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Customer Engagement

Your Trusted Energy Partner

Strategic Issue Discussion – June 13, 2017

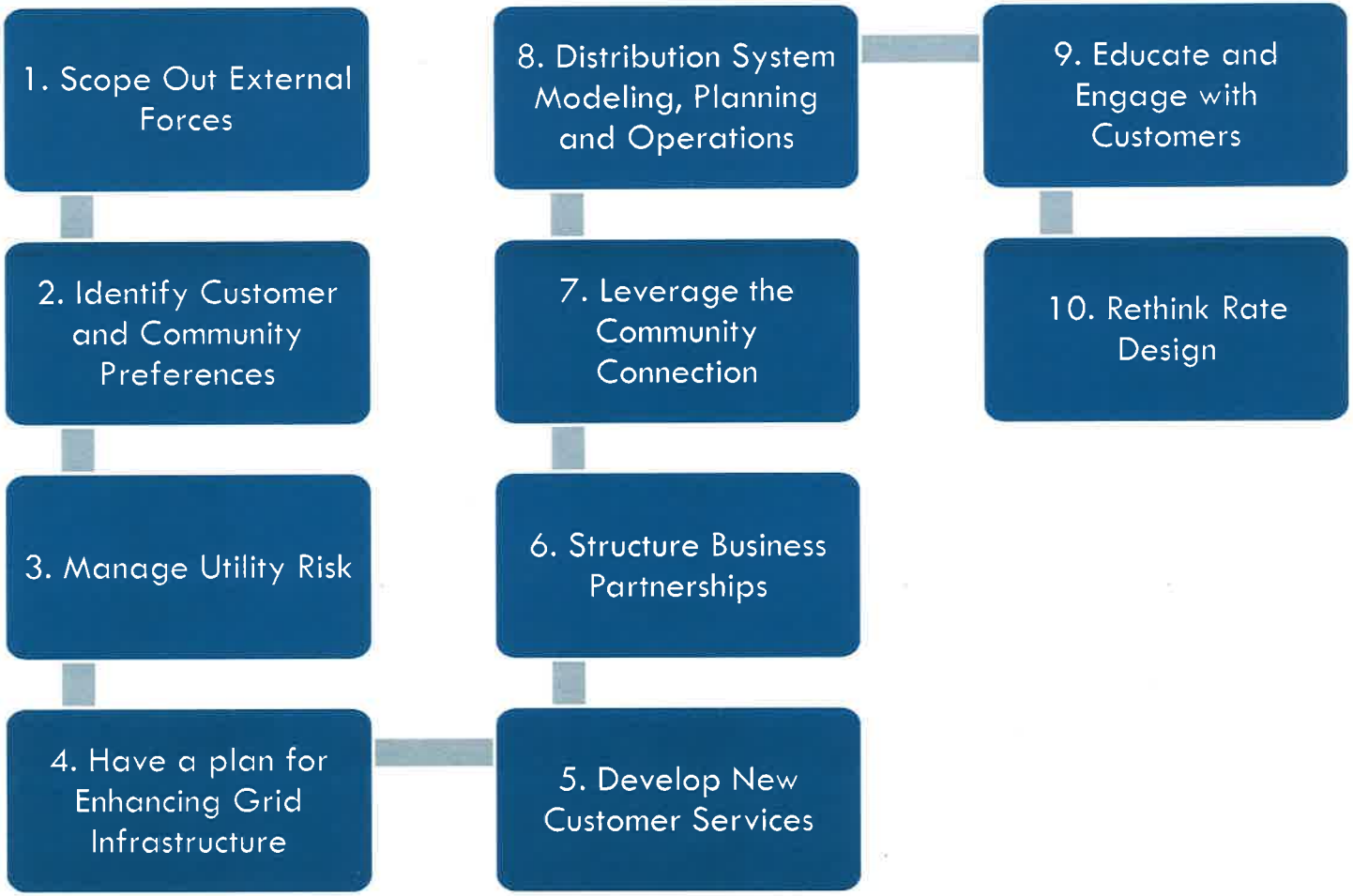
Strategic Planning - 2017

- May 2 — Completed
  - Broadband
- May 23 — Completed
  - Key Power Supply Issues
  - Finance & Rates
- June 13 — Today
  - Customer Engagement
  - Emerging Technologies
  - Capital Planning
- July 11
  - Recap & Draft Action Items for Discussion
- Late Summer/Early Fall
  - Plug into Your Future (selected topics)

The Future by Design

10-Step Action Plan for Transition

AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities



The Future by Design

10-Step Action Plan for Transition

Agenda

- Partnerships, Progress and Philosophy of NISC
  - Vern Dosch, NISC
- Customer Engagement
  - Paula Ball
  - David Bonnett and Tom DuBos, NISC
- Emerging Technologies
  - Chris Johnson and James Dykes
- Customer engagement – next steps
  - Paula Ball
- Customer Communications
  - Karen Miller

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Partnerships, Progress and Philosophy of NISC

Vern Dosch

President & CEO, NISC

National Information
Solutions Cooperative®

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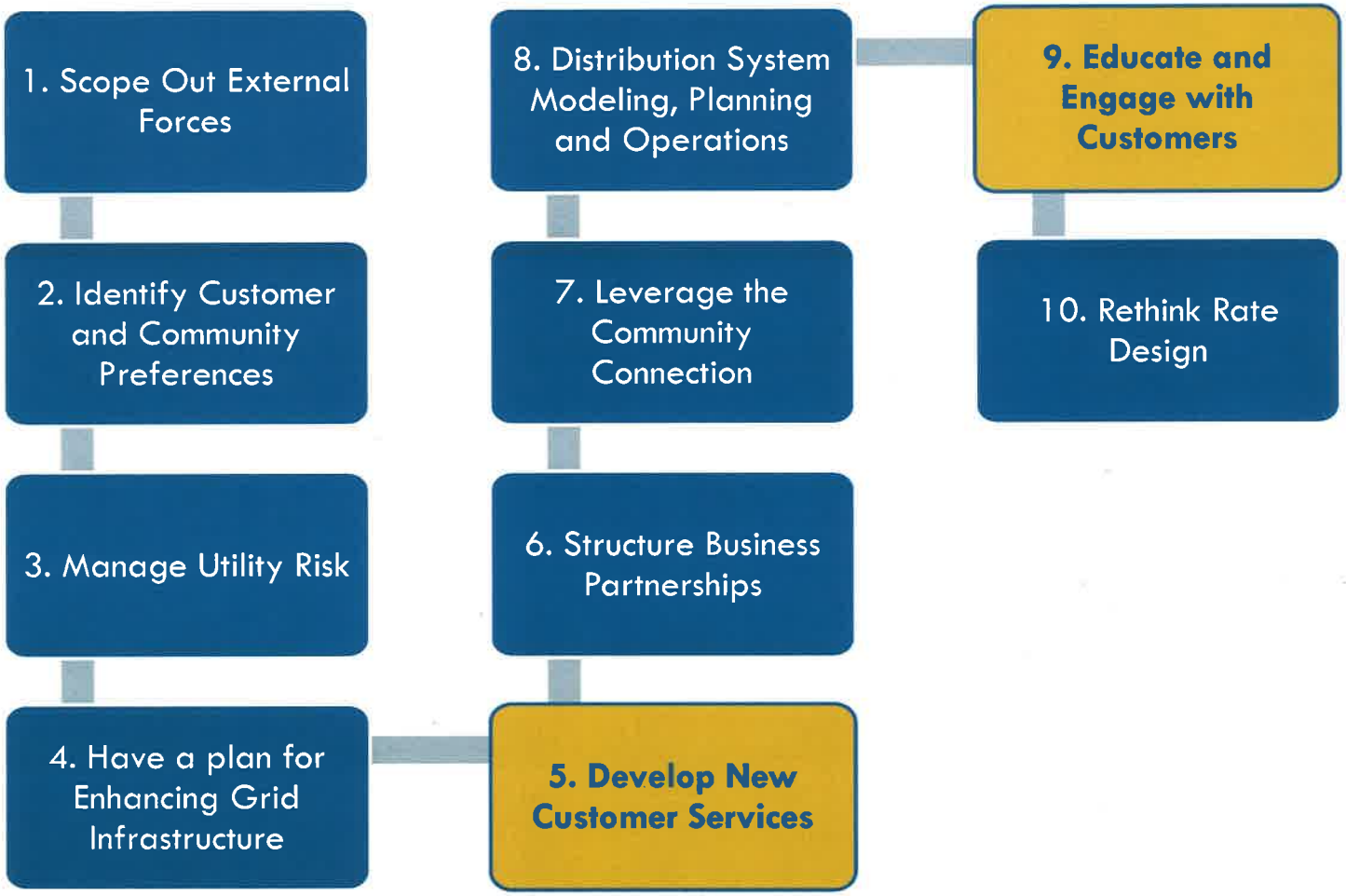
Customer Engagement

Paula Ball

The Future by Design

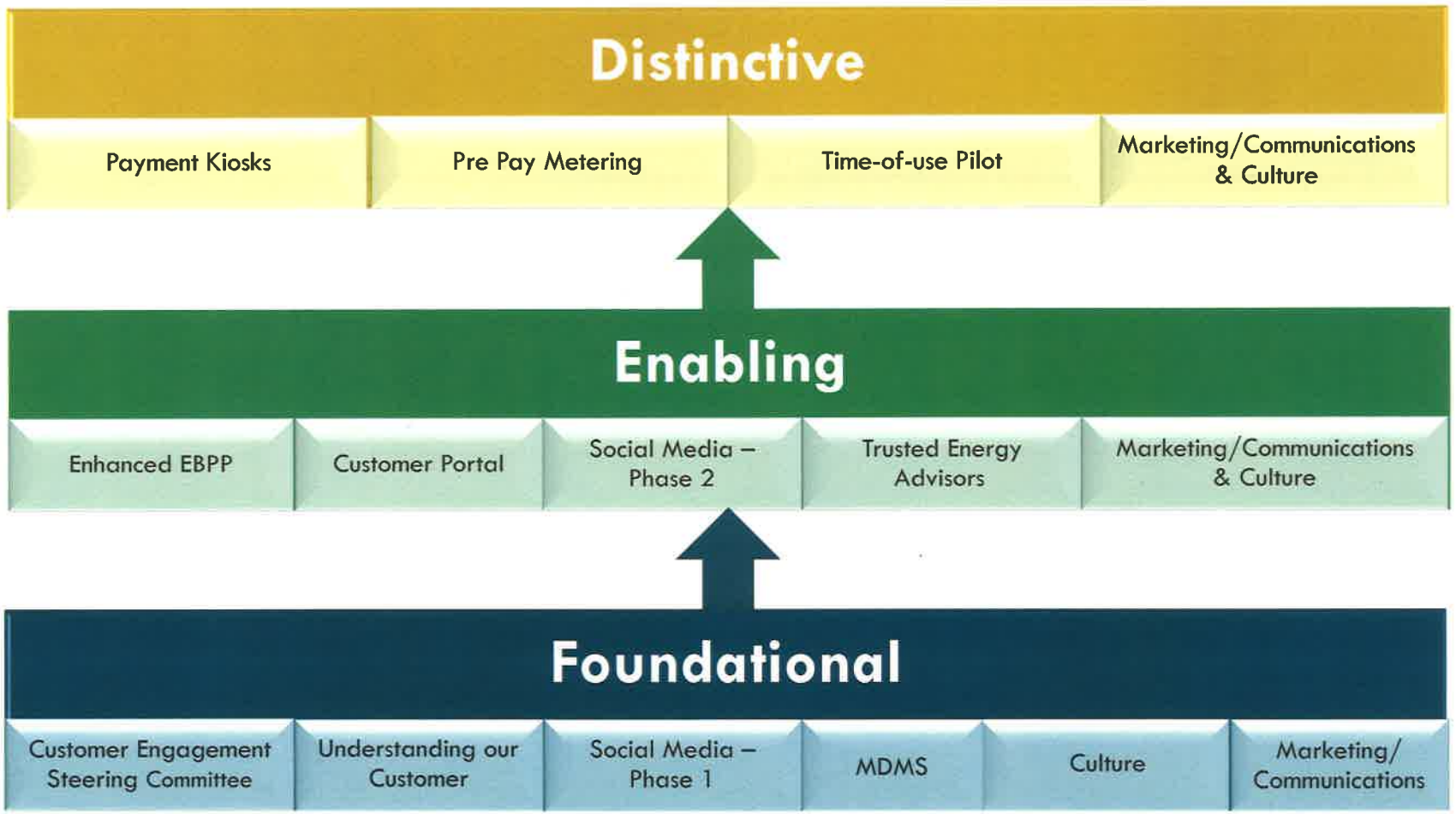
10-Step Action Plan for Transition

AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities



Customer Engagement Strategy

Customer Engagement Strategy



Customer Engagement Timeline

Building a foundation (2012-2013)

Developed the *Customer Engagement Strategic Plan for Smart Utility*

- Included guiding principles, roadmap and action plan
- Strategic goal to deploy customer-facing processes and systems
- Promoted internal culture of *Delivering More Than Expected*

Making progress (2014-2015)

Released RFI & RFP to enable a customer-facing solution

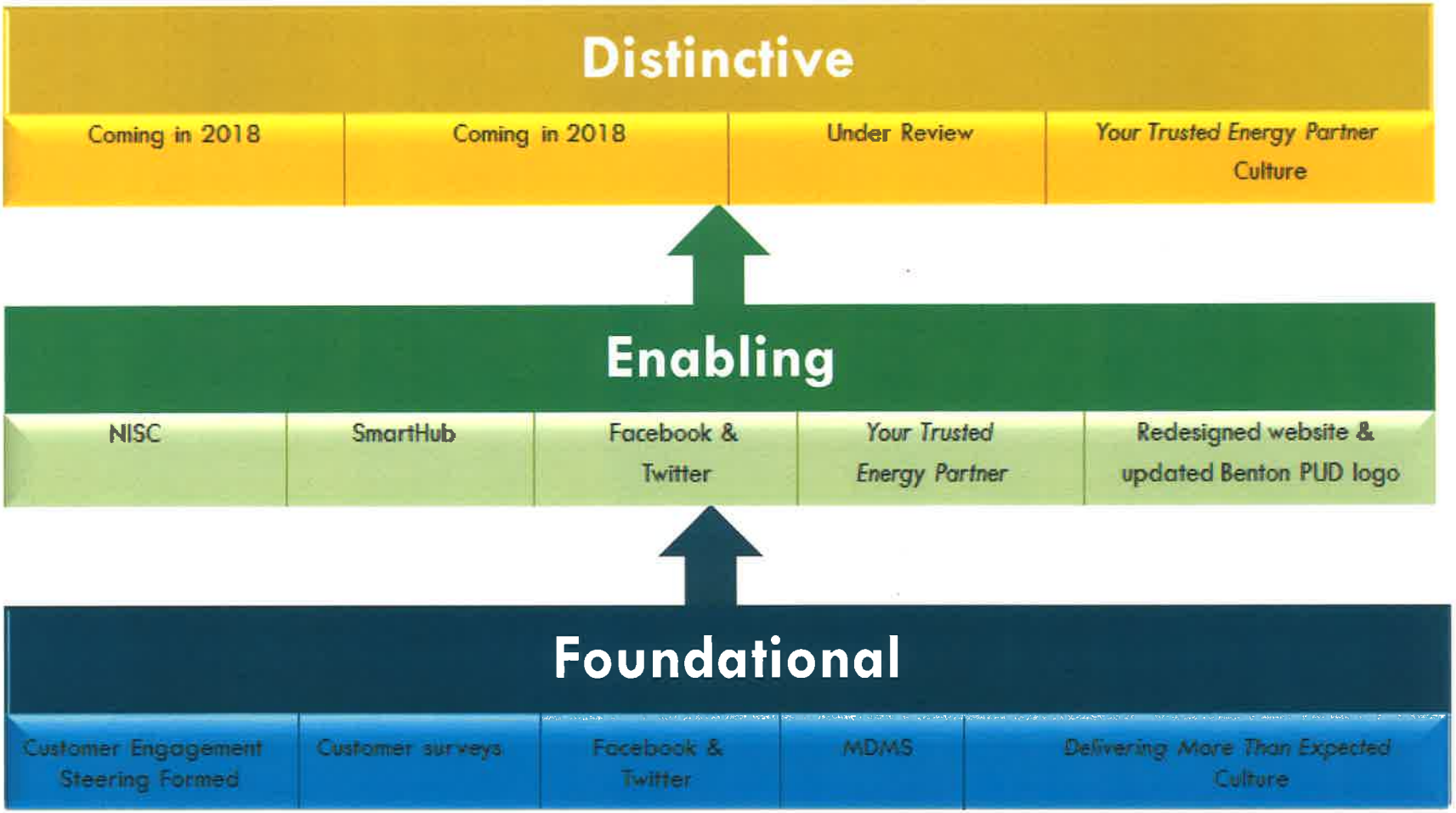
- Selected NISC as enterprise-wide solution
- Surveyed customers routinely for feedback and validation
- Utilized traditional and social media to communicate with our customers
- Set strategic goal to become our customers *Trusted Energy Partner*

Achieving success (2016-2017)

Achieved initial strategic plan:

- Fostered *Delivering More Than Expected* culture
- Updated logo and utilized *Your Trusted Energy Partner* tagline
- Launched redesigned website
- Implemented NISC enterprise-wide solution
- Deployed SmartHub

Customer Engagement Successes



Partnership with NISC

- Enhanced service for customers
  - Gives customer more information, more options
  - Easy for customers to use - anytime or anywhere - from their computer, smartphone or tablet
- Lowers Costs
  - Integrates a number of utility information systems - customer service, accounting, outage management, work order management – on common technology platform
    - Integrated platform achieved Information Technology Strategic Goal
- Built to last – long term partnership
  - "Innovation" is a value at NISC

Partnership with NISC

SmartHub™

- Consumer App for Apple and Android Devices
- Consumers Can:
  - Pay Bill
  - Report an Outage
  - View Usage
  - Communicate with Utility
  - 24/7 Access to Information
  - New Communication Channel
  - Send Push Notifications Through the App

National Information Solutions Cooperative®

Partnership

- Outage Manag
  - Current Enhan
    - Customers c
      device
    - Customers c
      SmartHub
    - Real-time ou
      relevant infc

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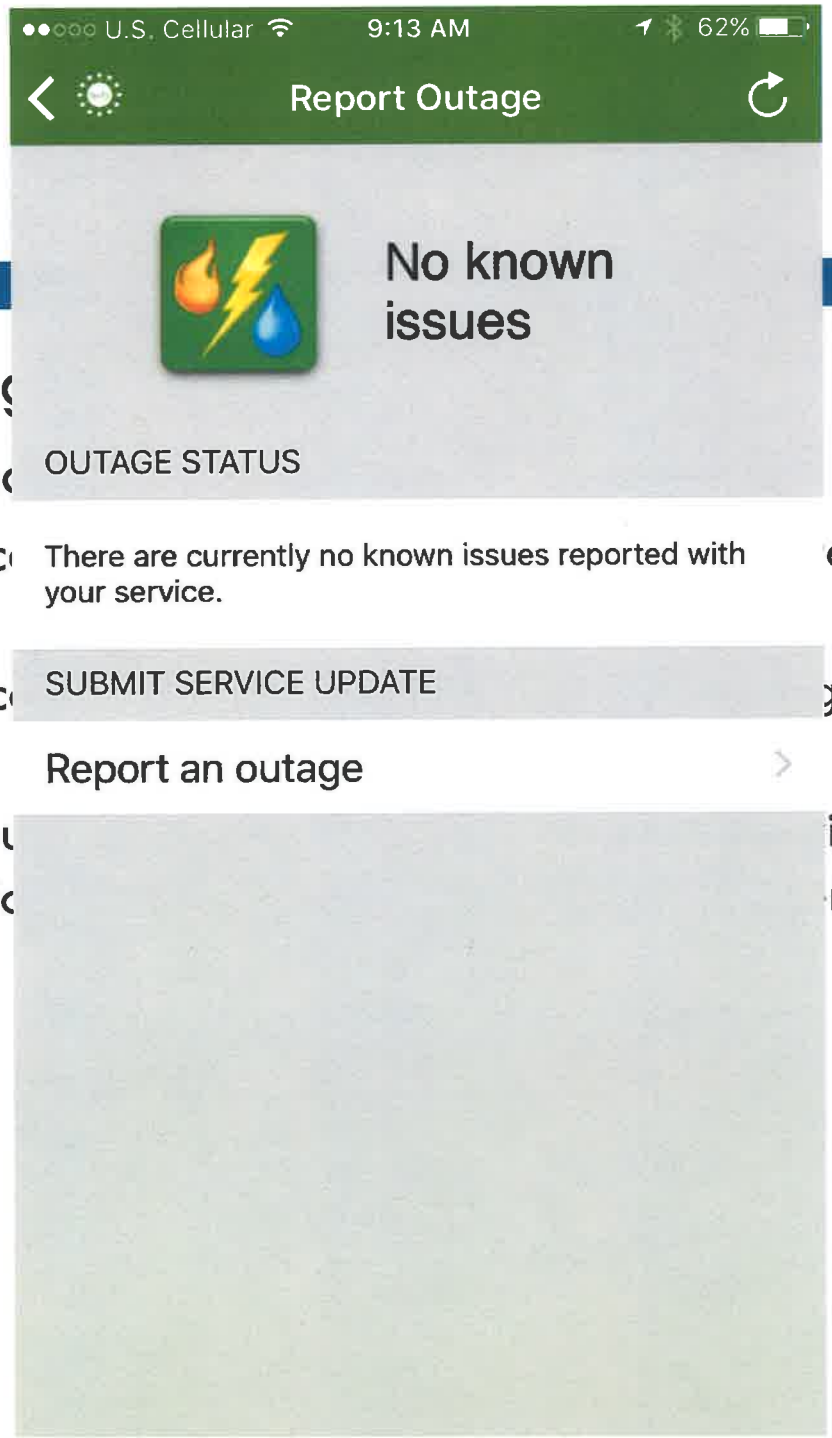
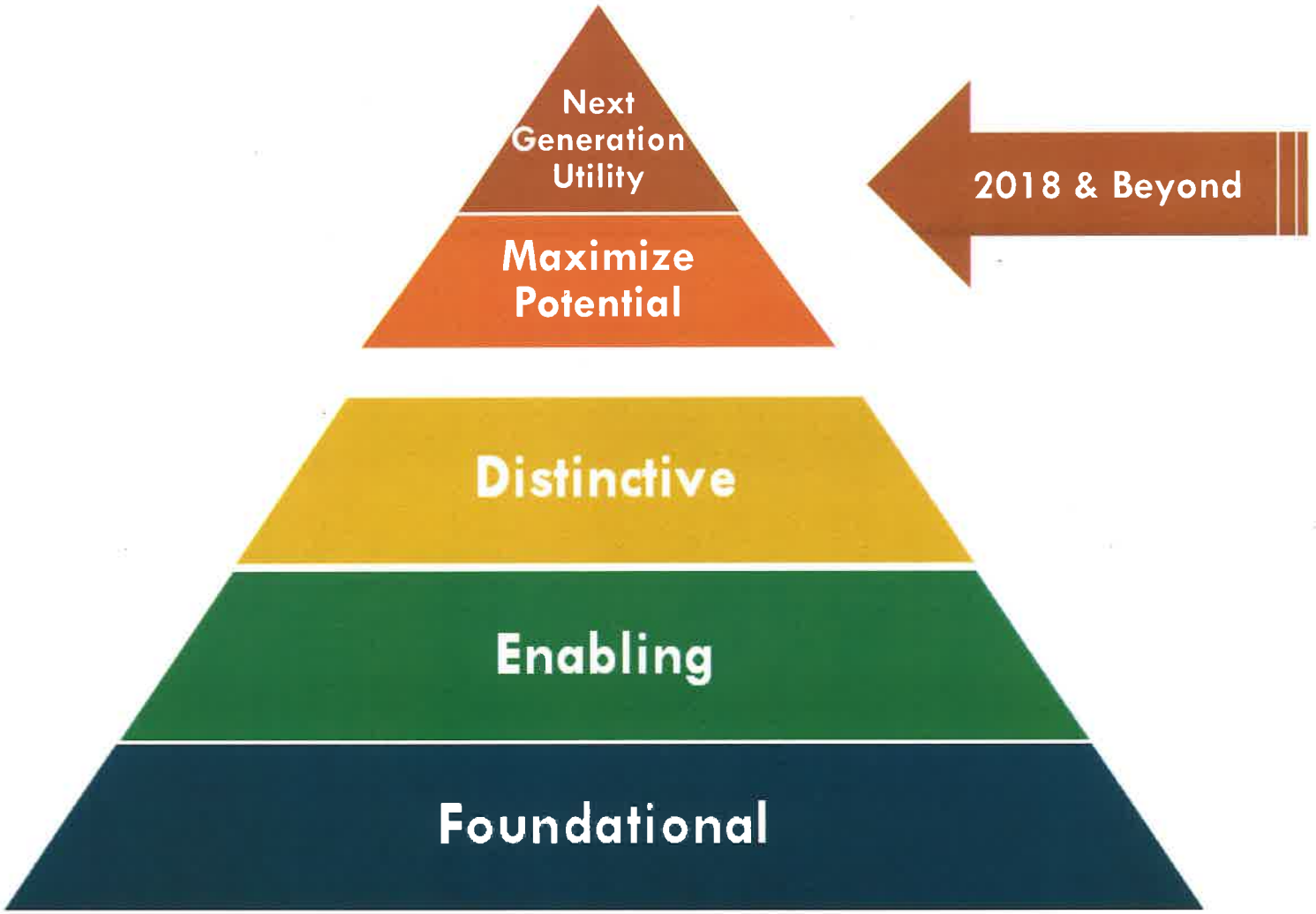


Partnership with NISC

- Outage Management – Future Enhancements
  - SmartHub will display a real-time outage map
  - Customers will be able to opt in to outage restoration notifications

Customer Engagement Future



Maximize Potential

- Prepay services and kiosks
- MDM data analytics for future rates/customer offerings
- Communicate benefits of SmartHub to customers, especially energy usage information
- Proactive customer outage notifications
  - Outage has occurred
  - Outage is restored

Utility of the Future

- Update Customer Engagement Strategic Plan
  - New SmartHub offerings, payment channels
  - Rate options
  - Proactive customer communications
  - Solar
  - EVs
  - Battery storage

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NISC –Meeting Future Customer Expectations

