



AMI, Dynamic Pricing & Prepaid Metering

New Hampshire Electric Cooperative, Inc.



Automated Metering Infrastructure

- A microwave and fiber optic network comprised of communications equipment at 20 tower sites and one pole site
- 35 miles of fiber optic cable for business continuity
- Meters and equipment
- Rates and programs
- In-home displays
- Web portal
- Automated functions, efficiencies





System Capabilities

- Meter Reading
- Outage Notification
- Tamper Detection
- Disconnect / Reconnect
- Load Control
- Power Quality
- Distribution Automation
- Member Presentment
- Prepay
- Home Automation
- In-home Display
- Demand Response
- System Analysis
- Load Research
- RTP/CPP/TOU



Web Portal



[Log Out](#) | [Home](#) | [Help](#) [Pay Now >](#)

[Home](#) [Billing & Payments >](#) [My Profile >](#) [My Usage >](#) [Notifications >](#) [Contact Us](#) [Search](#) [Have a Question? Get Help. >](#)

Quick Links

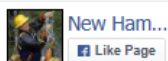
I want to...

- [Pay My Bill](#)
- [View Billing History](#)
- [View Usage](#)
- [Get Help](#)

- [Place a Free Classified Ad](#)
- [Member Newsletter](#)
- [Enroll in RoundUp Program](#)



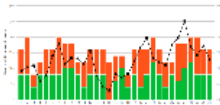
Find us on Facebook



View and Manage My Usage

We've improved your usage management tools!

Key Features



Analyze and understand usage trends to find ways to cut back.

Create and track a **monthly budget** to avoid unexpected high utility bills.

Set a point or range in time to **compare differences** in usage.

And much more.

Check out all the great *My Usage* features! [Start Now >](#)

Communication / Alerts

Welcome to NHEC SmartHub 07/21/2015

Click [View Usage](#) to see your detailed energy use!

Account Overview

[Pay all outstanding balances >](#)

<input type="text"/>	Next Auto Pay Date: 07/29/2015 View Bill >	Amount: \$84.00	Total Due: \$84.00	Make Payment >
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▼ See Less

Account	Auto Pay Date	Amount	
<input type="text"/> NH Electric Services	07/29/2015	\$84.00	Pay Account >
<input type="text"/> Auto Pay	View Bill >		

Usage Information



[Log Out](#) | [Home](#) | [Help](#) [Pay Now >](#)

[Home](#) | [Billing & Payments](#) | [My Profile](#) | [My Usage](#) | [Notifications](#) | [Contact Us](#) | [Search](#) | [Have a Question? Get Help. >](#)

My Usage
Usage Explorer
Planning
Bill Comparison

Monthly Billed Usage

Select an Account/Service Location to View:

HOUSE AND APT | HOUSE AND APT

View Usage For:

- 660438
- 698976

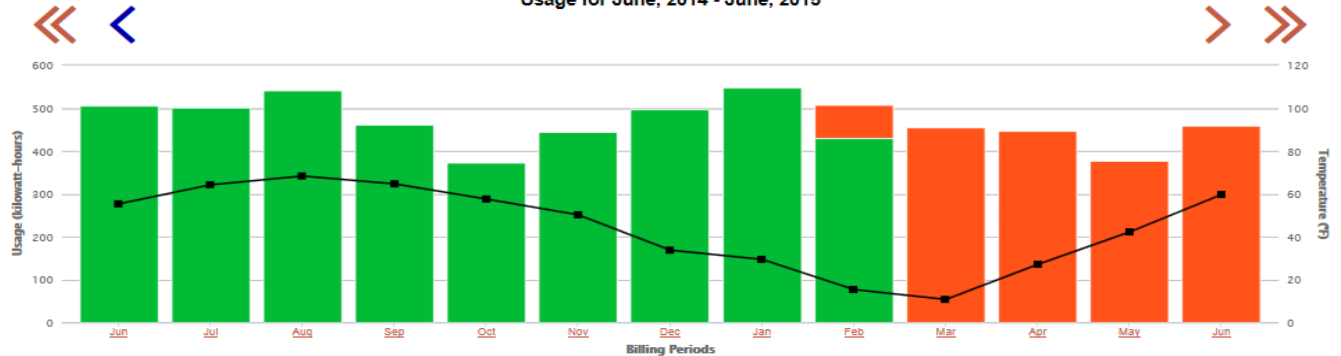
View Graph By:

Usage

View Temperature:

- High
- Average
- Low

Usage for June, 2014 - June, 2015



660438

698976

Usage

Meter:
High Usage: 547
Low Usage: 373
Average Usage: 861.77
Total Usage: 11,203

Weather

Average Temperature: 45° F
High Temperature: 91° F
Low Temperature: -20° F



Dynamic Pricing Pilot





Dynamic Pricing Pilot

- Randomly select up to 2,000 participants from a pool of residential meters installed and ask the members if they want to volunteer
- Of the volunteers, 50% will be randomly selected for a test group and the balance will be included in the non-test group.
- All participants will have an in-home display
- Dynamic pricing strategies & programs will be developed and implemented for the test group



Pilot Groups

- TOU Group
 - Members who received an in-home display (IHD) and were subjected to time differentiated pricing.
- TOUCPP Group
 - Members who received an IHD and were subjected to time differentiated AND critical peak pricing (CPP). CPP events were communicated the day before an event (24-hour notice via email and to the IHD).
- IHD Only
 - Members who received an in-home display only, with no change in electric rate structure. This allowed NHEC to test the theory that real-time information about electric usage and costs through the IHD would encourage conservation (absent any direct economic incentive).
- Control Group
 - Members who were thanked for volunteering but told they were not selected as part of the pilot and remained on the standard rate. This allowed NHEC to have a fixed group of members to use as a control group from which comparisons and evaluations relative to other groups could be made.

Definition

Season	Months	TOU Period	Times
Summer	April 1 to October 31	On peak	Noon to 8:00 pm weekday non-holiday
		Off peak	All other hours
Winter	November 1 to March 31	On peak	4:00 pm to 8:00 pm weekday non-holiday
		Off peak	All other hours





Example NHEC TOU Rates

Effective Date (Season)	Standard Rate	Time of Use Rates		Time of Use Rates with Critical Peak Pricing		
		On-peak	Off-peak	On-peak	Off-peak	CPP
November 2012 (winter)	12.87	25.65	10.89	25.65	10.89	0.00
January 2013 (winter)	12.88	25.67	10.90	25.67	10.90	0.00
May 2013 (summer)	13.07	25.72	8.42	21.99	8.42	117.58
November 2013 (winter)	13.33	29.49	10.85	29.49	10.85	0.00
January 2014 (winter)	13.47	29.63	10.99	29.63	10.99	0.00
February 2014 (winter)	14.15	29.63	10.99	29.63	10.99	0.00
May 2014 (summer)	15.16	30.89	9.43	26.27	9.43	147.21



Savings Realized

- For both the TOU group and the TOUCPP group, the majority of the participants saved some amount of money (had positive savings).
- For the TOU group, the participant who experienced the largest percentage increase over the two year-period paid 10.7% or \$294 more than they would have on the standard rate. The participant who experienced the largest percentage decrease over the two-year period paid 9.3% or \$426 less than they would have paid on the standard rate. On average the TOU participants saved 1.1% or \$30 over what they would have paid on the standard rate.
- For the TOUCPP group, the participant who experienced the largest percentage increase over the two-year period paid 6.3% or \$156 more than they would have on the standard rate. The participant who experienced the largest percentage decrease over the two-year period paid 10.4% or \$559 less than they would have paid on the standard rate. On average, the TOUCPP participants saved 1.8% or \$43 over what they would have paid on the standard rate.



Consumption Behavior

- Based on more detailed analysis of the participants with the highest savings and losses, it was clear that consumption behavior was a clear driver of the outcome of the bill comparisons. Those with the largest bill decrease in the TOU and TOUCPP groups consumed the least energy during the on-peak periods and CPP events relative to their overall consumption. TOU and TOUCPP participants who consumed significantly more energy during on-peak periods and critical peak events relative to their overall consumption paid significantly more for their energy.

