AMR, & The Google PowerMeter

Robert Johnston

Chief Technology Officer (Geek)

White River Valley Electric Cooperative

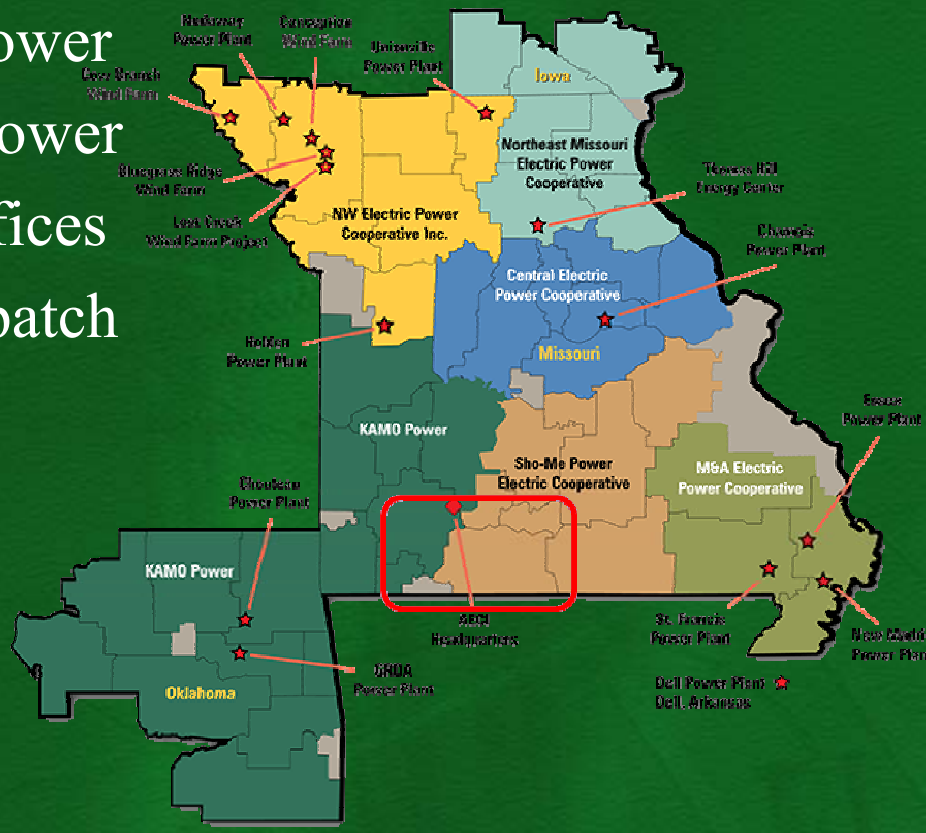
Branson, Missouri

White River Valley Electric Cooperative
A Touchstone Energy® Cooperative

Our Energy, Our Future
A Dialogue With America

White River Valley Electric Cooperative

- Serving 45,000 meters in 5 Southwest Missouri Counties
- Operate 28 Substations Served by 2 G&T's
  - ShoMe Power
  - KAMO Power
- 5 District Offices
- 24 Hour Dispatch



White River Valley Electric Cooperative
A Touchstone Energy® Cooperative

White River Valley Electric Cooperative

- Fiber optic communications to all substations
  - AMR
  - SCADA

100 mb Ethernet to all offices Corp LAN

10mb Ethernet to all offices for SCADA

200mb Ethernet to underground server storage

White River Valley Electric Cooperative
A Touchstone Energy® Cooperative

Our Energy, Our Future
A Dialogue With America

White River Valley Electric Cooperative

- IT Systems Overview
  - AMR — TWACS
  - SCADA — Survalent
  - CIS ABS — NISC
  - GIS OMS — Trimble
  - EA — Cyme
  - Phone & IVR — Nortel

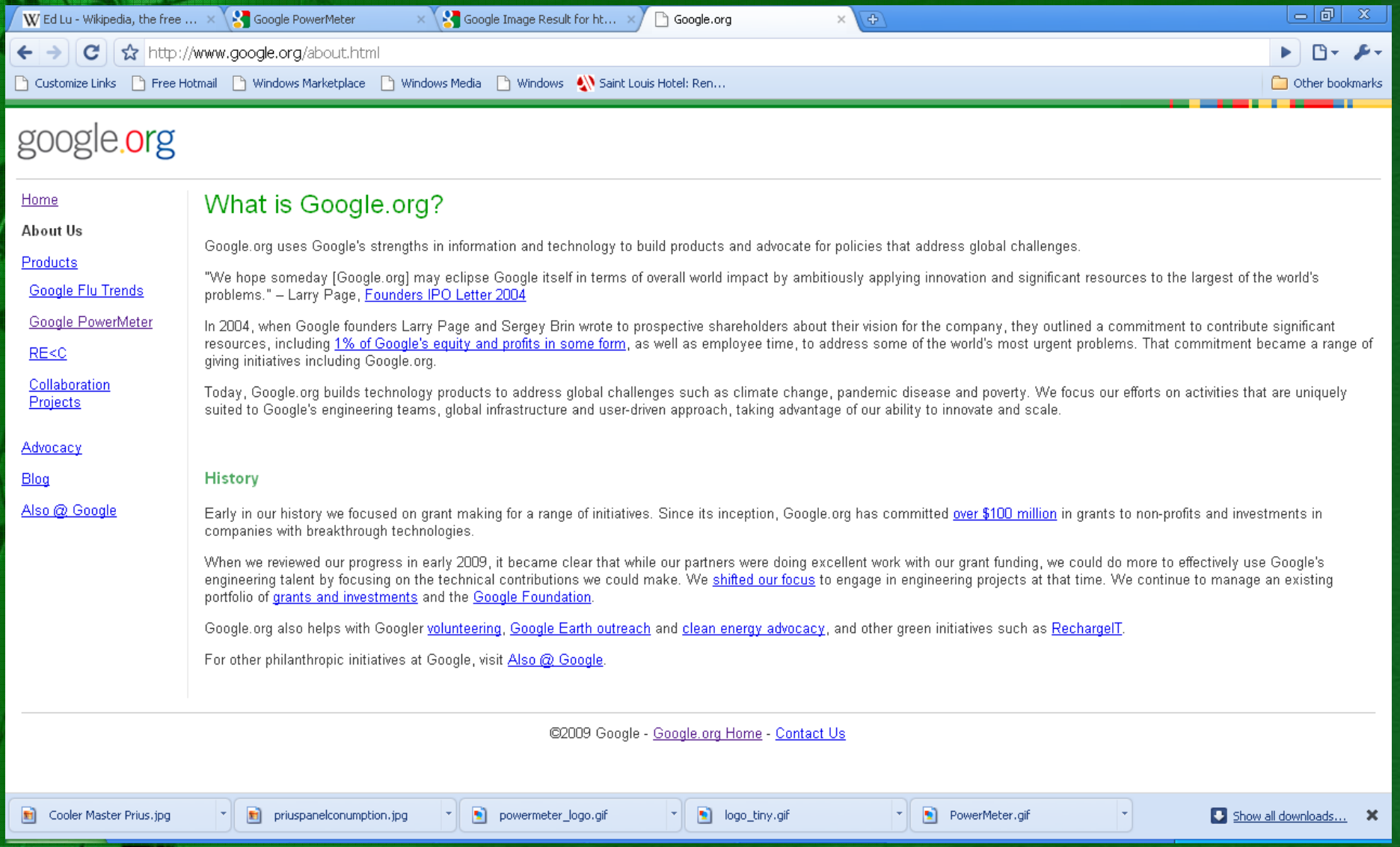
White River Valley Electric Cooperative
A Touchstone Energy® Cooperative