David Bonnett

Vice President - Product Management, NISC

National Information
Solutions Cooperative®

NiSC
National Information Solutions Cooperative®

Vern Dosch

CEO & President

David Bonnett

Vice President

Product Management

Tom DuBos

Regional Business Manager

Agenda

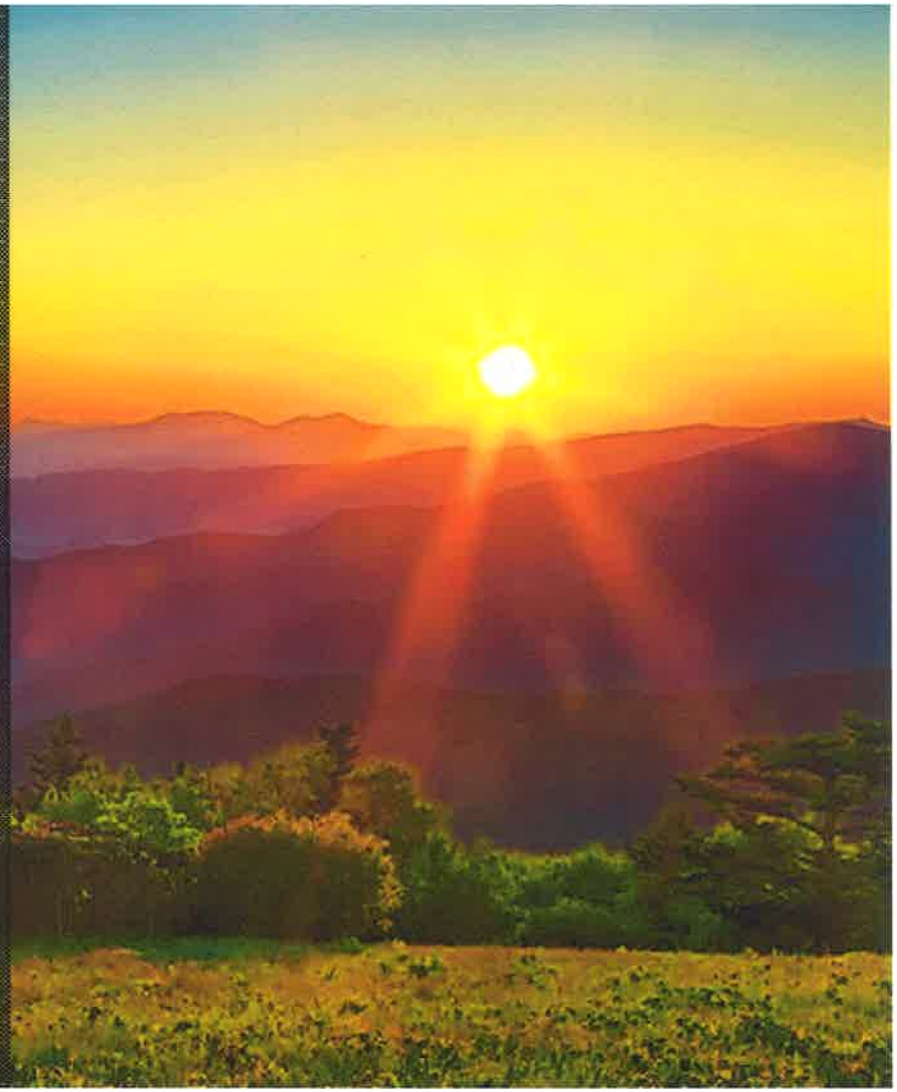
Unique Approach

End-Consumer Engagement

Today

Future Direction

Empowering Service Reps



your technology partner
driven to serve
powered by innovation
SEMO
driven to serve
powered by innovation
driven to serve
Focused on Membership

Evolution of a Roadmap

Industry Trends

- Sales growth has slowed dramatically due to slower economic growth, structural changes in the economy and "organic conservation"
- Distributed Generation is kicking in fast and creating cross-subsidies
- Transportation markets likely to be totally transformed in two decades - EVs
- The Internet of Things is upon us
  - Smart meters are being deployed
  - Consumers are buying smart appliances
  - Zero energy homes are in vogue

Consumers wanting choices

- Single Consumer Engagement Platform for iOS, Android and Web
- Productized integration with CC&B
- Consumers can:
  - Pay bills, Report outages, View usage
  - Initiate service orders
  - 24/7 access to information
  - Receive notifications
- Messenger Preference Center
- 1.3 Million installs on iOS & Android

Benton Usage May 2017:

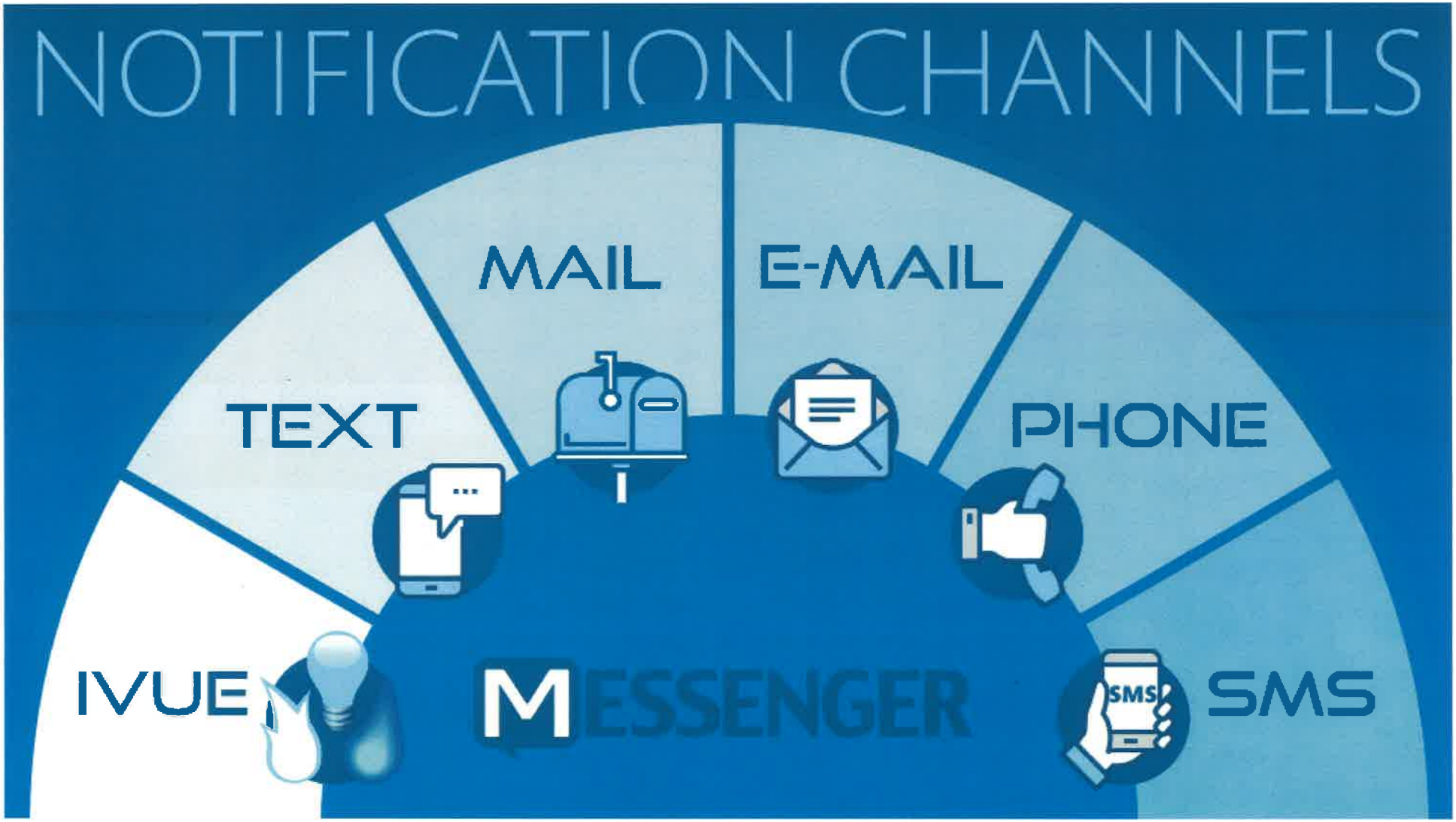
Web - 11,598 sessions by 8,500 users,

Mobile - 6909 sessions by 2712 users

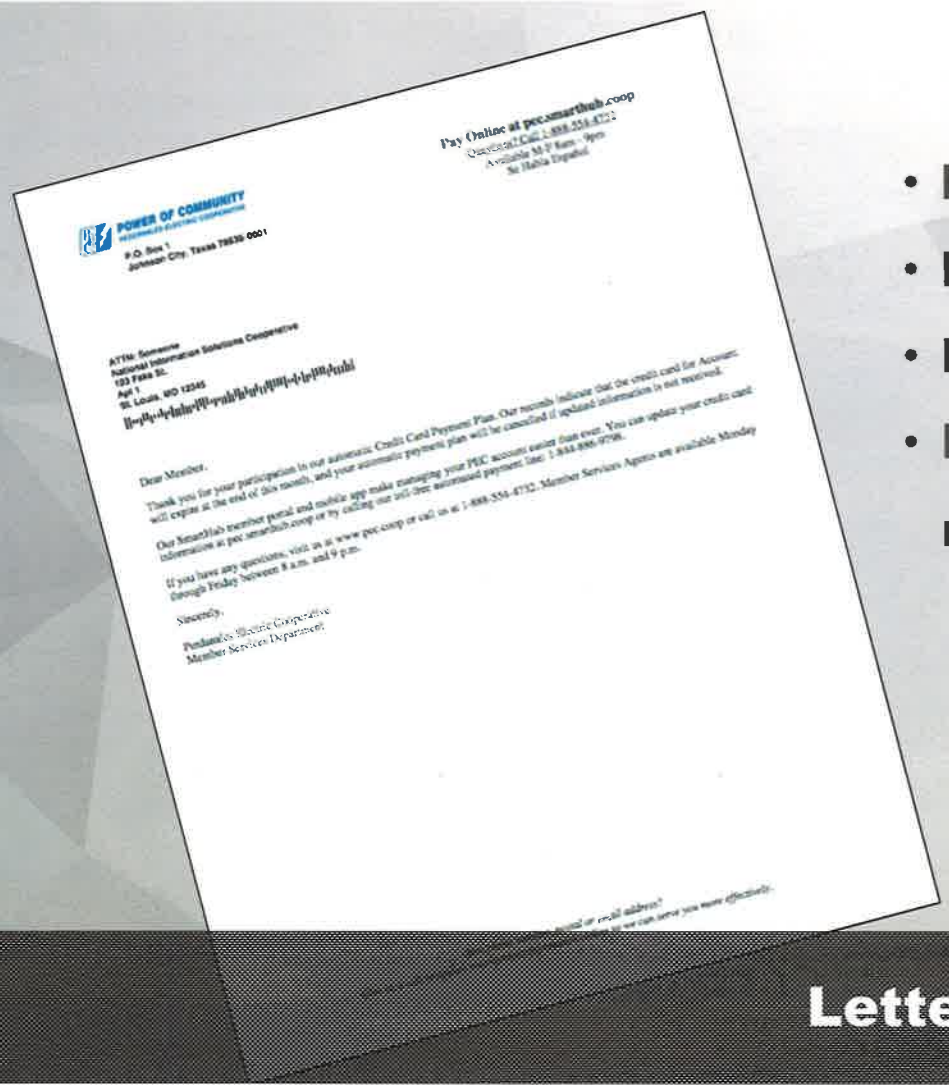
Notifications

- Customer Engagement Platform
- Supports email, texts, push, letters and Outbound IVR (via Call Capture)
- Notify customers of critical events and company news
- On Demand messages
- Peak time alerts, planned outages and service issues
- New program offerings
- Allow your customers to choose how you communicate with them

Unified Platform for All Your Communication Needs

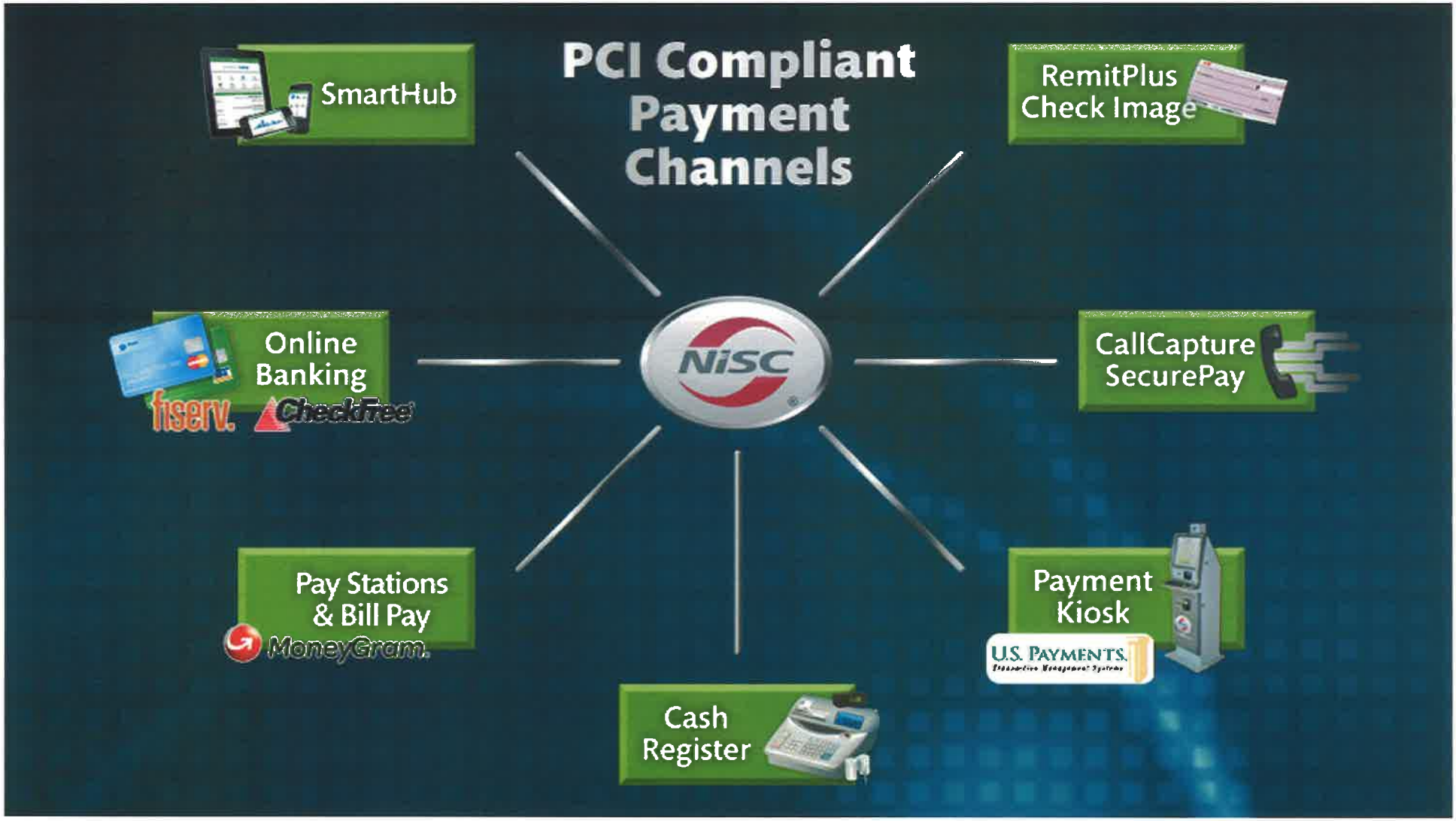

NOTIFICATION CHANNELS
MAIL
E-MAIL
TEXT
PHONE
IVUE
MESSENGER
SMS
SMS

GreenElectric
Bill Available
August 2015
You doing great! It's been cooler this month.
Log In
Summary
John Smith,
Your bill for account 123456 at 123 Main Street was prepared on August 20th, 2015 in the amount of $98.45 and is due August 28, 2015. This amount will be automatically draft from your default bank account on August 29, 2015. Thank you!
Your trusted energy partner,
Green REMC
Monthly Comparison
Difference
1303.2 kWh
879.4 kWh
-423.80 kWh
$125.92
$98.45
$-27.47
77/98 °F
77/90 °F
0/-8 °F
August Detailed
It has been unseasonably cool this August which means big savings for you! You used 879 kWh this month, which cost you $98.45. That is $27.47 less than July's total of $125.92 and that's even better than we predicted for this cool streak. You've been watching your usage!
Your average daily cost in August was $3.18, compared to July's average daily cost of $4.06.
in August was $3.18, compared to July's average daily cost of $4.06.
Temperature
Usage
View More Comparison Data
Next Month's Prediction
The seasons are changing as expected and we predict you will use 863.8 kWh in September, which is 15.2 kWh less than August. This will save you $7.87!
SmartHub can help you save more money and energy with detailed analysis and predictions. Log in now!
MDMI
Monthly Data and Talk Usage Report
February 2015
You did a great job in February. SmartHub is working for you!
Log In
Summary
John Smith,
Your bill for account 98765 at 123 Falls street was prepared on March 1, 2016 in the amount of $122.59 and is due March 10, 2016 This amount will be automatically draft from your default bank account on March 10 based on your billing settings in SmartHub. Thank you!
Your trusted cooperative partner,
Call-Tel
Monthly Comparison
You used 4.5 GB in February, which cost you $122.59. That is $3.33 less than January's total of $125.92.
Difference
5.2 GB
4.5 GB
-0.70 GB
$35.43
$46.74
$11.31
62 Minutes
57 Minutes
-5 Minutes
February Detailed
in February was $5.67, compared to January's average daily cost of
Data
Talk Time
View More Comparison Data
Next Month's Prediction
We predict you will use 3.7 GB in March, which is 0.8 GB less than February. This will save you $4.34!
SmartHub can help you save more money and energy with detailed analysis and predictions. Log in now!

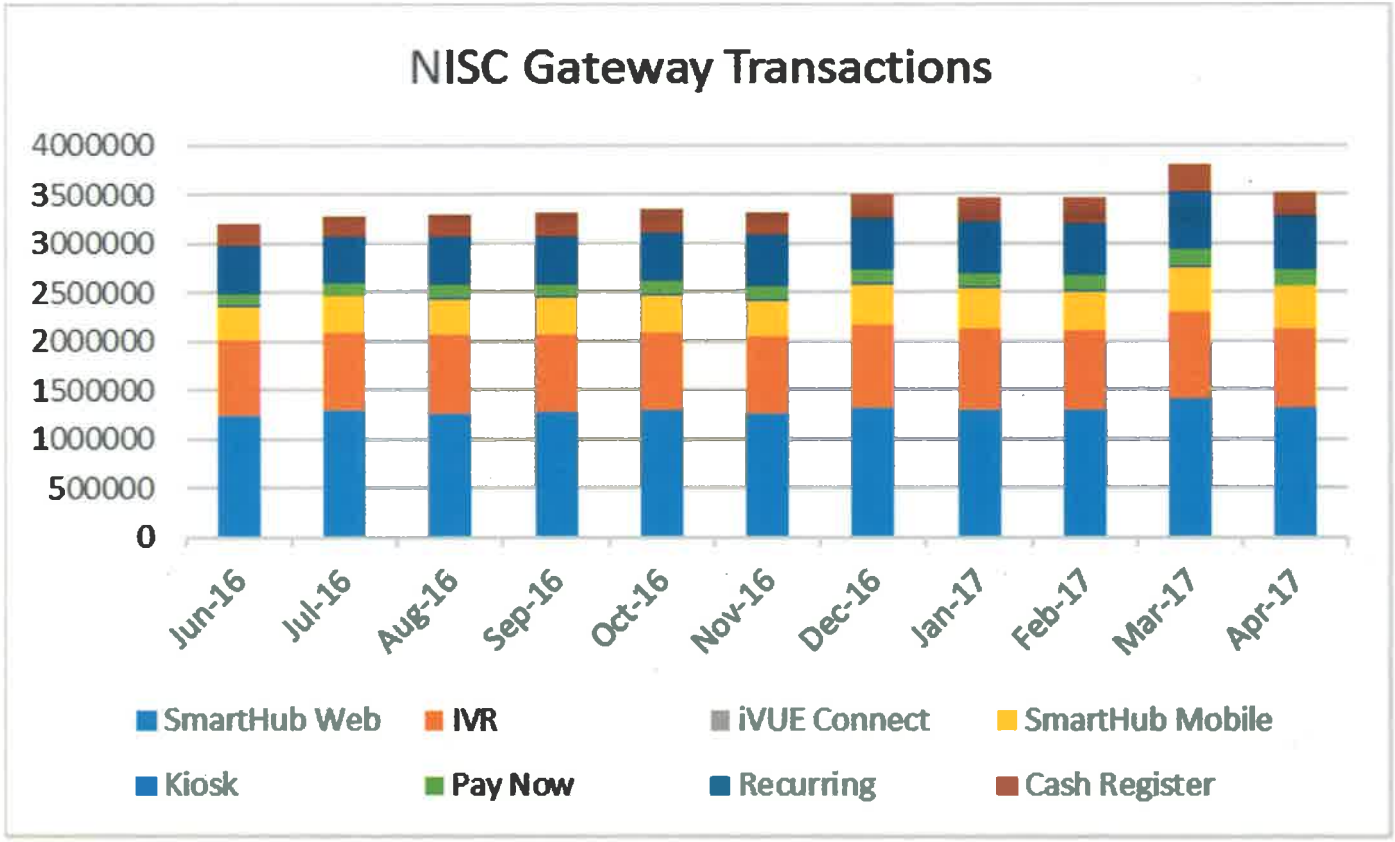


- Mail merge function within Messenger
- Printing with AMS
- Letters pushed to Document Vault
- Letters can be generated for non-SmartHub users

Letters

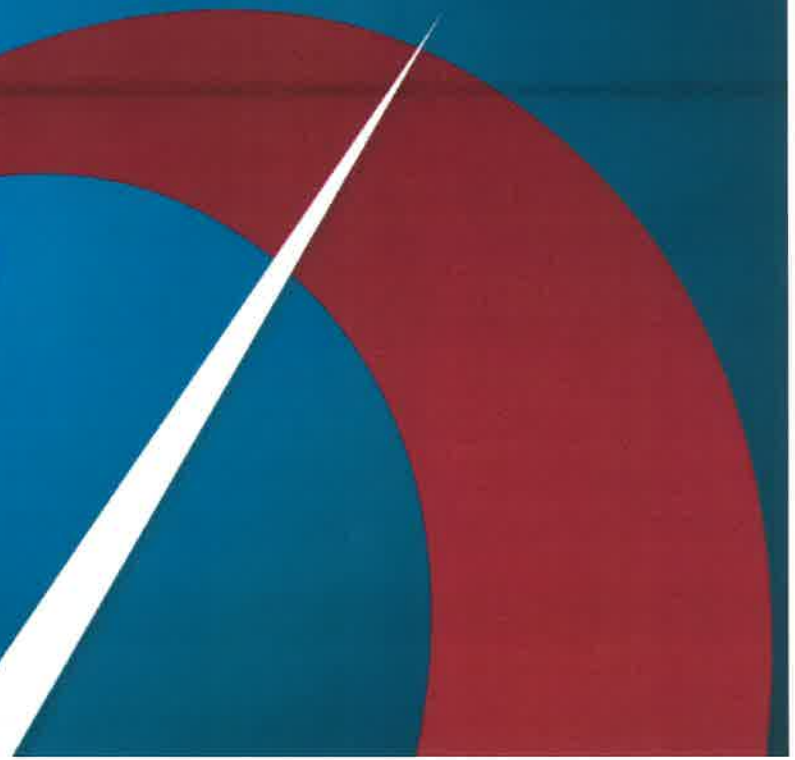

PCI Compliant Payment Channels
SmartHub
RemitPlus Check Image
Online Banking
fiserv.
CheckFree
NISC
CallCapture SecurePay
Pay Stations & Bill Pay
MoneyGram
Payment Kiosk
U.S. PAYMENTS
Cash Register

Payment Gateway Transactions



Prepaid Metering

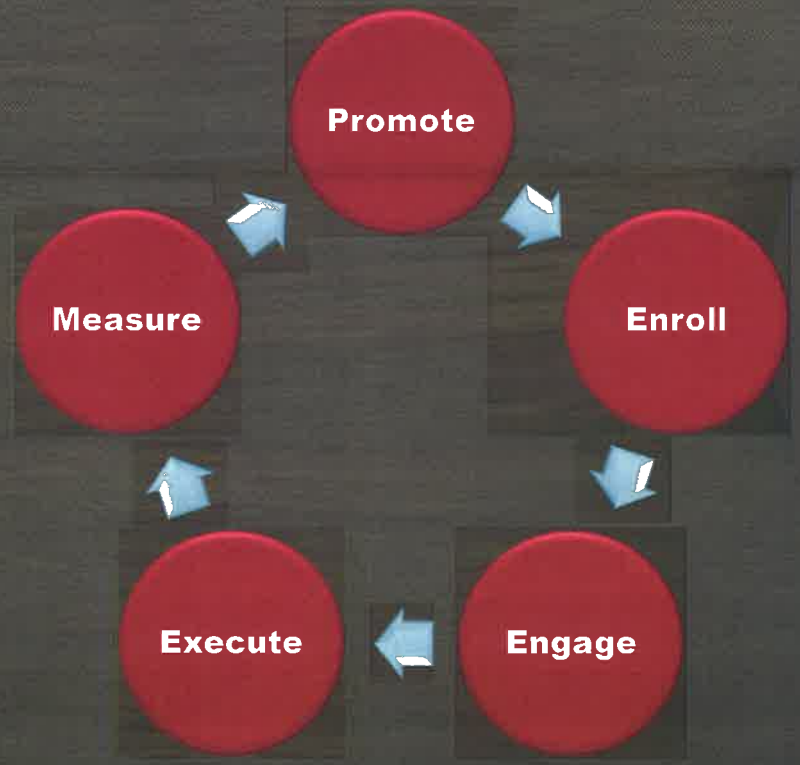
NISC Members Offering Prepaid:	165
Total Number of Prepaid Accounts:	135,188
Average # of Prepaid/Member:	819 Accounts
Largest Site - Snapping Shoals:	11,394 Accounts
Average Prepaid Account Balance:	$109.40
Customers Avg. # Payments/Month:	4-6 Payments

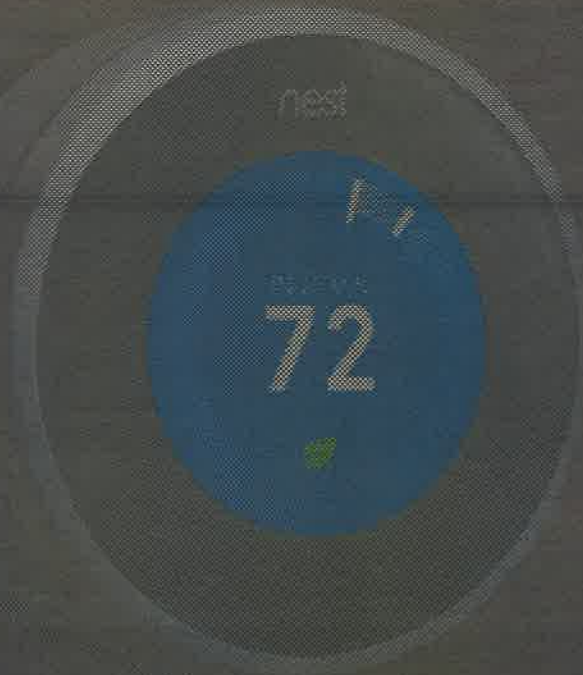


Future Direction

Even More Choices

Resource Program
LIFECYCLE





Right Customer. Right Program. Right Time.

- Do your customers know about your Programs?
- Are you targeting your customers properly?
- How are you communicating with your customers?

ENERGY SAVINGS TIPS

Discounts on New HVAC & Tune Up

Up to $850 discount

- You may be eligible for discounts on an AC or heat pump tune up or as much as $850 to replacean inefficient unit.

Refrigerator & Freezer Recycling Rebates

$35 rebate

- Free pickup and haul away of spare, working refrigerators and freezers manufactured before 2002.
- More than 95% of the applicance is recycled.
- Call 1.888.999.9999 to schedule a pickup

ENERGY STAR® Appliance Rebates

$50 mail-in rebate

ENERGY STAR® - qualified

- freezer
- window air conditioners
- air purifiers
- water coolers

Lighting Rebates

Instant rebates

- ENERGY STAR® - qualified compact fluorescent light bulbs (CFLs) at more than 250 retail locations across Missouri.

