



AUTOMATED METERING INFRASTRUCTURE

KANSAS COOPERATIVES UPDATE

HOUSE ENERGY & UTILITIES COMMITTEE
March 2, 2012

Presented by:
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General Manager
DS&O Electric Cooperative



Where Are We?

- Eastern Kansas Co-ops – Using PLC technology
 - AMI – 15 Co-ops – 113,000 meters.
 - AMR – 2 Co-ops – 16,000 meters.
 - 2 Co-ops – Feasibility Studies or Beginning Installation.
- Several types of AMI technology.
 - Power line carrier.
 - Low power radio.
 - Cell Phone.



AMI Capabilities

- Improved meter reading info.
 - Reduced Meter Reading Cost.
 - Low Co-op customer density makes automation very valuable.
 - DS&O's density is only 3.3 customers per mile.
 - Eliminates need for periodic employee meter readings.
 - Timely and Accurate Billing Data.
 - Reduced losses from billing lag.
 - Lower "Doubtful Account" write-off.
 - More accurate pricing signals for summer-winter rate differentials.



AMI Capabilities

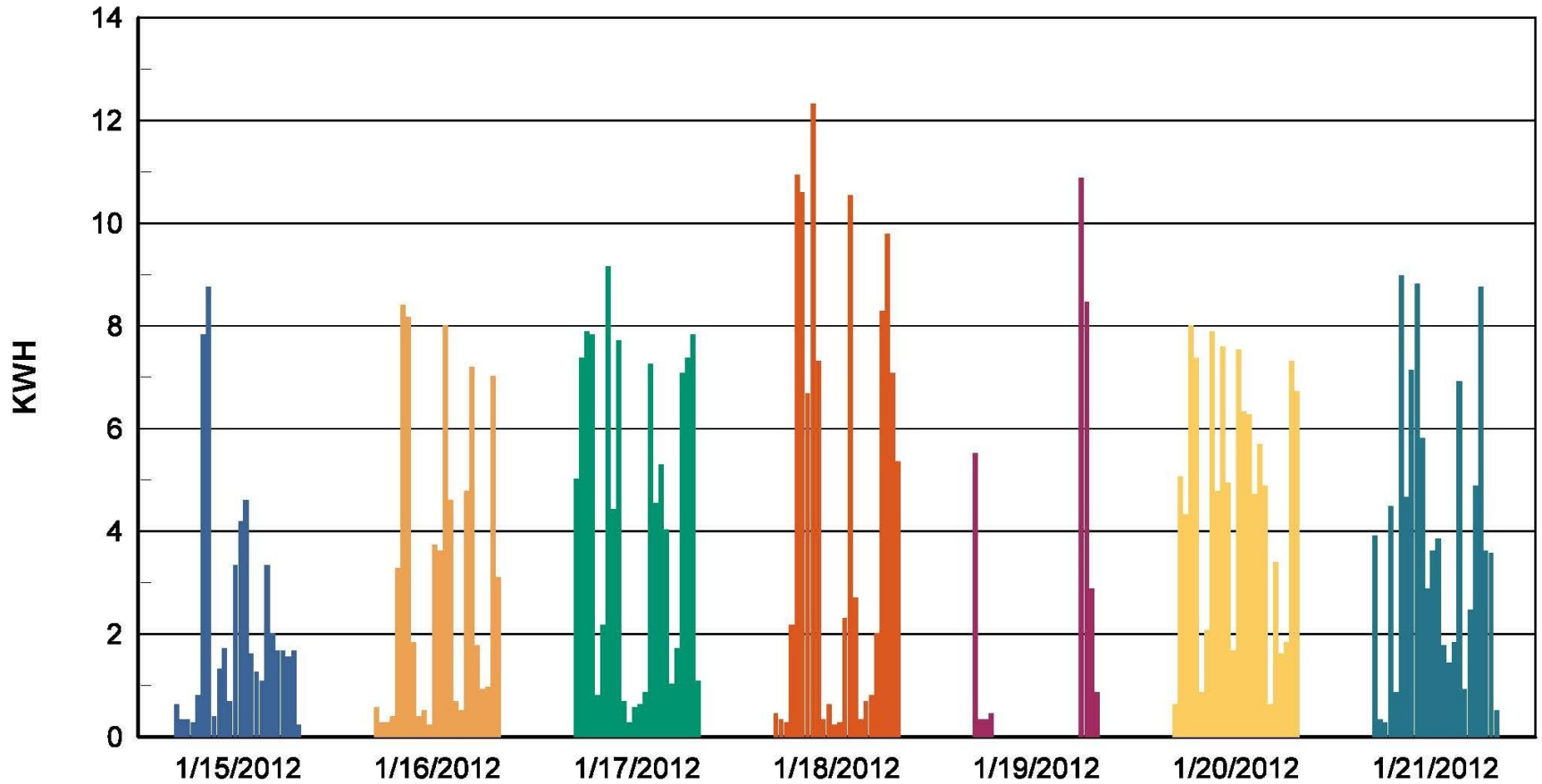
- Increased Capabilities.
 - Load Control
 - More accurate control.
 - Few control events.
 - Verification of control.
 - Expanded control base.
 - Energy Efficiency
 - Accurate load control improves efficiency.
 - Increases number of customers willing to participate.



