#### The Future of the





#### **Chuck Caisley, Vice President of Marketing and Public Affairs**

**Great Plains Energy and Kansas City Power & Light Company** 



#### **The Rise of Western Environmental Regulation**



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#### **Regulation Framework Under the EP Act of 1986**



EP Act: Environmental Protection Act 1986 Clearing Regulations: Environmental Protection (Clearing of Native Vegetation) Regulations 2004

#### **Rgulatory Origins, Aspects and Stakeholders**





#### Yeah, we are not going to do that...





#### We are going to have a great presentation.



#### It's going be the best presentation.



# "As long as your going to be thinking, anyway... THINK BIG."





This City May Soon Be the Best Place to Own an Electric Car

A huge plan is in the works to juice electric vehicle adoption.

TIME.COM

Why build a charging network when less than 2% of our customers currently own/drive an electric vehicle?

- 1) Utility customer expectations have evolved and the utility mindset around customer service **MUST** change.
- 2) Technology has significantly advanced, making an entirely new way of interacting with customers and running an electric utility possible.





# "You don't get a cookie for a s'posed to!"





### RELIABLE

# **AFFORDABLE**



## Control

- Energy Efficiency Programs
- Solar and Renewables Programs

# Choice

- Easy Connection and Net Metering
  - Access, Information and Advice
- Rebates on Emerging Technology

# **Comparable Service**

- Outage Communications
  - Digital Portals
  - Differentiated Service

# **Shared Commitment**

- Robust Community Involvement and Programs
  - Economic Development Riders

#### **This is Modern Customer Experience**

Your Card was no	t present
As you requested, we're letting you know that yo of this purchas	our Card was not present at the tim se.
BOATER EXAM DOT COM	<b>\$29.95*</b> Tue, May 16, 2017
You can <u>track this pending charge online</u> and to posted to your ac	be notified when the final amount is count.
If you still have questions abo we suggest contacting the m	ut this transaction, her <mark>chant direct</mark> ly.
*The amount above may not reflect the final amount as some	e merchants issue a pre-authorization char







#### KCP&L Summer Peak Day Load vs. Generating Resources



### Why Do We Do It This Way?

1) Historically, electrification has created incredible value.

2) There hasn't been a viable alternative way to operate the grid.



### **Historical Model: Electrify & Build**



**Customer Usage** 

One of the Most Reliable Infrastructure Systems in World History

We build to serve a peak demand number (plus 12% reserves) that may only occur once in 20 years.

- The unintended consequence is low system utilization.



### **EV's Are Priceline For The Grid**



# Mandates & Aging Grid: 1 Costs

# kWh's: Solar & EE 🔶 Electric Vehicles 🕇

#### KCP&L Summer Peak Day Load vs. Generating Resources



#### **KCP&L Clean Charge Network**



**Smart Electrification** 

**Improved Environment** 

**Economic Development** 

**Customer Programs** 

Utility Cost and Infrastructure Advantages

**Proactive Policymaking** 



#### **Connect, Interact, and Optimize**

Customers and technology are pushing the limits of historical business and regulatory models



- We must transform our grid from a one-way system to a new dynamic twoway system
- Embrace big data, automation and interactivity especially on the demand side
- Build stronger demand-side connections with customers and grid-edge resources
- The Grid of Things Integrate grid-edge resources securely, reliably, and affordably to optimize the grid and unlock additional value for customers

#### **Ultimate Vision- Getting To The Edge Of The Grid**



### Automated Demand Response Pilot KCP&L Initial 6.4 Megawatts of ADSM



KCP&L- KS		
City	Capacity	
Overland Park	658 kw	
Shawnee	407 kw	
Olathe	382 kw	
Roeland Park	147 kw	

Total 1594 kw

KCP&L- MO		
City	Capacity	
Kansas City	2110 kw	
Gladstone	179 kw	

Total	2289 kw

MPS		
City	Capacity	
Liberty	587 kw	
Lees Summit	420 kw	
Blue Springs	273 kw	
Belton	254 kw	
Raymore	147 kw	
Sedalia	147 kw	
Warrensburg	147 kw	
Pleasant Valley	38 kw	

Total	2013 kw

SJLP		
City	Capacity	
St. Joseph	439 kw	
Total	439 kw	

### **Instant Automated Demand Response**

#### Event Summary Report 10/8/2015 12:00:00 PM End Date 10/8/2015 3:00:00 PM Min Start Date 1.556MW Call Level KCP8L Call Type Scheduled 3.204MW Max Consequence Level Contract Capacity Resource Type All Average 2.748MW Requested 2.748 MW 2.3 MW Delivered Event Duration 3 hour(s), 0 minutes Outside Temperature 84.0°F Ramp Time 5 min Participating EAs 55 Cost \$0.00 Higher ambient temperatures caused a few resources to come back on sooner than anticipated by the model Delivered 95% of requested capacity Thu, Oct 8, 2015 at 12:00 2.3MW shed for 180mins for 3-hrs Request Actual NW 0 -2 Oct 8, 11:30 Oct 8, 12:30 Oct 8, 13:00 Oct 8, 13:30 Oct 8, 14:00 Oct 8, 14:30 Oct 8, 15:00 Oct 8, 12:00 Oct 8, 15:30 Time



### **Questions During This Evolution**

- How much will it cost?
- Does the traditional cost/benefit analysis always apply?
- How will we continue to ensure reliable and affordable energy?
- Who will benefit?





### **Redefining the Electric Utility Industry**

- New era in grid modernization
- Electric utilities and their regulators are best positioned to develop the grid of the future and need to take an active role:
  - Utilities do not optimize one business model, solution or technology
  - Utilities optimize the grid to serve all customers fairly and reliably











### **Understanding the Utility Mindset**















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### There Is A Message For Regulators Too...



#### **Judge Kenesaw Mountain Landis**





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