Learning to Serve a New Generation

Various Segments Treat Information Very Differently*

Info Mongers

(Multi-tasking, social media)

Techies

(Detail-oriented, researchers)

Basics

(Used only when necessary)

Reluctants

(Afraid of data/technology)

*Internal E Source Assessment

BIG
DATA

cooperativecloud

Information at Their Fingertips

Green Button
Connect
My Data

National Information Solutions Cooperative®

Measurement

&

Verification

Quantifiable Results from your Programs

Program	Total Enrolled	Sample	IMPACT
Direct Load Control	10,000	8,300	.75 kW Peak Reduction
Programmable Communicating Thermostat	125	125	1.3 kW Peak Reduction
Consumer Engagement	85,000	2,918	2% kWh Reduction
Prepaid Metering	8814	105	17% kWh Reduction

Note: NISC's objective was to engage an independent 3rd party to validate the accuracy of its M&V logic

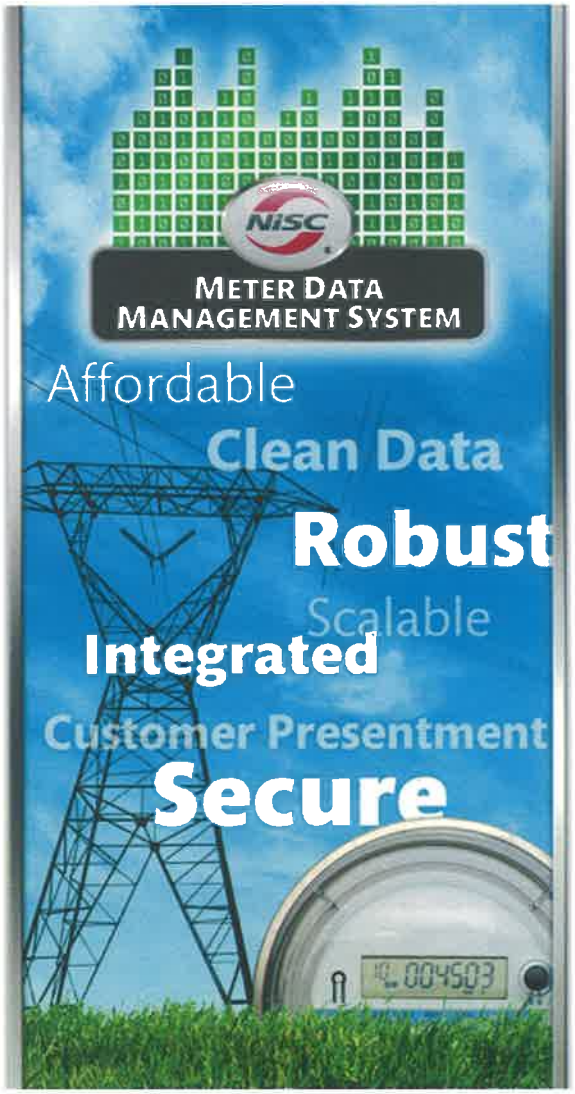
Two-Part Tariffs Do Not Reflect Any Utility's Cost Structure

Cost categories	Utility's Costs	Customer's Bill
Variable ($/kWh) - Fuel - Operations & maintenance	Variable = $60	Variable = $115
Fixed ($/customer) - Metering & billing - Overhead	Fixed = $10	Fixed = $5
Size-related (demand) ($/kW) - Transmission capacity - Distribution capacity - Generation capacity	Demand = $50	

Source: *Brattle (2017)*

Flexibility to Support New Rate Structures

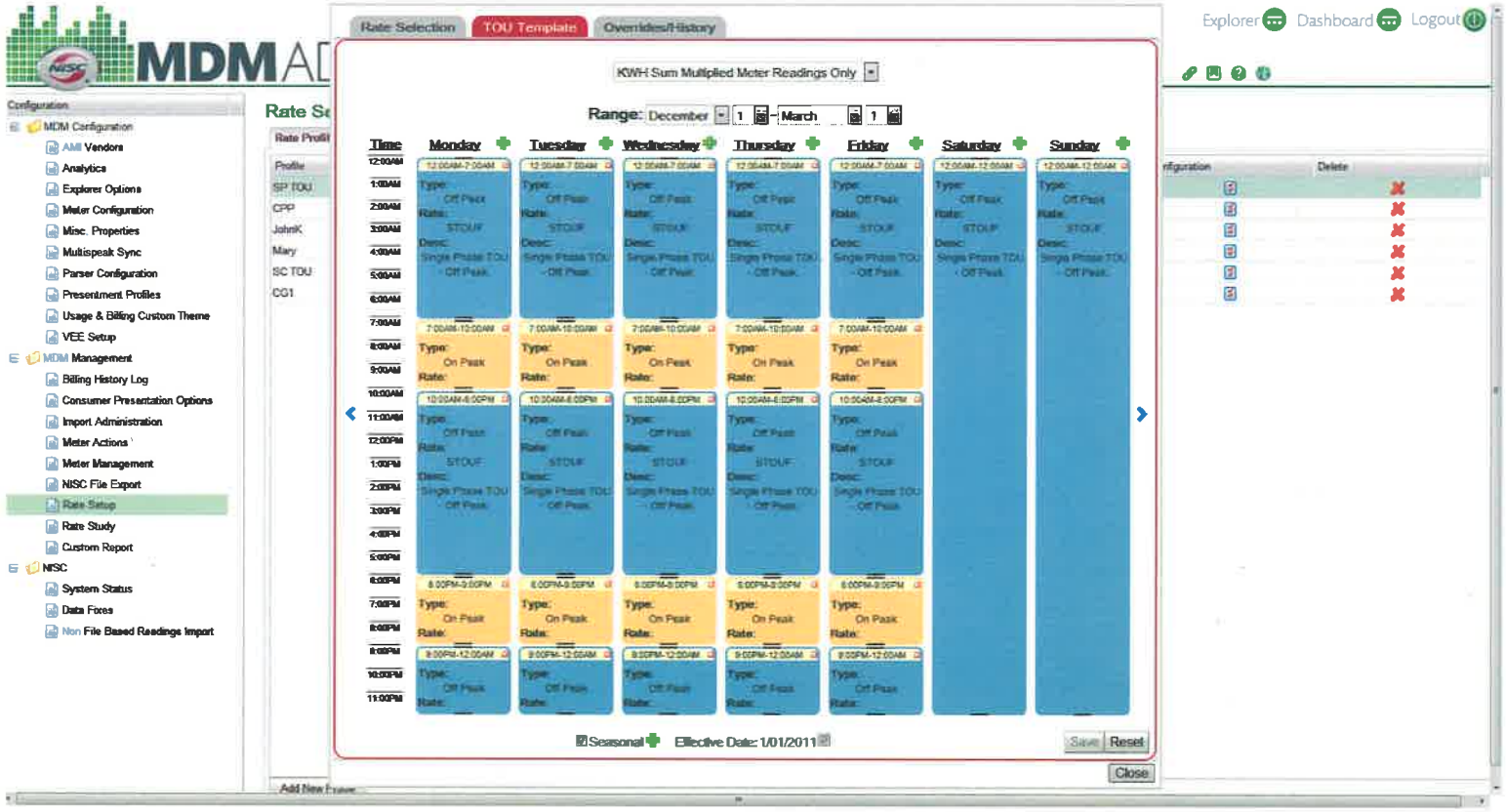
- Leverage AMI investments along with MDMS for flexible data binning
- 3-Part Rates for Residentials
  - The service charge should be cost-based
  - A demand charge used to recover grid capacity costs
  - Time-based energy charges
- Better support for rate studies



Examples

- Bill time-based rates without TOU Meters
- Interval data framing into desired TOU buckets
- Using hourly usage as proxy for demand measurements
- Various Net Metering scenarios
- Seamless integration with the billing process

Configure Interval Data Binning Logic



NiSC
Empowering Your Service Reps

USABILITY
STATISTICS
400
INDIVIDUAL USERS
75
UNIQUE MEMBER SITES

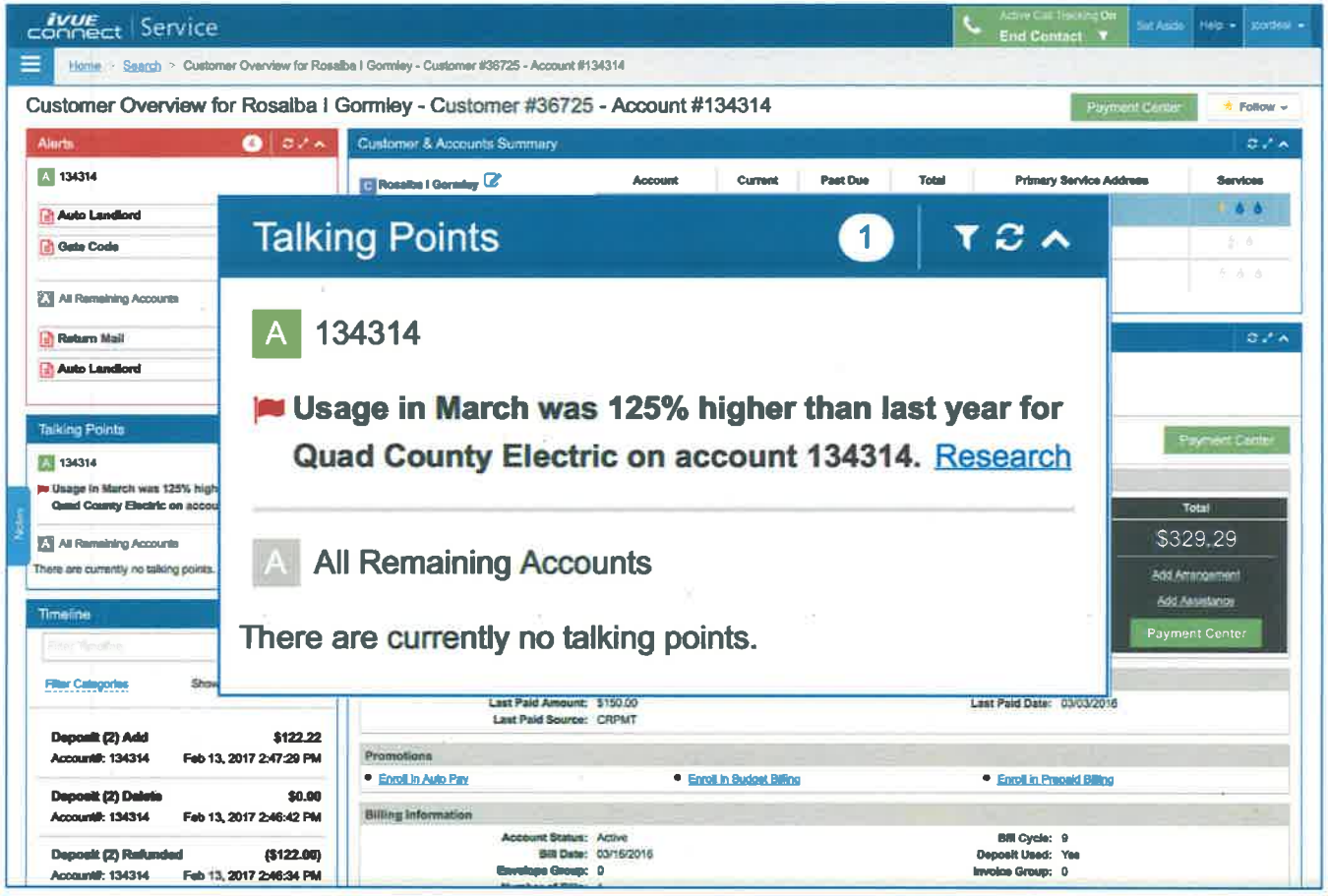
iVUE connect

FINANCE | SERVICE | OPERATIONS

Role Based. Secure. Mobile.

- Improve the Overall Efficiency of the User Experience
- Business Process Focused
- Predictive Analytics
- Enabling the Program Lifecycle
- SmartGrid-ready
- Multi-Industry Platform

Predictive Analysis



SmartGrid Usage Analysis

Monthly Bill Comparison

Change Billing Month

The billing month selected above is highlighted below. Its usage, charges and weather are compared to the other months, and differences are displayed. For example, a kWh value of "374↓82" indicates usage of 374 kWh, which was 82 less than the highlighted month.

Bill Information		Bill - Total / Difference			Daily Average - Total / Difference		
Bill Date	Billing Dates	kWh	Usage Charge	Days	kWh	Usage Charge	Temperature (°F)
April 2017	03/08/2017 - 04/05/2017	627	$68.62	30	20.9	$2.29	50
March 2017	02/10/2017 - 03/08/2017	265 ↓362	$29.00 ↓$39.62	26	10.2 ↓10.7	$1.12 ↓$1.17	51 ↑1
February 2017	01/11/2017 - 02/10/2017	224 ↓403	$24.51 ↓$44.11	30	7.5 ↓13.4	$0.82 ↓$1.47	39 ↓11
January 2017	12/08/2016 - 01/11/2017	2254 ↑1627	$246.68 ↑$178.06	36	62.6 ↑41.7	$6.85 ↑$4.56	31 ↓19
December 2016	11/09/2016 - 12/08/2016	1902 ↑1275	$206.15 ↑$139.53	27	70.4 ↑49.5	$7.71 ↑$5.42	44 ↓6
November 2016	10/12/2016 - 11/09/2016	738 ↑111	$80.77 ↑$12.15	28	26.4 ↑5.5	$2.88 ↑$0.59	61 ↑11
October 2016	09/11/2016 - 10/12/2016	2354 ↑1727	$257.62 ↑$189.00	31	75.9 ↑55.0	$8.31 ↑$6.02	68 ↑18

Historical Comparison

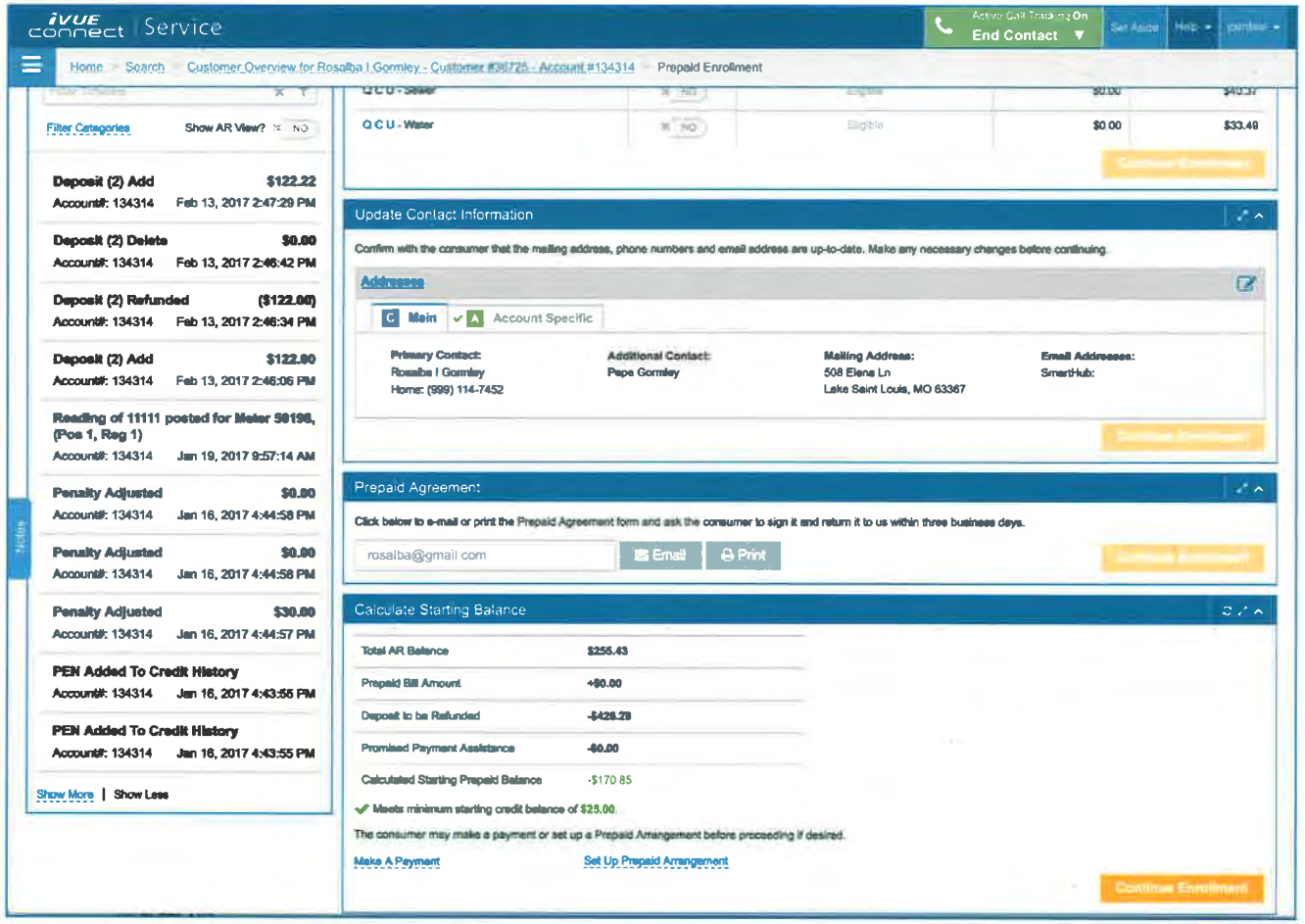
Change Billing Month

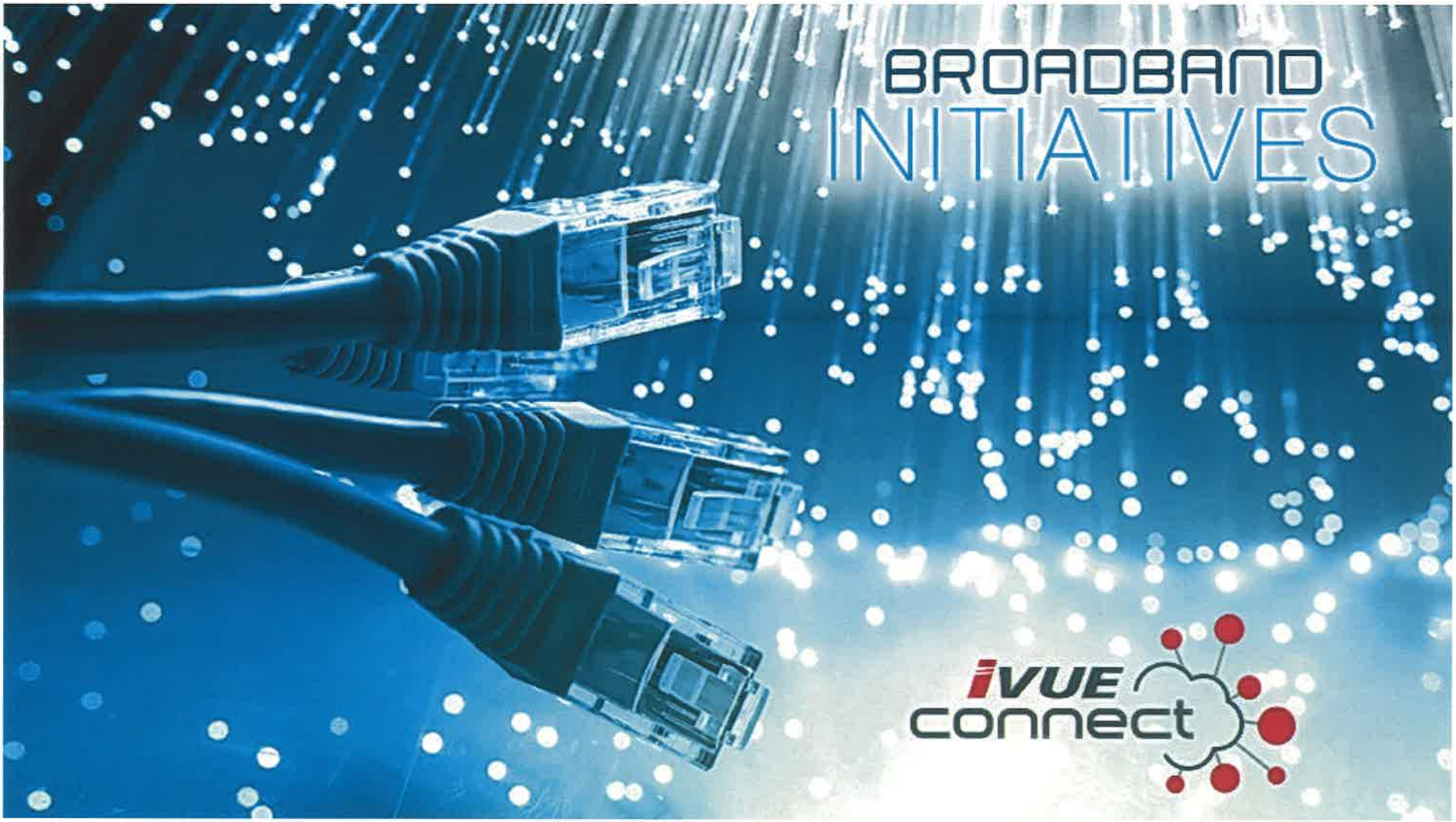
Daily usage for the billing month selected above is displayed below. The graph also includes daily usage from a comparison month, which defaults to the same billing month of the previous year but can be changed to another billing month in history.

April 2017 Compared To: 04 2016

View in MDM

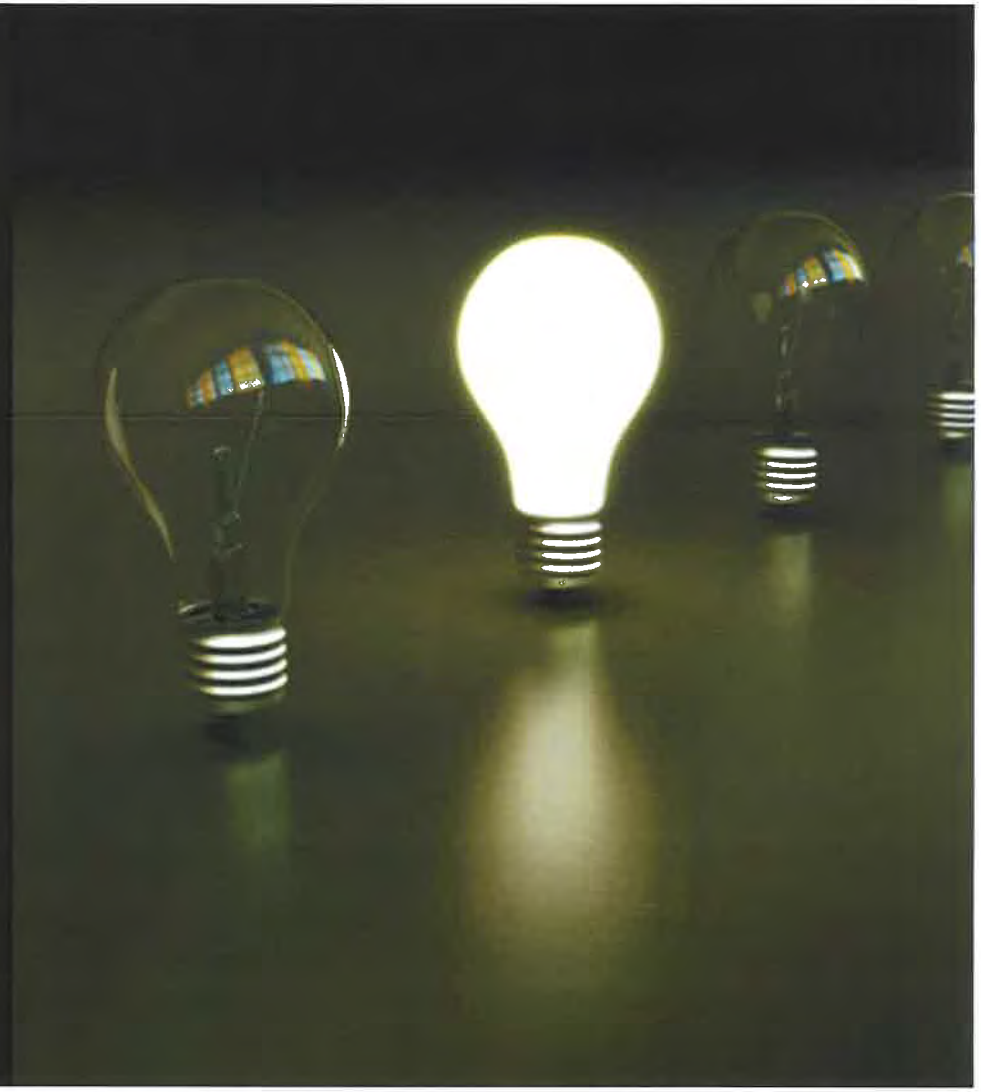
Prepaid Metering Enrollment




BROADBAND
INITIATIVES
iVUE
connect

In Summary...

- Customer Choice
- Enabling Best in Class "Programs"
- Our Unique Relationship



Questions

Emerging Energy Technologies

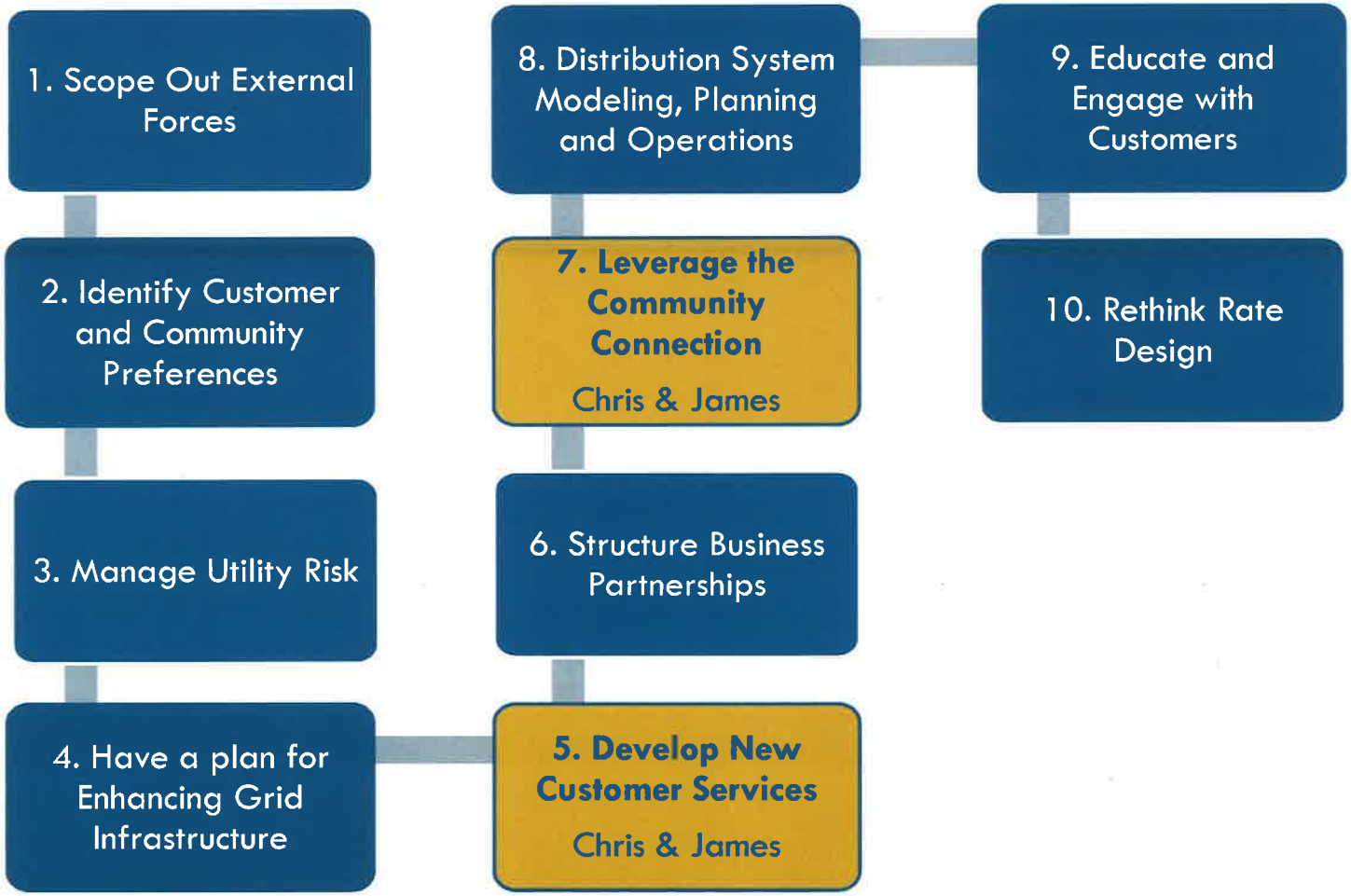
Your Trusted Energy Partner

Strategic Issue Discussion – June 13, 2017

The Future by Design

10-Step Action Plan for Transition

AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities



Agenda

- Trusted Energy Partner
- Solar Connections
- Electric Vehicles
- Energy/Battery Storage

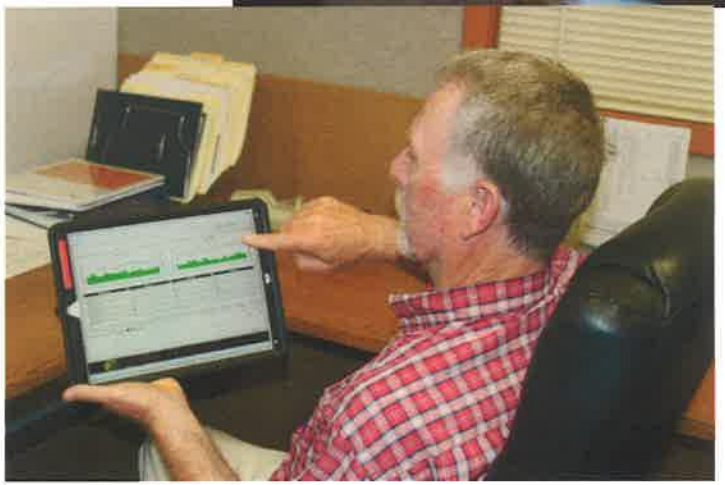
Emerging Energy Technologies

Trusted Energy Partner

Emerging Energy Technologies

Trusted Energy Partner

- **Smart Hub**-Customers monitor their own consumption
  - Correlate temperature to their usage
  - Identify opportunities to save energy with changes in behavior
  - Allows customer to see unexpected usage



Solar Connections

Solar Connections
BENTON PUD

Emerging Energy Technologies

7

Solar Connections

INITIAL FOCUS

- Web Site and Information Upgrades
  - How Do I Connect Solar Panels to Benton PUD's Sy
  - Economics of Solar
  - Navigating Federal and State Subsidies
  - Solar Power Contractors
    - Endorsed Providers Concept
  - Community Solar
    - Describe what we are considering and survey customers wh
  - Technical Resources

Solar Connections
BENTON PUD

Emerging Energy Technologies

Solar Connections

Project/Program	Customers	Estimated Incentives 2017	2018**	2019**
Ely	112	$ 111,815	$ 121,000	$ 121,000
O.I.E.[1]	42	$ 37,312	$ 37,312	$ 37,312
Net Metering - Core[2]	128	$ 439,785	$ 444,183	$ 444,183
Total Core Participants	**282**	**$ 588,912**	**$ 602,495**	**$ 602,495**
REIP Cap		$ 634,343	$ 650,202	$ 666,457
Remaining REIP Cap		**$ (45,431)**	**$ (47,706)**	**$ (63,961)**

es available
une 2020

1 - O.I.E. Project's first full year of operation.

