

# REV Agenda: The Role of Residential Time-Variant Pricing

David Becker

*Director of Dynamic Pricing*



**ELEVATE** ENERGY  
Smarter energy use for all



## Our Mission

---

We promote smarter energy use for all.



We give people the resources they need to make informed energy choices.



We design and implement efficiency programs that lower costs, and protect the environment.



We ensure the benefits of energy efficiency reach those who need them most.



# Time-Variant Pricing in Illinois

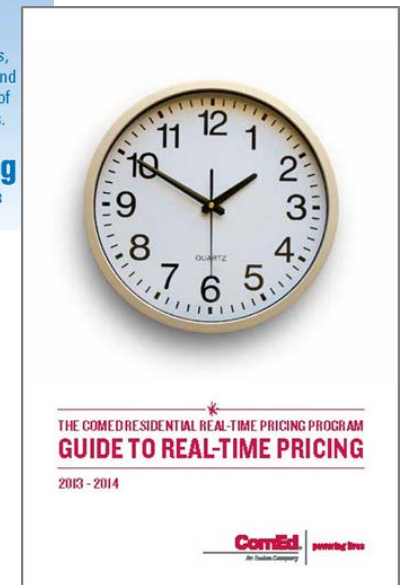
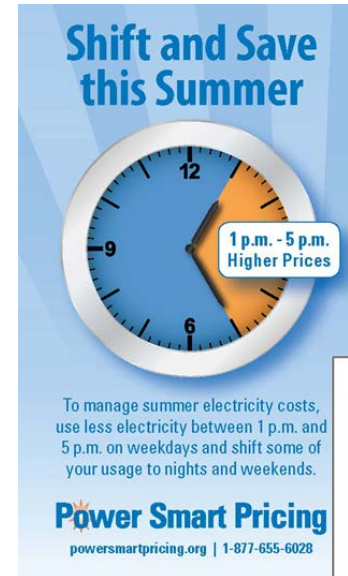
## Energy Smart Pricing Plan (2003 – 2006)

## Ameren Illinois Power Smart Pricing (PSP) (2007-present)

- 11,300 households
- PTD: \$8.0 million saved (19%)
- Day-ahead hourly pricing

## ComEd Residential Real Time Pricing (RRTP) (2007-present)

- 9,800 households
- PTD: \$13.7 million saved (21%)
- Real-time hourly pricing





# ESPP: Pilot to Program Implementation

- Positive Navigant report: legislation
  - Both Illinois IOUs had to offer an hourly pricing program
  - 3<sup>rd</sup> party administration and marketing required
- Ameren Illinois: new program – cleaner transition – selected as administrator (2007)
- ComEd: existing program – new administrator unable to provide all services.
  - Elevate selected as supplemental administrator; full administrator (2012)
- ESPP to RRTP: change from day-ahead to real-time market prices
  - Risk premium cost baked into fixed-price rate and was estimated as a credit for market prices during pilot (“Access Charge”: revenue neutrality)
  - Delivery service charges simulated for pilot – capacity charge (zero), distribution facilities charge and risk premium
  - 2003-2006: pricing hedge at 50 cents/kWh. 2007 – price cap at \$1.00 . No longer price cap on hourly markets.





# Time-Variant Pricing with no AMI

## 2007 – 2014

- kWh meter (flat rate): \$30
- Interval meter (hourly pricing): \$150-\$200



## 2015

- kWh meters aren't being offered by manufacturers, only solid state meters
- Solid state meters under \$100 (probably closer to \$50)
- Extra costs for interval meter (less than \$25)
- AMI meter – around \$100

**Marginal Cost Difference Between AMI and Interval Meter**



## 3<sup>rd</sup> Party Administrator – Our Role

---

- Customer service support – **dedicated call center**
- **Marketing and outreach**
- **Education** and enrollment
- On-line **bill comparison tool** to show customers how they perform
- **High price alerts** and notifications to prepare customers for higher prices
- On-going customer communication to help existing customers maintain and **improve savings**