AMI Capabilities

- **Increased Customer Information.**
 - Individual customer data will be available on Cooperative's E-bill Website.
 - Daily data can be viewed with NWS temperature data.
 - Data can be viewed in one-hour increments for trouble shooting.
- **New Rate Structures.**
 - Time-of-Use.
 - Pre-pay.
 - Residential demand.
 - Co-incident peak .

KWH Used per Hour

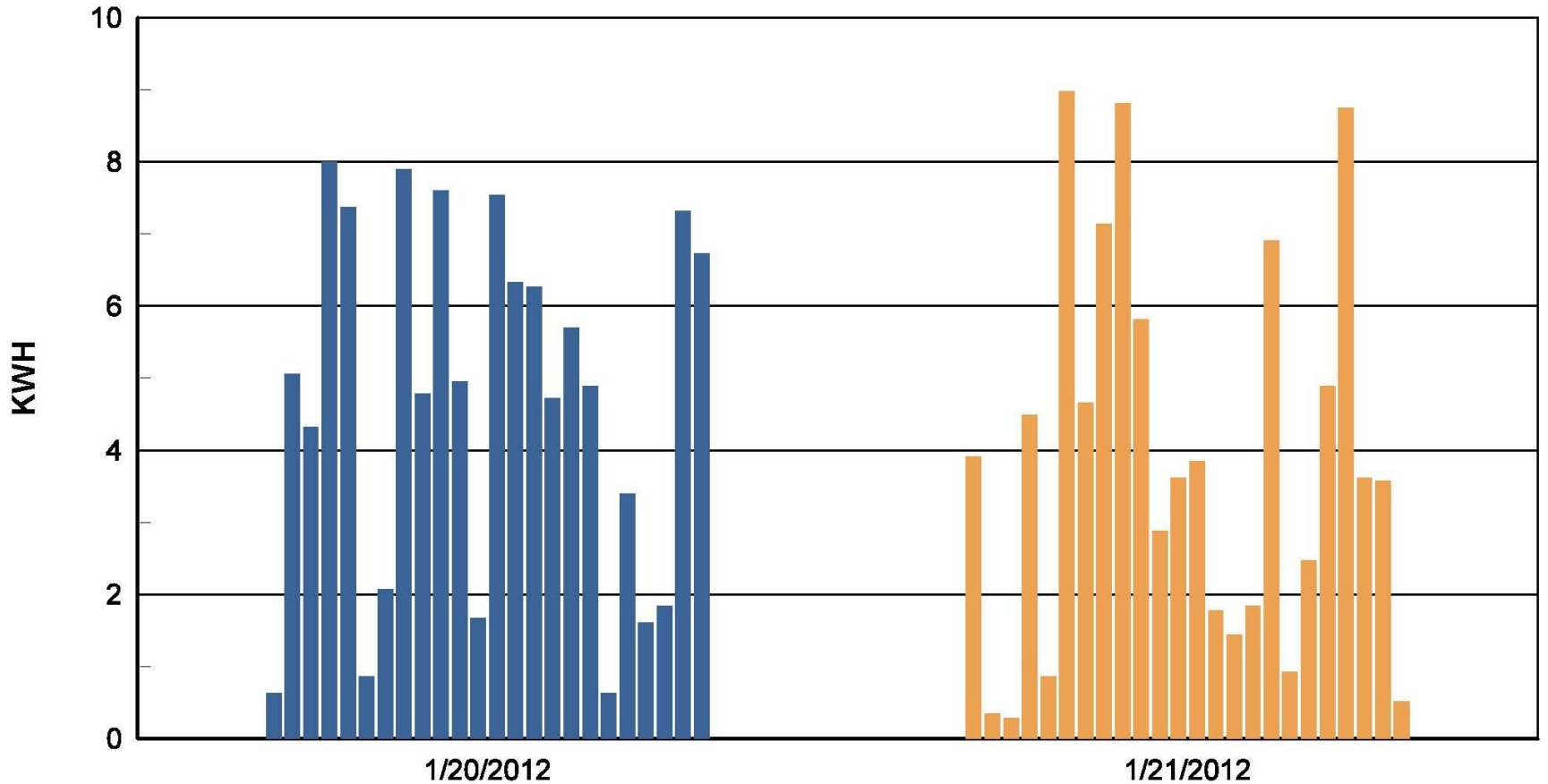


| | |
|-----------------------|----------------|
| Serial Number: | 7666660 |
| Meter Type: | IMT3H |

| | |
|--------------------|------------------|
| Start Date: | 1/15/2012 |
| End Date: | 1/21/2012 |

| 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 | |
|---------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------------|-------|
| 01/15/2012 | 0.63 | 0.34 | 0.34 | 0.28 | 0.80 | 7.83 | 8.75 | 0.40 | 1.32 | 1.72 | 0.69 | 3.34 | 4.20 | 4.60 | 1.61 | 1.26 | 1.09 | 3.34 | 2.01 | 1.67 | 1.67 | 1.55 | 1.67 | 0.23 | 8.75 | 0.28 | 51.34 | |
| 01/16/2012 | 0.57 | 0.28 | 0.28 | 0.40 | 3.28 | 8.40 | 8.17 | 1.84 | 0.40 | 0.51 | 0.23 | 3.74 | 3.62 | 8.00 | 4.60 | 0.69 | 0.51 | 4.78 | 7.20 | 1.78 | 0.92 | 0.97 | 7.02 | 3.11 | 8.40 | 0.23 | 71.30 | |