2 - Net Metering Customers under contract before cutoff establish by Resolution 2362

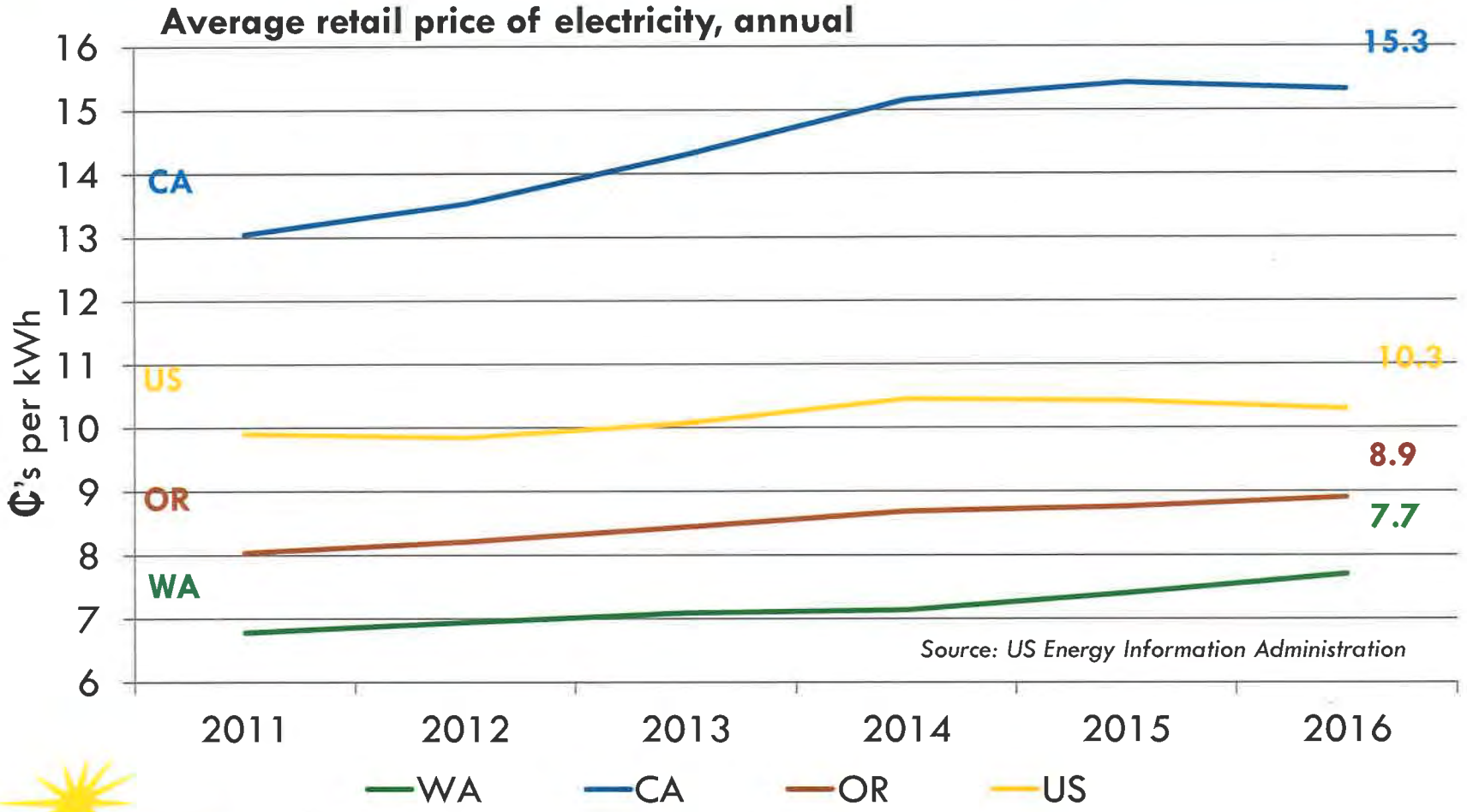
3 - Net Metering Customers under contract and installed after cutoff establish by Resolution 2362

***Assumes max output observed from both Ely and OIE Projects;*
Assumes 5 Net Metering - Conditional customers added in outyears at $0.54/kWh, 7 kW system and 15% capacity factor

SolarConnections
BENTON PUD

Emerging Energy Technologies

Solar Connections



Solar Connections
BENTON PUD

Emerging Energy Technologies

Solar Connections

Economics of Solar (7kW System)	30% ITC WA Rooftop	30% ITC CA Rooftop
Installation Cost ($2.70/watt)		
System Cost	$ 18,900	$ 18,900
Federal Tax Credit	$ (5,670)	$ (5,670)
Total Cost to Install	**$ 13,230**	**$ 13,230**
Yearly Savings		
kWh per Year[1]	9,198	11,038
Electricity Rate[2]	$ 0.0718	$ 0.1530
Total Annual Benefit	$ 660.42	$1,688.75
Payback Period (Years)	**20.0**	**7.8**

ITC = Investment Tax Credit

1 - WA uses 15% Capacity Factor; CA assumes 18% Capacity Factor

2 - WA assumes District's Residential Rate; CA assumes average rate published by US Energy Information Administration

Solar Connections BENTON PUD

Emerging Energy Technologies

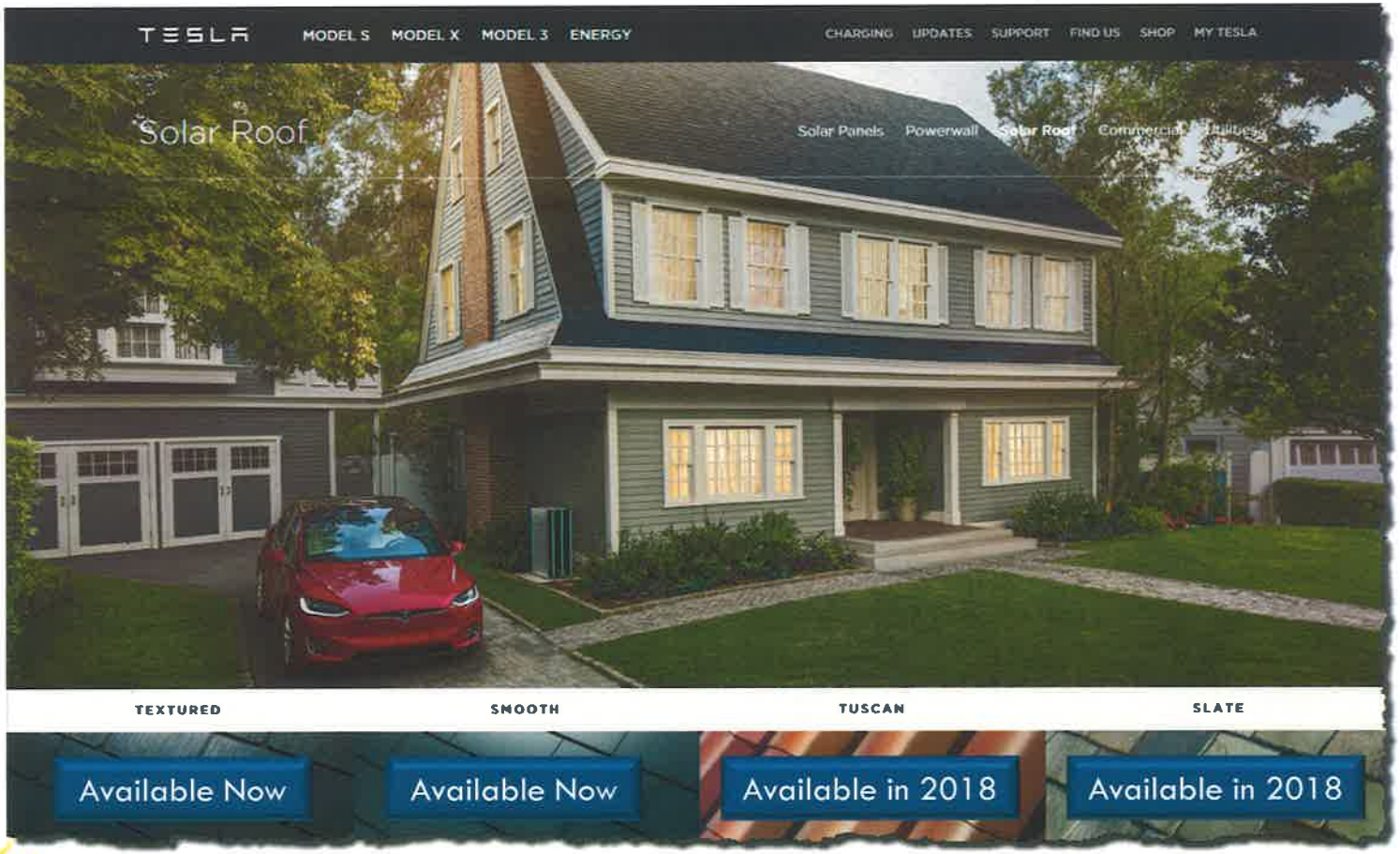
Solar Connections

- Consider expanding OIE community solar project in Prosser
- Duplicate customer contracts without incentives
- Allow businesses to sign up for sustainability objective

Solar Connections
BENTON PUD

Emerging Energy Technologies

Solar Connections



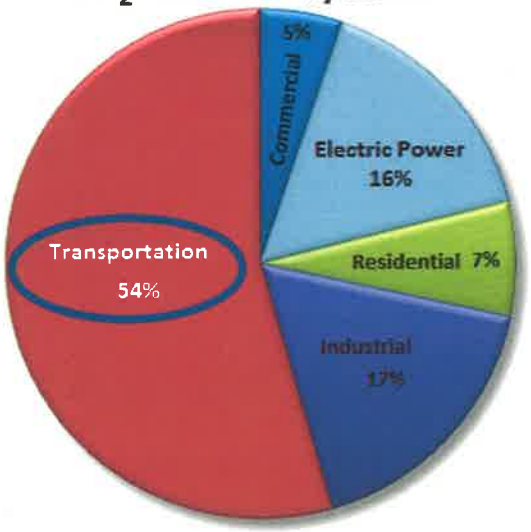
Solar Connections
BENTON PUD

Electric Vehicles

Emerging Energy Technologies

Electric Vehicles

Washington State
CO_2 Emissions by Sector



***Source**: U.S. Energy Information Administration, State Energy Data System and EIA calculations made for this analysis.*
http://www.eia.gov/environment/emissions/state/excel/sectors.xlsx

Reducing CO_2 emissions is the focus at the national level, at the state level and in some cases at the customer level.

Benton PUD: Fuel Mix

***Source**: Washington State Electric Utility Fuel Mix Disclosure Reports for Calendar Year 2015*
http://www.commerce.wa.gov/wp-content/uploads/2017/06/Energy-WA-Electric-Utility-Fuelmix-2015.pdf

evita
ELECTRIC VEHICLE INFRASTRUCTURE TRANSPORTATION ALLIANCE

Emerging Energy Technologies

15

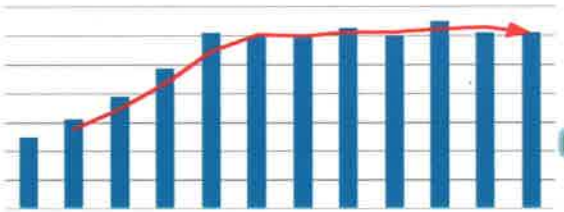
Electric Vehicles

Energy Efficiency

&

Solar

Flattened Sales



Rate Design 101

↑Costs

↓Sales

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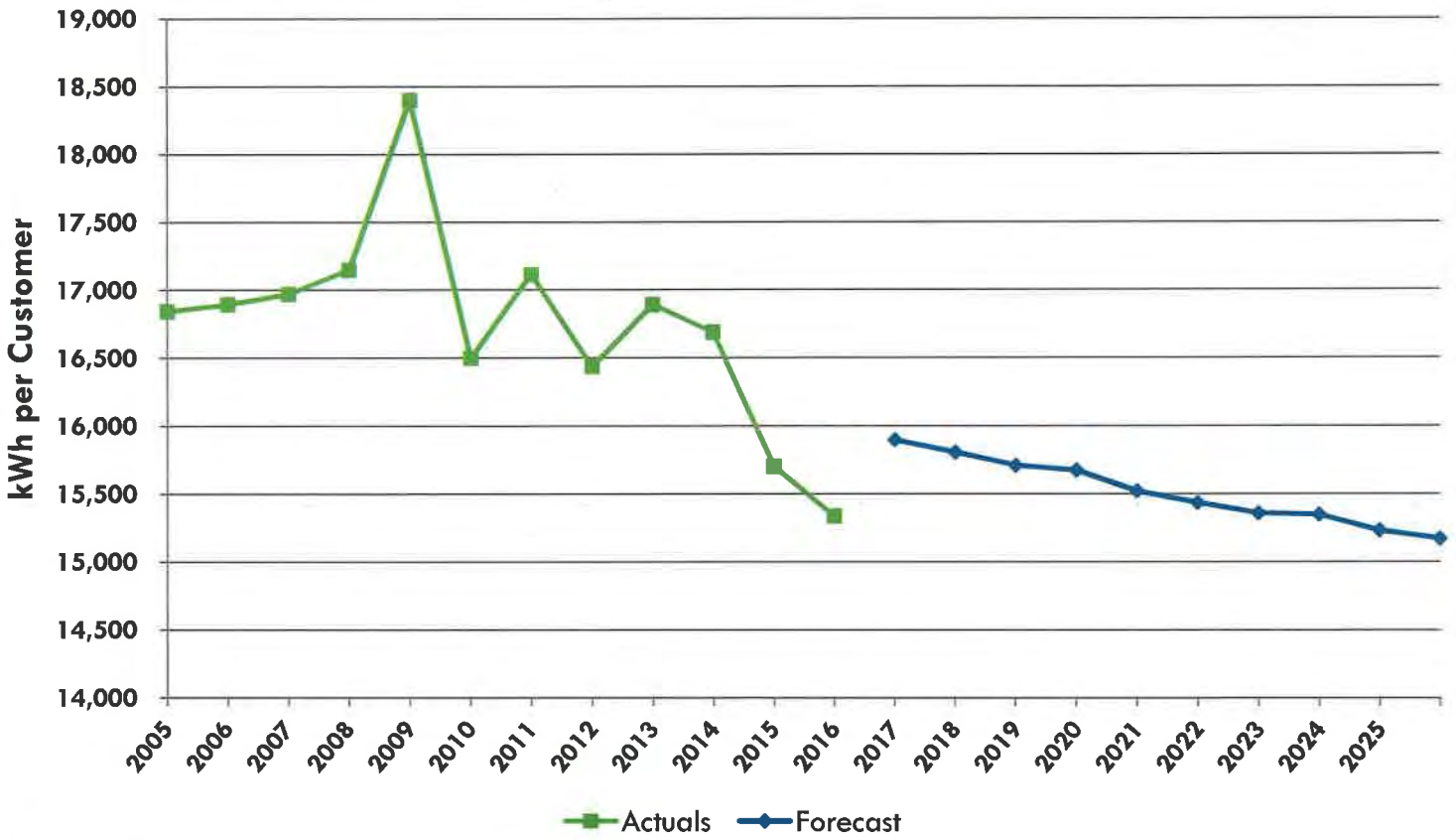
ELECTRIC VEHICLE INFRASTRUCTURE TRANSPORTATION ALLIANCE

Emerging Energy Technologies

Electric Vehicles

Usage per Residential Customer



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ELECTRIC VEHICLE INFRASTRUCTURE TRANSPORTATION ALLIANCE

Emerging Energy Technologies

Electric Vehicles

MCEI MID-COLUMBIA ENERGY INITIATIVE
POWERED BY THE TRI-CITY DEVELOPMENT COUNCIL

ENERGY NORTHWEST

Washington State Department of Transportation

WEST COAST ELECTRIC HIGHWAY

Electric Vehicle Infrastructure Pilot Program (EVIPP)

Notice of Proposed Awards
May 31, 2017

The Washington State Department of Transportation (WSDOT) released a grant solicitation and application package on April 5, 2017 entitled "Grant Opportunity for DC Fast Chargers for Washington's Interregional Corridors." The competitive solicitation announced the availability of up to $1 million total in grant funds for projects that will install direct current (DC) fast charging stations for electric vehicle drivers travelling on Washington highway corridors.

The table, "Notice of Proposed Awards" (NOPA), identifies the apparently successful applicants and the recommended funding level of awardees. WSDOT is emailing this NOPA to all parties that submitted an application through the solicitation and is posting it at www.wsdot.wa.gov/funding/partners/evib

Funding of proposed projects resulting from this solicitation is contingent upon successful negotiation with applicants to finalize or modify the project scope and funding level. No agreement between WSDOT and the apparently successful awardee is in effect until the agreement is signed by both the grant recipient and WSDOT's representative. Apparently Successful Awardees may not release informational pamphlets, press releases, and/or similar public notices concerning this project without obtaining prior written approval from WSDOT.

Questions should be directed to: **Anna Tran, EVIPP Procurement Coordinator**
Washington State Department of Transportation
Phone: 360-705-7912, Email: TranA@wsdot.wa.gov

Notice of Proposed Awards

Applicant	Corridor	Project Title	# of Sites	EVIPP Funds Requested	Total Project Cost	Rank	Proposed Award
Apparently Successful Awardees							
Energy Northwest	I-82/182 US395	EVITA #1 Tri-Cities Area	6	$ 270,000	$ 735,000	1	$ 270,000
Energy Northwest	I-90	EVITA #2 Ellensburg Kittitas Area	3	$ 135,000	$ 336,000	2	$ 135,000
Forth Mobility	I-5	I-5 Corridor Project	9	$ 892,375	$ 1,965,721	3	$ 595,000
Passed But Not Funded							

evita
ELECTRIC VEHICLE INFRASTRUCTURE TRANSPORTATION ALLIANCE

PUD

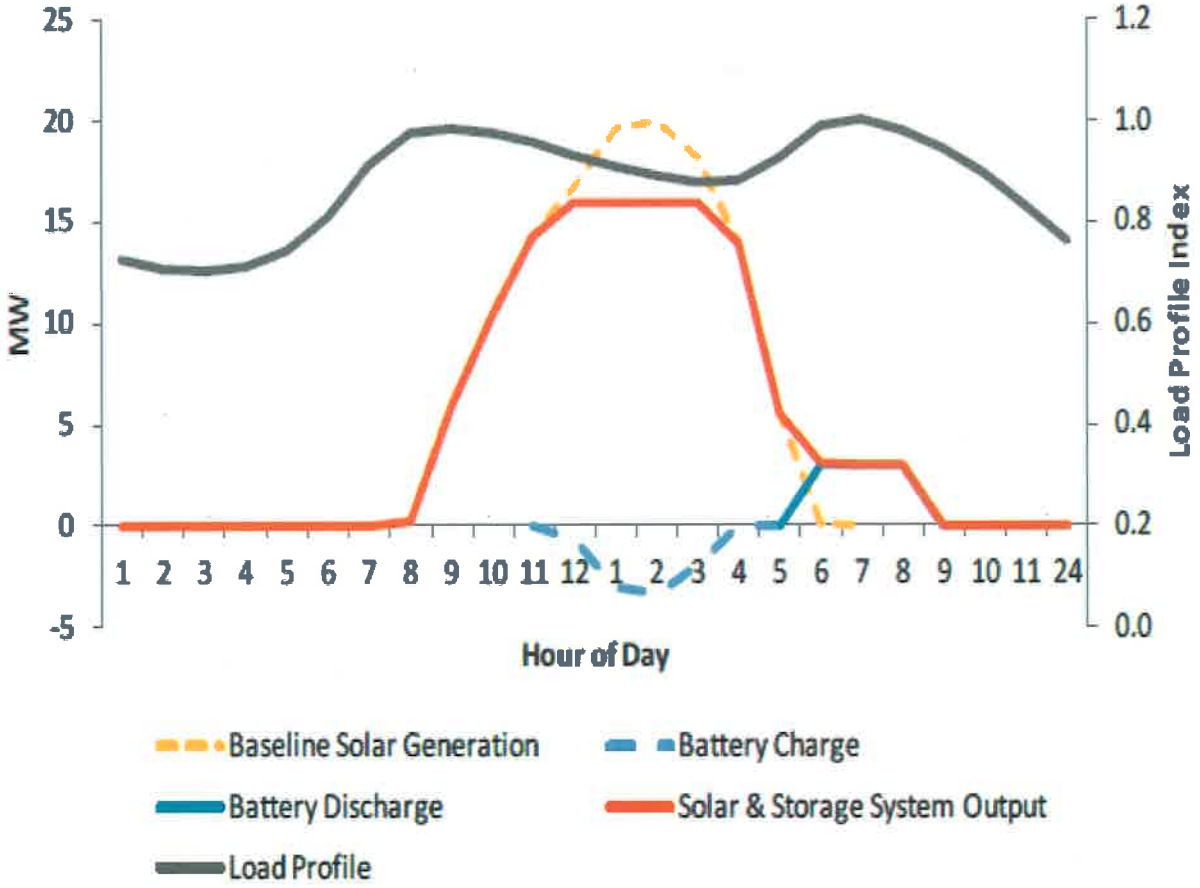
Energy Storage

Emerging Energy Technologies

Energy Storage

Basic Functions of Energy Storage :

- Absorb energy when not needed
- Store for time with minimal loss
- Release when needed

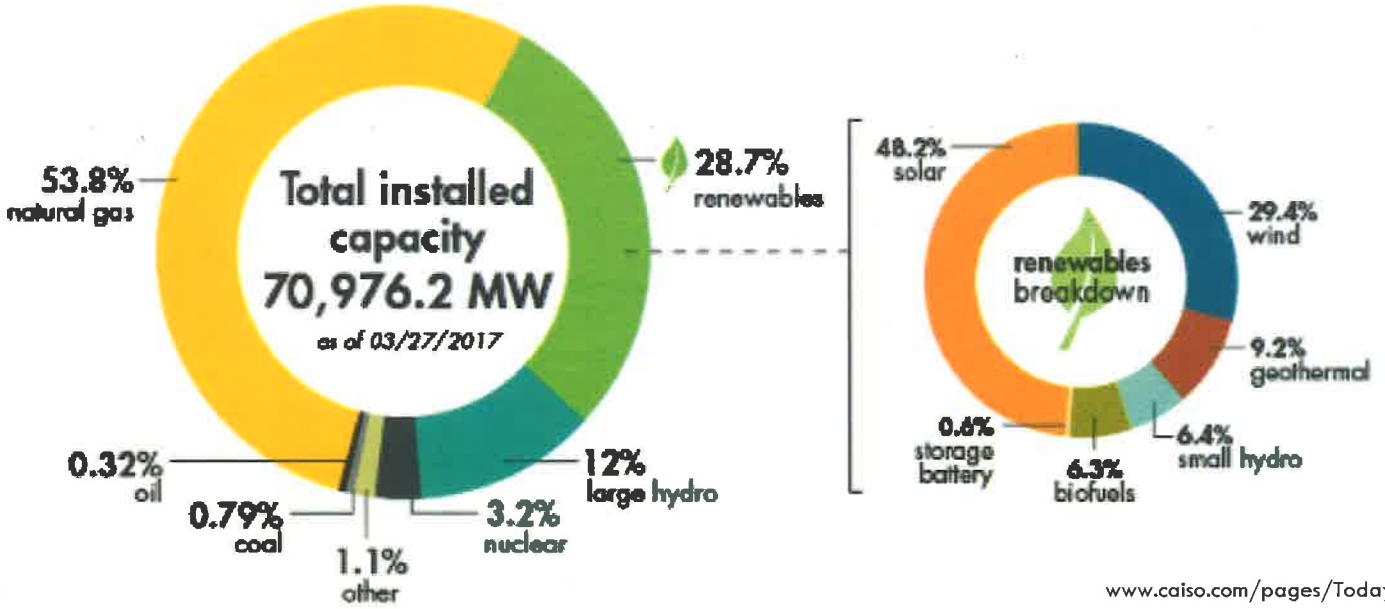


Power Council modeled grid-connected solar with integrated 10 mw battery storage and four hour discharge capability

Emerging Energy Technologies

Energy Storage - California Update

- Assembly Bill 2514 effective 2011
  - Encourage Energy Storage
  - 1,325 MW Target, procure by 2020, install by 2024
  - 600 MW procured, 121 MW currently installed