Our Energy, Our Future
A Dialogue With America

White River Valley Electric Cooperative

- AMR Installation Timeline
  - 2000 Project Approved Installation Begins
  - 2005 Initial Install Complete
    - Begin reading all meters daily
  - 2006 Begin Testing Disconnect Devices
  - 2006 Began Utilizing PrOasys for Outage Determination
  - 2007 Begin Full Disconnect Deployment
  - 2007 Hourly Readings on all Meters
  - 2008 Learned of Google PowerMeter Project
  - 2009 Deployed Beta PowerMeter
  - 2010 ? MDM & Prepaid Electricity, Capacitor Control, Downline Recloser Monitor & Control

google.org Google powermeter



google.org

Google powermeter

google.org Energy Information

Google.org home

Energy Information

- Home
- Smarter Power
- What We're Doing
- Demo Project
- FAQs

- Work with Us
- Energy Saving Tips

"If you cannot measure it, you cannot improve it." — Lord Kelvin

How much does it cost to leave your TV on all day? What about turning your air conditioning 1 degree cooler? Which uses more power every month — your fridge or your dishwasher? Is your household more or less energy efficient than similar homes in your neighborhood?

Our lack of knowledge about our own energy usage is a huge problem, but also a huge opportunity for us all to save money and fight global warming by reducing our power usage. Studies show that access to your household's personal energy information is likely to save you between 5–15% on your monthly bill, and the potential impact of large numbers of people achieving similar efficiencies is even more exciting. For every six households that save 10% on electricity, for instance, we reduce carbon emissions as much as taking one conventional car off the road (see sources and calculation).

GE and Google to host:

"Plug into the Smart Grid"
Feb. 17, 2009
Washington DC

Google powermeter

Dr. Ed Lu

Ed Lu - Wikipedia, the free ...

http://en.wikipedia.org/wiki/Ed_Lu

Customize Links | Free Hotmail | Windows Marketplace | Windows Media | Windows | Saint Louis Hotel: Ren... | Other bookmarks

navigation
- Main page
- Contents
- Featured content
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search

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- Recent changes
- Contact Wikipedia
- Donate to Wikipedia
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toolbox
- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link
- Cite this page

languages
- Български
- Česky
- Deutsch
- Français
- Italiano
- Norsk (bokmål)
- Português
- Svenska

Ed Lu

From Wikipedia, the free encyclopedia

Edward Tsang Lu (simplified Chinese: 卢杰; traditional Chinese: 盧傑; pinyin: *Lú Jié*) (born July 1, 1963) is an American physicist and astronaut, a veteran of two space shuttle missions and an extended stay aboard the International Space Station.[1]

Contents [hide]
1 Education
2 Space
3 After NASA
4 References
5 External links

Education [edit]

Raised in Webster, New York, Lu attended R. L. Thomas High School, where he was a member of the wrestling team and graduated in 1980. Later, Lu earned a degree in electrical engineering from Cornell University where he lettered in wrestling. He then received a doctoral degree in applied physics from Stanford University in 1989.[1]

Ed Lu is a member of the Psi chapter of Pi Kappa Phi fraternity at Cornell. Lu is a specialist in solar physics and did postdoctoral work at the Institute for Astronomy in Honolulu, Hawaii before being selected for NASA's astronaut corps in 1994.[1]

Space [edit]

Lu flew on space shuttle missions STS-84 in 1997 and STS-106 in 2000, in which he carried out a six-hour spacewalk to perform construction work on the International Space Station. Having been flight engineer on Soyuz TMA-2, Lu spent six months in space in 2003 as part of ISS **Expedition 7**, with cosmonaut Yuri Malenchenko.[1]

In his spare time while at NASA, Lu founded the B612 Foundation whose goal is to be able to significantly alter the orbit of an asteroid, in a controlled manner, by 2015.[1]

After NASA [edit]

On August 10, 2007, Dr. Lu announced he was retiring from NASA to work at Google.[1][2]

References [edit]

Edward T. Lu

Astronaut

Born	July 1, 1963 (age 46) Springfield, Massachusetts
Other occupation	Physicist
Time in space	205d 23h 18m
Selection	1994 NASA Group
Missions	STS-84, STS-106, Soyuz TMA-2, Expedition 7
Mission insignia	