| 01/17/2012 | 5.01 | 7.37 | 7.89 | 7.83 | 0.80 | 2.18 | 9.15 | 4.43 | 7.71 | 0.69 | 0.28 | 0.57 | 0.63 | 0.86 | 7.25 | 4.55 | 5.29 | 4.03 | 1.03 | 1.72 | 7.08 | 7.37 | 7.83 | 1.09 | 9.15 | 0.28 | 102.64 | |
| 01/18/2012 | 0.46 | 0.34 | 0.28 | 2.18 | 10.94 | 10.59 | 6.68 | 12.32 | 7.31 | 0.34 | 0.63 | 0.23 | 0.28 | 2.30 | 10.54 | 2.70 | 0.34 | 0.69 | 0.80 | 2.01 | 8.29 | 9.79 | 7.08 | 5.35 | 12.32 | 0.23 | 102.47 | |
| 01/19/2012 | 5.52 | 0.34 | 0.34 | 0.46 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 10.88 | 8.46 | 2.88 | 0.86 | 10.88 | 0.00 | 29.74 |
| 01/20/2012 | 0.63 | 5.06 | 4.32 | 8.00 | 7.37 | 0.86 | 2.07 | 7.89 | 4.78 | 7.60 | 4.95 | 1.67 | 7.54 | 6.33 | 6.27 | 4.72 | 5.70 | 4.89 | 0.63 | 3.39 | 1.61 | 1.84 | 7.31 | 6.73 | 8.00 | 0.63 | 112.16 | |
| 01/21/2012 | 3.91 | 0.34 | 0.28 | 4.49 | 0.86 | 8.98 | 4.66 | 7.14 | 8.81 | 5.81 | 2.88 | 3.62 | 3.85 | 1.78 | 1.44 | 1.84 | 6.91 | 0.92 | 2.47 | 4.89 | 8.75 | 3.62 | 3.57 | 0.51 | 8.98 | 0.28 | 92.33 | |
| Grand Total: | | | | | | | | | | | | | | | | | | | | | | | | | | | 561.98 | |

