

Questions?

KCP&L SmartGrid Project Overview

Prepared for the Kansas House Energy & Utilities Committee

January 25, 2011

Steve Gilkey

Senior Director,

Engineering and Planning

KCP&L

SmartGrid

the future of energy

Project Overview

- In late 2009, KCP&L received a $24M ARRA grant for a smart grid "demonstration" project.
  - Total project about $50M over 5 years

- There are about 14,000 customers (meters) in the project area, located in midtown Kansas City, MO, just east of the Country Club Plaza.
  - Much of the project area is challenged with high unemployment, low income and educations levels, lack of internet access and inefficient homes

- KCP&L is partnering with several organizations, including Landis+Gyr, Siemans, EPRI, Exergonix, Green Impact Zone, OATI, Intergraph and Tendril

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

KCP&L energizing life

Project Objectives

KCP&L's SmartGrid demonstration project complies with the Department of Energy's (DOE's) funding guidelines and combines commercial innovation with a unique approach to smart grid development and demonstration:

- First, **it creates a complete, end-to-end smart grid** — from smart generation to smart end-use — that will deliver improved performance focused on a major substation in an urban location.
- Second, **it introduces new technologies, applications, protocols**, communications and business models that will be evaluated, demonstrated and refined to achieve improved operations, increase energy efficiency, reduce energy delivery costs and improve environmental performance.
- Third, **it incorporates a best-in-class approach to technology integration**, application development and partnership collaboration, allowing KCP&L to advance the progression of complete smart grid solutions — with interoperability standards — rather than singular, packaged applications.
- Finally, KCP&L's demonstration project will provide the critical energy infrastructure required to **support a targeted urban revitalization effort** in Kansas City's Green Impact Zone.

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

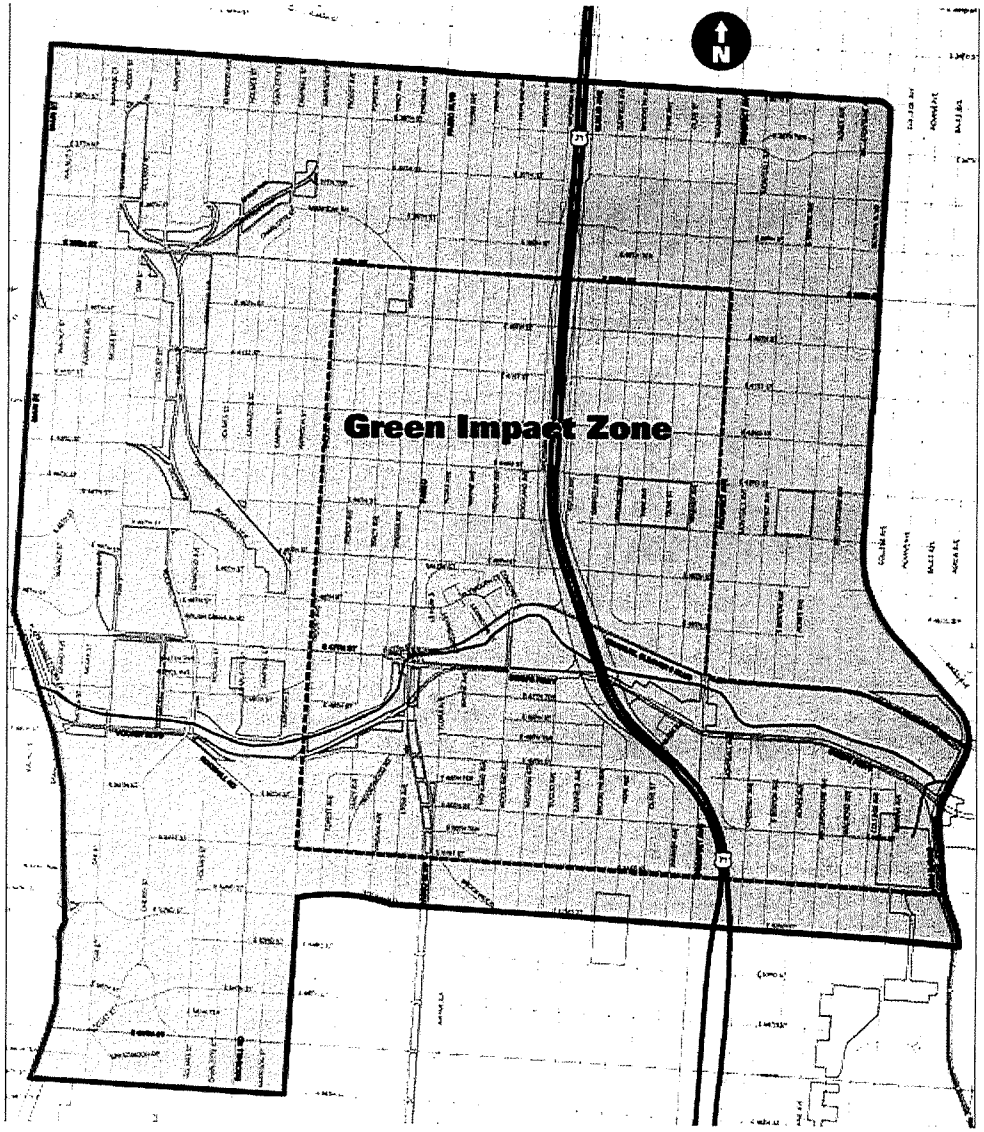
KCP&L energizing *life*

Project Area—Midtown Kansas City, MO

KCP&L's SmartGrid project in midtown Kansas City, Missouri includes the 150-block Green Impact Zone and surrounding neighborhoods, shown here in blue.