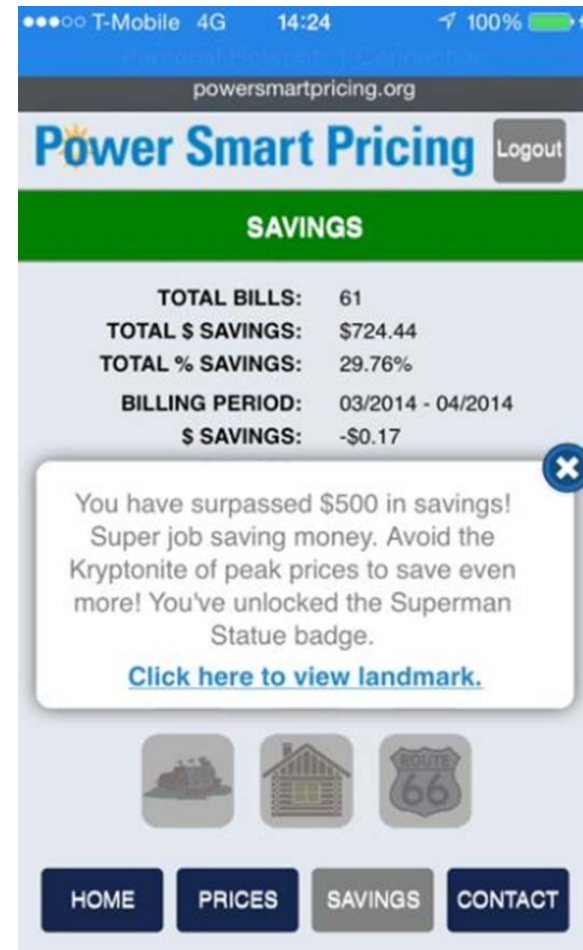


powering lives



# Dynamic Pricing Made Easy

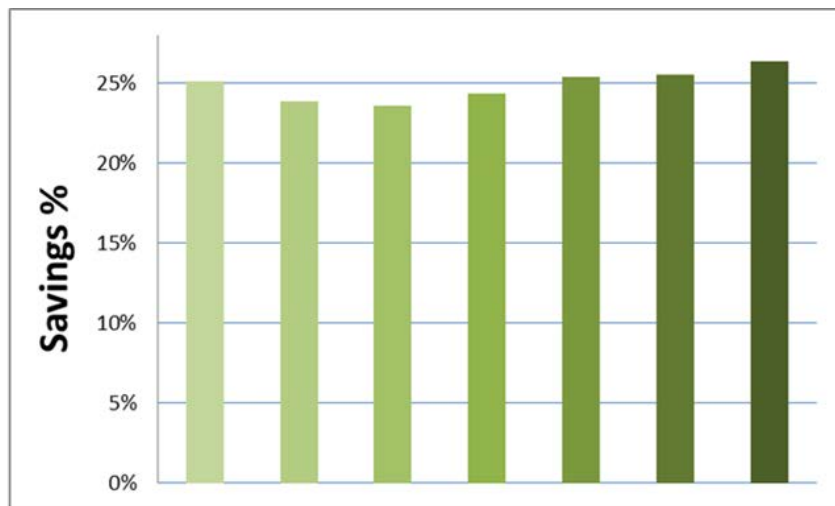
- **Smart phone app** provides current prices, bill comparison data and ability to collect 'savings badges' for participants
- **Bill comparison tool** provides savings information to track success
- **High price alerts** are delivered by phone, e-mail and text when prices reach a certain threshold
- **Dedicated customer support** by highly trained staff available by phone, email and live chat