KWH Used per Hour



Usage & Billing ANALYSIS

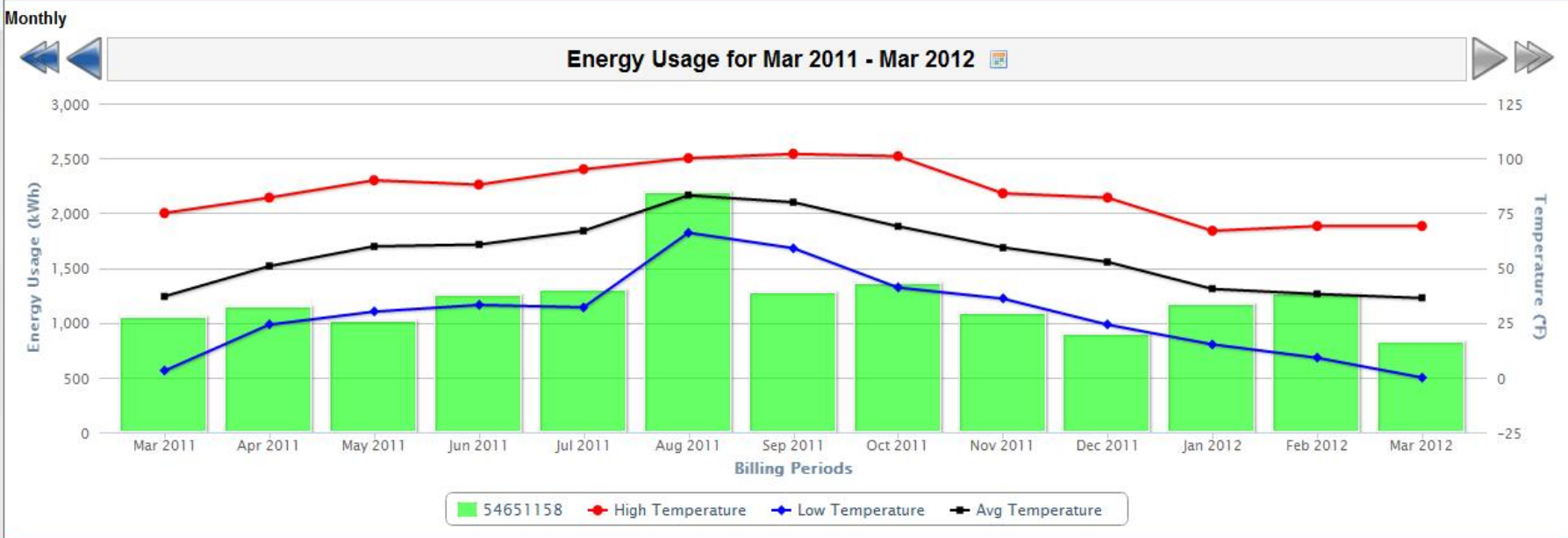


Usage Explorer Analysis Billing Comparison Planning

Help

Acct: 5317000300: 10233 N COUNTY ROAD 300 W LAKE SAINT LOUIS 63367

View your actual billed usage as a result of your household consumption.



| Billing | |
|-------------------|------------------------|
| Bill Date: | Feb 2012 |
| Billing Days: | 12/26/2011 to 2/1/2012 |
| Days in Period: | 37 |
| Usage Charge | \$119.75 |
| Billed kWh Usage: | 1,669.00 |

| Usage | |
|--------------------|-----------|
| Meter: | 54651158 |
| Peak Usage: | 2,182.46 |
| Low Usage: | 825.37 |
| Average kWh Usage: | 1,216.36 |
| Total kWh Usage: | 15,812.71 |