The Green Impact Zone is a cooperative effort to focus federal stimulus fund on projects in a targeted area of Kansas City, Missouri.

North: 35th Street

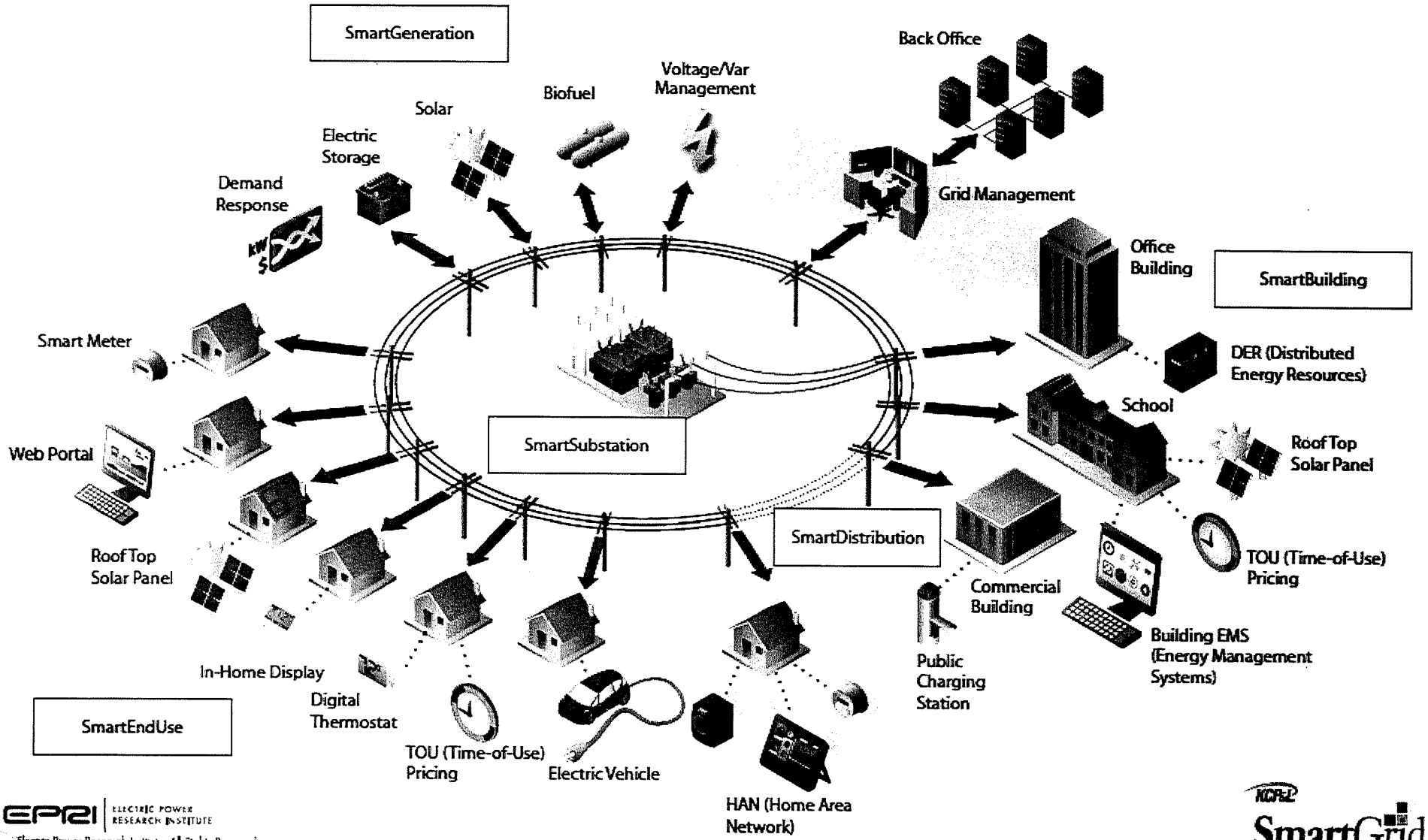


West: Main Street

East: Benton/Swope Parkway

South: 52ndStreet

KCP&L Demonstration – True End-to-End Smart Grid



KCP&L SmartGrid
the future of energy

SmartGrid is the logical next step

KCP&L was the **first to invest in automated meter reading** and has been continuously recognized as an industry leader:

- Automated Switching & Sensing
- Wireless Field Communications
- Electronic Mapping
- Efficiency & Demand Response
- Dynamic Voltage Controls
- Underground Network Automation