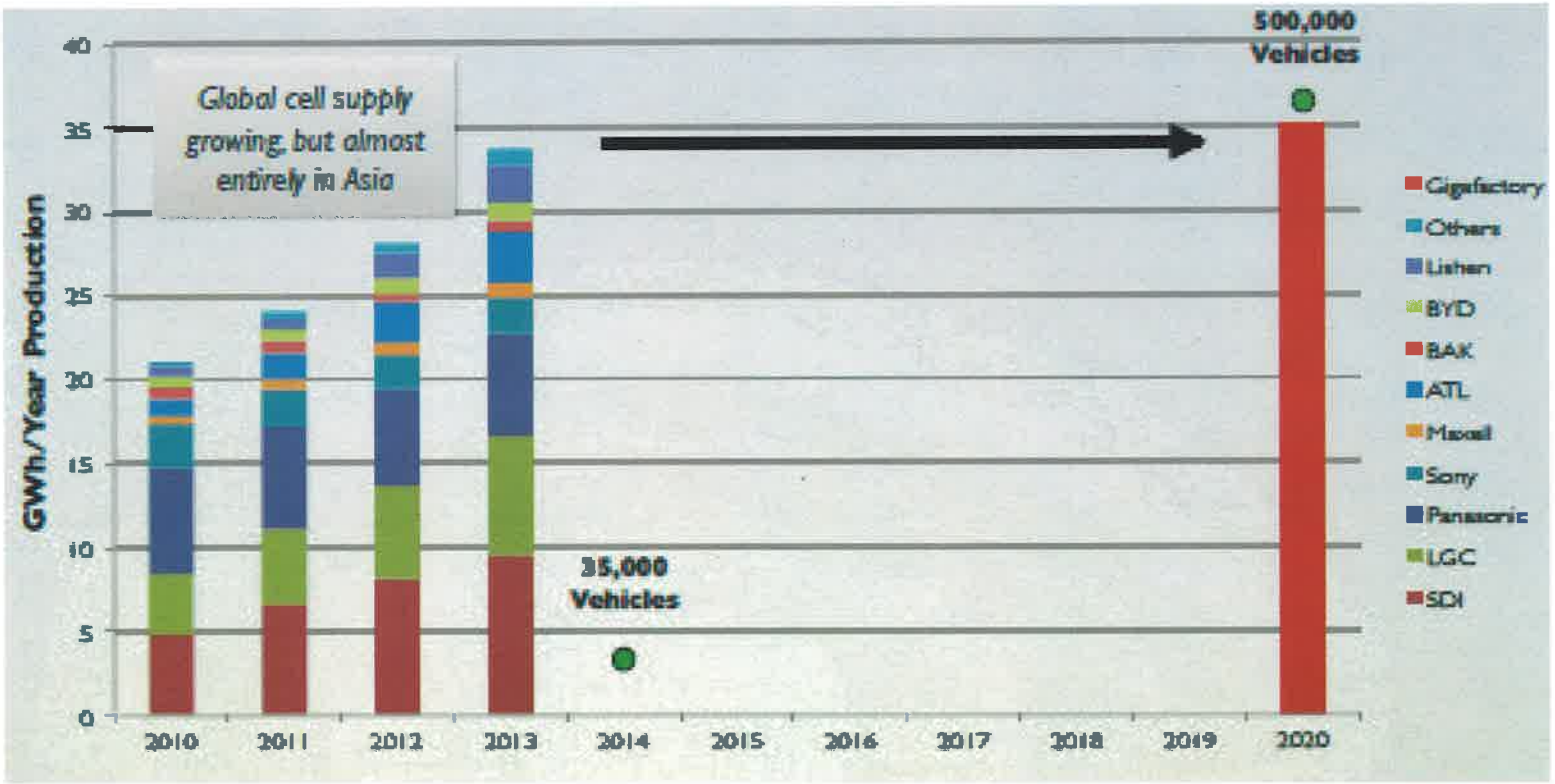


www.caiso.com/pages/TodaysOutlook.aspx

Emerging Energy Technologies

Energy Storage

- TESLA Nevada facility planned 2020 production exceeds 2013 Lithium-Ion battery global production



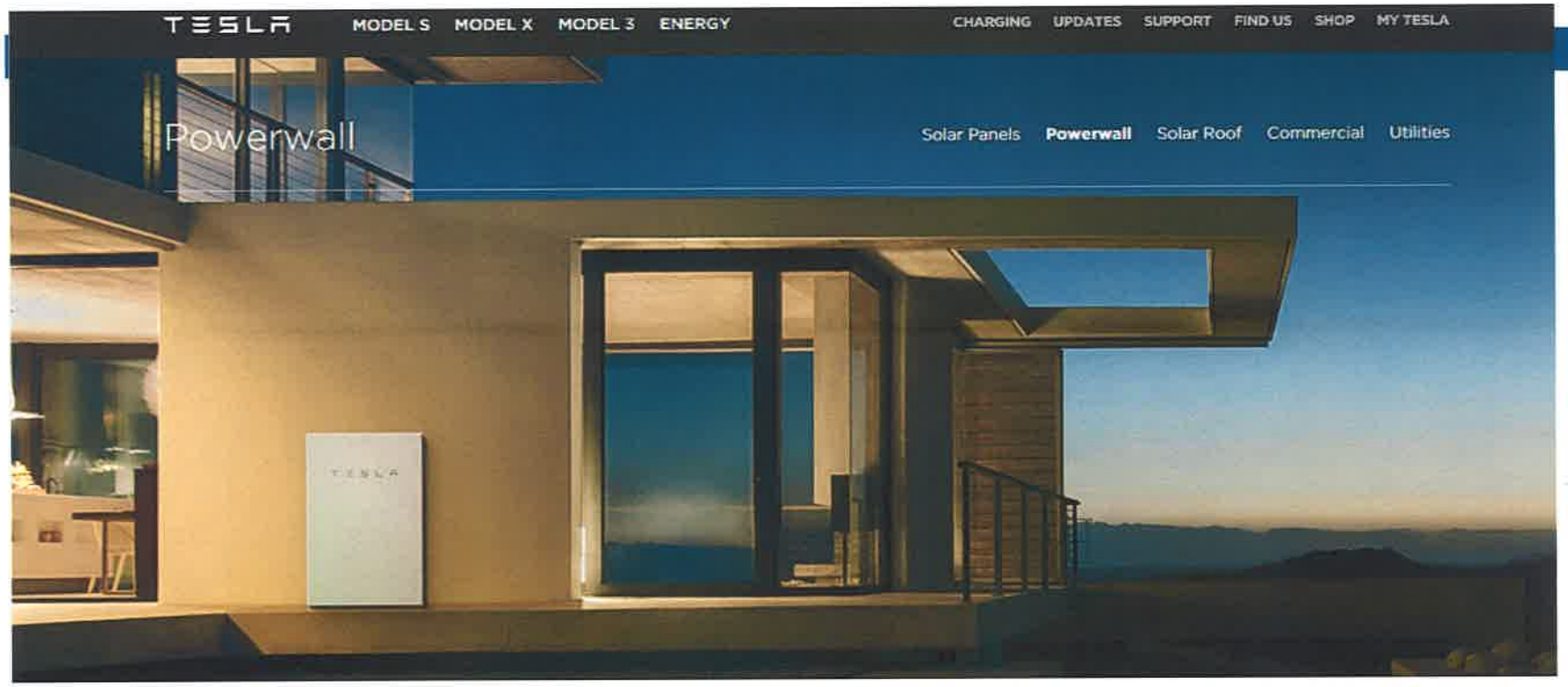
Emerging Energy Technologies

Energy Storage

- Green Mountain Power
  - Vermont Electric Utility
- Offer customer $15 monthly battery lease
  - TESLA **Powerwall**
- Empowers customers
  - Integrate with solar
  - Utilize TOU rates
- Increase reliability
  - Use during outages
- Saves utility in peak demand charges

Making Vermont's Grid Stronger and Cleaner for Everyone

Emerging Energy Technologies



Emerging Energy Technologies

Technical Specs

Usable Capacity
13.5 kWh

Depth of Discharge
100%

Efficiency
90% round-trip

Power
7kW peak / 5kW continuous

Supported Applications
Solar self-consumption
Time of use load shifting
Backup
Off grid

Warranty
10 years

Scalable
Up to 10 Powerwalls

Operating Temperature
-4° to 122°F / -20°C to 50°C

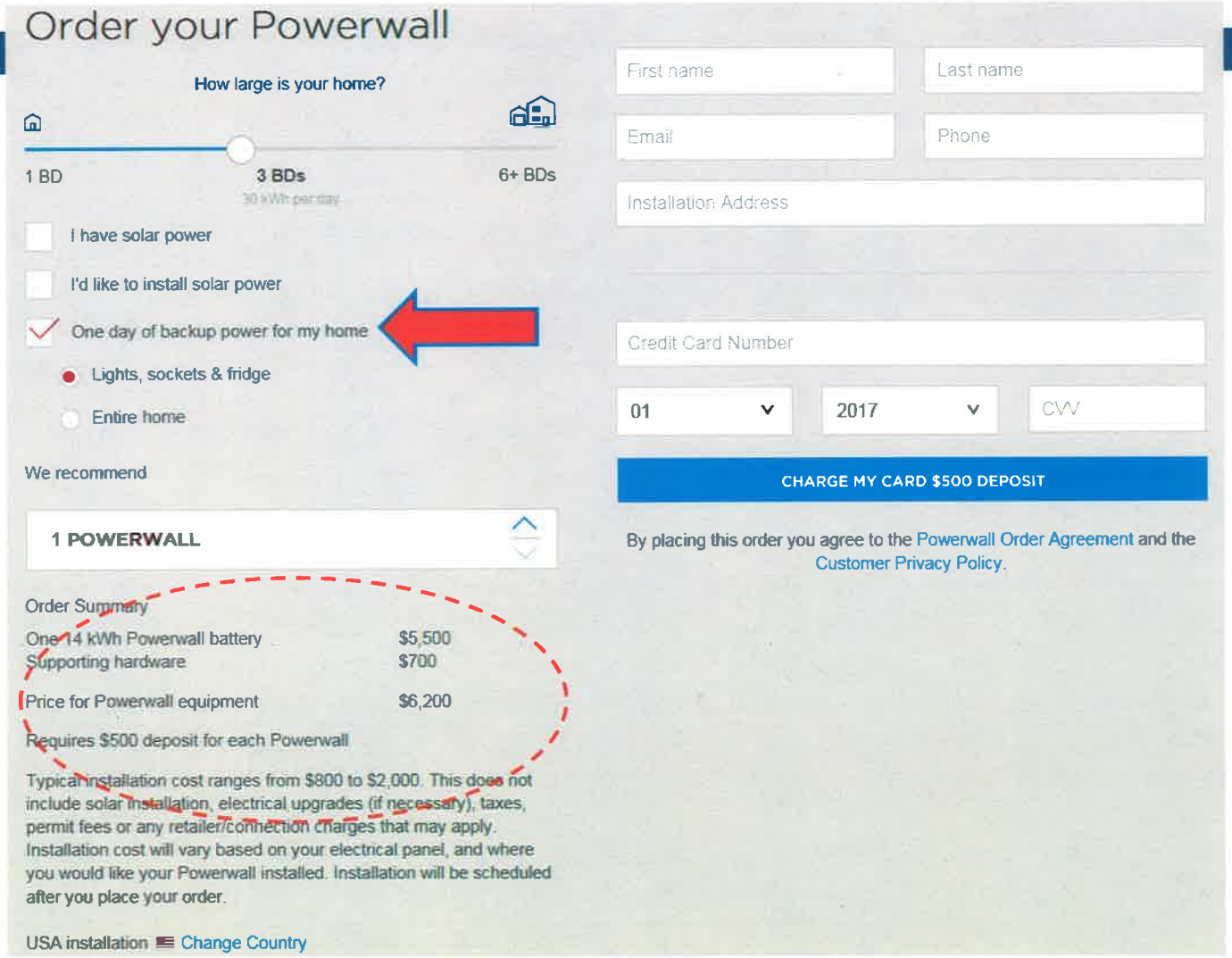
Dimensions
L x W x D: 44" x 29" x 5.5"
(1150mm x 755mm x 155mm)

Weight
264.4 lb / 120 kg

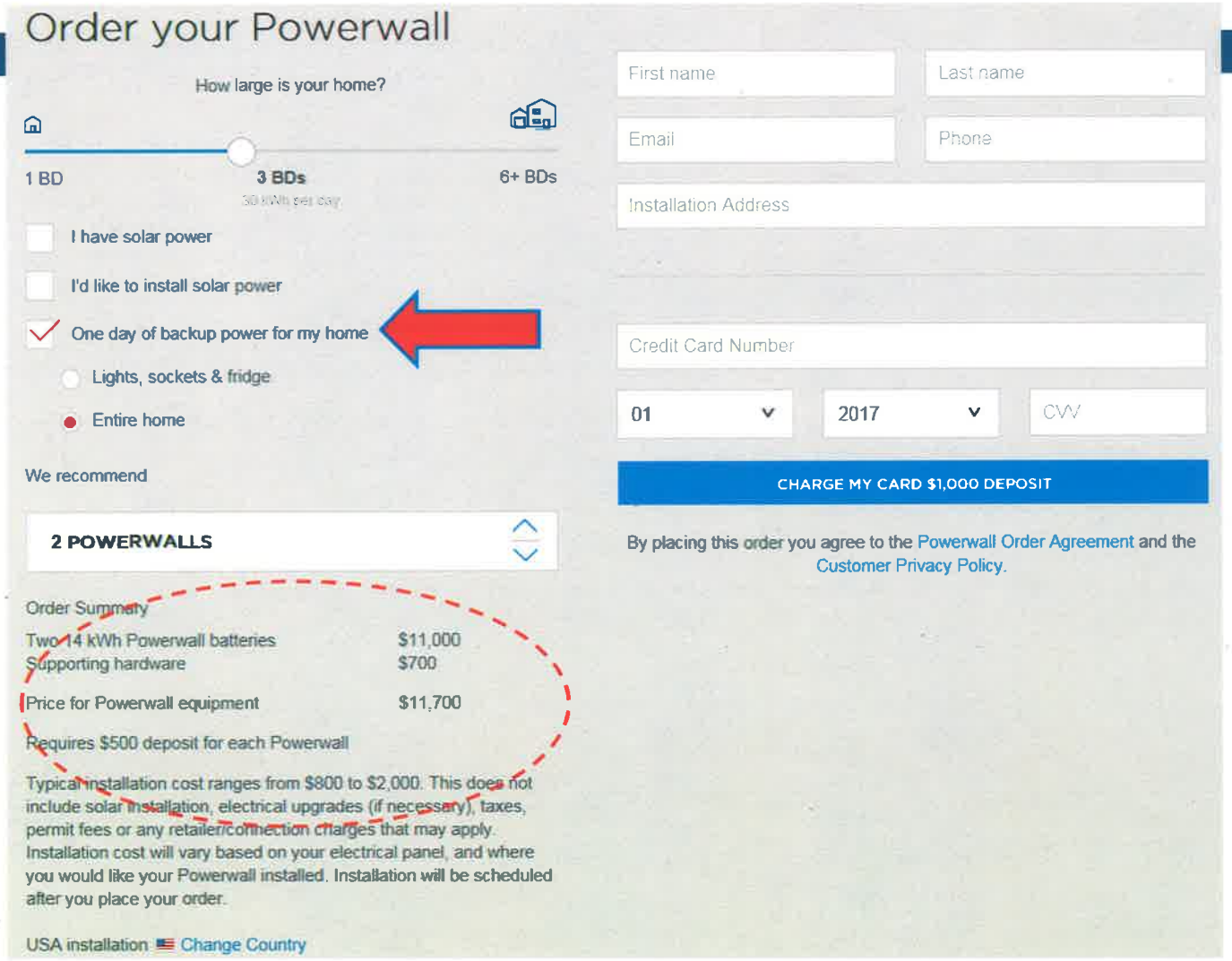
Installation
Floor or wall mounted
Indoor or outdoor

Certification
North American and International Standards
Grid code compliant

Emerging Energy Technologies



Emerging Energy Technologies



Emerging Energy Technologies

Energy Storage

- Snohomish PUD Demonstration Projects
  - MESA 1
    - 2 MW Lithium-Ion
  - MESA 2
    - 2.2 MW Vanadium Flow Battery (Newer Technology)
    - Battery delivery Nov 2016 delayed
    - Acceptance testing - summer 2017
  - Arlington Microgrid-500 KW Solar Array with smart inverters & vehicle to grid
    - Design 2016-17
    - Construction 2018-19
    - Data collection & Reports 2019-2021

Emerging Energy Technologies

Energy Storage

- Battery cost declining, but remains a barrier

Lithium-Ion Battery	Capacity Cost $/kWh	Capacity Cost $/kW
Powerwall	$ 443	$ 1,240
Mesa 1/2	$ 2,867	$ 6,143
Note: These values should only be used to compare to similar storage technologies		

Emerging Energy Technologies

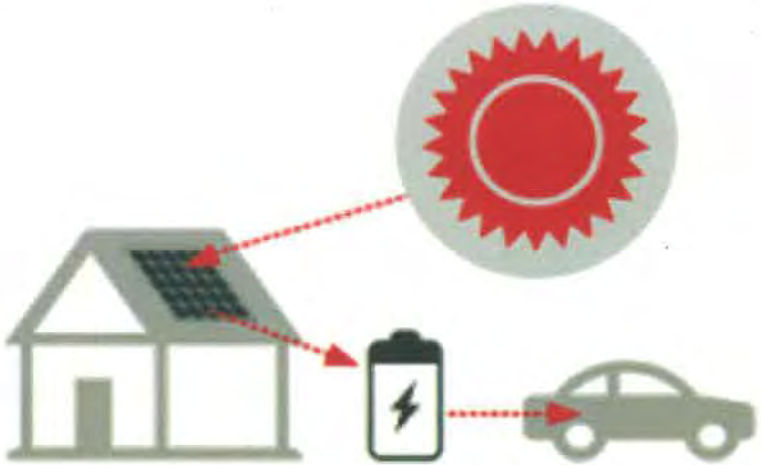
Energy Storage

- What is Benton PUD's interest in Battery Storage?
  - Market prices need to be higher for battery storage to be economical
    - Greater than $200MWh per 2016 IRP
  - Battery storage cost needs to decline to be economical
  - Time Of Use (TOU) rates with high variance between On and Off Peak
    - Would help incentivize charging and discharging batteries
- Will develop staff expertise to assist customers
  - Trusted Energy Partner
- Next year's IRP will update levelized cost of energy resources
  - Update levelized cost of energy storage

Emerging Energy Technologies

Conclusion

- "Trusted Energy Partner"
- Continue unlocking opportunities created by emerging technologies
  - Community Solar- consider expanding without incentives
  - Electric Vehicles- install charging stations via grants & educate customers
  - Battery Storage- develop internal expertise in this technology
- What will the future look like?
  - New Technologies, Legislation, etc.
- How will we adapt?
  - Education, partnerships, etc.



Discussion

Discussion

- Continue to "Maximize Potential"
  - PrePay and kiosks
  - Data analytics
  - Raising customer awareness of SmartHub tools
  - Proactive outage notification
  - **Other topics?**
- Utility of the Future
  - New SmartHub offerings
  - New payment channels
  - Rate options
  - Proactive customer communications
  - EVs, solar and battery storage
  - **Other topics?**

1

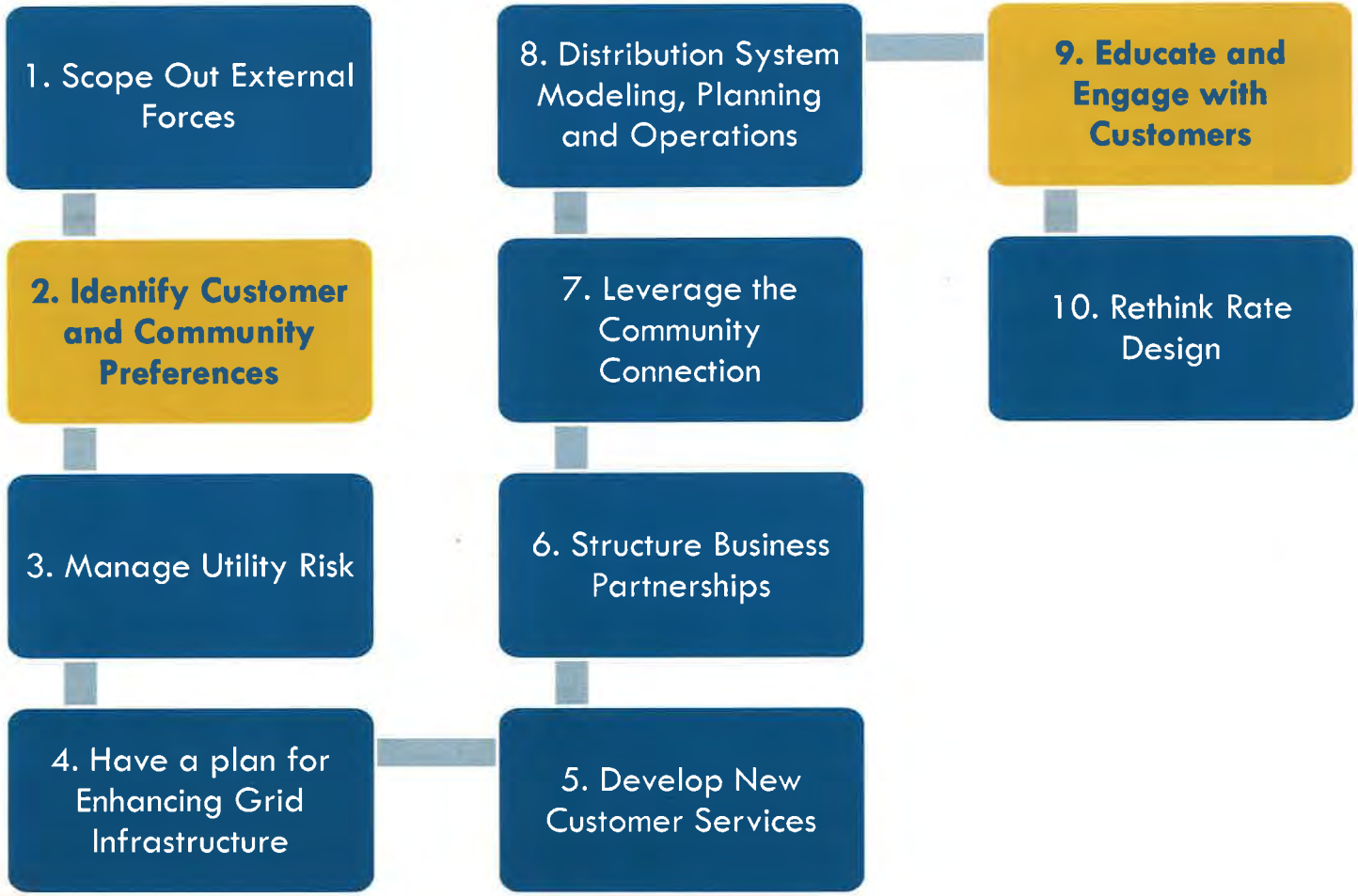
Customer Communications

Karen Miller

The Future by Design

10-Step Action Plan for Transition

AMERICAN PUBLIC POWER ASSOCIATION
Powering Strong Communities

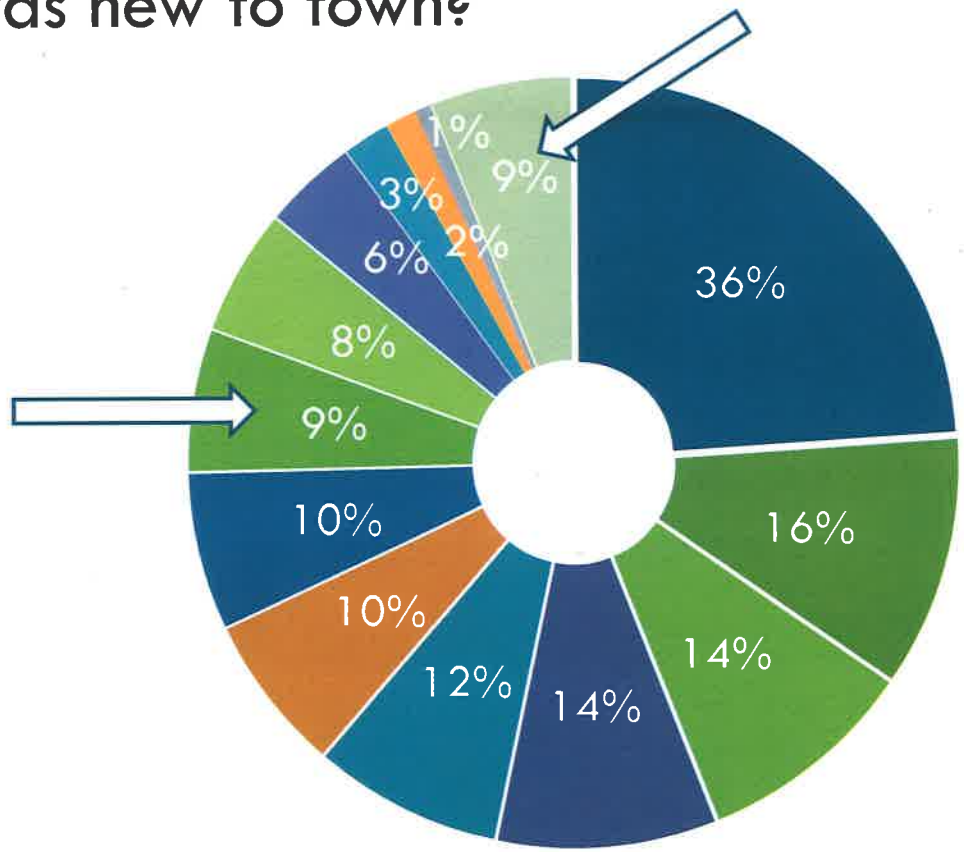


Today's customer

- Overall satisfaction – 88%
  - Main reasons sited – "Never had any problems" and "Customer service"
- Half rated "Your trusted energy partner" at the highest point

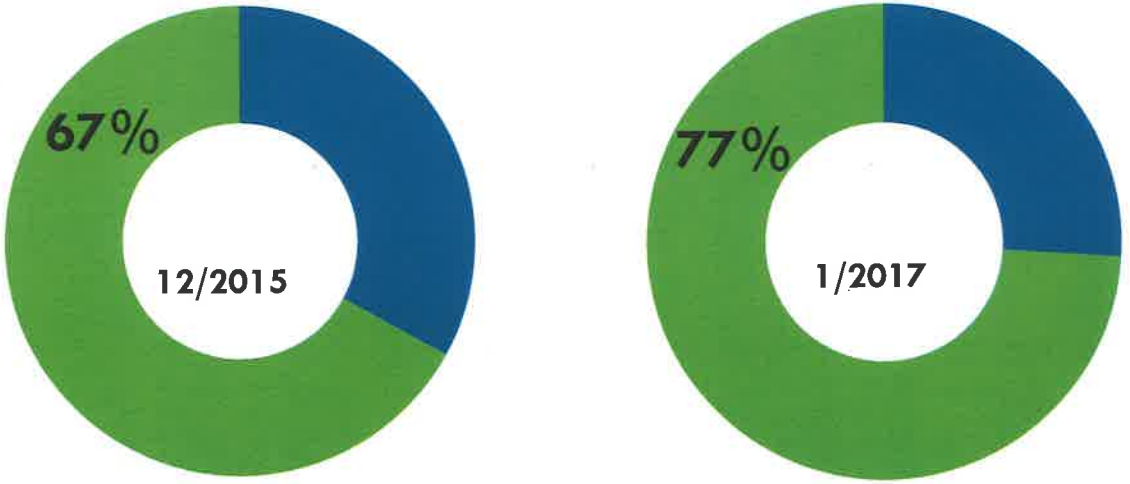
Today's customer

- How would you describe Benton PUD to someone who was new to town?



Today's customer

- How accurately does the tagline "Your Trusted Energy Partner" describe Benton PUD?
  - Dec. 2015 – 67% said accurate/completely accurate
  - Jan. 2017 – 77% said accurate/completely accurate



Communication goals in 2017

- Increase number of SmartHub participants and their use of SmartHub tools

- Retain customer high customer satisfaction **and** be their "trusted energy partner"

- This sounds all good but what next…

Communications challenges

- How do we reach customer segments who haven't taken advantage of everything that SmartHub has to offer
- To continue to be a "Trusted Energy Partner" we need to know what do our customers want

How do we reach our customers?