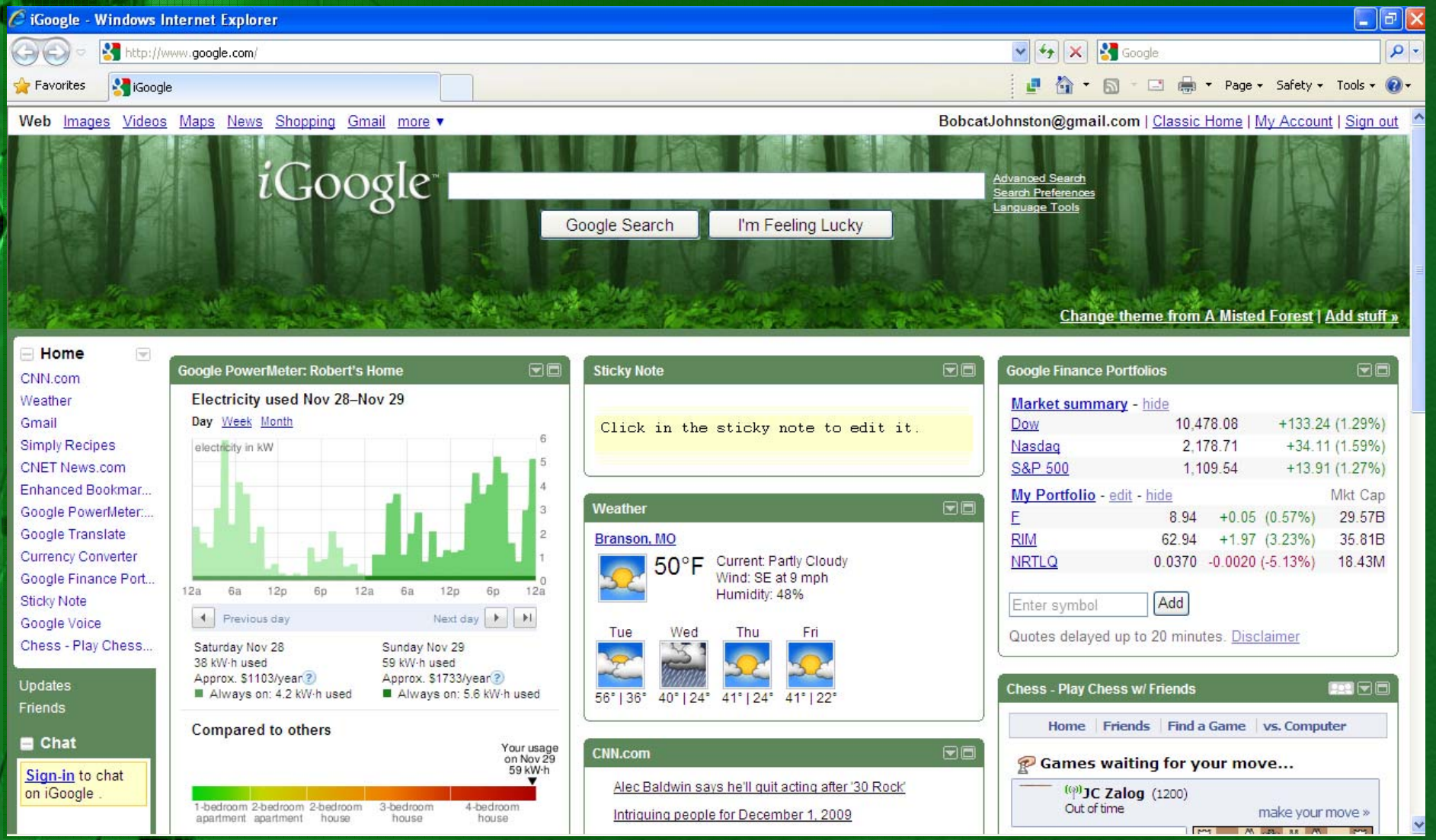
Google powermeter
Toyota Prius

White River Valley Electric Cooperative

Why Google PowerMeter?

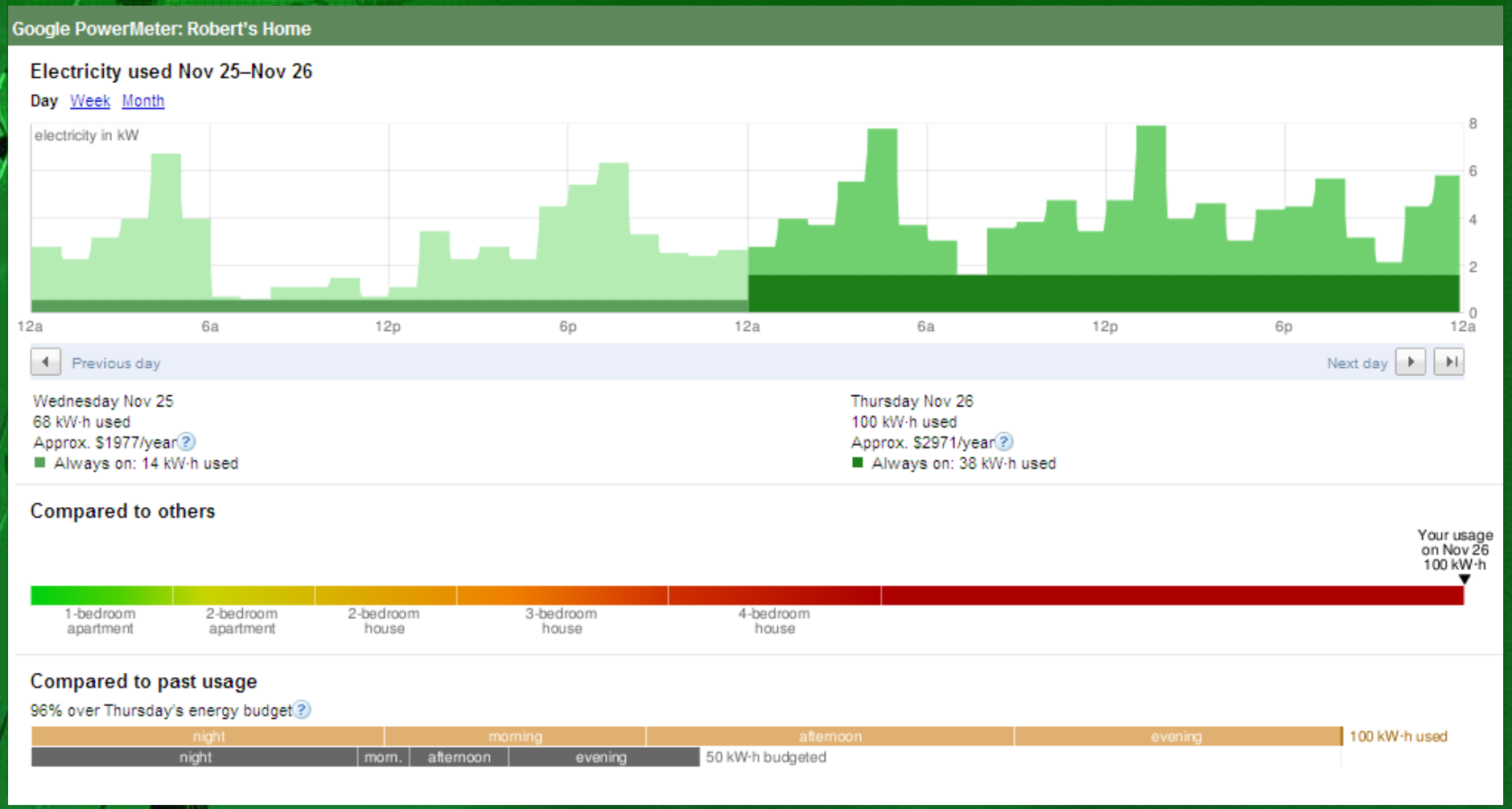
- Cost !!
- Looking for vehicle to get information to members
- Information constantly in front of members
- Daily login not necessary
- Automated Sign-up process available
- Can deliver messages to users
- CSR's have identical interface for assisting Members
- Data can be eliminated from Google database
- Proof of concept

iGoogle


iGoogle - Windows Internet Explorer
http://www.google.com/
Favorites
iGoogle
Page
Safety
Tools
Web Images Videos Maps News Shopping Gmail more
BobcatJohnston@gmail.com | Classic Home | My Account | Sign out
iGoogle
Advanced Search
Search Preferences
Language Tools
Google Search
I'm Feeling Lucky
Change theme from A Misted Forest | Add stuff »
Home
CNN.com
Weather
Gmail
Simply Recipes
CNET News.com
Enhanced Bookmar...
Google PowerMeter:...
Google Translate
Currency Converter
Google Finance Port...
Sticky Note
Google Voice
Chess - Play Chess...
Updates
Friends
Chat
Sign-in to chat on iGoogle .
Google PowerMeter: Robert's Home
Electricity used Nov 28–Nov 29
Day Week Month
electricity in kW
12a 6a 12p 6p 12a 6a 12p 6p 12a
Previous day
Next day
Saturday Nov 28
38 kW·h used
Approx. $1103/year
Always on: 4.2 kW·h used
Sunday Nov 29
59 kW·h used
Approx. $1733/year
Always on: 5.6 kW·h used
Compared to others
Your usage on Nov 29 59 kW·h
1-bedroom apartment
2-bedroom apartment
2-bedroom house
3-bedroom house
4-bedroom house
Sticky Note
Click in the sticky note to edit it.
Weather
Branson, MO
50°F
Current: Partly Cloudy
Wind: SE at 9 mph
Humidity: 48%
Tue 56° | 36°
Wed 40° | 24°
Thu 41° | 24°
Fri 41° | 22°
CNN.com
Alec Baldwin says he'll quit acting after '30 Rock'
Intriguing people for December 1, 2009
Google Finance Portfolios
Market summary - hide
Dow 10,478.08 +133.24 (1.29%)
Nasdaq 2,178.71 +34.11 (1.59%)
S&P 500 1,109.54 +13.91 (1.27%)
My Portfolio - edit - hide
Mkt Cap
F 8.94 +0.05 (0.57%) 29.57B
RIM 62.94 +1.97 (3.23%) 35.81B
NRTLQ 0.0370 -0.0020 (-5.13%) 18.43M
Enter symbol
Add
Quotes delayed up to 20 minutes. Disclaimer
Chess - Play Chess w/ Friends
Home Friends Find a Game vs. Computer
Games waiting for your move...
JC Zalog (1200)
Out of time
make your move »