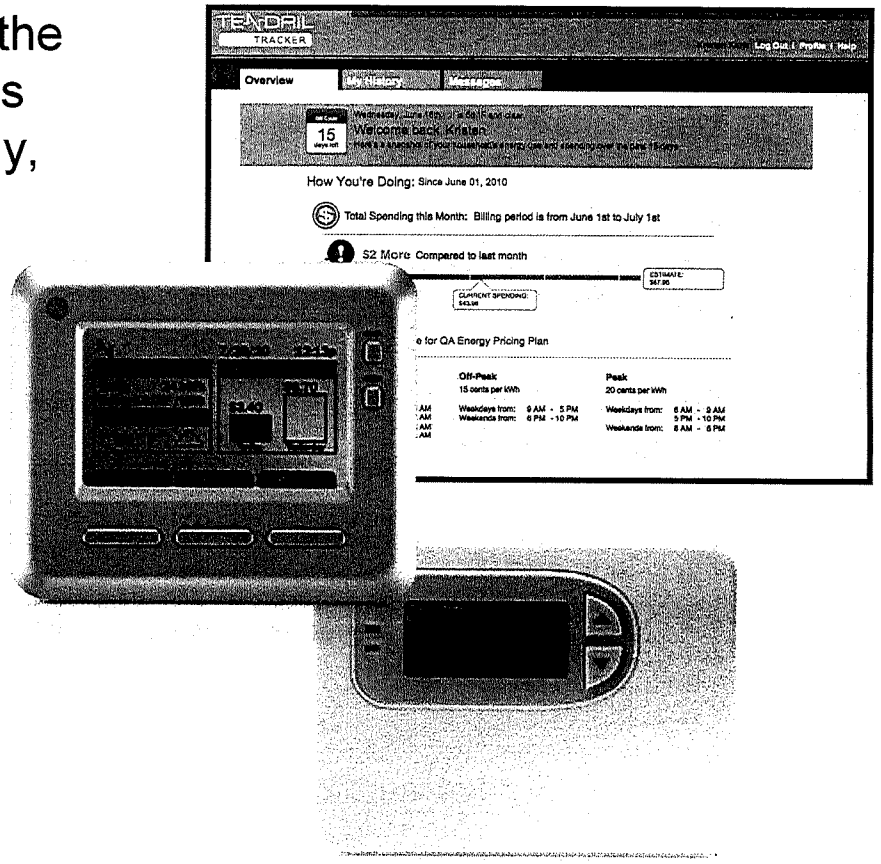
- $45 million Accelerated Investment in Transmission & Distribution systems under Comprehensive Energy Plan
- Investments have improved service reliability

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

KCP&L energizing *life*

2010 Products and Tools

- **Web Portal:** Helps customers understand the impact of their electricity use and encourages them to make decisions that conserve energy, help the environment and save money.
- **In-Home Display:** Provides real-time information that increases awareness of electricity use and identifies opportunities to reduce consumption and save money.
- **Programmable Thermostat:** Can automatically set temperatures based on season, resulting in savings in heating and cooling bills.



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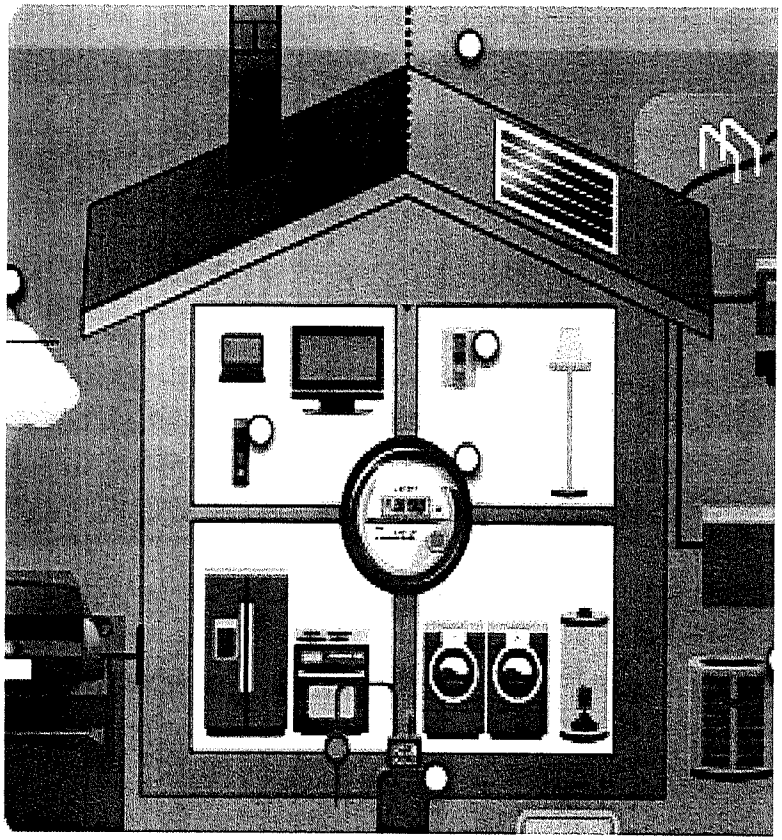
Future Products and Tools



- Home Area Network
- Commercial Energy Management Systems
- Solar demonstrations
- Time of Use Rates
- Evaluate pre-payment options
- Electric vehicle charging stations

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

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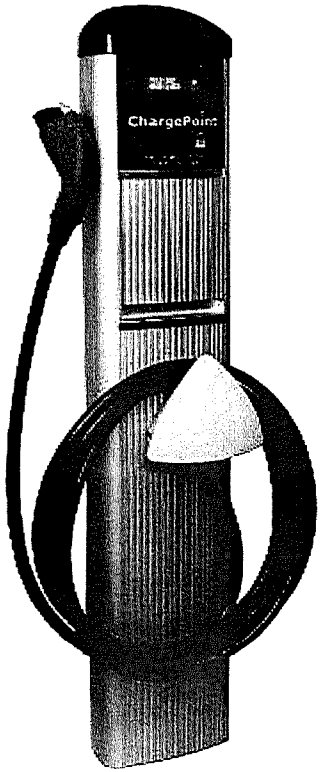
Technical Components



- Integration of multiple Distributed Energy Resource (DER) types:
  - Solar
  - Electric Vehicles
  - Demand Response
  - Voltage Control
  - Utility-Scale Battery
- Coordination with National Institute of Standards and Technology (NIST) to integrate these technologies while working to ensure cyber security.

