Utility Case Studies in Prepaid Metering

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Objectives

• How does a typical Prepay program work?
• Three Utility Case Studies
• Q & A
Randy Schroder
Sr. Product Line Manager
Typical Prepay Solution

- Pre-requisite for service location is an AMI Meter with Remote Connect/Disconnect capability.
- Deposits are generally not required.
- Delinquent balances may be placed into a Prepaid Arrangement amount and a percentage of future payments allocated to the old balance (i.e. 50% to arrangement and 50% to meter).
- Daily Readings are imported from AMI into Billing system, or may be validated by MDMS first.
Typical Prepay Solution

- The daily readings are billed, and prepay balances and payments are sent to In-home Displays if used.
- Low balance notifications are sent by email, text, IVR calls or mobile phone “push” notification.
- Once the balance reaches zero or a predefined level, a remote disconnect is initiated to the meter.
- When the customer makes a payment through any of the normal channels an automatic remote reconnect or arming is initiated.
Typical Integration Overview

AMI meter

AMI head-end System

Optional IHD

Billing System

Optional Meter Data Mgmt System

Daily Readings

Remote Connect/Disconnect Commands and IHD Updates

Validated Readings
In-Home Displays

02-21-06     2:55AM
Balance:     $81.92

Avg. Daily Usage
$2.37

Used This Month
$67.93

Used Last Month
$139.93

Less Than 4 Days Remaining
Low Balance Notifications

Customers should be able to sign up for emails, texts or IVR phone call notifications.
Disconnect & Reconnect

• Disconnect Policy Considerations:
  – Disconnect moratoria on weekends and/or holidays?
  – Cold weather moratoria policies?
  – Consumers on life support?

• Reconnect Policy Considerations:
  – Auto-Reconnect or Arming of Meter?
  – Reconnect after-hours, weekends and/or holidays?
Payment Considerations

• Biggest Problem for a growing program
• Customers typically purchase weekly
• Customers typically purchase on Friday
• Solution must be convenient for Customers
• Consider credit card fees (4 times normal)
• Consider # NSF checks for check payments
Prepay Transactions Per Month

Frequency of payments increases during peak usage months
Customer Payment Choices

eBill Payment
Pay by Phone
Mobile Payment
Pay by Kiosk
Online Bill Services
Prepaid
Kiosks

Cash, Check or Charge
24/7 availability
Convenient locations
No lines at the counter
Indoor or Outdoor
Drive-up or Walk-up
Prepay vs Monthly Pay at the Kiosk

Kiosk Transactions by Location

<table>
<thead>
<tr>
<th>Location</th>
<th># of Transactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hasty Mart</td>
<td>2651</td>
</tr>
<tr>
<td>Scotchman</td>
<td>4618</td>
</tr>
<tr>
<td>Fowlers</td>
<td>1798</td>
</tr>
<tr>
<td>Phillips</td>
<td>1861</td>
</tr>
<tr>
<td>Whiteville</td>
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<td>2921</td>
</tr>
<tr>
<td>Supply</td>
<td>4137</td>
</tr>
<tr>
<td>Oak Island</td>
<td>888</td>
</tr>
</tbody>
</table>

# of Transactions
Web Portals
Smart Phone Apps
IVR Pay-by-Phone

- Provides real-time daily account balance
- Allows customers to make credit card or e-check payments by phone
In-Home Displays

02-21-06  2:55AM
Balance:   $81.92

Avg. Daily Usage
$2.37

Used This Month
$67.93

Used Last Month
$139.93

Less Than 4 Days Remaining
CIS/Billing System

Employees should be able to see the same Prepay bill information that Customers see.
Preparation work

- Who are the target customers - non-pay, new or existing?
- Rates same as monthly residential rate or additional fixed or usage charges? Daily proration of service charge?
- Estimate if missing daily read?
- Connect fees (may be applicable to cover hardware)?
- Deposit fees (most do not charge for prepay)?
- Disconnect & Reconnect policies?
- Payment channels & Payment acceptance types?
Midstate Electric Co-op
La Pine, OR

David W. Schneider
CEO/General Manager
Midstate Background

• Started in 1952
• 18,362 Meters in rural Central Oregon
  • 16,276 Residential – 1,140 Prepaid accounts
  • 1,595 Commercial accounts – 9 Prepaid
  • 487 Irrigation accounts
  • 3 Industrial accounts
• 55 Employees
• Not regulated by the PUC
Midstate Electric Cooperative has a very diverse geographical area that is spread over 5700 Sq. Miles.
Problems Leading up to Prepay

- Rural area hard hit by housing decline
- Unemployment rate in double digits since 2008
- Once a fast growing system, now a declining system
- From 2006 to 2010, write-offs increased by 139%
- High monthly turnover in accounts (118 per month) causing increases in write-offs
- Average balance written off was $268 after applying the $200 deposit
New Deposit Policy

• Our $200 deposit was not effective to protect the Co-op against growing write-offs
• Started running credit checks on new members
• New deposit amount increased to 3 times monthly average bill, in some cases over $500
• Large deposits were placed on post-pay accounts disconnected for non-pay, 3x average
• The new policy was creating hardship for an already struggling membership
Why Prepay?