iGoogle™

- Daily View



- Weekly View

Google PowerMeter: Robert's Home

Electricity used Nov 15–Nov 28

Day Week Month

electricity in kW·h

120
100
80
60
40
20
0

S M T W T F S S M T W T F S

Previous week

Click here to shrink

Next week

Nov 15–Nov 21
430 kW·h used
Approx. $1806/year
Always on: 43 kW·h used

Nov 22–Nov 28
410 kW·h used
Approx. $1697/year
Always on: 79 kW·h used

Compared to others

Your usage for Nov 22–Nov 28 410 kW·h

1-bedroom apartment | 2-bedroom apartment | 2-bedroom house | 3-bedroom house | 4-bedroom house

Compared to past usage

Already exceeded the energy budget for Nov 22–Nov 28

S M T W T F S — 410 kW·h used

S M T W T F S — 390 kW·h budgeted

- Monthly View

Google PowerMeter: Robert's Home

Electricity used November 2009

Day Week Month

electricity in kW·h

120
100
80
60
40
20
0

1 3 6 9 12 15 18 21 24 27 30

Previous month

November 2009
1.4 MW·h used
Approx. $1383/year
Always on: 200 kW·h used

Compared to others

Your usage in November 2009 1.4 MW·h

1-bedroom apartment | 2-bedroom apartment | 2-bedroom house | 3-bedroom house | 4-bedroom house

iGoogle™

- User Settings

Google powermeter

Google PowerMeter Home

Settings Learn more

Currency: U. S. dollars

Estimated cost per kW·h: .08

Week starts on: Language default

Budget tracker: Budget to reduce usage by 10%

☐ Receive weekly email describing your electricity consumption

Save Settings

Utility providers

Test White River Valley Electric Cooperative

Status: Enrolled. Data was last received 7 hours ago.

- **Robert's House** (location: Branson MO,65616,USA): Data is present up to November 30, 2009 10:59:00 PM CST. Download spreadsheet (Download raw data)

Clear existing data » Unenroll and keep data » Unenroll and delete data »

White River Valley Electric Cooperative

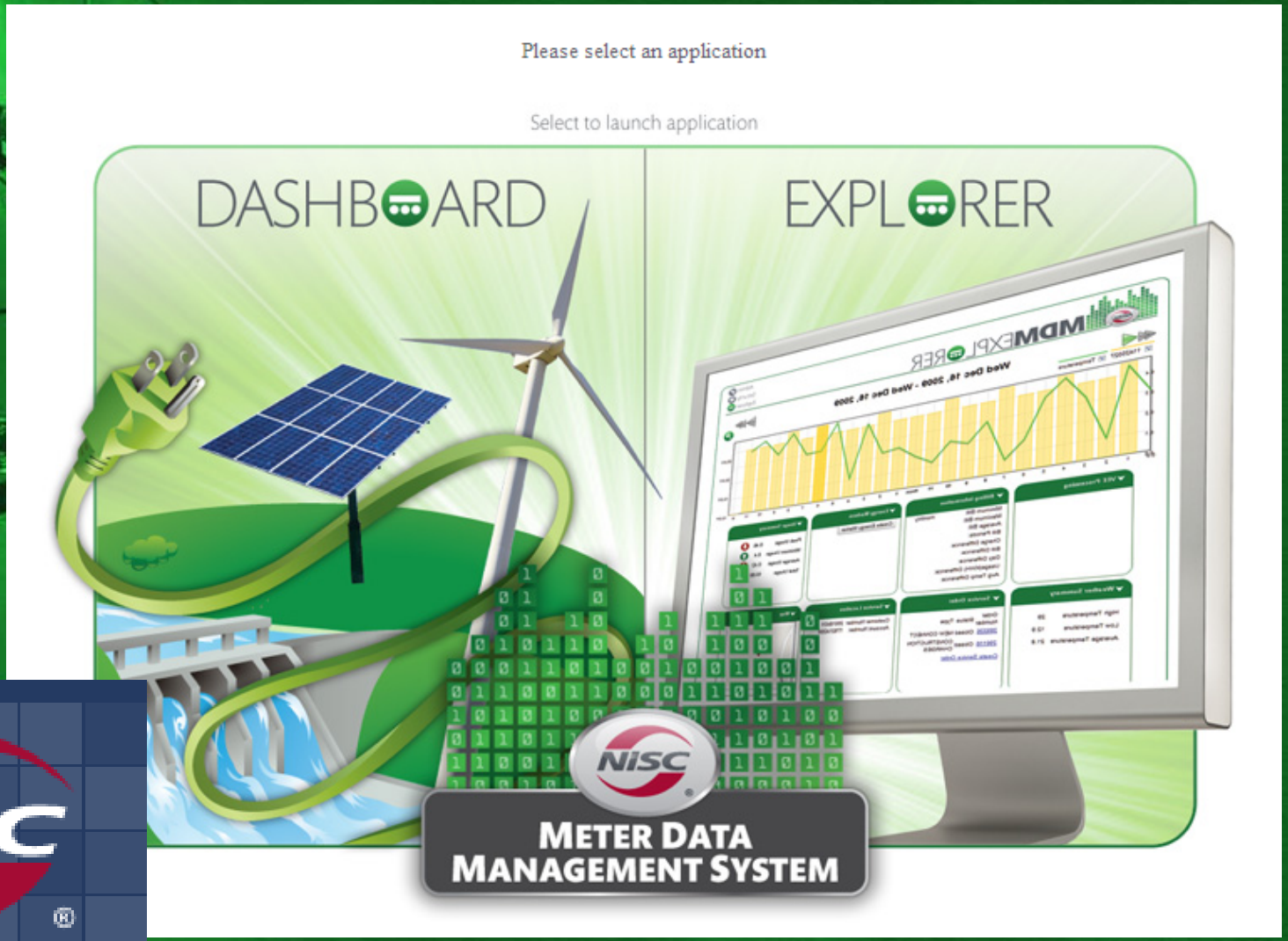
- Next Step…
  - WRVEC Plans to deliver information into members' hands utilizing a number of vehicles. (working with NISC)
  - Providing data link to…