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

KCP&L energizing life

Education Efforts

In addition to traditional communications efforts, KCP&L is focusing on new **approaches to increase awareness and engage customers**:

- Neighborhood Association & Faith-based Outreach
  - KCP&L Reps matched with each neighborhood
- Community Outreach Events
- Demonstration house:
  - Touch, feel, learn about and experience new, energy efficient and smart grid products first-hand
  - Partnering with the Metropolitan Energy Center

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

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Milestones

2010

- Launch of Meter Exchange (Oct. 18)
- Distribution of In-Home Displays
- Access to Customized Website
- Neighborhood Meetings
- Training Meetings

2011

- Implementation of Smart Thermostats
- Distribution of Home Area Networks
- Initiation of Time of Use Rates
- Solar Installations
- Electric Vehicle Charging Stations

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

KCP&L energizing life

KCP&L SmartGrid Pilot Timeline – Project Overview

2010	2011	2012	2013	2014
Phase 1 Project Definition and Compliance • Outreach and education • Plan Project • Increase EE awareness and adoption				
Phase 2 Project Design and Performance Baseline • Install AMI • Detailed system design • Baseline outages and usage • Online home energy portals • Customer In-Home Displays	***Key Deployment Period***			
	Phase 3 Smart Grid Infrastructure Deployment • Smart Substation • Advanced Distribution Automation • DMS			
	Phase 4 Distributed Energy Resource Deployment • Smart End-Use customer devices • Smart Gen. (Solar, Battery, PHEV) • DERMS • Introduce TOU rate pilots			
Data Collection, Reporting, and Project Conclusions			**Phase 5** • Evaluate system • Analyze performance • Evaluate business models	

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

KCP&L energizing *life*

Project Technology Components (1)

- **SmartSubstation** – will upgrade a major urban substation with electromechanical relays and demonstrate a fully automated, next-generation distribution SmartSubstation with a local distributed control system based on IEC 61850 protocols.

- **SmartDistribution** - will demonstrate a fully automated, next generation Distributed Control and Data Acquisition (DCADA) controller that incorporates a Common Information Model (CIM) based model of the local distribution network and performs local grid assessment and control of individual IED field controls.
  - The DMS and DCADA controllers will provide the operational backbone of the system supporting significant levels of automation on the feeders, complex and automated feeder reconfiguration decisions, and tightly integrated supervision with the Control Centers.
  - The DMS serves as the primary point of integration for the grid facilities and network management functionality including D-SCADA, Distribution Network Analysis (DNA), OMS, DERM system, GIS and other supporting systems.

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

KCP&L energizing life

Project Technology Components (2)

- **Smart Generation** - will implementation of DER technologies and DR programs sufficient in quantity and diversity to support the DERM development and demonstration. To achieve this objective, the demonstration program will include:
  - Installation of a variety of distributed solar systems with a mix of residential and commercial installations (a larger scale, 100kw, installation is planned for a school or public building)
  - Installation of a 1MWh grid-connected battery to demonstrate grid support.
  - Integration of the existing EnergyOptimizer DR thermostat program in the demonstration area
  - Integration of the existing MPower load curtailment program customers in the demonstration area
  - Potential conversion of customer stand-by generation to parallel generation
- **SmartDR/DERM** - will demonstrate a next-generation, end-to-end DERM system that provides balancing of renewable and variable energy sources with controllable demand as it becomes integrated in the utility grid, coordination with market systems, and provision of pricing signals.

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

KCP&L energizing life

Project Technology Components (3)

- **SmartMetering** – will demonstrate state-of-the-art integrated AMI & meter data management (MDM) capabilities that support two-way communication with 14,000 SmartMeters in the Demonstration Area and provide the integration with CIS, DMS, OMS, and DERM. The SmartMetering infrastructure will provide the technology basis for recording customer and grid data that will be used to measure many SmartGrid benefits. The SmartMetering technology will also provide advanced meter-to-HAN communications to facilitate in-home display, home energy management systems, and other consumer-facing programs.
- **SmartEnd-Use** - program will achieve a sufficient number of consumers enrolled in a variety of consumer-facing programs to 1) support the DERM development and demonstration; and 2) measure, analyze, and evaluate the impact that consumer education, enhanced energy consumption information, energy cost and pricing signals and other consumer-based programs have on end-use consumption.

This material is based upon work supported by the Department of Energy under Award Number DE-OE0000221

KCP&L energizing life

Questions

Learn more at www.kcplsmartgrid.com.

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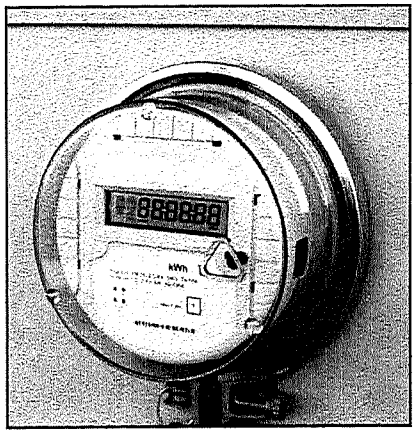
Electric Cooperatives SMART Metering



House Utilities Committee

January 25, 2011

Dave Holthaus, KEC

HOUSE ENERGY AND UTILITIES
DATE: 1/25/2011
ATTACHMENT 12-1

SMART Metering Capabilities

- Remotely reads meters (anytime/hourly)
- Remotely disconnects/reconnects customers
- Remotely performs load control (irrigation wells, industrial load, appliances)
- Remote outage detection
- System controls (voltage regulator, capacitor and oil circuit recloser operations)