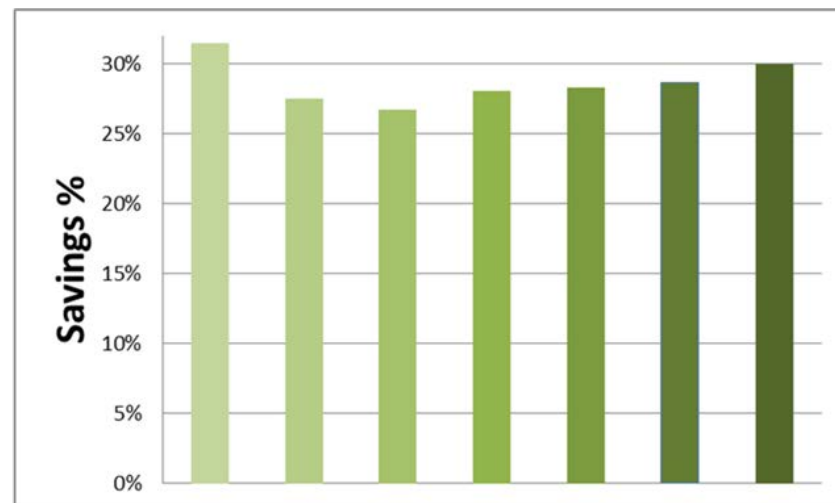


# Electricity Supply Savings

	2007	2008	2009	2010	2011	2012	2013	2014
<b>RRTP</b>	26%	11%	33%	23%	26%	40%	30%	0.1%
<b>PSP</b>	N/A	13%	43%	23%	24%	35%	13%	-19%



Low Income → High Income



Low Income → High Income







# Creating Engaged and Satisfied Customers

- Utilities want more engaged and satisfied customers
- Hourly customers are:
  - More willing to adopt new technologies
    - **33% of ComEd RRTP participants are enrolled in A/C Cycling** demand response program – compared with 1.8% of all ComEd customers
  - More educated about electricity markets (peak and off-peak)
  - More engaged with their electricity service and usage
  - Really, really **satisfied!**
    - **98% Satisfaction** with dedicated call center for Power Smart Pricing
    - **91%** report the program is “**Quick and Easy**”
    - **88% Overall Satisfaction** with ComEd RRTP program

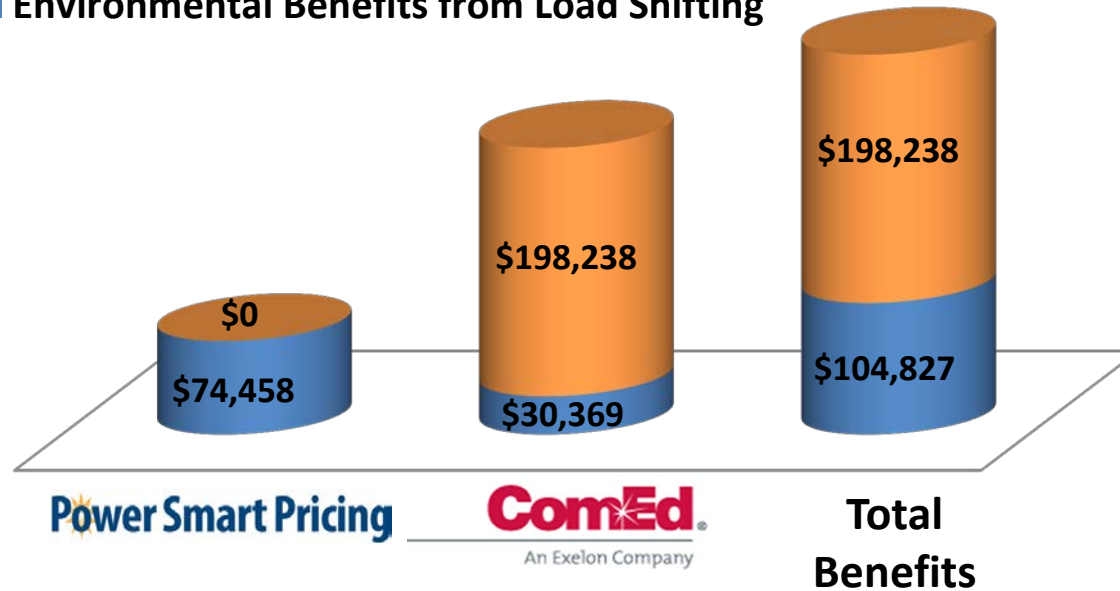




# Annual Environmental Benefits

■ Environmental Benefits from Conservation

■ Environmental Benefits from Load Shifting



	Reduction in Within-day Load Variance	Annual Conservation Savings (MWH)	CO <sub>2</sub> Benefits	SO <sub>2</sub> & NO <sub>x</sub> Benefits
Power Smart Pricing	25%	0	\$11,458	\$63,000
ComEd RRTP	12%	5,000	\$117,396	\$111,211