Source: Smart Grid Consumer Collaborative

"*Smart energy technologies fit our environmentally aware, high-tech lifestyle.*"

Green Champions 30%

Always Engaged 44%

"*Impress us with smart energy technology and maybe we will start to like the utility more .*"

"*We're okay; you can leave us alone.*"

Status Quo 18%

Rarely engaged 16%

Movers & Shakers 15%

Selectively Engaged 40%

"*We want to use energy wisely, but we don't see how technologies can help.*"

Technology cautious 17%

Saving Seekers 20%

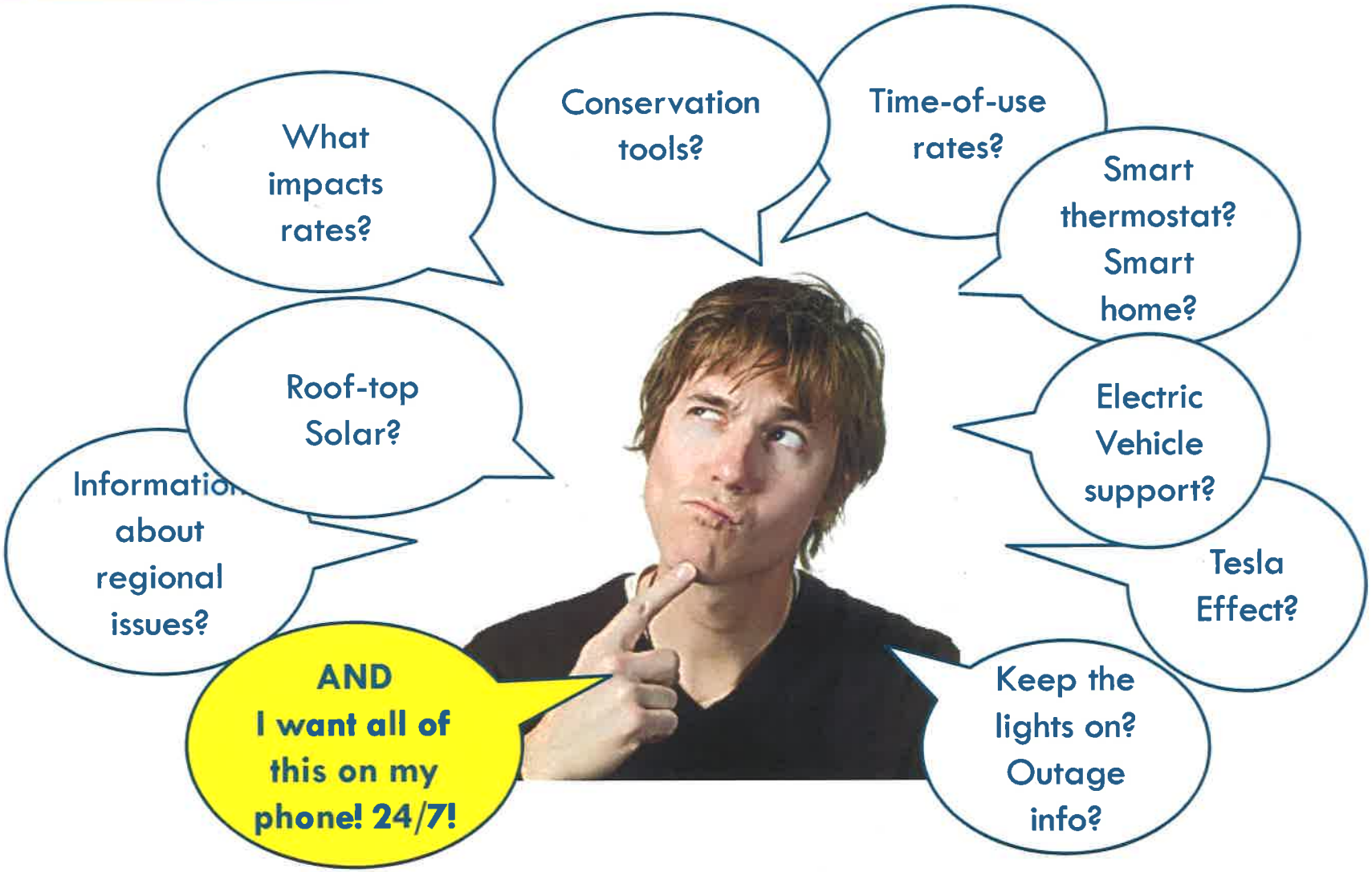
"*How can smart energy programs help us save money?.*"

How do we reach our customers?

Who are our customers

Messaging Challenges

What do customers expect?



Benefits of surveys

- **Benchmarking tool** - Track customer satisfaction
- **Customer feedback** - Customers have the opportunity to easily provide their feedback and concerns. Learn what's missing or broken and what's working or liked by customers
- **Effective communications** - Provides a better understanding of how to message a product.
- **Identifies trends** – Show changes in customers likes and dislikes
- **Provide insight** - How we are doing
- **BUT – there are shortcomings, too**

Explore customer insights

- Translate survey data and use focus groups to gain insight into actionable strategies
  - Segment customers and understand how to reach them
    - Target messaging
    - What communication tools to use to reach customer segments
  - Validate current programs and gather insight into what new programs could be developed

Explore customer insights

- Insight from the focus groups will:
  - Improve overall communications as well as targeted messaging
  - Provide customers information they need and keep them informed

Focus groups

- Possible focus group topics:
  - Emerging technologies
    - Electric vehicles
    - Solar
    - Smart Grid
    - Home automation
    - SmartHub (i.e. usage, outage information)
  - Payment Options
    - SmartHub (i.e. Paperless billing, Auto Pay)
    - Pre Pay Services, Kiosk
  - Rates
    - Rate design
    - Demand charges
    - Issues that impact rates
    - Time-of-use

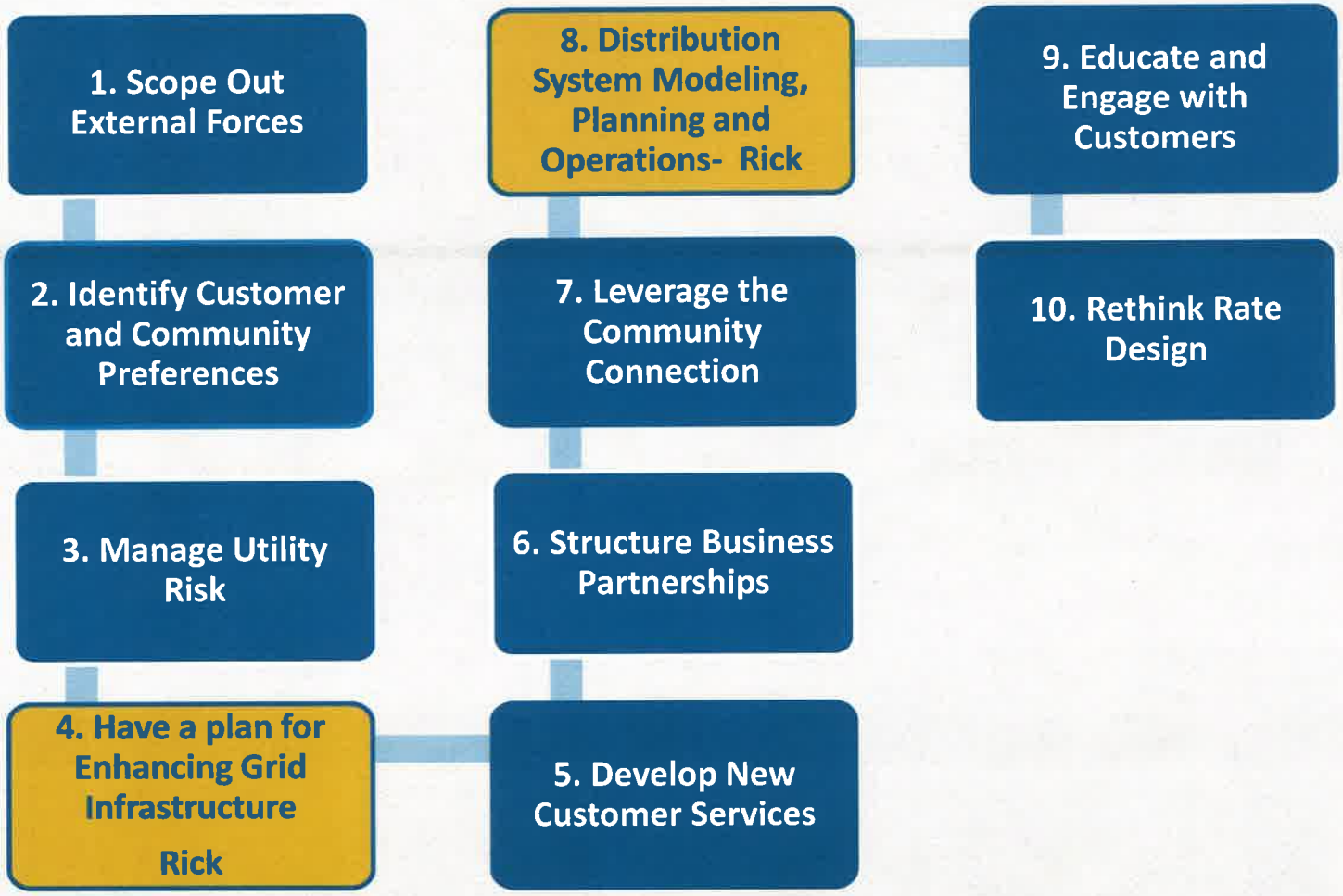
Discussion

CAPITAL PLANNING STRATEGIC DISCUSSION
June 13, 2017

BENTON P·U·D

RP3 Reliable Public Power Provider

The Future by Design
10-Step Action Plan for Transition



Agenda

- **Discuss strategy for ensuring the District's Electrical System is able to:**

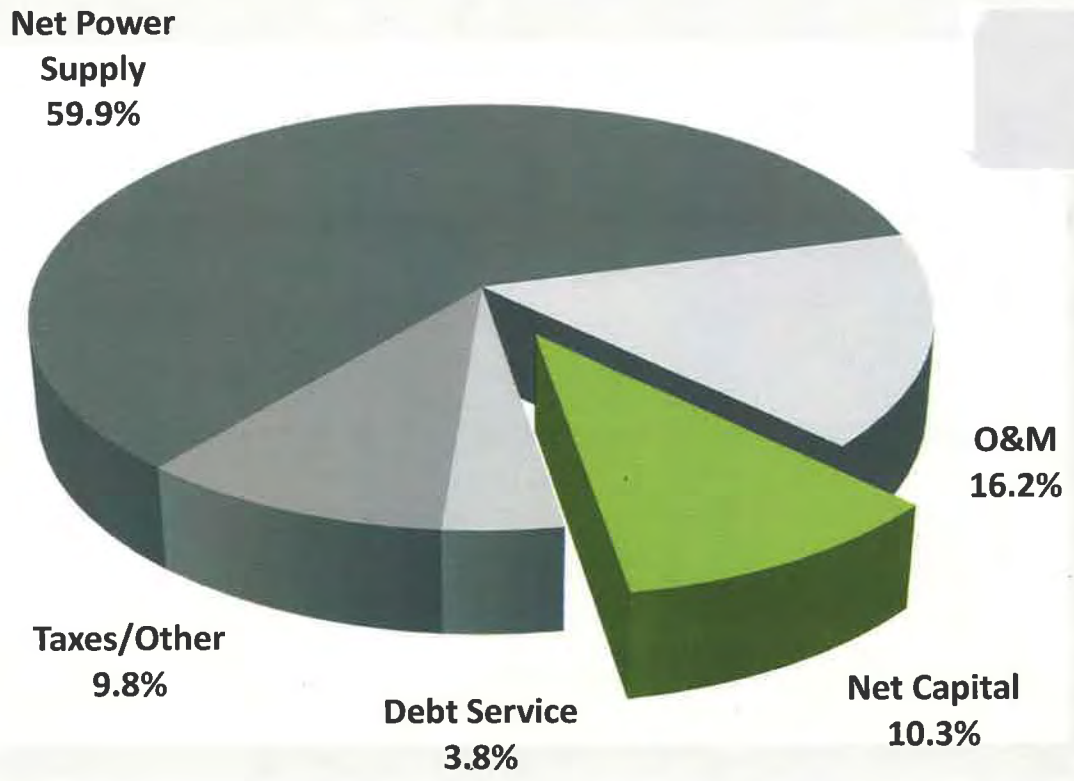
1) Meet continued incremental customer growth
   - Substations and Distribution Feeders
     - ✓ Proximity to high growth areas
     - ✓ Spacial Load Density
     - ✓ Available capacity

2) Accommodate new large load interconnections and associated revenue growth opportunities
   - Identify "Spot Load" Zones
   - Fast Track (<1 year) vs. Longer Term (>2 to 3 years)
     - ✓ BPA Process Time (≈3 years)

3) Meet customer expectations for a "21st Century Power Grid"
   - Flexible/Reliable and Always On
   - Smart Grid is Happening @ Benton PUD

Capital Expense History & Forecast

2017 Net Capital Expense



***Net Capital*:**

$14.0 million*

** Capital is net of $1.1 million of capital contributions*

Meet continued incremental customer growth

Customer Growth

Total System Load Growth	
Average Growth	Range
0.27%	2017-2021
0.30%	2017-2026

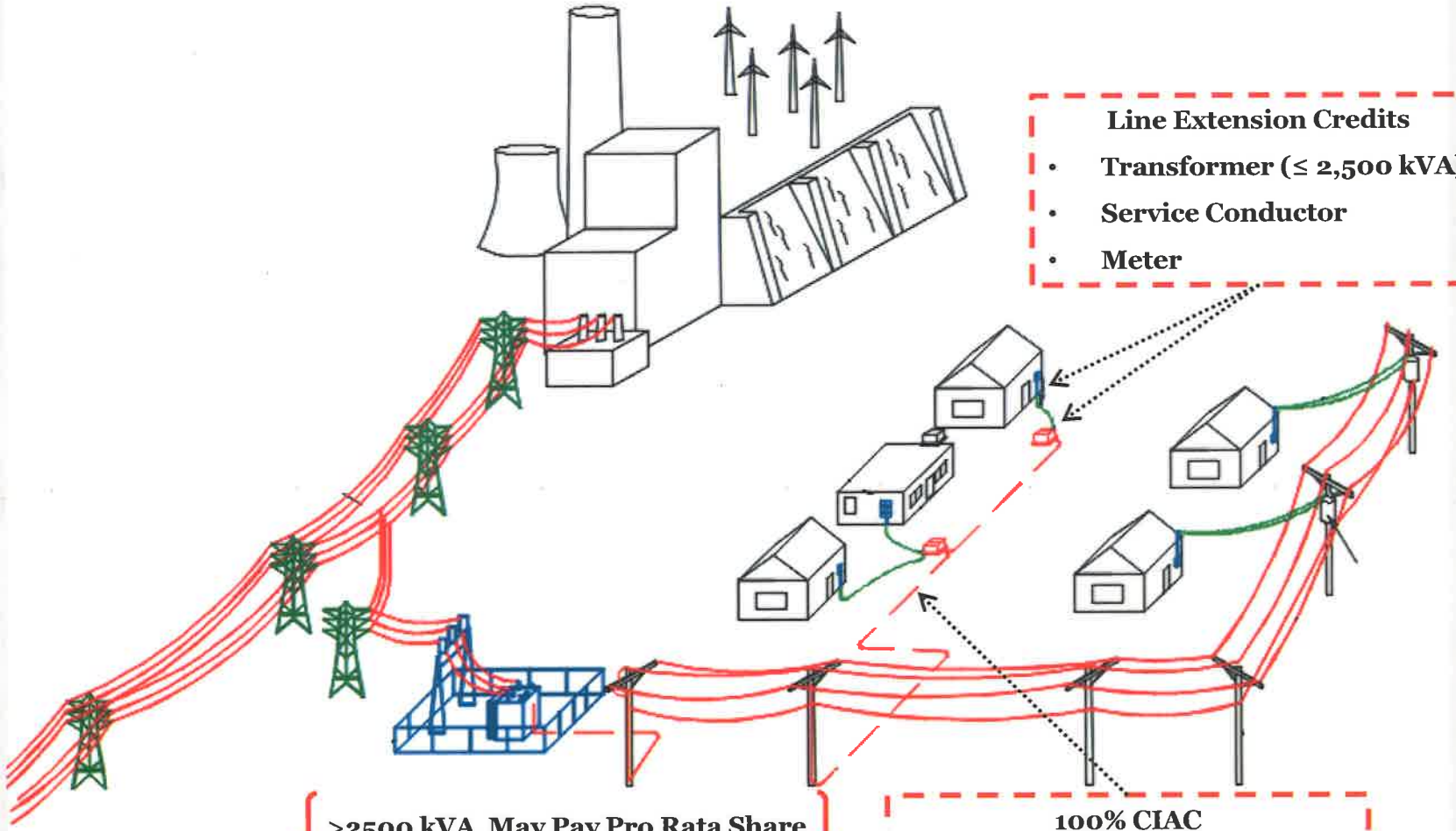
Year	Actuals		Forecast		Forecast - No Conservation		% Change	Cust Count	Change	Usage Per Cust	% Change
	MWh	aMW	MWh	aMW	MWh	aMW					
2000	1,779,257	202.56									
2001	1,569,982	179.22					-11.76%				
2002	1,587,678	181.24					1.13%				
2003	1,580,751	180.45					-0.44%				
2004	1,597,054	181.81					1.03%				
2005	1,602,508	182.93					0.34%	44,389		36.10	
2006	1,555,710	177.59					-2.92%	44,855	466	34.68	-3.93%
2007	1,607,265	183.48					3.31%	45,570	715	35.27	1.69%
2008	1,639,856	186.69					2.03%	46,601	1,031	35.19	-0.23%
2009	1,726,341	197.07					5.27%	47,074	473	36.67	4.22%
2010	1,592,802	181.83					-7.74%	47,616	542	33.45	-8.79%
2011	1,648,362	188.17					3.49%	48,197	581	34.20	2.24%
2012	1,645,277	187.30					-0.19%	48,710	513	33.78	-1.24%
2013	1,696,774	193.70					3.13%	49,519	809	34.26	1.44%
2014	1,781,322	203.35					4.98%	50,052	533	35.59	3.87%
2015	1,738,022	198.40					-2.43%	50,761	709	34.24	-3.79%
2016	1,694,078	192.86					-2.53%	51,642	881	32.80	-4.19%
2017			1,746,052	199.32	1,746,208	199.34	3.07%	52,550	907	33.23	1.29%
2018			1,752,043	200.00	1,753,113	200.13	0.34%	53,260	710	32.90	-0.99%
2019			1,756,996	200.57	1,759,836	200.89	0.28%	53,965	706	32.56	-1.03%
2020			1,765,511	200.99	1,770,850	201.60	0.48%	54,654	689	32.30	-0.78%
2021			1,765,239	201.51	1,773,166	202.42	-0.02%	55,325	671	31.91	-1.23%
2022			1,769,850	202.04	1,779,764	203.17	0.26%	55,995	670	31.61	-0.94%
2023			1,775,064	202.63	1,786,260	203.91	0.29%	56,665	670	31.33	-0.89%
2024			1,785,402	203.26	1,796,977	204.57	0.58%	57,336	671	31.14	-0.59%
2025			1,787,710	204.08	1,799,254	205.39	0.13%	57,996	660	30.82	-1.01%
2026			1,794,019	204.80	1,805,563	206.11	0.35%	58,644	648	30.59	-0.76%

Average 659 new customers per year

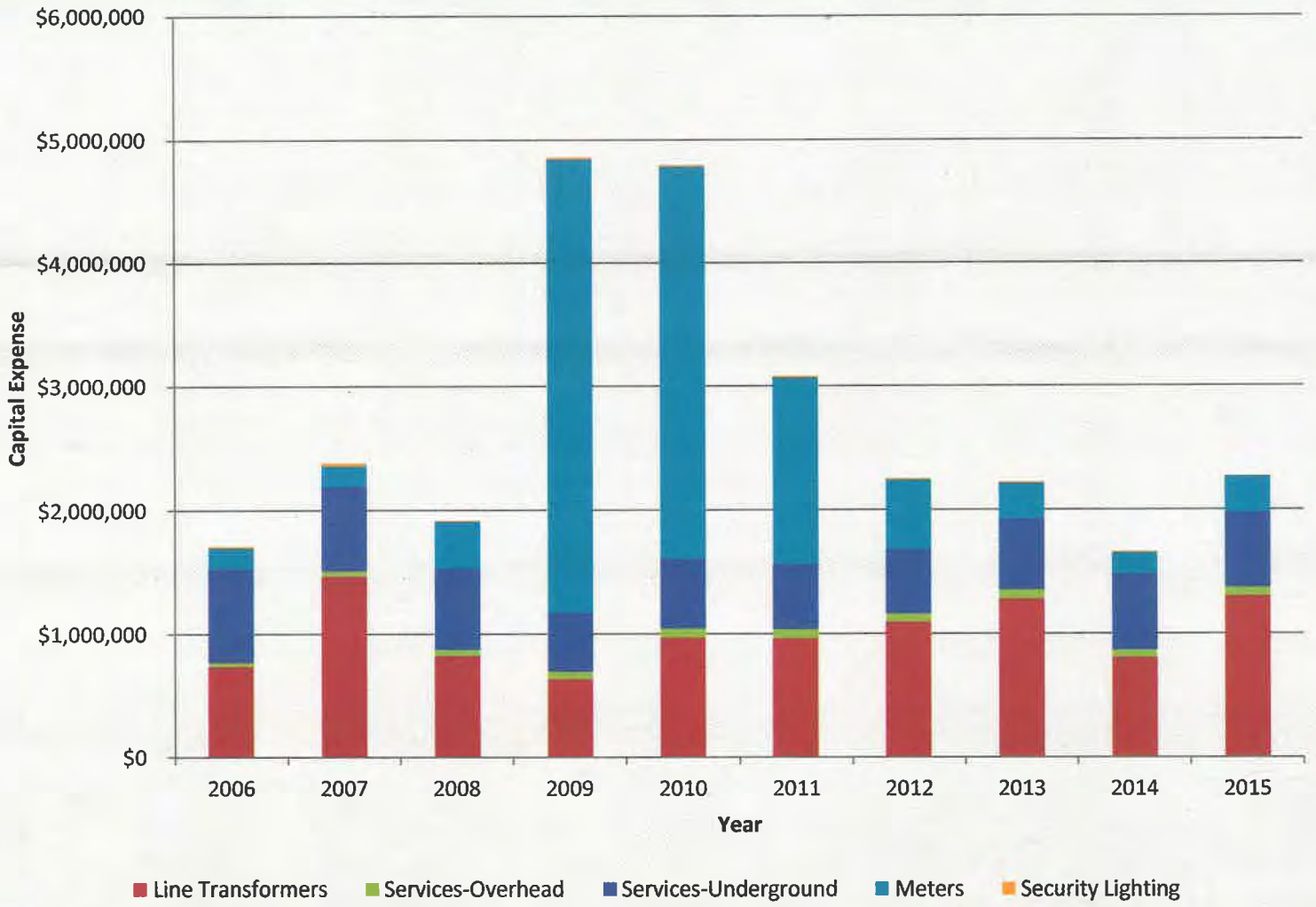
Average 700 new customers per year

Table 15 – Total System History and Retail Load Forecast

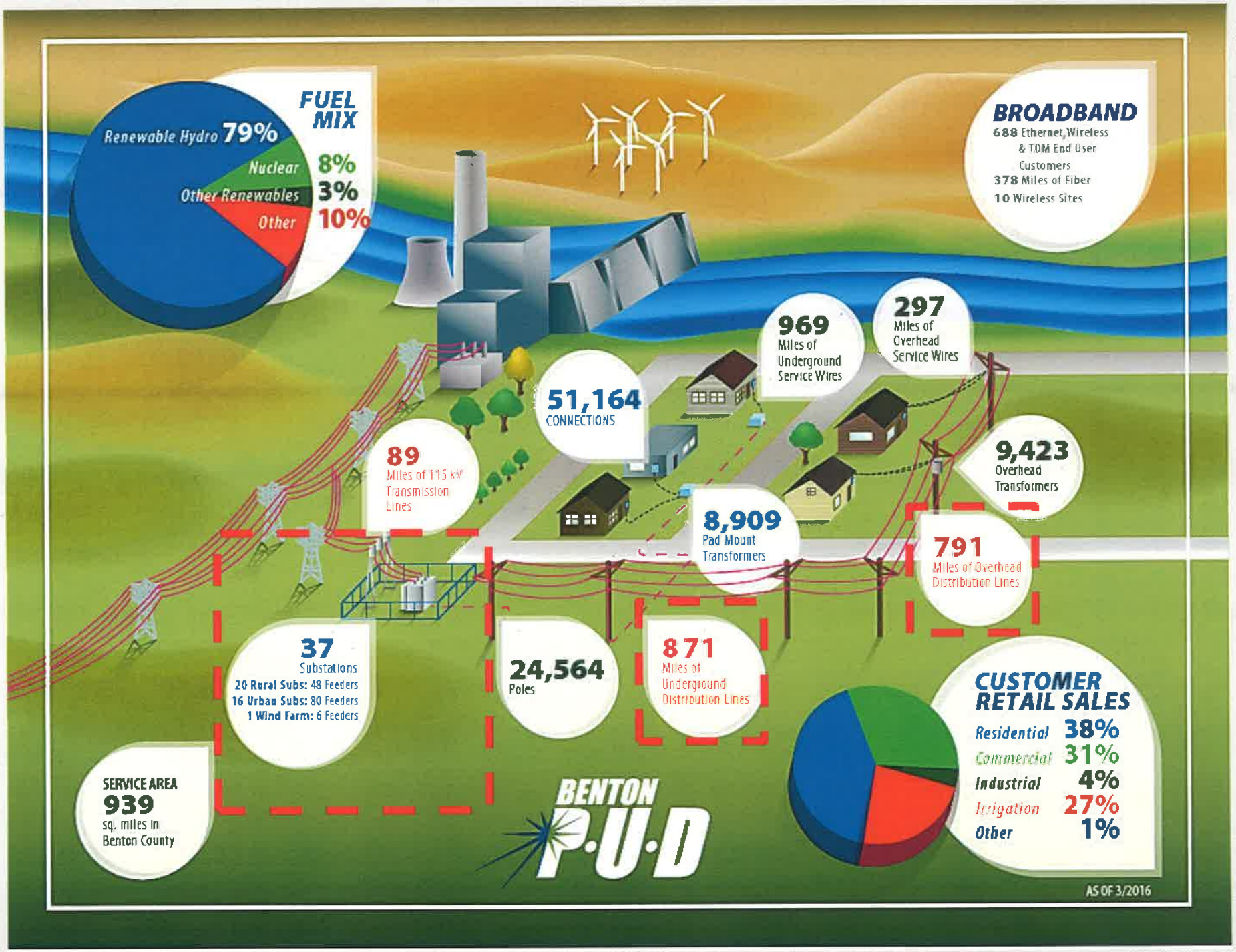
Line Extension Policy



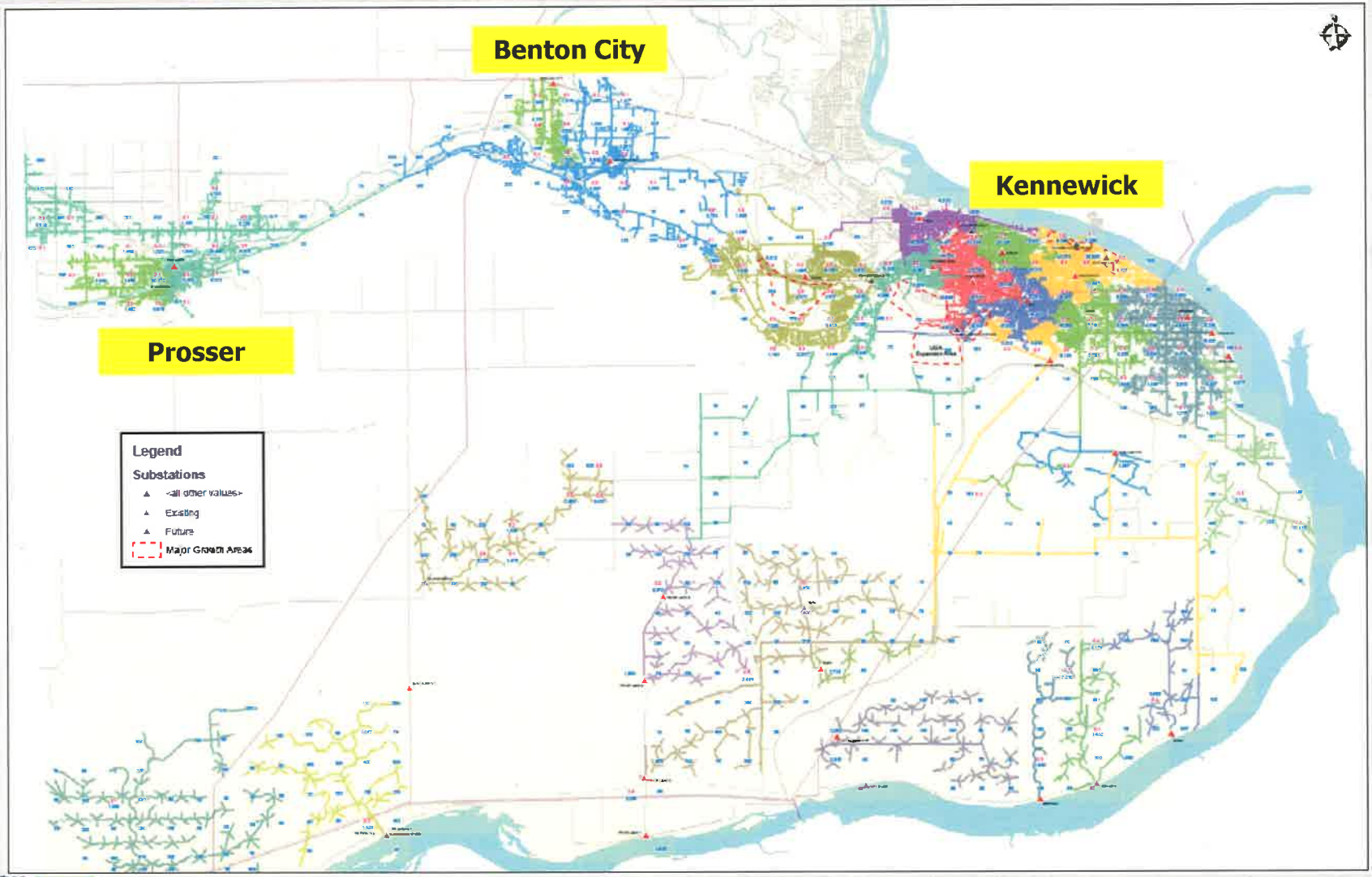
Customer Services - Capital Expense History