    Google PowerMeter

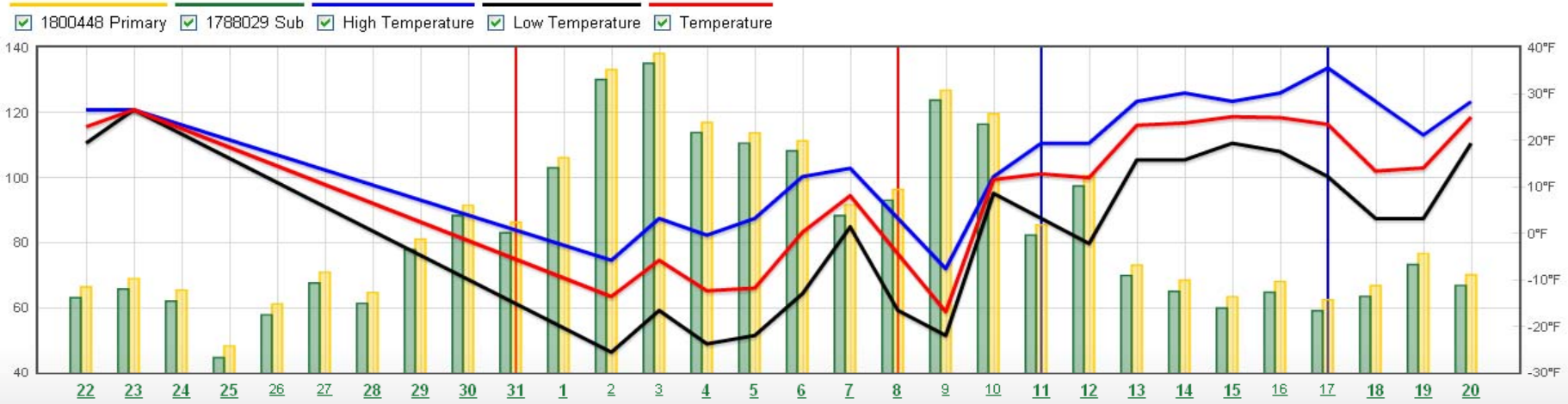
    Microsoft Hohm

White River Valley Electric Cooperative

White River Valley Electric Cooperative



Tue Dec 22, 2009 - Wed Jan 20, 2010



Billing Information

Unbilled | In View | Last

Account :	774787611
Billing Date :	2/9/2010
Billed KWH :	2857
Interval KWH :	2852
Total Charge :	$143.85
Energy Charge :	$132.33
Past Due :	$0.00

Billing Comparison

Baseline Period :	Jan 2010
Comparison Period :	Dec 2009
Bill Days :	+1
Bill Difference :	$51.36
KWH Usage :	+1,172
Energy Charge :	+$48.37
Average Temp :	-

Meter Usage Summary

Meter : 1800448 Primary

Peak Usage :	138.12
Minimum Usage :	48.21
Average Usage :	86.45
Total Usage :	2,593.44

Service Order

- [x] ENERGY AUDIT
- [x] QUALITY OF SERVICE
- [ ] METERED OFFPEAK INSTALL
- [ ] RECEIVER INSPECTION
- [ ] RECONNECT - NEW
- [ ] DISCONNECT
- [ ] VERIFY METER READING