\*Data analysis courtesy of Klos Energy Consulting – [www.KlosEnergy.com](http://www.KlosEnergy.com)



# Distribution Only: Costs & Benefits

---

## Benefits:

- Better utilization of resources
- Less peaky
- Flatter load shape

## Costs:

- Depends on whether company is vertically integrated and whether hourly customers reduce usage

\*Illinois: utilities are default supply, which is a fixed price-rate for customers under 100 kW demand and market-based rate for all other customers (and an option for customers under 100 kW demand).

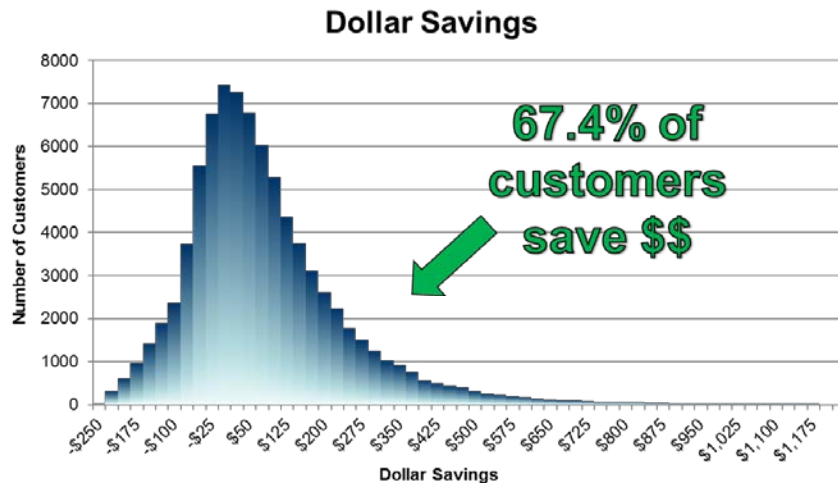
# **What If Hourly Pricing Was the Default Rate?**





# Hourly Pricing as the Default Rate – Study #1

- Included ComEd customers with 12 months of reported usage between June 1, 2010 and May 31, 2011
- No awareness of hourly rates
- Sample size: 83,891 customers
- **Total Savings \$8.6 Million**