Midstate Needed a Better Solution
Prepay Metering was the Answer
Prepaid Technology

- **CIS – NISC iVUE**
  - Billing system maintains customer records
- **AMI – Elster metering**
  - Delivers daily meter readings
  - Disconnects meter electronically
- **Prepaid – Exceleron web based software**
  - Downloads customers records from CIS
  - Receives daily meter reads from Elster AMI
  - Communicates with Elster AMI for disconnects/reconnects
Prepay Payment Methods

Same as Postpaid Metering

• Mail in payments
• Pay in office with cash, check or credit/debit card
• Pay over phone giving credit/debit card to customer service representative
• Over the internet using credit/debit card
Prepay Payment Methods

New 24/7 Payment Options With Prepay

- Installed a cash and credit/debit card kiosk at headquarters building – 292 monthly payments
- New IVR system allows credit/debit card payments utilizing a touch tone phone – 1,050 monthly payments
Advantages of Prepaid

- Members can start an account with $65
- Gives customers ability to pay as needed
- Allows customers to put more of their money towards power and not deposits or additional charges
- Reduced write-offs
- Reduced costs for Co-op by less service trips to the house to collect
- Increased employee morale – less angry customers
Prepay Financial Impact

• Additional Costs in Prepay
  – $6 monthly fee per account (passed on to member)
  – Disconnect meters are more expensive
  – Phone/Texting Alert charges

• Savings from Prepay
  – Previously 3 employees were required to disconnect post-pay accounts, now in most cases, only 1 employee is needed
Prepay Financial Impact

- Reduced write-offs turned over for collection
  - Write-offs have decreased 47% since offering prepay
- After set-up, less CSR time spent on trouble accounts
- Improved cash flow
  - Now collecting $1.5 million in prepay power
- Potential for less employees in the future
How do Customers Respond to Prepaid Option?

• They like being in control of when to pay and how much
  – It fits everyone’s pay schedule
  – It fits some budgeting styles

• Less cash out of pocket to start account

• Saves members money
  – No late fees, disconnect fees or trip fees

• Only 4 complaints about “smart meters”
How do Customers Respond to Prepaid Option?

- Many customers are reducing consumption by 11% to 17%
- They like the notifications of their account status
- Program appeals to landlords and renters
- Generation “Y” ers like the technology of monitoring daily usage and the alerts
What do Customers Say About the Prepaid Option

“We get a phone call or text every day telling us how much we used and how much is in our account. We go around and shut stuff off. It makes us aware of how much we’ve used and how much we’re using. We’re going to keep working until we get our bill to single digits!”
What do Customers Say About the Prepaid Option

“It’s the best thing that ever could have happened to us. Our electric bill in the winter had been running $700 to $900 dollars since we live in an older home. If we ever got the power shut off it would cost us a fortune to get it turned back on. Now that we’re on prepay all it takes is $10 added to our account and it automatically comes back on.”
How Have Employees Responded?

- Concerned at first by the extra work
- It can take a while to set up new accounts
- Have seen difficult customers turn into our best customers
- They enjoy being able to offer prepaid to struggling customers in lieu of higher deposits
- Prepay has decreased work load
JEC Background

- Incorporated on September 27, 1937
- Serve 33,000 meters
- Service provided in 11 counties
- Headquarters: Wrens, Georgia
- Located just South of Augusta, Georgia
- 13 Years Experience in Pre-Pay Metering
JEC Management Concerns (2001)

- Write-offs
  - Increased 80% over the last 4 years (2001)
  - Rated 5th out of 42 in State of Georgia (2001)
- 60% of Calls Associated with Billing Payment Concerns
- Increased Number of Bankruptcies
- Increased Overtime
- Increased Number of Cut-offs
- Majority of the Members Paying for Problems of a Few
Solutions Implemented (2001)

- Increased Fees
- Increased Security Deposits
- Created Additional Security Options
- Added More Aggressive Pursuit in the Collection of Closed Accounts
Solutions Implemented (2001)

While these remedies worked, they resulted in an increase in member dissatisfaction.