KEC
KANSAS ELECTRIC COOPERATIVES, INC
A Touchstone Energy Cooperative

KS Cooperatives With SMART Metering

Co-op	City	# of Meters
Butler	El Dorado	7,000
Brown – Atchison	Horton	3,200
DS&O	Solomon	8,250
Radiant	Fredonia	5,800
Blue Stem	Wamego	6,800
L J E C	McLouth	8,250
Twin Valley	Altamont	3,270
Flint Hills	Council Grove	6,700
Victory	Dodge City	10,667
Heartland	Girard	11,750
TOTAL		**71,687**
Rolling Hills	Washington	In 2011
Nemaha – Marshall	Axtell	In 2011

KEC
KANSAS ELECTRIC COOPERATIVES, INC.
A Touchstone Energy Cooperative

Why Invest in SMART Meters?

Operational Cost Savings:	•Meter reading
	•Disconnect/reconnect
	•Load control at peak times
Advantages to Customers:	•Remote outage detection
	•Billing inquiry accuracy
	•Speeds up all transactions
	•Load control at the home

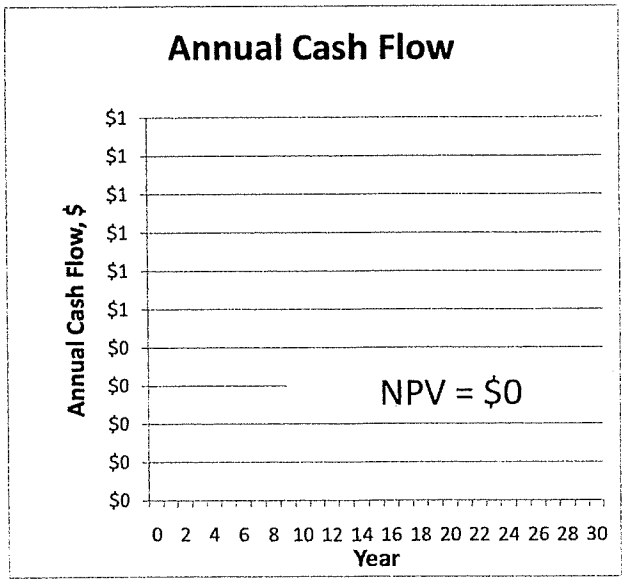
KEC
KANSAS ELECTRIC COOPERATIVES, INC
A Touchstone Energy Cooperative

Small Wind Cash Flow Analysis

Model Inputs		
Project Investment		
Machine		
Rotor Diameter, ft.		
Installed Cost, $		$0
Less: USDA REAP Grant, %	0%	0
Net Project Cost		$0
Investment Tax Cr. (Yr. 1),%	30%	$0
Financing		
Down Payment, %		$0
Loan Amount		$0
Interest Rate, %		
Loan Term, yrs.	5	
Annual Loan Payment		$0
Energy Production		
Rated Capacity, kW		
Capacity Factor, %	25%	0
or		
Annual Energy Output, kWh		
Production used by model		0
O&M Cost		
Cost per kWh	$0.010	$0
or		
Pecent of Installed Cost	1.0%	$0
O&M Inflation Rate, %	3.0%	
Energy Consumption		
Annual Consumption, kWh		
Ret. Elec. Rate, $/kWh	$0.100	$0
Elec. Inflation Rate, %	2.0%	
Net Billing or Net Metering	NB	
Net Billing		
Offset Energy Factor, %*	70%	
Offset Energy, kWh		0
Import Energy, kWh		0
Export Energy, kWh		0
Import Cost		$0
Avoided Cost, $/kWh	$0.035	
Export Value, $/kWh	$0.053	0
Net Energy Cost		$0
Energy Savings**		$0
Net Metering		
Offset Energy, kWh		0
Import Energy, kWh		0
Net Excess Gen., kWh		0
Import Cost		$0
NEG Value, $/kWh	$0.000	0
Net Energy Cost		$0
Energy Savings**		$0
General Assumptions		
Project Life, yrs	30	
NPV Discount Rate, %	8.0%	

Year	Financing/ Tax Credit	O&M	Net Energy Savings	Annual Cash Flow	Cumm. Cash Flow
0	0			0	0
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0
5	0	0	0	0	0
6		0	0	0	0
7		0	0	0	0
8		0	0	0	0
9		0	0	0	0
10		0	0	0	0
11		0	0	0	0
12		0	0	0	0
13		0	0	0	0
14		0	0	0	0
15		0	0	0	0
16		0	0	0	0
17		0	0	0	0
18		0	0	0	0
19		0	0	0	0
20		0	0	0	0
21		0	0	0	0
22		0	0	0	0
23		0	0	0	0
24		0	0	0	0
25		0	0	0	0
26		0	0	0	0
27		0	0	0	0
28		0	0	0	0
29		0	0	0	0
30		0	0	0	0
Total	0	0	0	0	

Net Present Value 0
Internal Rate of Return #NUM!



* Portion of production coincident with and available to offset consumption.
(Dependent on wind availability and load consumption pattern.)
** Electricity bill without generator compared to electricity bill with generator.