Create Service Order

VEE Processing

VEE Accuracy : 100%

Validations : 0
Estimations : 0
Edits : 0

Collection : 100%

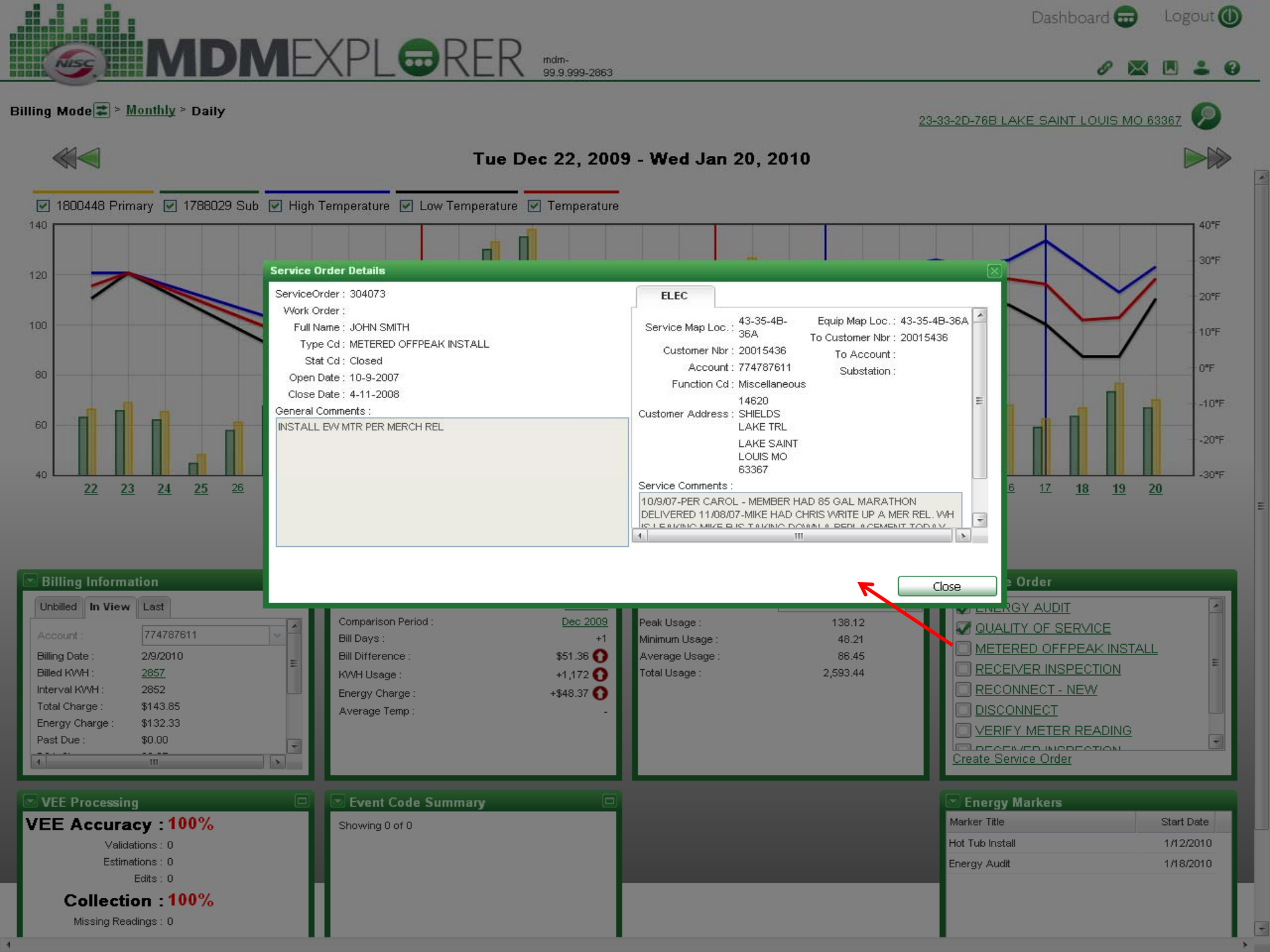
Missing Readings : 0

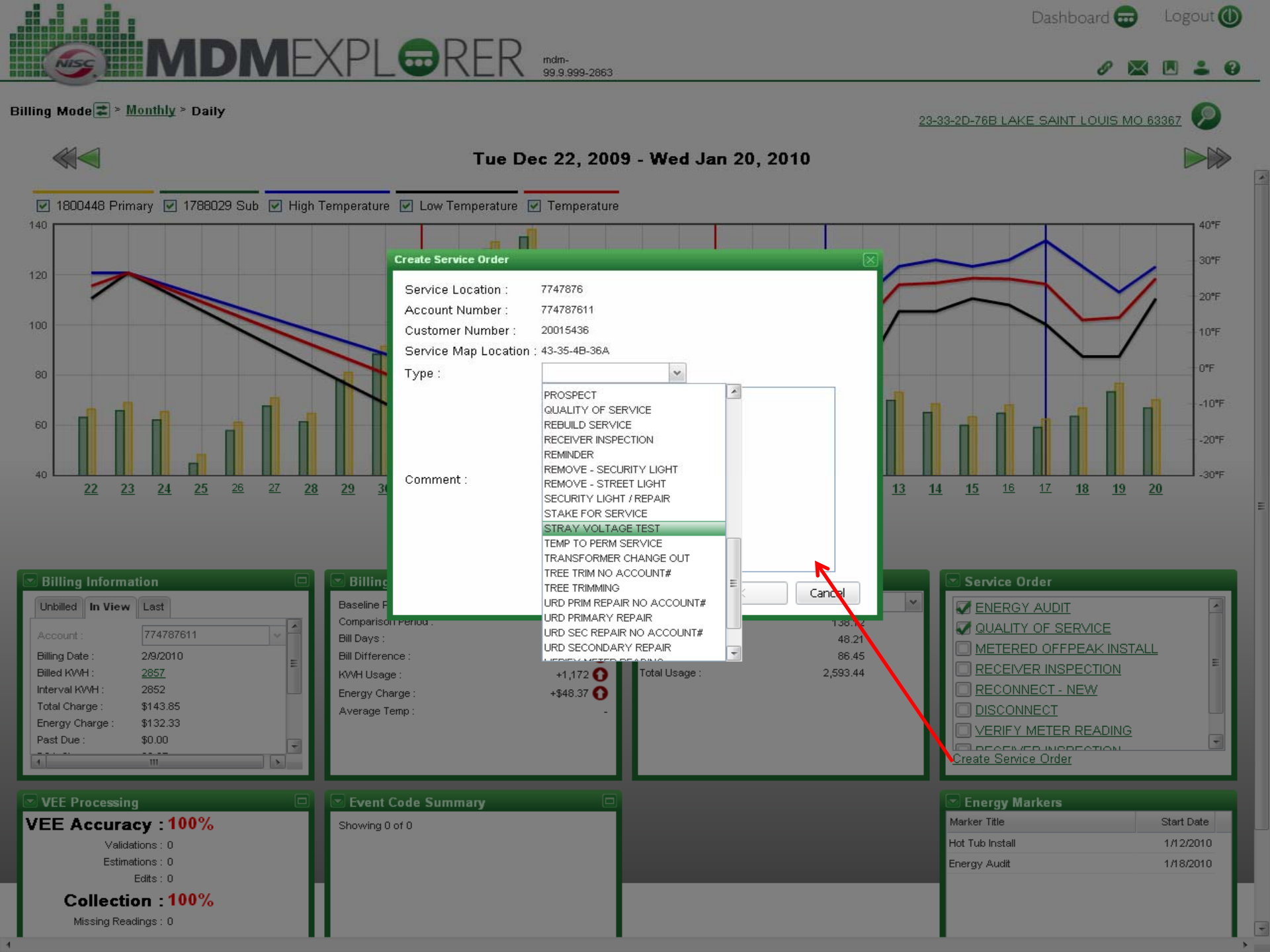
Event Code Summary

Showing 0 of 0

Energy Markers

Marker Title	Start Date
Hot Tub Install	1/12/2010
Energy Audit	1/18/2010


MDMEXPLORER
mdm-
99.9.999-2863
Dashboard
Logout
Billing Mode > Monthly > Daily
23-33-2D-76B LAKE SAINT LOUIS MO 63367
Tue Dec 22, 2009 - Wed Jan 20, 2010
1800448 Primary
1788029 Sub
High Temperature
Low Temperature
Temperature
Service Order Details
ServiceOrder : 304073
Work Order :
Full Name : JOHN SMITH
Type Cd : METERED OFFPEAK INSTALL
Stat Cd : Closed
Open Date : 10-9-2007
Close Date : 4-11-2008
General Comments :
INSTALL EW MTR PER MERCH REL
ELEC
Service Map Loc. : 43-35-4B-36A
Equip Map Loc. : 43-35-4B-36A
Customer Nbr : 20015436
To Customer Nbr : 20015436
Account : 774787611
To Account :
Function Cd : Miscellaneous
Substation :
Customer Address : 14620 SHIELDS LAKE TRL LAKE SAINT LOUIS MO 63367
Service Comments :
10/9/07-PER CAROL - MEMBER HAD 85 GAL MARATHON DELIVERED 11/08/07-MIKE HAD CHRIS WRITE UP A MER REL. WH
Close
Billing Information
Unbilled
In View
Last
Account : 774787611
Billing Date : 2/9/2010
Billed KWH : 2857
Interval KWH : 2852
Total Charge : $143.85
Energy Charge : $132.33
Past Due : $0.00
Comparison Period : Dec 2009
Bill Days : +1
Bill Difference : $51.36
KWH Usage : +1,172
Energy Charge : +$48.37
Average Temp : -
Peak Usage : 138.12
Minimum Usage : 48.21
Average Usage : 86.45
Total Usage : 2,593.44
ENERGY AUDIT
QUALITY OF SERVICE
METERED OFFPEAK INSTALL
RECEIVER INSPECTION
RECONNECT - NEW
DISCONNECT
VERIFY METER READING
Create Service Order
VEE Processing
VEE Accuracy : 100%
Validations : 0
Estimations : 0
Edits : 0
Collection : 100%
Missing Readings : 0
Event Code Summary
Showing 0 of 0
Energy Markers
Marker Title
Start Date
Hot Tub Install
1/12/2010
Energy Audit
1/18/2010


MDMEXPLORER
mdm-
99.9.999-2863
Dashboard
Logout
Billing Mode > Monthly > Daily
23-33-2D-76B LAKE SAINT LOUIS MO 63367
Tue Dec 22, 2009 - Wed Jan 20, 2010
1800448 Primary
1788029 Sub
High Temperature
Low Temperature
Temperature
Create Service Order
Service Location : 7747876
Account Number : 774787611
Customer Number : 20015436
Service Map Location : 43-35-4B-36A
Type :
Comment :
PROSPECT
QUALITY OF SERVICE
REBUILD SERVICE
RECEIVER INSPECTION
REMINDER
REMOVE - SECURITY LIGHT
REMOVE - STREET LIGHT
SECURITY LIGHT / REPAIR
STAKE FOR SERVICE
STRAY VOLTAGE TEST
TEMP TO PERM SERVICE
TRANSFORMER CHANGE OUT
TREE TRIM NO ACCOUNT#
TREE TRIMMING
URD PRIM REPAIR NO ACCOUNT#
URD PRIMARY REPAIR
URD SEC REPAIR NO ACCOUNT#
URD SECONDARY REPAIR
Cancel
Billing Information
Unbilled
In View
Last
Account : 774787611
Billing Date : 2/9/2010
Billed KWH : 2857
Interval KWH : 2852
Total Charge : $143.85
Energy Charge : $132.33
Past Due : $0.00
Billing
Baseline P
Comparison Period :
Bill Days : 48.21
Bill Difference : 86.45
KWH Usage : +1,172
Energy Charge : +$48.37
Average Temp :
Total Usage : 2,593.44
Service Order
ENERGY AUDIT
QUALITY OF SERVICE
METERED OFFPEAK INSTALL
RECEIVER INSPECTION
RECONNECT - NEW
DISCONNECT
VERIFY METER READING
Create Service Order
VEE Processing
VEE Accuracy : 100%
Validations : 0
Estimations : 0
Edits : 0
Collection : 100%
Missing Readings : 0
Event Code Summary
Showing 0 of 0
Energy Markers
Marker Title
Start Date
Hot Tub Install
1/12/2010
Energy Audit
1/18/2010