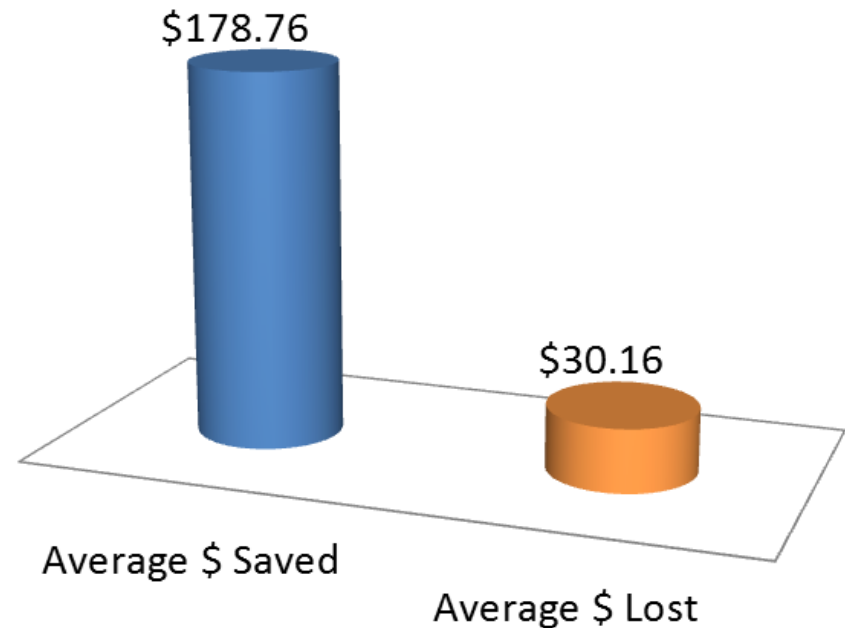


	Less than 300 kWh/month	Greater than 300 kWh/month
Number of Customers	18,329 (22%)	65,562 (78%)
Median Dollar Savings	(\$29)	\$87
Median % Savings	-18%	15%



## Hourly Pricing as the Default Rate – Study #2

- Included ComEd customers with 12 months of reported usage between December 1, 2011 and November 30, 2012
- No awareness of hourly rates
- Sample size: 97,938 customers
- **Total savings: \$15 million**



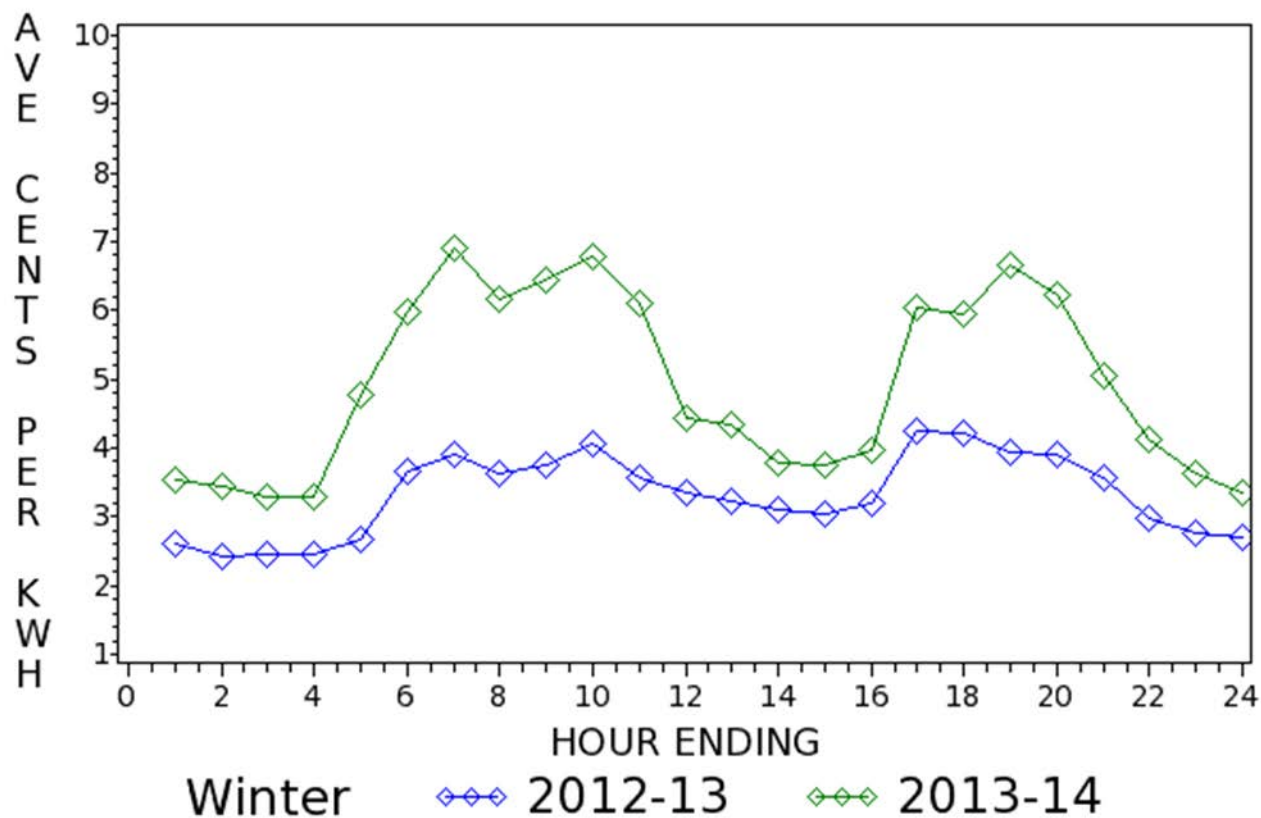
# **2014 Polar Vortex Impacts on ComEd RRTP Participants**