Should we try Pre-Pay Metering???
Considerations for Implementing a Pre-Pay Program

• Can We Afford it?
• Legality?
• Administrative Problems?
• IT Problems?
• New Rate?
• Wait Until Full Advanced Metering Infrastructure (AMI)?
• Will It Resolve the Concerns?
• Will It be Accepted by Members?
• Is It Reliable?
• 5%-10% of Consumers Targeted
Generation 1: A Card-Based System

- **Display Unit (DU)**
- **Card**
- **Standard 120 Volt male plug** Communications to/from meter PLC (secondary side only)
- **Meter with disconnect “under glass”**
Generation 1: A Card-Based System

- Implemented Pre-Pay Card System in 2001
- Full AMI Not Necessary
- Connect/Disconnect “under glass”
- Connect/Disconnect Timing Determined by Meter
- Medium to transfer $$ and kWh – The Card
- Medium For Member to **Understand**—Home Display Unit (DU)
- Medium for JEC Data
  - Vendor Hardware/Software
  - Not interfaced with JEC Customer Information System (CIS); JEC uses Southeastern Data Cooperative (SEDC)
Generation 1: A Card-Based System

- Low Deposit Required
- 92% Acceptance Rate by Member

**Manufacturer discontinued product (Meter, Display Unit, Card Reader, etc.) in 2003.**

JEC stockpiled equipment until another solution could be found.
Generation 2: Smart Meters with Power Line Carrier (PLC)

Collar (Disconnect RF controlled) one-way communication from coop to meter

PLC meter--one-way communication from meter to coop
Generation 2: Smart Meters with Power Line Carrier (PLC)

• Implemented PLC Meters (one way from meter to Cooperative) in 2003 for Reading Only
• Could not use for Pre-Pay---No Remote Connect/Disconnect means (2003)
• Introduced to Exceleron in 2004
• Connect/Disconnect “collar type” w/ Meter Implemented in 2008 (via one way RF signal from Cooperative to collar)
  Pre-Pay Established Again!!!
• Full AMI not Necessary
• Medium to Pay $$$-- Interactive Voice Response (IVR), Internet, Office Visit
• Medium to Credit kWh--Exceleron Interfaced with SEDC
• Medium For Member to Understand -- Exceleron by Texts, Internet (MyUsage.com), and IVR Interfaced with JEC and SEDC
Generation 2: Smart Meters with Power Line Carrier (PLC)

- Medium For JEC Data — Exceleron Interfaced with JEC and SEDC
- Medium to read meter — PLC
- Connect/Disconnect Timing Determined by Software Located at the Cooperative Office
- Low Deposit Required
- > 80% Acceptance Rate by Member

*Manufacturer discontinued product (Collar) in 2011.*

*JEC stockpiled equipment until another solution could be found.*
Generation 3: Spot Deployment with Itron Cellular Solutions
Generation 3: Spot Deployment with Itron Cellular Solutions

- Implemented January 2013
- Full AMI not Necessary
- Remote Connect/Disconnect “under glass”
- Connect/Disconnect Timing Determined by Software Located at the Cooperative Office (same as Generation 2)
- Medium to Read Meter — **Cellular Signal** with Itron software Interfaced with JEC, Exceleron, and SEDC
- Medium to Pay $$$ — Same as Generation 2
- Medium to Credit kWh — Same as Generation 2
- Medium for Member to **Understand** — Same as Generation 2
- Medium for JEC Data — Same as Generation 2
Generation 3: Spot Deployment with Itron Cellular Solutions

Generation 3 Advantages Over Generation 2:
• Faster Reads
• Two (2) Way Communications
• Confirmed Connect/Disconnect
• Complete interface between JEC, Itron, Exceleron, SEDC, etc.
• Multiple Meter Vendors can be used with Exceleron Software

NOTES:
1) All equipment/software/hardware/procedures were thoroughly tested in alpha and beta test projects in all 3 generations.
2) Note ** from previous slide “Cellular Signal”:
JEC tested 200 locations in “hard to reach” areas for an adequate cellular signal. We were 100% successful with the 200 locations for 2 way communications between the office and remote meter locations. The attached map also helps support this study. (next slide)
Generation 3: Spot Deployment with Itron Cellular Solutions
Generation 3: Spot Deployment with Itron Cellular Solutions
Summary of Pre-Pay “Musts” (JEC)

- Spot Deployment (Full AMI not necessary)
- Remote Connect/Disconnect
- Reliable Communication Mediums
  - Good Meter Reads
  - Timely Meter Reads
  - Confirmed Payments
  - Confirmed Connects
  - Confirmed Disconnects
- Member Friendly Exchanges
- Overall Cost Effectiveness
Concerns/Considerations Revisited