MDMEXPLORER

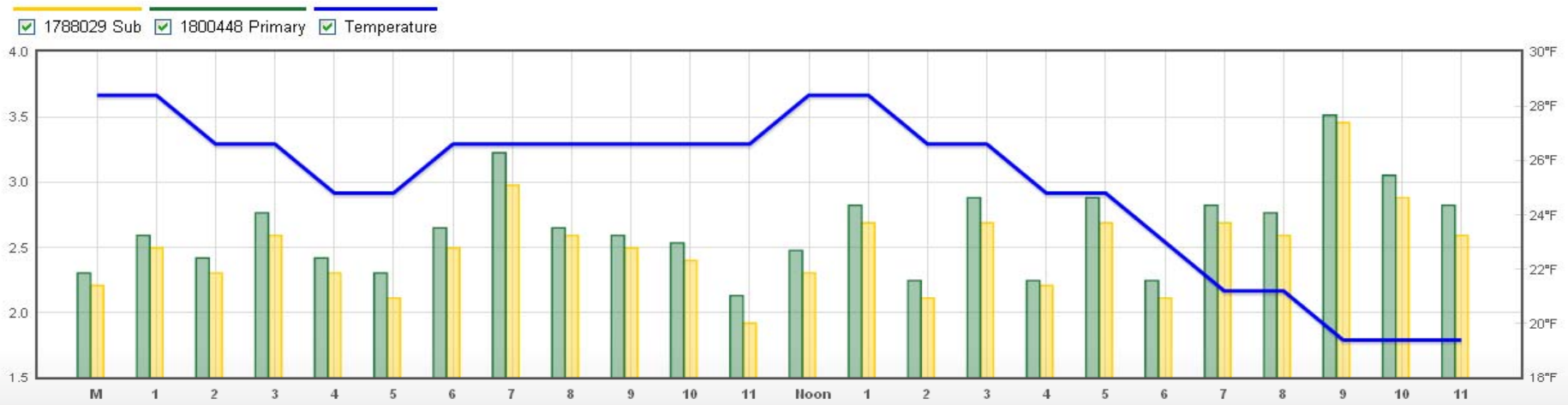
mdm-
99.9.999-2863

Dashboard Logout

Billing Mode > Monthly > Daily > Hourly

23-33-2D-76B LAKE SAINT LOUIS MO 63367

Fri Jan 15, 2010



Billing Information

Unbilled | In View | Last

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Billing Comparison

Baseline Period :	Jan 2010
Comparison Period :	Dec 2009
Bill Days :	+1
Bill Difference :	$51.36
KWH Usage :	+1,172
Energy Charge :	+$48.37
Average Temp :	-

Meter Usage Summary

Meter : 1800448 Primary

Peak Usage :	3.51
Minimum Usage :	2.13
Average Usage :	2.64
Total Usage :	63.36

Service Order

- [x] ENERGY AUDIT
- [x] QUALITY OF SERVICE
- [ ] METERED OFFPEAK INSTALL
- [ ] RECEIVER INSPECTION
- [ ] RECONNECT - NEW
- [ ] DISCONNECT
- [ ] VERIFY METER READING

Create Service Order

VEE Processing

VEE Accuracy : 100%

Validations : 0
Estimations : 0
Edits : 0

Collection : 100%

Missing Readings : 0

Event Code Summary

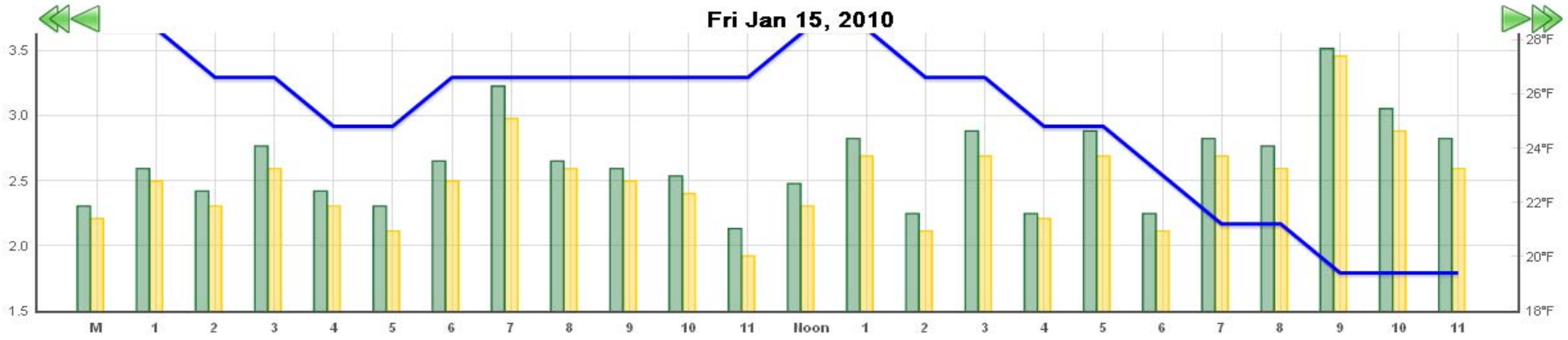
Showing 0 of 0

Energy Markers

Marker Title	Start Date

No items to show.