# 2014 Polar Vortex

## Winter Average Daily Price Curve by Year



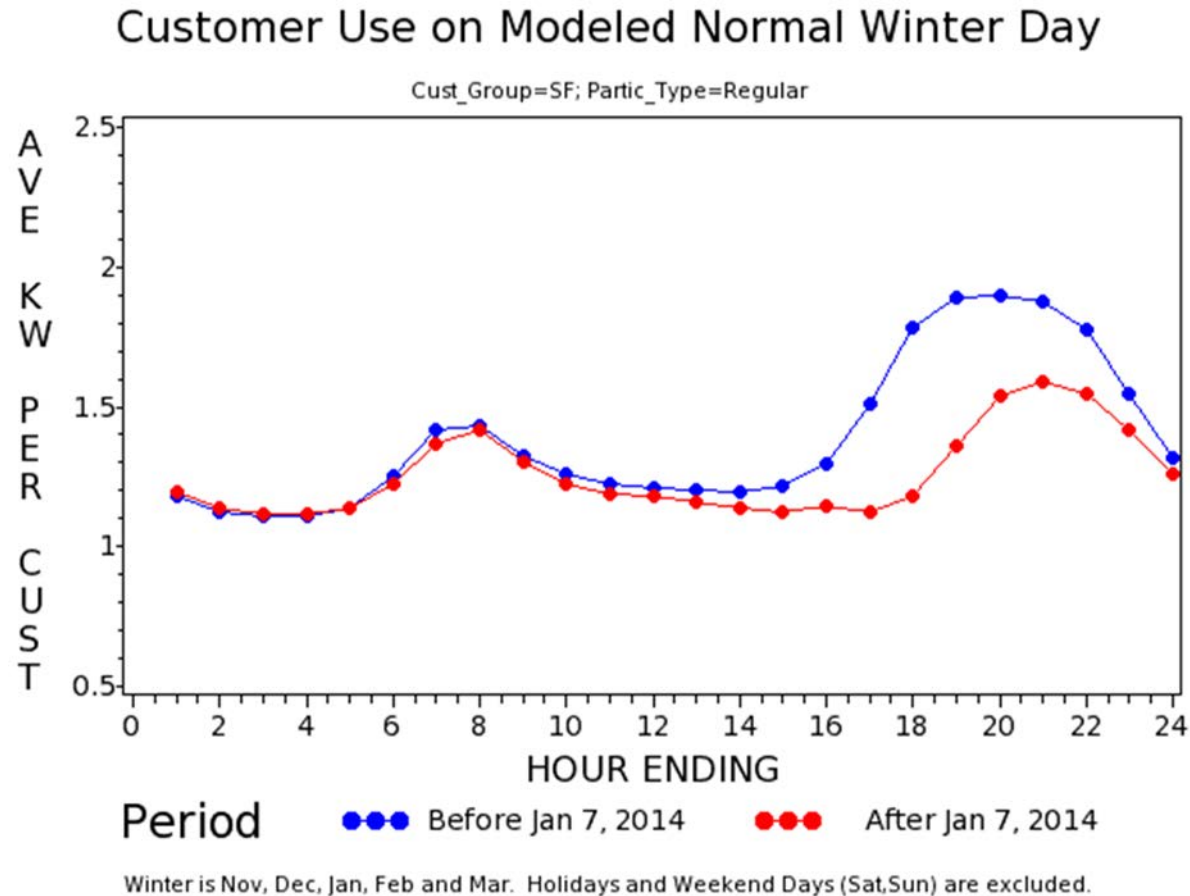
Winter is Nov, Dec, Jan, Feb and Mar. Holidays and Weekend Days (Sat,Sun) are excluded.