KEC Kansas Electric Cooperatives, Inc.
A Touchstone Energy® Cooperative

Feedback Version 1.1

12-5

Serial Number:	7666660
Meter Type:	IMT3H

Start Date:	11/1/2010
End Date:	11/30/2010

Monthly

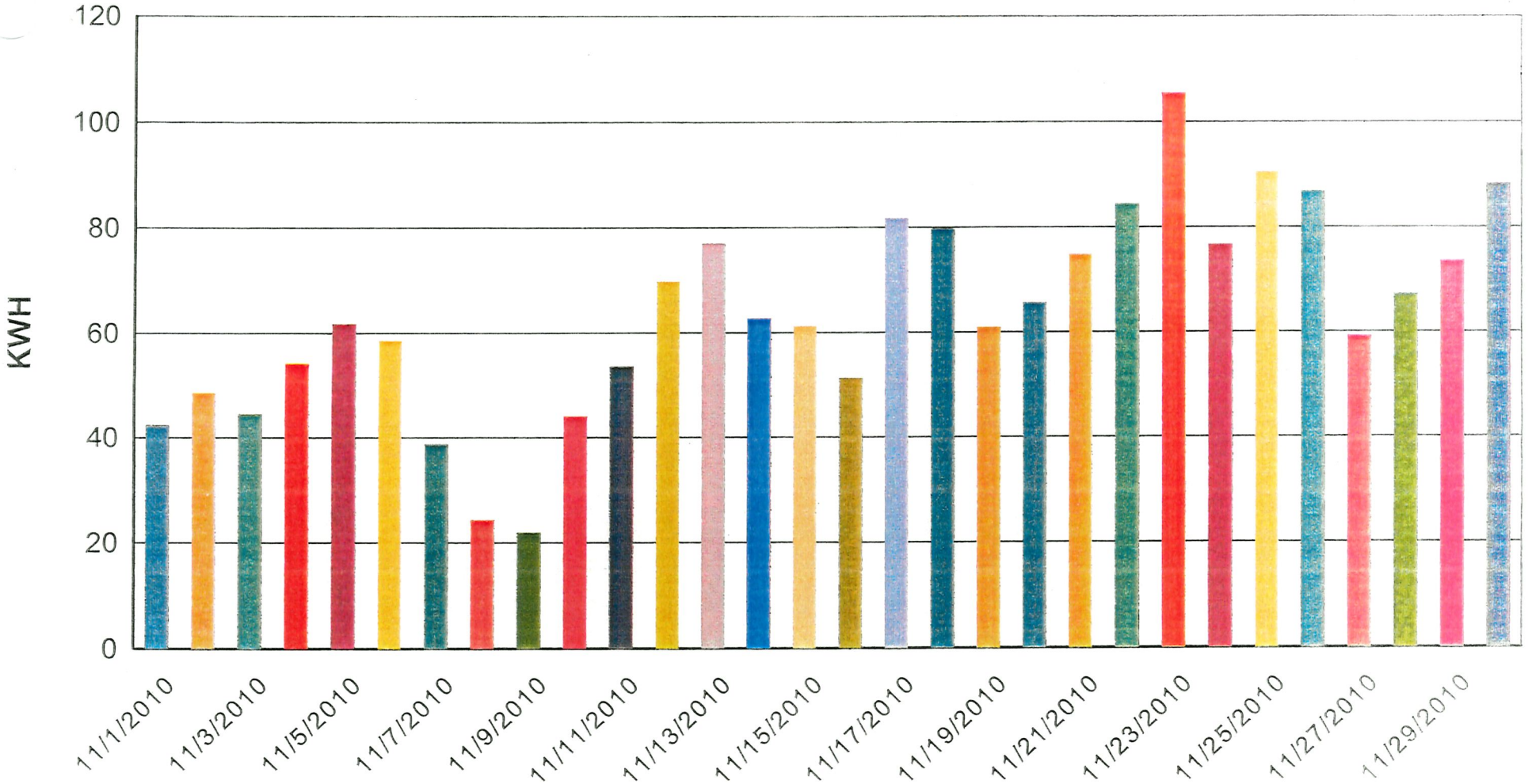
DATE	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	High	Low	Total
11/01/2010	0.23	0.28	0.28	8.00	3.22	4.55	2.13	0.34	0.40	0.46	0.69	7.37	3.51	0.28	0.34	0.23	0.40	0.57	2.18	1.55	1.49	1.90	1.44	0.57	8.00	0.23	42.41
11/02/2010	0.34	0.28	5.29	6.39	0.69	1.03	1.84	8.00	4.66	3.11	1.49	0.28	1.95	3.34	1.15	0.57	0.40	0.69	0.69	1.38	1.20	1.38	1.15	1.44	8.00	0.28	48.74
11/03/2010	7.48	3.57	3.74	3.05	1.95	0.86	2.13	2.53	7.08	3.62	0.80	0.28	0.34	0.23	0.57	0.28	0.28	0.34	0.23	1.09	1.55	1.32	1.09	0.23	7.48	0.23	44.64
11/04/2010	0.80	7.83	3.39	3.45	1.38	1.09	3.22	0.63	6.68	4.60	1.84	0.28	0.74	0.28	0.28	0.34	0.46	0.46	0.23	0.86	6.79	4.95	3.45	0.23	7.83	0.23	54.26
11/05/2010	0.46	0.28	8.40	3.91	3.68	4.60	7.60	4.37	3.05	3.97	0.92	0.23	0.34	0.28	0.80	0.34	0.17	0.40	1.90	1.44	8.52	0.97	0.80	4.49	8.52	0.17	61.92
11/06/2010	6.68	2.99	3.74	4.03	2.99	3.80	3.74	2.99	7.43	3.05	0.40	0.23	0.57	0.28	0.28	0.34	0.23	2.47	3.68	4.72	1.55	0.69	1.09	0.74	7.43	0.23	58.71
11/07/2010	0.74	1.26	10.71	1.38	0.57	0.34	0.23	4.55	5.24	1.49	0.34	0.86	0.46	0.51	0.28	0.40	0.69	0.92	2.01	1.49	1.38	1.20	1.38	0.40	10.71	0.23	38.83
11/08/2010	0.69	0.40	0.28	0.46	0.34	1.09	3.97	1.55	0.63	0.34	0.34	6.27	0.34	0.40	0.34	0.28	0.74	0.34	0.51	1.32	1.20	1.32	1.03	0.28	6.27	0.28	24.46
11/09/2010	0.34	0.23	0.63	0.28	0.28	1.44	2.36	0.34	0.51	0.28	0.63	0.23	0.86	0.28	0.28	0.34	0.28	0.80	2.36	1.61	1.67	1.32	2.47	2.18	2.47	0.23	22.00
11/10/2010	0.28	0.40	0.28	0.51	1.44	8.29	3.91	0.34	0.46	0.40	0.46	0.28	0.34	0.51	0.34	0.28	0.28	0.74	3.34	4.03	5.01	1.49	7.20	3.57	8.29	0.28	44.18
11/11/2010	3.11	2.64	0.51	0.40	0.92	9.61	4.55	3.91	2.01	0.34	0.34	0.34	0.46	0.40	0.23	0.34	0.28	7.37	2.18	0.80	0.74	0.57	7.08	4.49	9.61	0.23	53.62
11/12/2010	0.86	0.40	0.46	0.34	1.03	10.02	7.60	0.92	0.28	0.57	0.23	9.21	3.74	4.49	3.80	0.40	0.51	0.97	3.91	7.54	5.18	5.06	1.20	1.20	10.02	0.23	69.92
11/13/2010	0.74	0.86	8.23	4.14	4.14	2.99	2.41	0.69	0.80	0.86	0.51	5.93	3.28	2.36	1.38	2.47	2.13	5.99	2.01	2.30	2.36	3.05	7.08	10.48	8.23	0.51	77.19
11/14/2010	5.29	4.43	3.05	3.05	0.23	0.28	8.00	4.95	4.95	2.18	0.97	1.55	3.11	3.28	1.38	1.67	2.30	3.05	2.59	1.84	1.44	1.49	1.44	0.28	8.00	0.23	62.80