Satisfaction

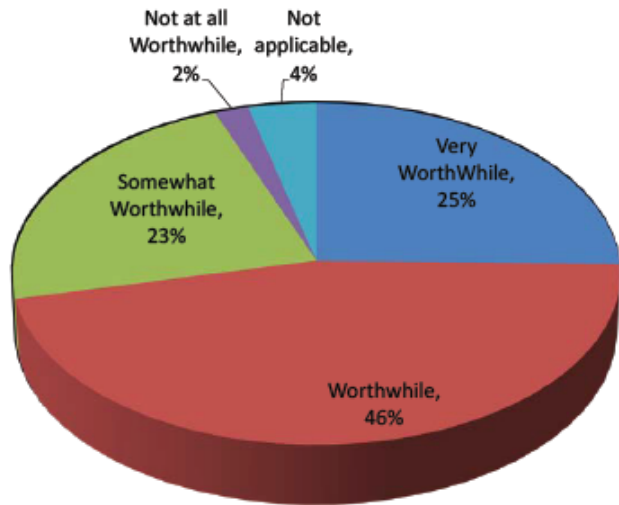


Figure 4.3 – Was the Pilot Worthwhile?

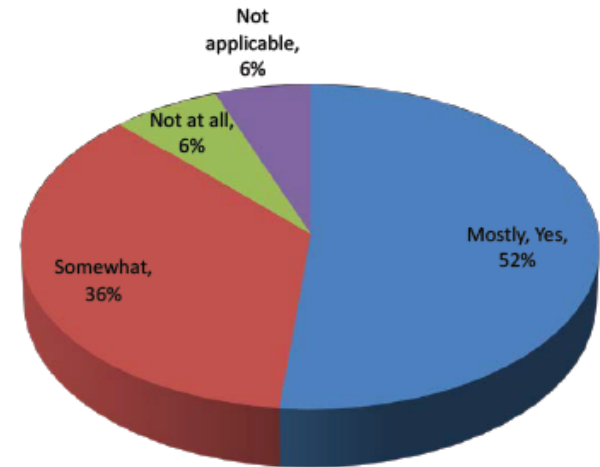


Figure 4.4 – Did Abatement Behavior Become Habitual?

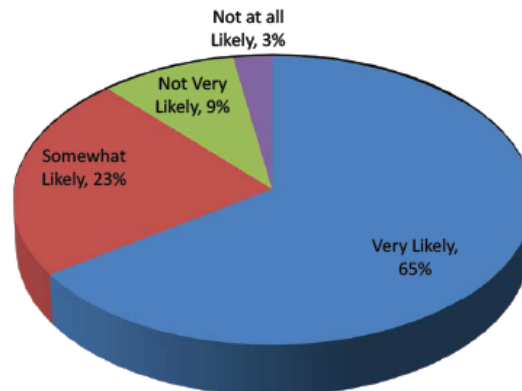


Figure 4.5 – Likelihood of Participating in a Future Program






Prepaid Metering Option





What is Pay As You Go?

- Pay As You Go is buying electricity before you use it, a prepaid metering option (Prepay).
 - You put money into your account, and as you use electricity each day, the amount you use is deducted from your account balance.
 - This allows members to monitor their usage and better manage energy costs.
- 



Voluntary Participation – Co-op's

Over 300 Co-op's have similar programs:

Salt River Project: 59,000 (6%)

Brunswick EMC: 8,045 (9%)

Oklahoma Electric Cooperative 3,300 (8%)

Northern Ireland Electric: 175,000 (25%)

Woodstock Hydro: 3,300 (25%)

The top of the slide features a blue header with the title 'Another Option for Members' in white. Below the header, the main content area is white. On the left side, there is a vertical strip of images: a laptop, a computer mouse, and a map of the United States. The map is a dark blue outline of the United States, including Alaska and Hawaii, positioned in the bottom right corner of the slide. The background of the slide is a light blue gradient with a faint image of two men in business suits looking at a laptop screen.