Substations
&
Distribution Feeders

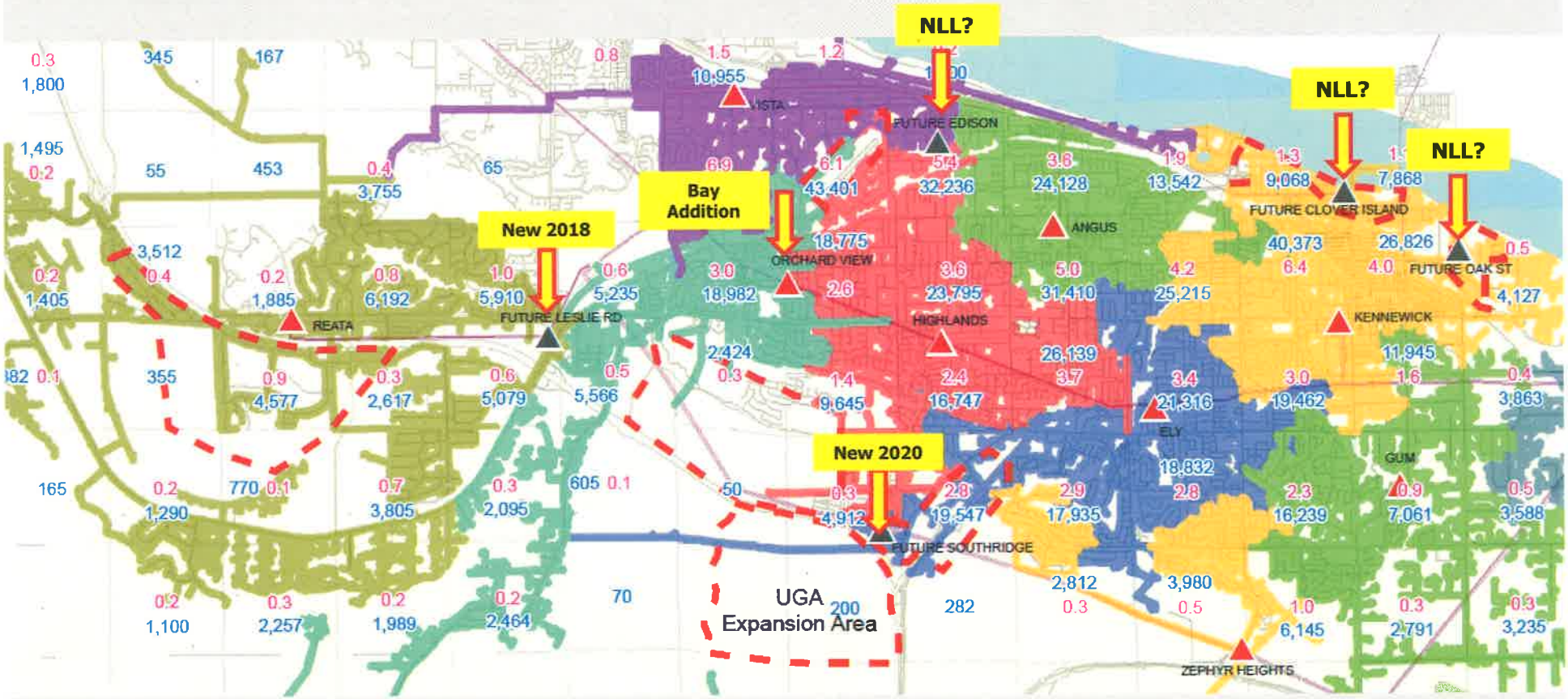

FUEL MIX
Renewable Hydro 79%
Nuclear 8%
Other Renewables 3%
Other 10%
BROADBAND
688 Ethernet, Wireless & TDM End User Customers
378 Miles of Fiber
10 Wireless Sites
969 Miles of Underground Service Wires
297 Miles of Overhead Service Wires
51,164 CONNECTIONS
89 Miles of 115 kV Transmission Lines
9,423 Overhead Transformers
8,909 Pad Mount Transformers
791 Miles of Overhead Distribution Lines
37 Substations
20 Rural Subs: 48 Feeders
16 Urban Subs: 80 Feeders
1 Wind Farm: 6 Feeders
24,564 Poles
871 Miles of Underground Distribution Lines
CUSTOMER RETAIL SALES
Residential 38%
Commercial 31%
Industrial 4%
Irrigation 27%
Other 1%
SERVICE AREA
939 sq. miles in Benton County
BENTON P.U.D
AS OF 3/2016

Substation – Service Areas



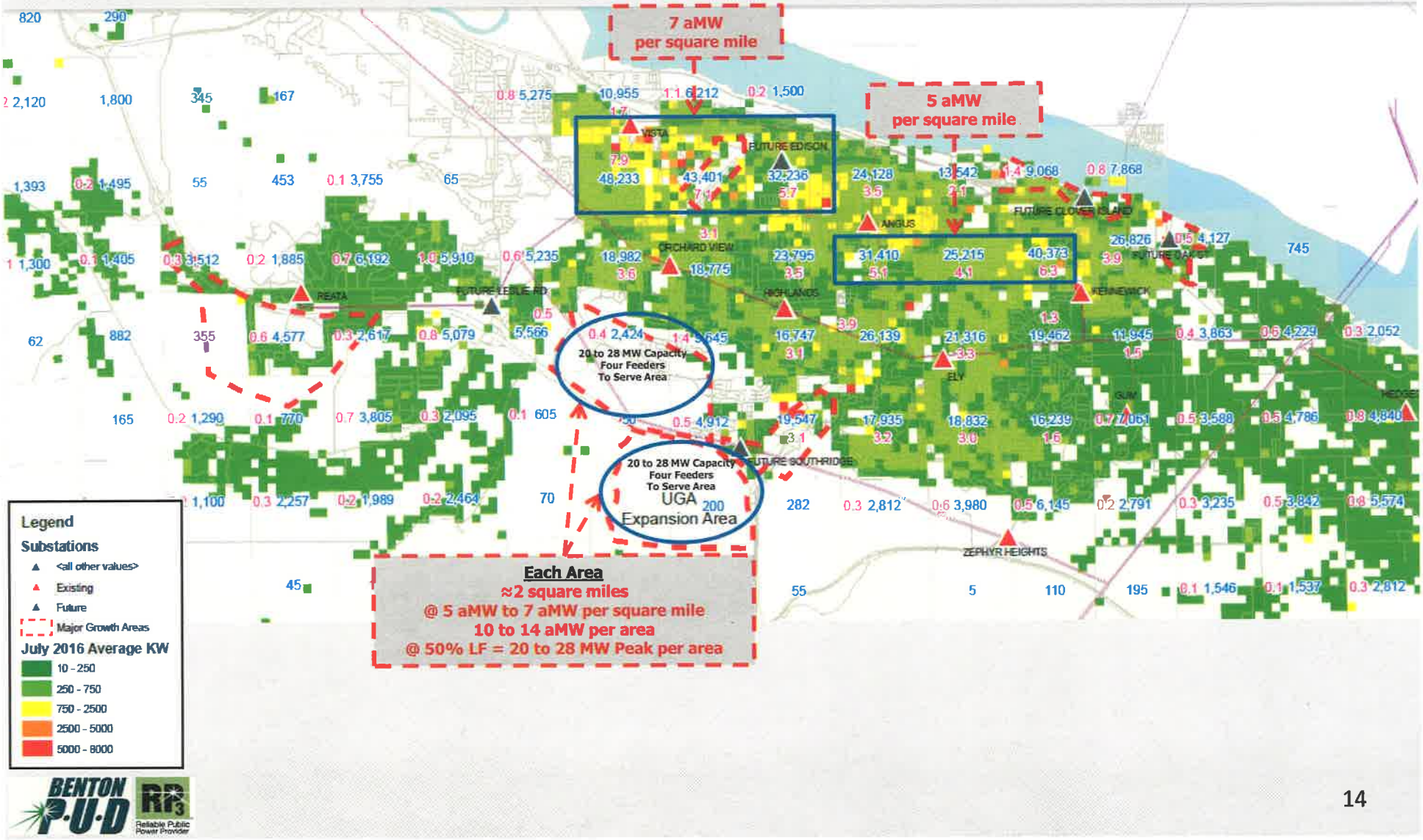
Note: Cold Creek and Hanford Site Substations and Feeders located in northwest Benton County not shown.

Substations – Plans for High Growth Areas

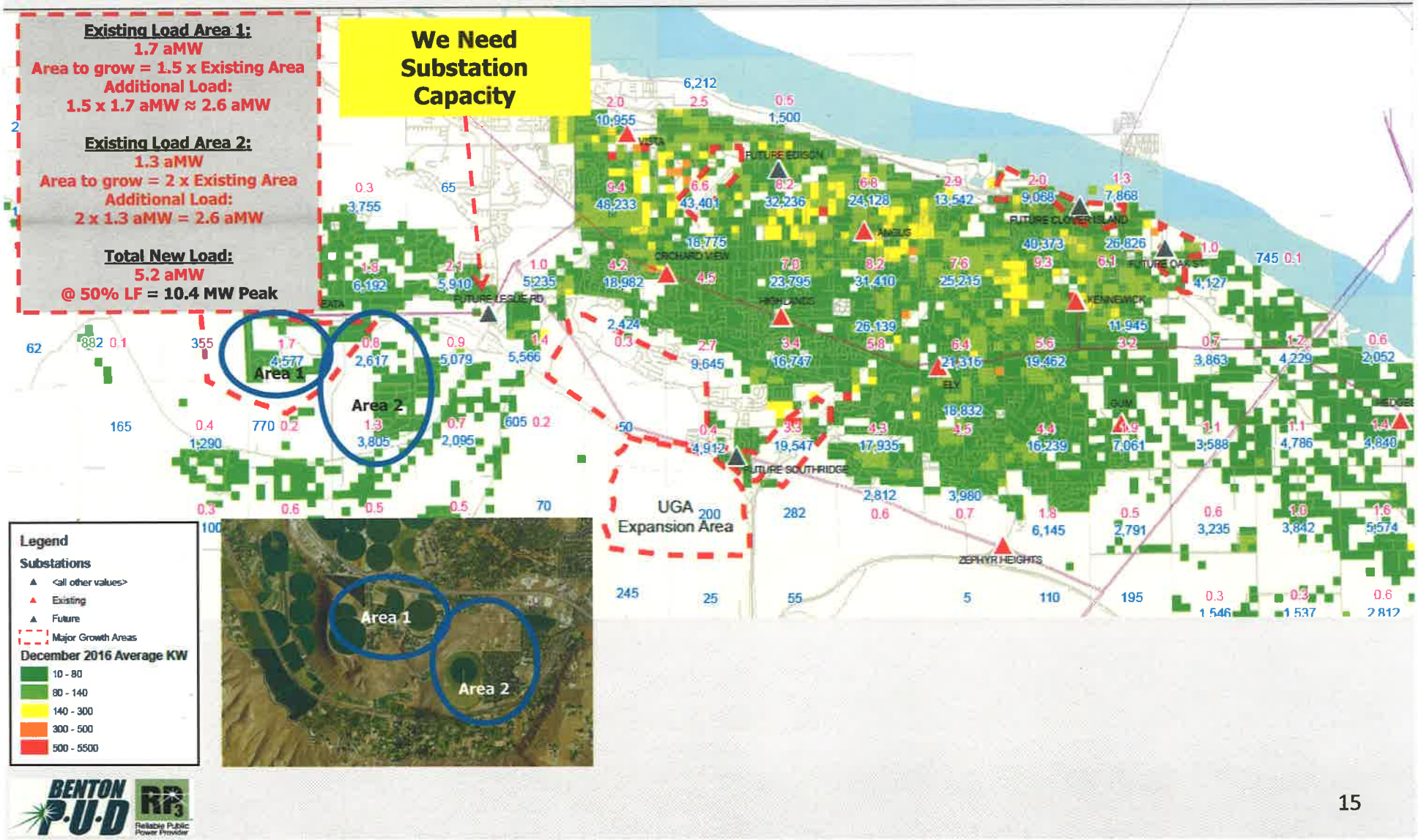


NLL? = Contingent on New Large and/or Significant Commercial Load Development

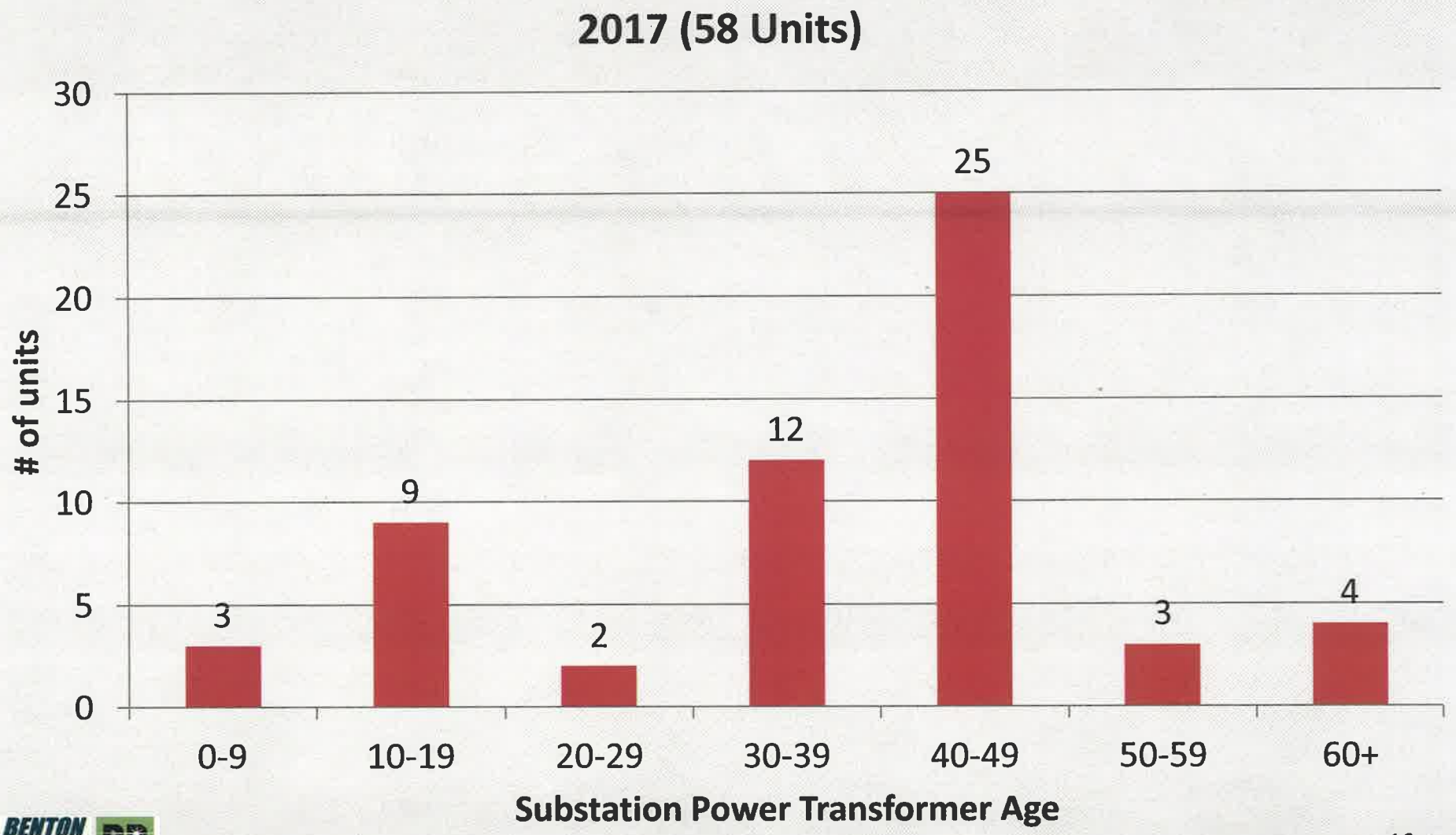
Electrical Load Density (Summer)



Electrical Load Density (Winter)

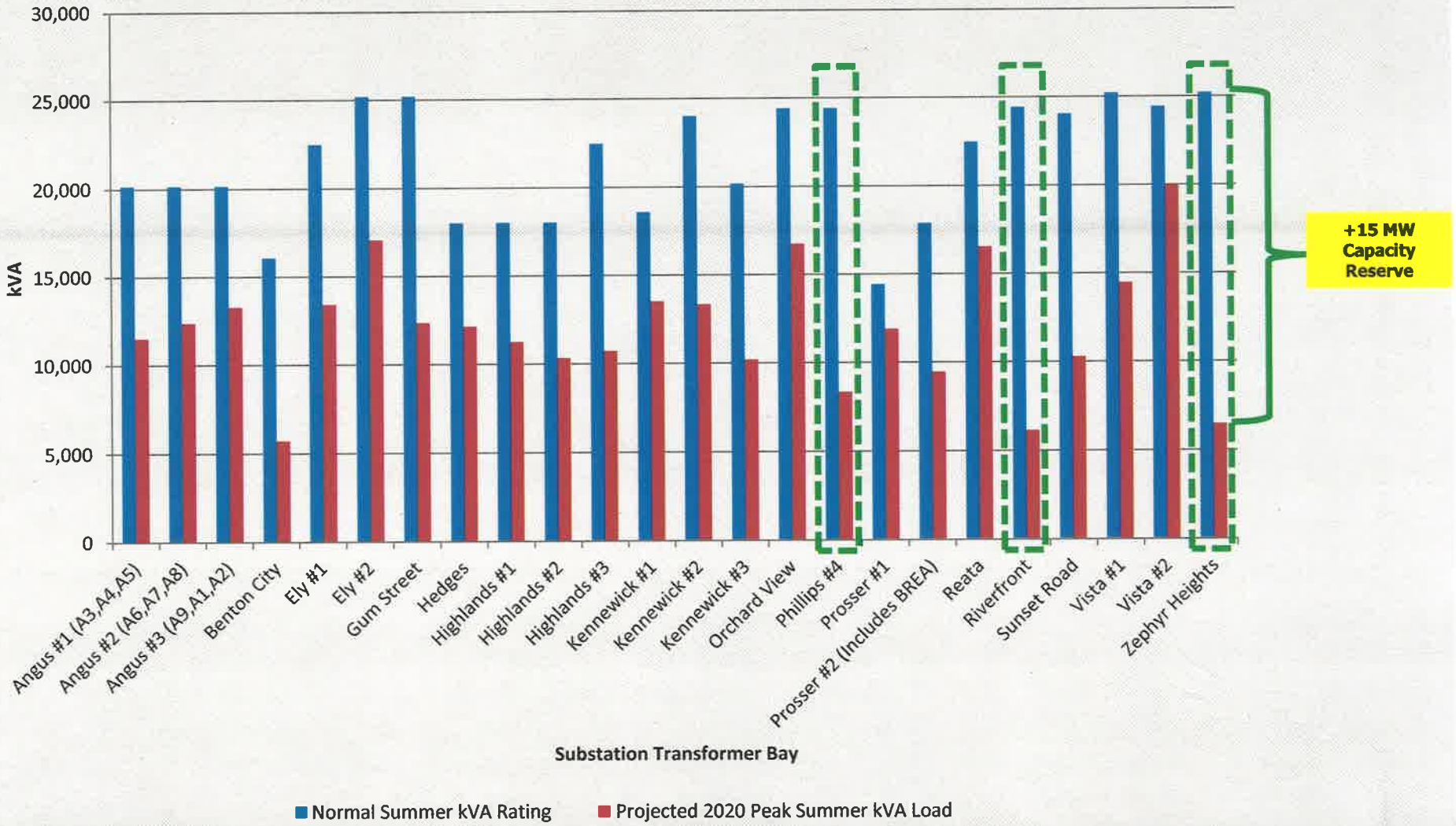


Substation Transformers – Aged Equipment



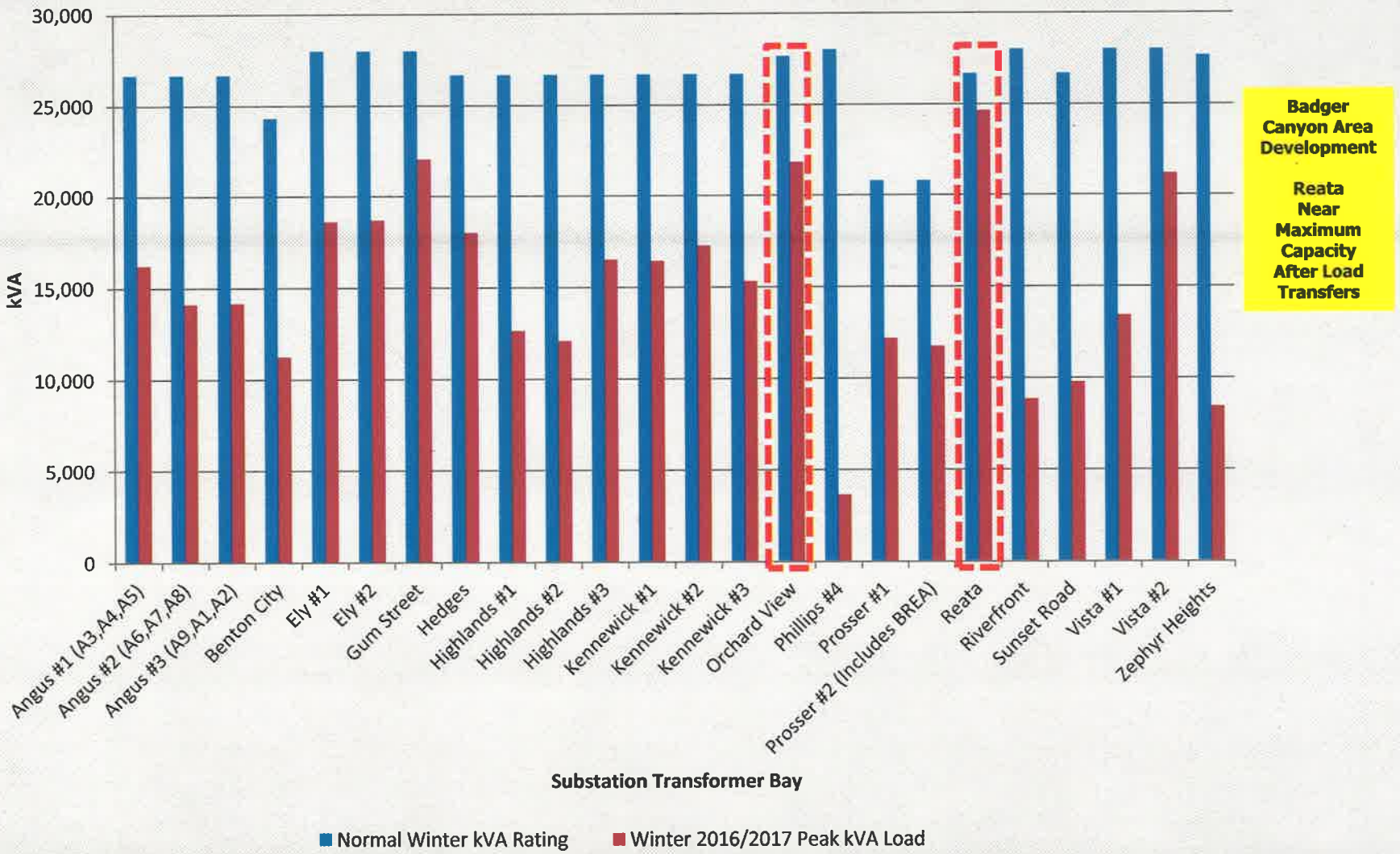
Spare Transformer Inventory

Substation Transformer Summer Loading

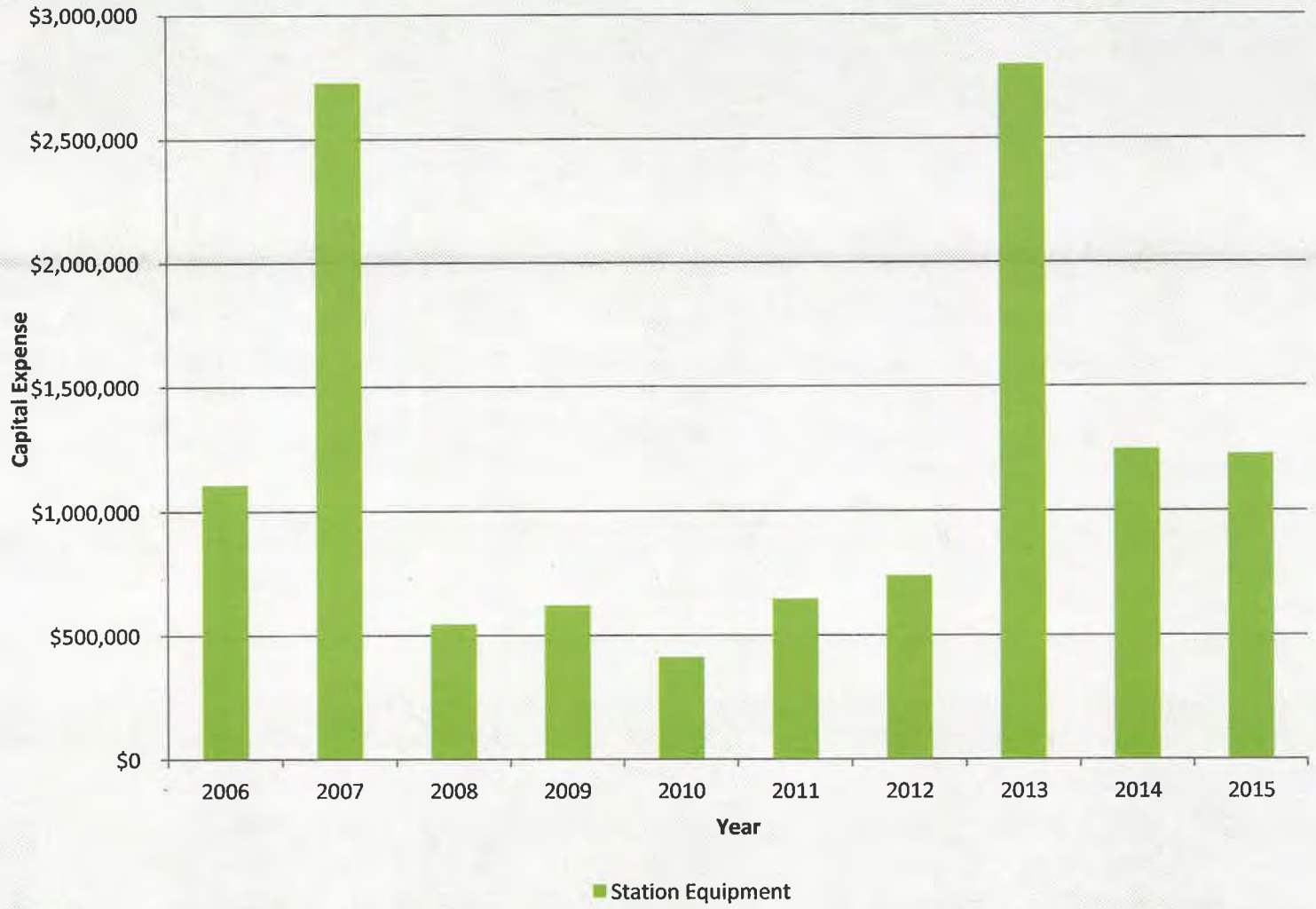


Note: Summer 2015 Load Data

Substation Transformer Winter Loading



Substation - Capital Expense History



Substation Improvements

Substation Transformer Improvements
Circuit Switcher Additions
Capacitor Bank Additions