11/15/2010	7.66	4.60	3.34	3.80	3.05	1.15	2.82	0.28	1.67	8.00	3.85	1.32	0.80	0.28	0.34	0.57	0.23	0.34	0.57	1.15	0.86	2.41	8.35	3.91	8.35	0.23	61.35
11/16/2010	0.97	0.34	0.40	0.28	6.96	6.33	8.64	3.28	4.20	0.28	0.57	0.23	0.63	0.74	0.46	0.40	0.57	0.97	0.80	1.55	7.14	3.51	1.84	0.23	8.64	0.23	51.32
11/17/2010	0.34	3.11	6.96	3.68	2.64	0.92	1.78	0.40	0.57	4.49	6.62	3.97	4.20	2.99	3.91	4.14	0.28	0.46	1.55	8.69	7.20	3.80	4.78	4.37	8.69	0.28	81.85
11/18/2010	3.05	4.66	3.05	4.72	4.72	3.74	4.95	5.58	0.46	0.34	4.55	5.12	3.22	0.23	0.34	0.28	0.28	0.28	1.55	9.50	3.80	4.95	6.33	4.08	9.50	0.23	79.78
11/19/2010	0.80	0.51	7.89	4.37	4.32	4.08	6.85	2.01	0.23	0.40	2.53	5.99	2.41	0.51	0.28	0.23	0.57	0.51	0.57	0.69	0.23	5.47	6.04	3.51	7.89	0.23	61.00
11/20/2010	3.28	3.85	3.05	3.85	3.11	0.23	0.63	4.49	5.76	1.49	0.23	0.34	0.23	6.73	3.85	1.20	0.23	0.28	0.34	2.41	8.29	4.78	4.89	2.13	8.29	0.23	65.67
11/21/2010	0.28	0.34	0.28	8.17	4.89	2.99	4.49	1.78	0.86	1.84	0.69	3.80	4.49	3.51	1.78	7.14	1.03	1.20	2.13	3.97	4.03	10.77	3.85	0.63	10.77	0.28	74.94
11/22/2010	0.23	7.60	4.66	4.08	3.05	5.47	5.93	2.36	0.97	0.28	6.68	5.76	4.32	1.09	0.28	0.40	0.80	0.46	1.15	9.90	4.60	5.18	5.64	3.57	9.90	0.23	84.46
11/23/2010	4.66	3.62	3.97	5.52	2.99	6.33	7.71	3.45	4.43	3.68	4.14	4.49	3.57	0.34	0.57	0.28	8.00	9.67	4.89	5.41	7.02	6.39	2.59	1.84	9.67	0.28	105.56
11/24/2010	0.69	0.57	0.63	9.04	4.83	3.57	2.70	0.63	0.92	4.72	4.14	4.83	1.55	1.15	1.55	4.32	5.87	0.63	5.64	6.10	5.93	2.88	1.49	2.30	9.04	0.57	76.68
11/25/2010	1.72	9.84	6.04	5.18	5.87	4.78	4.95	6.33	1.49	3.80	7.08	7.25	2.13	4.20	1.38	1.26	1.26	3.85	2.76	3.62	1.90	1.61	1.67	0.63	9.84	1.26	90.60
11/26/2010	0.63	0.63	3.57	8.29	7.83	6.22	4.26	0.74	2.07	2.53	0.92	3.80	2.07	2.82	2.53	4.37	0.97	6.45	7.02	3.62	6.85	4.78	1.44	2.41	8.29	0.63	86.82
11/27/2010	1.20	0.46	0.69	0.40	0.40	0.34	0.57	0.63	9.44	9.04	4.60	1.49	0.46	3.34	1.15	0.28	0.63	0.46	1.78	9.96	2.76	1.15	1.67	6.16	9.96	0.28	59.06
11/28/2010	0.57	1.49	9.21	4.55	2.99	3.45	3.51	2.93	4.14	1.67	2.07	0.51	2.18	1.26	0.74	1.15	0.86	2.53	5.47	2.07	8.52	2.99	1.67	0.63	9.21	0.51	67.16
11/29/2010	4.78	6.04	3.57	2.64	0.28	1.03	2.18	0.34	0.57	0.46	8.46	4.72	3.39	0.74	0.28	0.34	1.44	6.22	0.80	2.01	10.94	5.81	5.58	0.92	10.94	0.28	73.54
11/30/2010	0.51	6.39	0.28	6.68	0.40	8.29	11.28	6.16	0.57	0.57	1.32	1.09	1.15	0.97	1.38	5.76	4.95	1.84	8.17	3.91	1.44	7.94	6.50	0.69	11.28	0.28	88.24
																									Grand Total:		1911.71