\*Data analysis courtesy of Klos Energy Consulting – [www.KlosEnergy.com](http://www.KlosEnergy.com)





# Polar Vortex: Evening Peak Reduction



\*Data analysis courtesy of Klos Energy Consulting – [www.KlosEnergy.com](http://www.KlosEnergy.com)



## Polar Vortex: Conservation Effect

- The Regular Reductions After January 7 Created a Conservation Effect in Addition to the Conservation Already Practiced by Participants

	<b>Percent Change in Energy Usage After Joining RRTP</b>	<b>Additional Percent Change in Usage After Jan 7th</b>	<b>Net Change in Usage After January 7th</b>
<b>Single Family</b>	-5%	-9%	-14%
<b>Multi-family</b>	-4%	-7%	-11%
<b>SF with Electric Spaceheat</b>	-7%	Not Statistically Significant	-7%
<b>MF with Electric Spaceheat</b>	-4%	Not Statistically Significant	-4%

\*Data analysis courtesy of Klos Energy Consulting – [www.KlosEnergy.com](http://www.KlosEnergy.com)

# **ComEd Customer Applications Pilot (2010)**

## **Testing 5 Different Dynamic Rates & Tech**



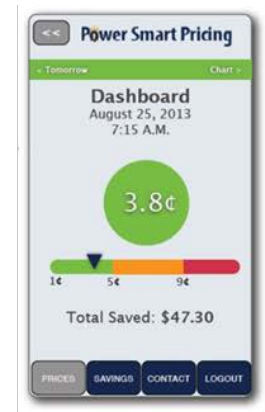


# ComEd: 2010 Customer Applications Pilot

		Enabling Technology Type					
		None	Removed	Enhanced Web (eWeb)	eWeb+ Basic IHD (BIHD)	eWeb+ Advanced IHD (AIHD)	eWeb+PCT /IHD (AIHD/PCT)
<b>Flat Rate Type</b> N = 1,650	Flat Rate Existing Meter No Education	Control F1 N=450					
	Flat Rate Existing Meter Education			Application F2 N=225			
	Flat Rate AMI Meter Basic AMI Education			Control F3 N=225			
	Flat Rate AMI Meter Education		Application F4 N=0	Application F5 N=225	Application F6 N=300	Application F7 N=225	
<b>Energy Efficiency Rate Type</b> N = 750	IBR Rate AMI Meter Education			Application E1 N=225	Application E2 N=300	Application E3 N=225	
<b>Demand Response Rate Type</b> N = 3,525	CPP/DA-RTP Rate AMI Meter Education			Application D1 N(a)=525 N(b)=225	Application D2 N=525	Application D3 N=525	Application D4 N=525
	PTR/DA-RTP Rate AMI Meter Education			Application D5 N=225	Application D6 N=525	Application D7 N=225	Application D8 N=225
<b>Load Shifting Rate Type</b> N = 2,625	DA-RTP Rate AMI Meter Education			Application L1 N(a)=225 N(b)=225	Application L2 N=525	Application L3 N=225	
	TOU Rate AMI Meter Education			Application L4 N=225	Application L5 N(a)=525 N(b)=225	Application L6 N(a)=225 N(b)=225	
<b>N = 8,550</b>		<b>N = 450</b>	<b>N = 0</b>	<b>N = 2,550</b>	<b>N = 2,925</b>	<b>N = 1,875</b>	<b>N = 750</b>
	Primary Application	Not Used					



# A Rate Ahead of It's Time...Until Now?





## Questions? -- Stay in Touch

---

David Becker

*Director of Dynamic Pricing*

[david.becker@ElevateEnergy.org](mailto:david.becker@ElevateEnergy.org)

773-269-4009

[ElevateEnergy.org](http://ElevateEnergy.org)



@Elevate\_Energy



Facebook/ElevateEnergy



LinkedIn