Another Option for Members

- Always voluntary
- Always an optional program
- Help manage energy consumption and budget



Member Advantages

- Voluntary
- Can control timing and amount of purchases
- No monthly bill
- No late payment charges
- No disconnect/reconnect charges
- No deposit
- Smaller payments, spread over time
- Flexible payment schedules
- Ability to time payments according to need
- Account balance & usage available daily
- Low balance notifications
- Same rate as traditional billing

Works well for:

- Frequent movers
- Rental properties
- Apartments/College Housing
- Seasonal properties
- Transient locations
- Those unable to pay deposit
- Delinquent accounts
- Those who want to monitor consumption




Advantages to NHEC

- Increased member satisfaction
- Increased energy efficiency
- Reduction in service visits (safety)
- Reduction in collection costs
- Reduction in write-offs
- Reduction in high bill complaints
- Improved timing of cash flow
- No paper bills (\$/Environment)



Additional Benefits

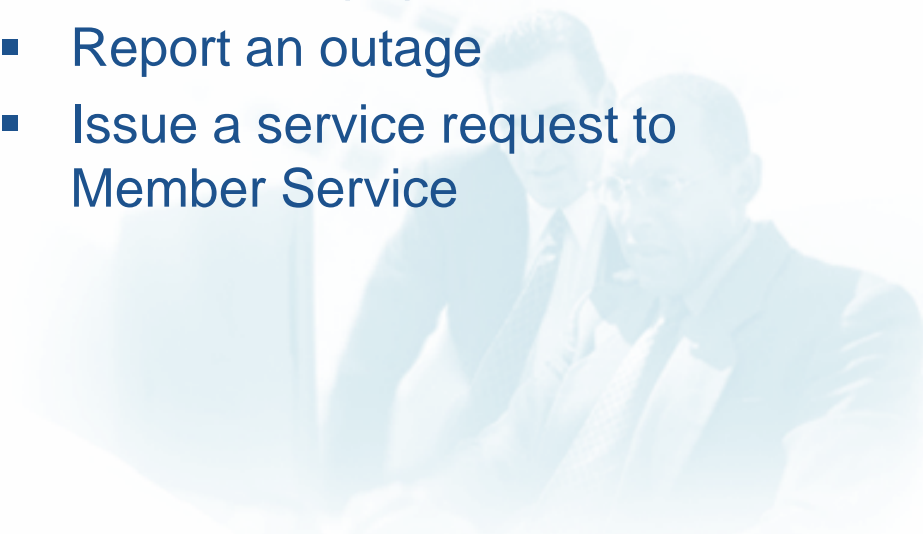
- Improved member satisfaction
 - Potential decrease in call volume
 - Fewer field trips
 - Automatic suspension and resumption
 - Limited financial risk
- 



NHEC's SmartHub Web

A central location where a Member can interact with NHEC through the internet to:

- Change personal information
- View bill and payment history
- Pay bills with credit card and e-check through the Gateway
- Sign up for automated bill payments
- Change email address or passwords
- Change financial instrument information
- View dynamic charts of usage history
- Turn on/off paper bills
- Report an outage
- Issue a service request to Member Service





What happens when member runs out?

- NHEC will continue to follow the 1200 rules
- If/when a member runs out they would be remotely disconnected after first sending a series of low-balance alert notifications via text, email and other channels chosen by the member.
- Just as is in place today, disconnection moratoriums apply including weekends and holidays; weather, medical, etc.




How it Works

- The daily charges are billed and prepaid meter balances and payments are sent.
- Low balance notifications are sent by email and IVR calls. Text messaging and mobile push will be available.
- Written notification will be made for disconnects.
- When the customer makes a payment through any of the normal channels an automatic remote reconnect is initiated.



How it Works Cont.

- Delinquent balances can be moved into a Prepaid Arrangement amount and a percentage of future payments allocated to the old balance (i.e., 50% to Arrangement amount and 50% to Prepaid balance).
 - Real-time account balance look-up and payment posting
 - Optionally will allow members to make cash, credit card, or e-check payments
 - 24/7/365
- 



Thank You. Questions?

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