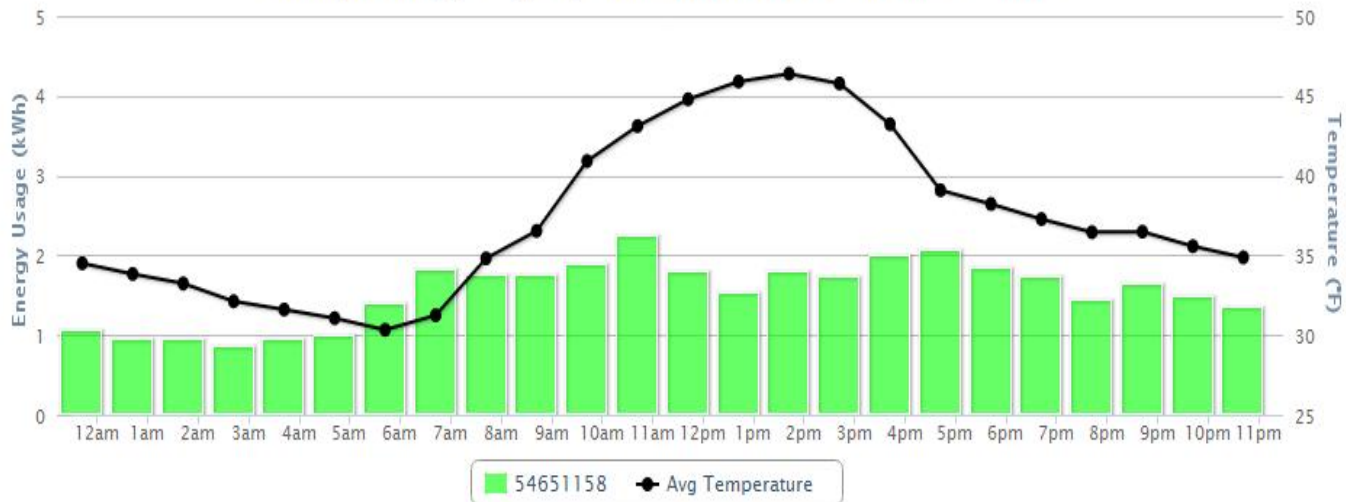
| Weather | |
|----------------------|--------|
| Average Temperature: | 56° F |
| High Temperature: | 102° F |
| Low Temperature: | -0° F |



Analyze energy patterns based on time of day, day of week, or month.

Report: Time of Day Date Range: 12/26/11 - 02/1/12

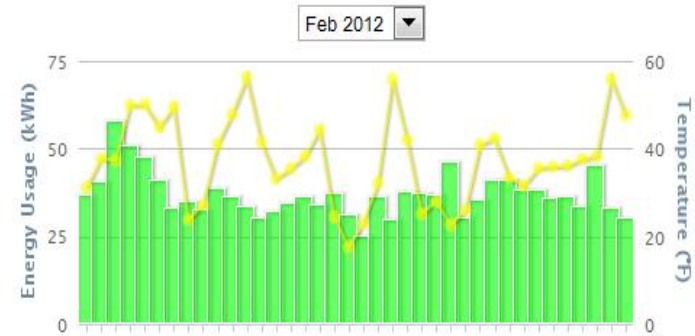
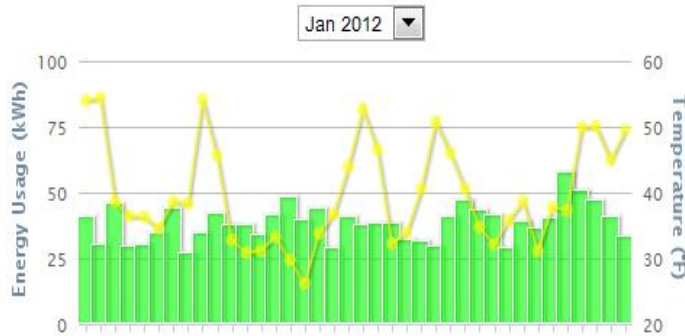
Average energy usage by hour between 12/26/11 and 02/1/12