- Write-offs-- JEC is Now 39th out of 42 (were 5th in 2001)
- Same # of Calls at Call Center, but now Friendlier and Informative
- Bankruptcy Issues have Significantly Decreased
- Overtime due to Reconnects has Significantly Decreased
- # of Cut-offs have Decreased or have been Redirected to Member
- Directed Extra Related Costs to the Appropriate Member Group--
  **Consider** Additional Residential Rate w/ Increased Base Charge
- Cover Legalities at Sign-up
- Administrative Problems are Minimized with Appropriate Software and Hardware
- Good Communications w/ Vendors such as with Exceleron and Itron minimize IT problems
- Highly Reliable and Members like the Program ( >82% Acceptance)
- **Pre-Pay WORKS for JEC!!**
Interesting Facts

[Chart showing RE-CONNECT O.T. dollars from 1998 to 2013]
Interesting Facts

PRE-PAY members realized > 13%* reduction of energy in 2012 over Standard Metering

* Per JEC Cost of Service Study--March 2013
Customer Portal
Interesting Facts

Decline per day represents payments made as time approaches 11:00 a.m.

PRE-PAY DISCONNECT NOTICES

# of Disconnect Notices vs TYPICAL DAY

- 8:00 a.m.
- 9:00 a.m.
- 9:30 a.m.
- Disconnected by 11:00 a.m.
Wake Electric

- Wake Electric was organized in 1940 as a non-profit electric cooperative.
- Located just north of Raleigh, North Carolina
- Over 37,000 meters in seven counties
- Over 11 meters/mile
- Dense populations leads to access to public networks
- NC Statewide Association provides redundant 100 Mb fiber to our offices
Prepay Objectives

- Assist Members in Managing Their Energy Use & Budgets
- Provide Conservation [Energy Efficiency] Benefits for REPS Compliance
- Reduce the Expense of Managing Past Due Accounts and Uncollectable Accounts
- Provide Members with an Option to Security Deposits
Write-Offs

- Increased by 102% between 2006 and 2010
- Saw 29% decrease between 2010 and 2012
- Remained level in 2013
The Unveiling of PowerUp

• Concept introduced at Member Advisory Committee meetings in conjunction with technology presentation

• “Monitor and Manage”
  – AMI
  – Remote Disconnect
  – Meter Data Management
  – Customer Portal
  – Prepay Interface
PowerUp – Member Benefits

• Voluntary rate option for residential accounts
• New members can avoid having to front a security deposit
• Existing members can use their security deposit as a down-payment on an outstanding bill amount
• Delinquent balances can be moved into a Prepaid Arrangement amount and a percentage of future payments allocated to the old balance
• No reconnect fees; no trip charges (field collection is not provided)
• Service can be reconnected 7 days/week between 7AM – 8PM
More Benefits of PowerUp

- PowerUp keeps track of your usage and alerts you by phone or email when your account is running low
- The alert can be set at any predetermined dollar amount
- Studies have shown 8 – 10% savings for members using a monitoring system combined with a prepay option
- Empowerment (paying on their own schedule)
- Payments can be made through eBill, US mail, IVR/phone or any of our existing payment channels, but payment by mail is discouraged if remaining balance is low
- An eBill account is recommended but not required for acceptance
How does it differ from Post Pay?

- A prepaid account will be subject to disconnection any time the account does not have a credit balance
- No field collections permitted
- A prepaid member will no longer receive a paper bill
- PrePay accounts will pay $5.00 more per month as compared to the standard residential rate but will not be subject to traditional late fees or trip charges
- Interested members must visit one of our offices to sign up for the program
How PowerUp Works

1. Sign Up
   We will make the set up process easy. Visit us to open an account and within hours you can be connected to our PowerUp billing option at your residence.

2. Load Up
   Select an amount to deposit into your account to begin your service.

3. Receive Alerts
   When your account balance gets low, we will notify you by email or phone call to remind you to reload your account. This is usually approximately 3 days before your account reaches zero.

4. Reload
   Reload your account with cash, credit or debit card, cashier’s check or money order. Whether you prepay $25 or $100, PowerUp will keep track of your power consumption and alert you by phone or email when it’s time to make a payment to avoid interruption of service.
Engineering and Operations Benefits

- More data
  - Voltages
  - Outage Notifications
  - Tamper Detection
  - Demand Readings
- Data Analytics
  - Transformer Loading
  - Blink Analysis
  - Line Loss
Questions?

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