23-33-2D-76B LAKE SAINT LOUIS MO 63367



Billing Comparison

Baseline Period: April, 2010 : 3/2/2010 - 3/30/2010 : Change

* Estimated Value

Bill Information		Bill Differences			Bill Totals				Daily Averages			Average Differences	
Bill Date	Billing Days	KWH	Total Charge	Energy Charge	KWH	Da	Energy Charge	Total Charge	KWH	Energy Charge	Temperature	Energy Charge	KWH
4/8/2010	3/2/2010 - 3/30/2	-	-	-	1307	27	$67.20	$74.32	48.41	$2.49	35.87°F	-	-
Unbilled	3/31/2010 - 4/30	1069.86	$60.84'	$55.01'	237*	30	$12.19*	$13.48*	7.9	$0.41*	61.98°F	$2.08'	40.5
3/9/2010	2/1/2010 - 3/2/2(	-850	-$38.03	-$35.49	2157	29	$102.69	$112.35	74.38	$3.54	15.06°F	-$1.05	-25.97
2/9/2010	12/31/2009 - 2/1	-1550	-$69.53	-$65.13	2857	32	$132.33	$143.85	89.28	$4.14	11.25°F	-$1.65	-40.87
1/8/2010	12/2/2009 - 12/3	-816	-$36.07	-$34.03	2123	29	$101.23	$110.39	73.21	$3.49	23.16°F	-$1.00	-24.8
12/8/2009	11/2/2009 - 12/2	356	$15.29	$14.34	951	30	$52.86	$59.03	31.7	$1.76	-	$0.73	16.71
11/10/2009	10/1/2009 - 11/2	412	$17.69	$16.43	895	32	$50.77	$56.63	27.97	$1.59	-	$0.90	20.44
10/8/2009	9/1/2009 - 10/1/2	1114	$48.96	$45.77	193	30	$21.43	$25.36	6.43	$0.71	-	$1.77	41.97
9/9/2009	7/31/2009 - 9/1/2	1124	$47.08	$44.12	183	32	$23.08	$27.24	5.72	$0.72	-	$1.77	42.69
8/8/2009	6/30/2009 - 7/31	1135	$47.57	$44.94	172	31	$22.26	$26.75	5.55	$0.72	-	$1.77	42.86

Bill Summary

Bill Date :	4/8/2010	Billing Days :	3/2/2010 - 3/30/2010
Total Charge Difference :	-	KWH Difference :	-
Energy Charge Difference :	-	KWH Usage :	1307
Energy Charge :	$67.20	Avg Daily KWH :	48.41
Avg Daily Energy Charge :	$2.49	Average Temperature :	35.87°F
Daily Energy Charge :	-	Daily KWH :	-
Total Charge :	$74.32	Bill Days :	27

MDM DASHBOARD

Explorer Logout

Substation 10

Thursday, April 1, 2010 - Substation JESSENLAND

My Worksheets

- New Folder
- Revenue Protection
  - Unauthorized Usages by Substation
  - Zero Usage Reports by Revenue Class
- Substations
  - Substation 10
- Collection Status
- Import Status
- Key Accounts
- Worksheet for Quality Codes

Shared Worksheets

- cgray
- dmartin
  - All Portlets
- dtroesser
- jford
- jkalbac
- kpearce
- nisc
- sfines
- ssmith
- sys
- vfels

Event Code Summary

Showing top 1 of 1

1.23.1.157 : 4

Zero Usage

Zero Usage : 4%

Meter Number : 1960

Unauthorized Usage

Unauthorized Usage : 0%

Import Logs

Source	End Date	Total Imported	Total Duplicate	Percent Import

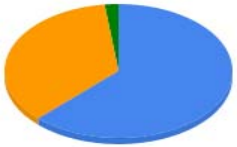
No items to show.

Validations

Valid: 69.404%

Showing top 4 of 5

Stuck Register :	4769
Consecutive Zeros :	2717
Sum Check :	149
Negative Reading :	4



Quality Code Summary

4 Issues – 0.02%

Showing top 1 of 1

SensorFailure : 4

MDMDASHBOARD

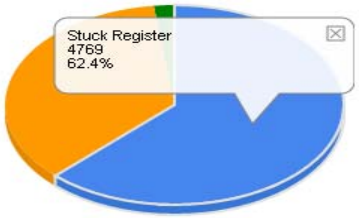
Explorer Logout

Substation 10

Thursday, April 1, 2010 - Substation JESSENLAND

Validations

Validation	Number of Occurrences
Spike Check	1
Sum Check	149
Consecutive Zeros	2717
Negative Reading	4
Stuck Register	4769



Ami Meter ID	Ext Meter Base	Ext Meter No.	Serial No.	Meter Status	Last Connected Date	Last Disconnect	Meter Type	Substation	Feeder	Parent Ami	Sub Meter Type	Export Eligible	Reading Seque
7318186	7748890+2	7318186		Inactive Installed	Wed Sep 08 2004 0(		KWH/Demand	10 - JESSENLAI	3	3482863	Subtractive	false	2700
7318000	5863700+1	7318000		Inactive Installed	Mon Jun 14 2004 00		KWH/Demand	10 - JESSENLAI	1			false	1380
15509163	2558320+1	15509163		Inactive Installed	Mon Nov 16 2009 0(		KWH/Demand	10 - JESSENLAI	3			false	80
3482699	5637014+1	3482699		Inactive Installed	Thu Jul 15 2004 00:(		KWH/Demand	10 - JESSENLAI	3			false	1970
3483103	7761812+1	3483103		Inactive Installed	Wed Sep 08 2004 0(		KWH/Demand	10 - JESSENLAI	3			false	2900
3483128	7752732+1	3483128		Inactive Installed	Mon Jul 11 2005 00:(		KWH/Demand	10 - JESSENLAI	1			false	870
10696569	7221005+1	10696569		Inactive Installed	Fri Sep 01 2006 00:(		KWH/Demand	10 - JESSENLAI	1			false	930
3482355	7756213+1	3482355		Inactive Installed	Tue Jul 20 2004 00:(		KWH/Demand	10 - JESSENLAI	1			false	1080
14332528	7785140+1	14332528		Inactive Installed	Wed Oct 15 2008 0(		KWH/Demand	10 - JESSENLAI	4			false	1235
14583129	1681776+2	14583129		Inactive Installed	Tue Dec 22 2009 00		KWH/Demand	10 - JESSENLAI	1	3482494	Subtractive	false	570
7318091	580531+1	7318091		Inactive Installed	Thu Jun 24 2004 00:		KWH/Demand	10 - JESSENLAI	3			false	1460
11720489	567810+2	11720489		Inactive Installed	Fri Jun 27 2008 00:0		KWH/Demand	10 - JESSENLAI	3	3482371	Subtractive	false	3030
11720429	691586+1	11720429		Inactive Installed	Tue Feb 12 2008 00:		KWH/Demand	10 - JESSENLAI	4			false	880
3482650	7761054+1	3482650		Inactive Installed	Thu Jul 15 2004 00:(		KWH/Demand	10 - JESSENLAI	3			false	2010
6118066	5800009+2	6118066		Inactive Installed	Tue May 11 2004 00		KWH/Demand	10 - JESSENLAI	1	3482946	Subtractive	false	580
10725551	7754300+1	10725551		Inactive Installed	Fri Jun 16 2006 00:0		KWH/Demand	10 - JESSENLAI	3			false	110
3482413	2154011+1	3482413		Inactive Installed	Tue Aug 03 2004 00		KWH/Demand	10 - JESSENLAI	1			false	970
3482929	7771219+1	3482929		Inactive Installed	Tue May 04 2004 00		KWH/Demand	10 - JESSENLAI	1			false	1660
7318366	7762436+1	7318366		Inactive Installed	Wed Feb 02 2005 0(		KWH/Demand	10 - JESSENLAI	3			false	30
				Inactive Installed	Mon Aug 11 2008 0(		KWH/Demand	10 - JESSENLAI	4	7318105	Subtractive	false	2230

White River Valley Electric Cooperative

- WRVEC Believes that by engaging members to become aware of their usage….
  - They have the tools to conserve
  - They will be better prepared for TOU billing.
  - Prepaid Electricity

  - Questions????