Usage & Billing ANALYSIS



Compare usage and bill amounts between multiple billing periods.



| Billing Periods | Jan 2012 | Feb 2012 | Difference |
|--------------------|------------------------|------------------------|--------------------------|
| Billing Days: | 11/25/2011 to 1/1/2012 | 12/26/2011 to 2/1/2012 | View all |
| Days in Period: | 37 | 37 | 0 |
| Usage Charge | \$132.04 | \$119.75 | -\$12.29 |
| Total Usage: | 1,235.00 | 1,669.00 | 434 |
| Average kWh Usage: | 33.38 | 45.11 | 11.73 |
| Max Temperature: | 67° F | 69° F | 2° F |
| Min Temperature: | 15° F | -0° F | -15° F |
| Avg Temperature: | 39° F | 37° F | -2° F |



AMI Capabilities

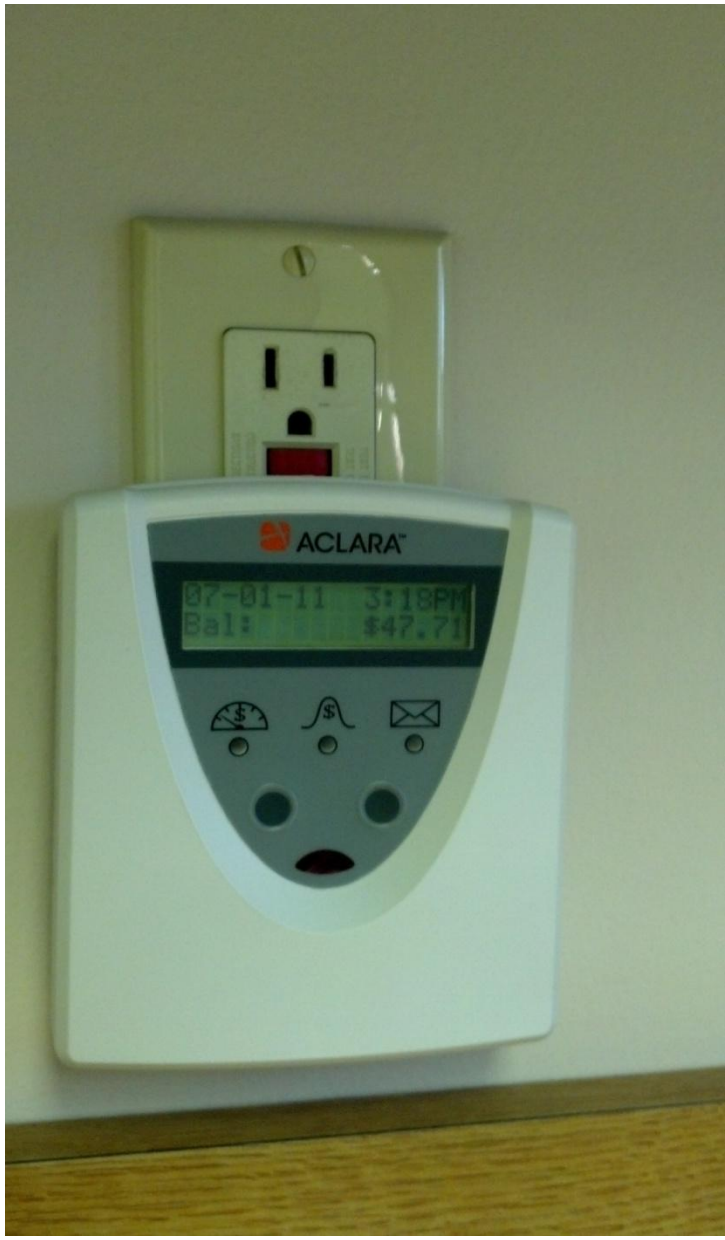
Example:

Pre-Pay Residential – Optional Rate.

– Pay in Advance

- No minimum
- pay as often as preferred.
- No Security Deposit.
- Payments accepted by 24/7.
- Payment impact effective within 10 minutes.

DSO





DSO

Thank You