DATE: 1/25/2011

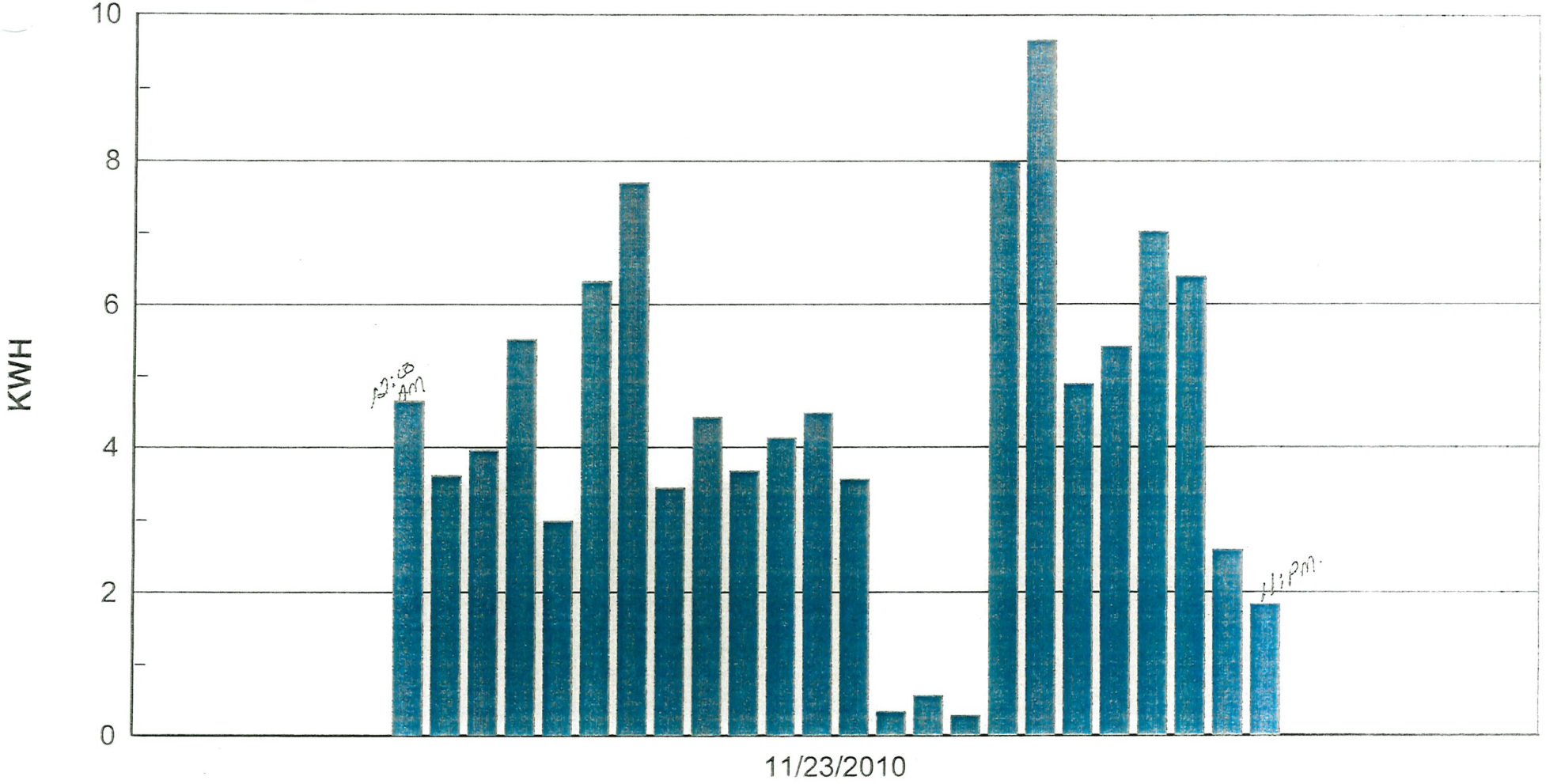
ATTACHMENT 13 - 1

HOUSE ENERGY AND UTILITIES

KWH Used per Day



KWH Used per Hour



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