Control House Additions
Switchgear Upgrades

Substation Improvements

New Technology

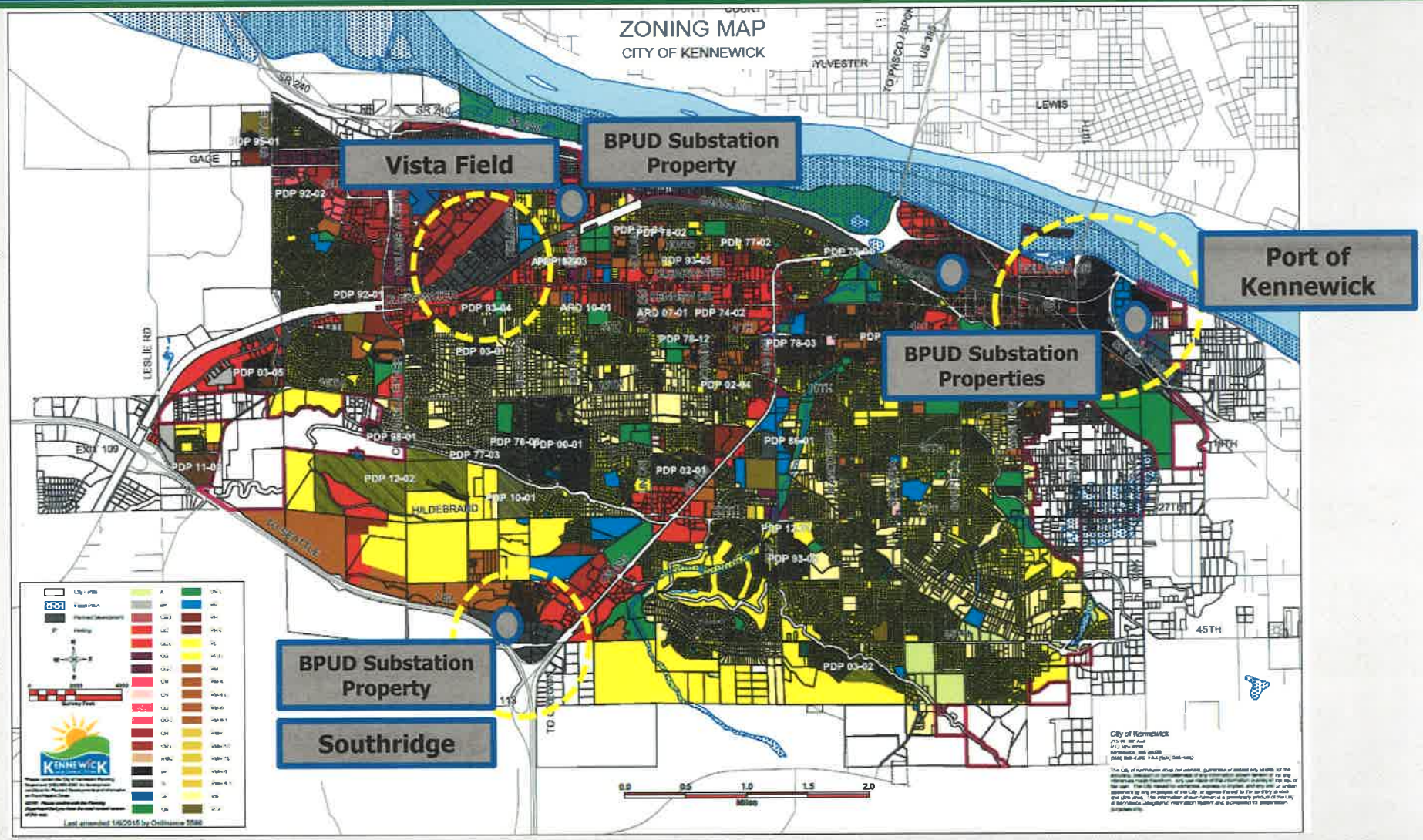
Protective Relay Upgrades

Substation Projects & Budgets

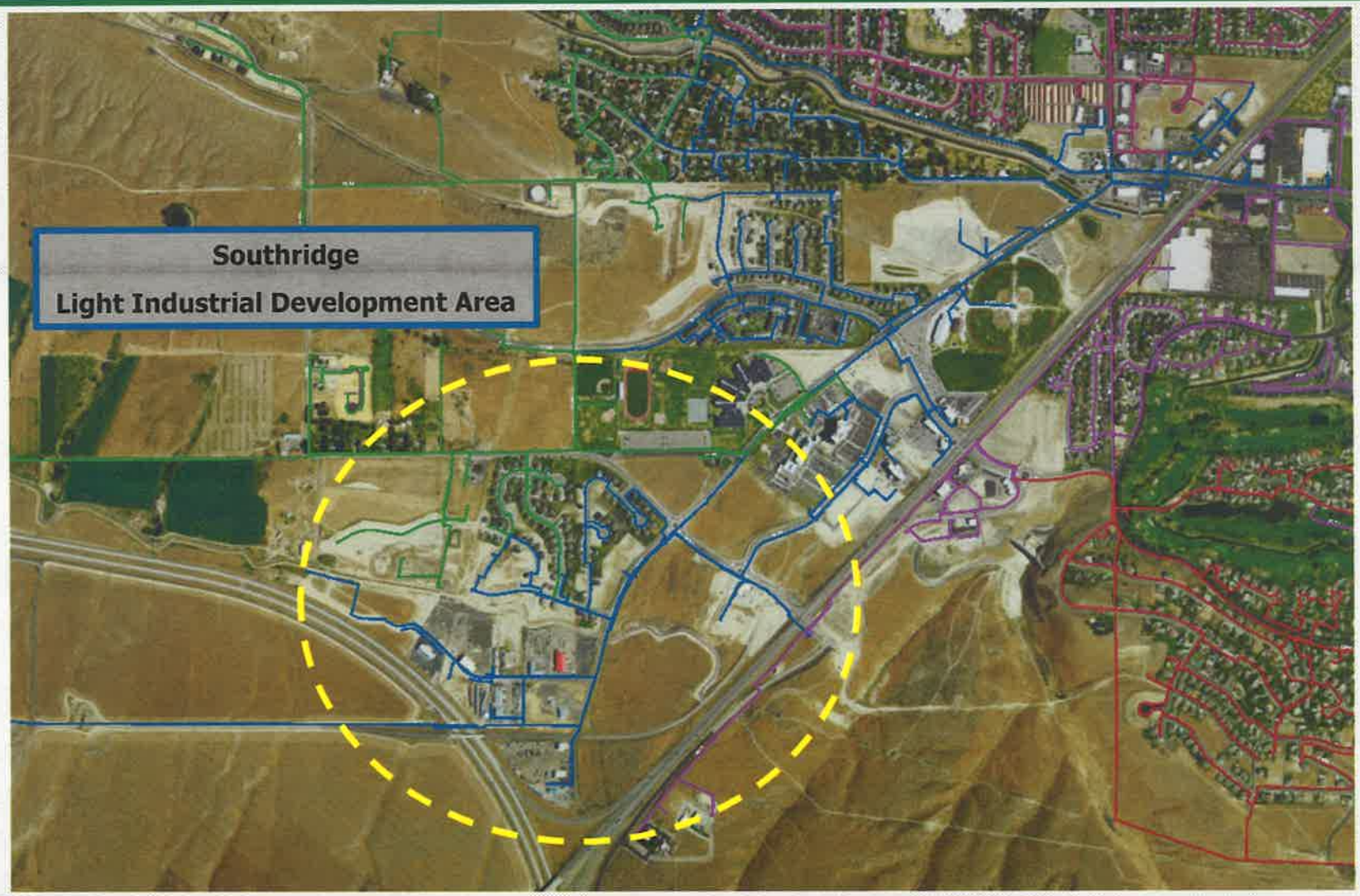
Project Description	Year (amounts in constant year dollars) 2017	2018	2019	2020
SUBSTATIONS				
Cap Bank - 2,400 kVAR - Carma		180,000		
Cap Bank - 900 kVAR - Whitcomb		85,000		
Cap Bank - 1,800 kVAR - Irrigro		150,000		
Cap Bank - 2,400 kVAR Prior #3			180,000	
Cap Bank - 2,400 kVAR Prior #2			180,000	
Cap Bank - 2,400 kVAR Prior #1				180,000
Power Xfmr LTC Retrofit - Riverfront TLH-21		335,000		
Diff. Relay for Circuit Switcher - Highlands #3	75,000			
Circuit Switcher Addition - Highlands #1 & #2	400,000			
Circuit Switcher Addition - Prosser #1 & #2			400,000	
Benton City Substation Upgrade			1,300,000	
Feeder Position Addition - Phillips P8R	50,000			
Metalclad/Breaker/Relay Replacement - Highlands #3	400,000			
Breaker Retrofit & Relay Upgrade - Gum Street	150,000			
Breaker Retrofit & Relay Upgrade - Vista #2		125,000		
Breaker Replacement & Relay Upgrade - Angus #1, #2, #3				250,000
Feeder Relay Upgrade - Ely #1	25,000			
Feeder Relay Upgrade - Ely #2	25,000			
Feeder Relay Upgrade - Vista #1	-	25,000		
Feeder Relay Upgrade - Riverfront	-	25,000		
Feeder Relay Upgrade - Orchard View		-	25,000	
Feeder Relay Upgrade - Hedges			-	25,000
Control House Addition & Batteries - Gum Street		145,000		
Substation Misc. Aux. Equip., Relays/Controls	25,000	25,000	25,000	25,000
New Substation - Leslie Road		2,100,000		
New Substation - Southridge				2,100,000
Project Subtotal	1,150,000	3,195,000	2,110,000	2,580,000

Accommodate new large load interconnections and associated revenue growth opportunities

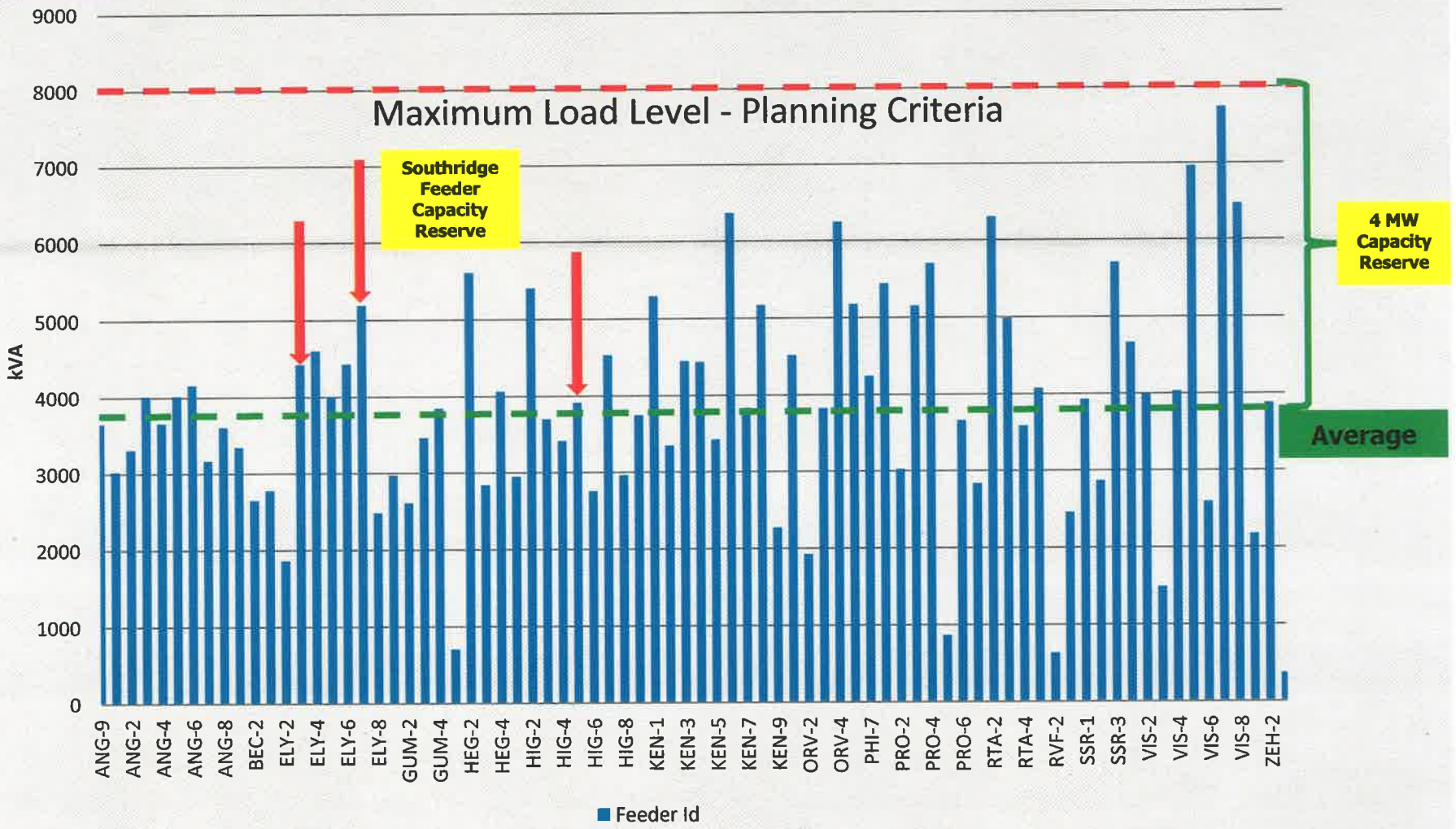
New Large Loads – Development Areas



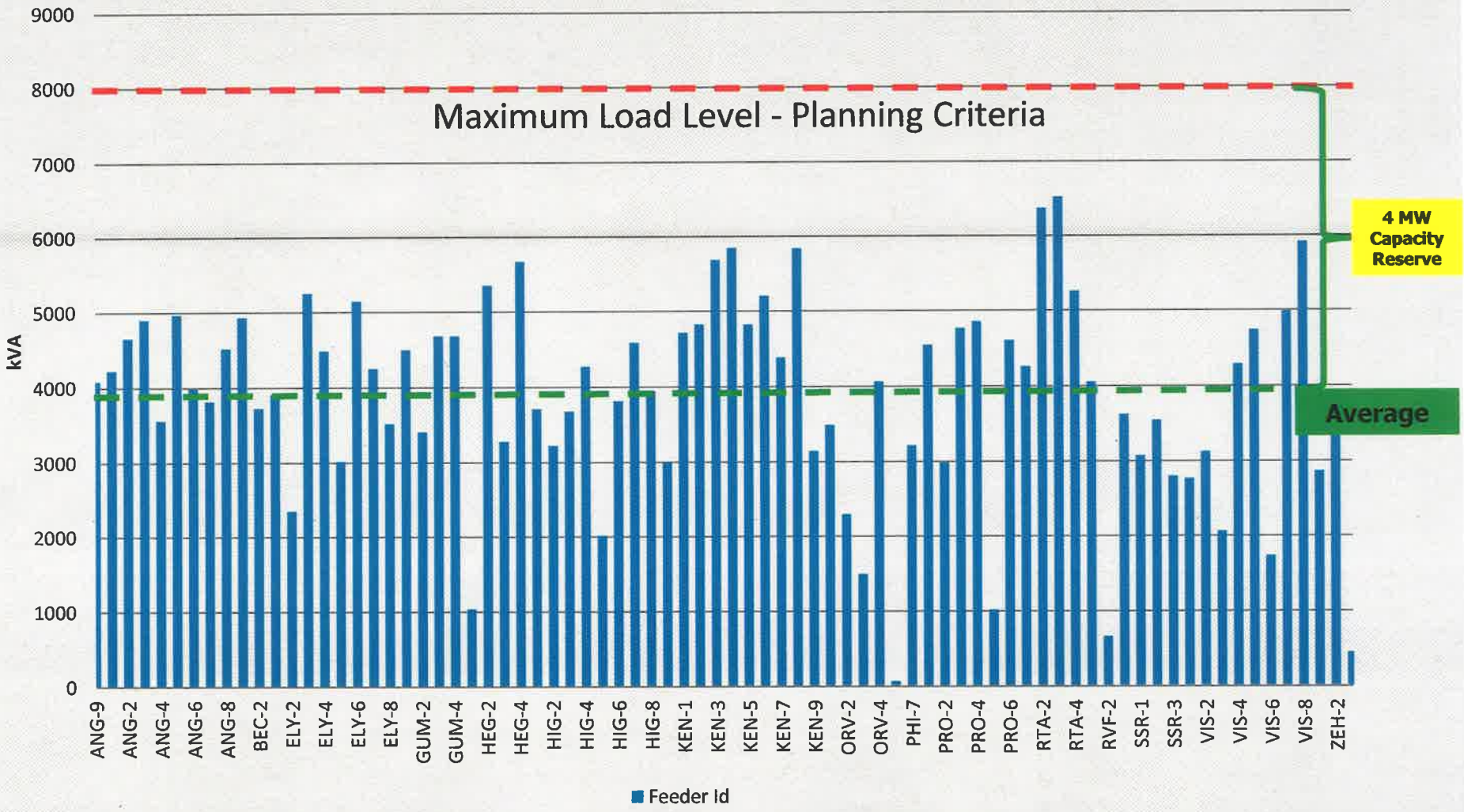
Development Areas
Feeder Penetration & Available Capacity



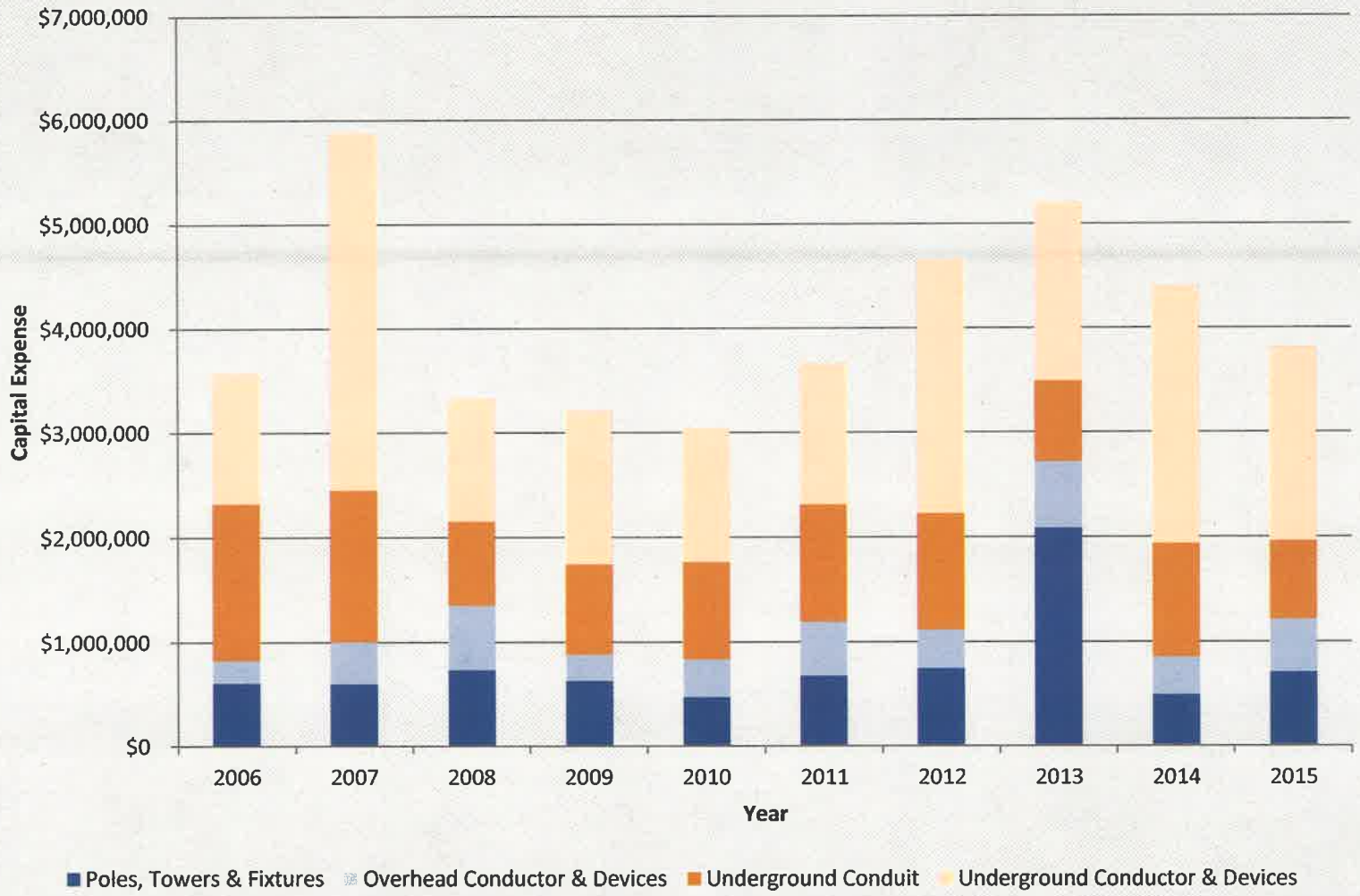
Feeder Capacity Reserves – Summer 2015



Feeder Capacity Reserves – Winter 2015/2016



Distribution Feeders - Capital Expense History



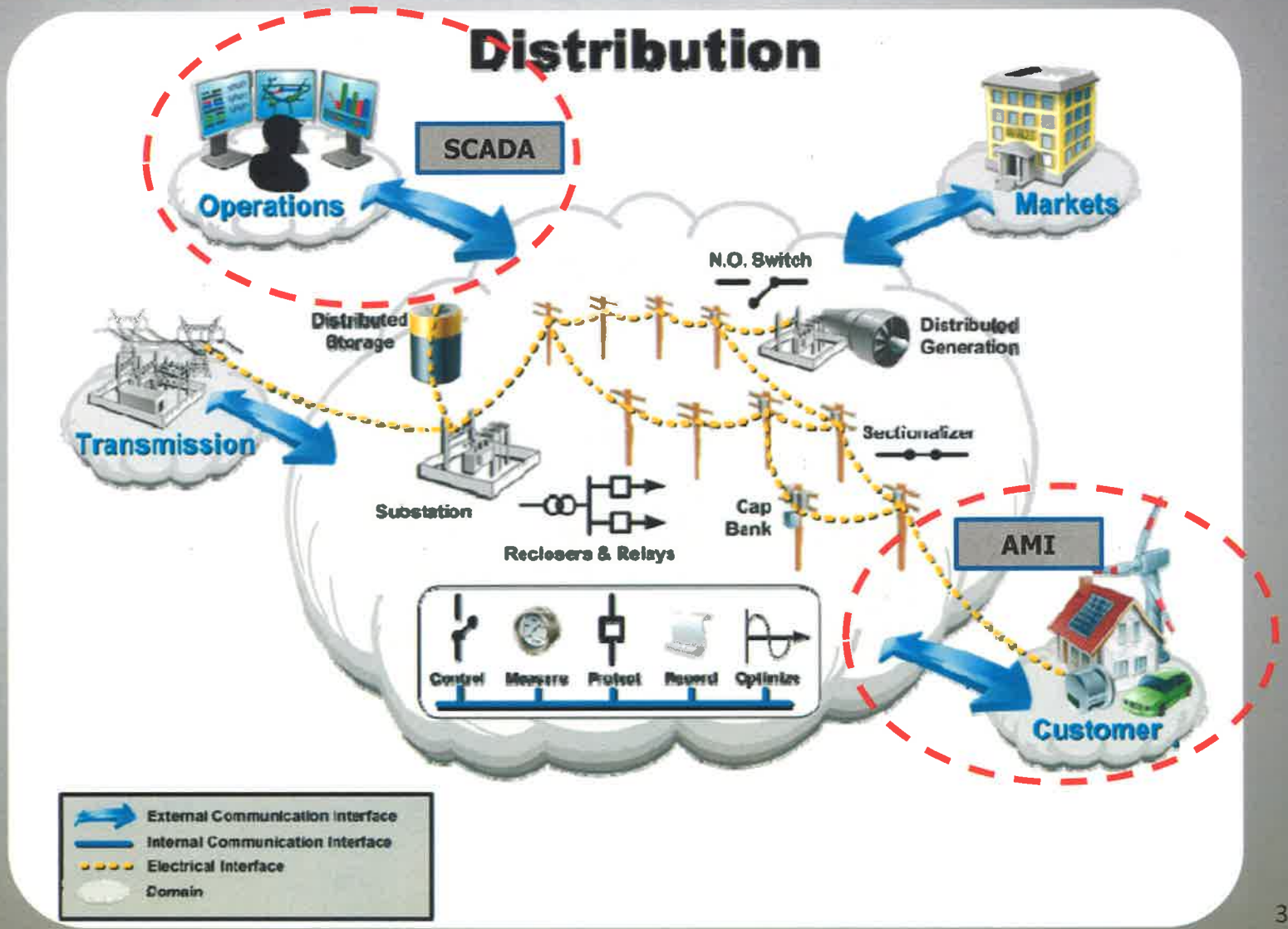
New Large Load Response Capabilities

- **< 1 Year**
  - Exploit Feeder Capacity Reserves (0 to 10 MW Loads)
    - 0 to 5 MW Individual Spot Loads
    - 5 to 10 MW Aggregate Spot Loads on One Property
    - Short term "risk" of reduced operational flexibility
    - Build back reserves in subsequent years
    - Identify "spot load" zones based on specific feeder capacity & available properties
  - Exploit Substation Capacity Reserves (0 to 15 MW Loads)
    - Phillips, Riverfront and Zephyr Heights Substations (15 MW Load Level)

- **> 2 to 3 Years**
  - Collaborate to Develop Loads Near Future Substation Sites
    - Light and Heavy Industrial Zoning

Meet customer expectations for a "21st Century Power Grid

Distribution Utility - Smart Grid



Smart Grid Behaviors

- ✓ Enable Active Participation by Consumers
- ✓ Accommodate all Generation and Storage Options
- ✓ Enable New Products, Services, and Markets
- ✓ Provide Power Quality for the Digital Economy
- ✓ Optimize Asset Utilization and Operate Efficiently
- ✓ Anticipate and Respond to System Disturbances (Self-heal)
- ✓ Operate Resiliently to Attack and Natural Disaster

Electric Power Research Institute

Smart Grid is Happening @ BPUD: AMI

- ✓ **Energy Use Data on Short Time Intervals**
- ✓ **Remote Service Connection & Disconnection**
- ✓ **On-Demand Reads**
- ✓ **Service Theft and Tamper Detection**
- ✓ **Power Quality Monitoring**
- ✓ **Outage Detection and Reporting**

- ✓ **Enable Active Participation by Consumers**
- ✓ **Customer Internet Access to Energy Use Data**

smart hub

April 4, 2017

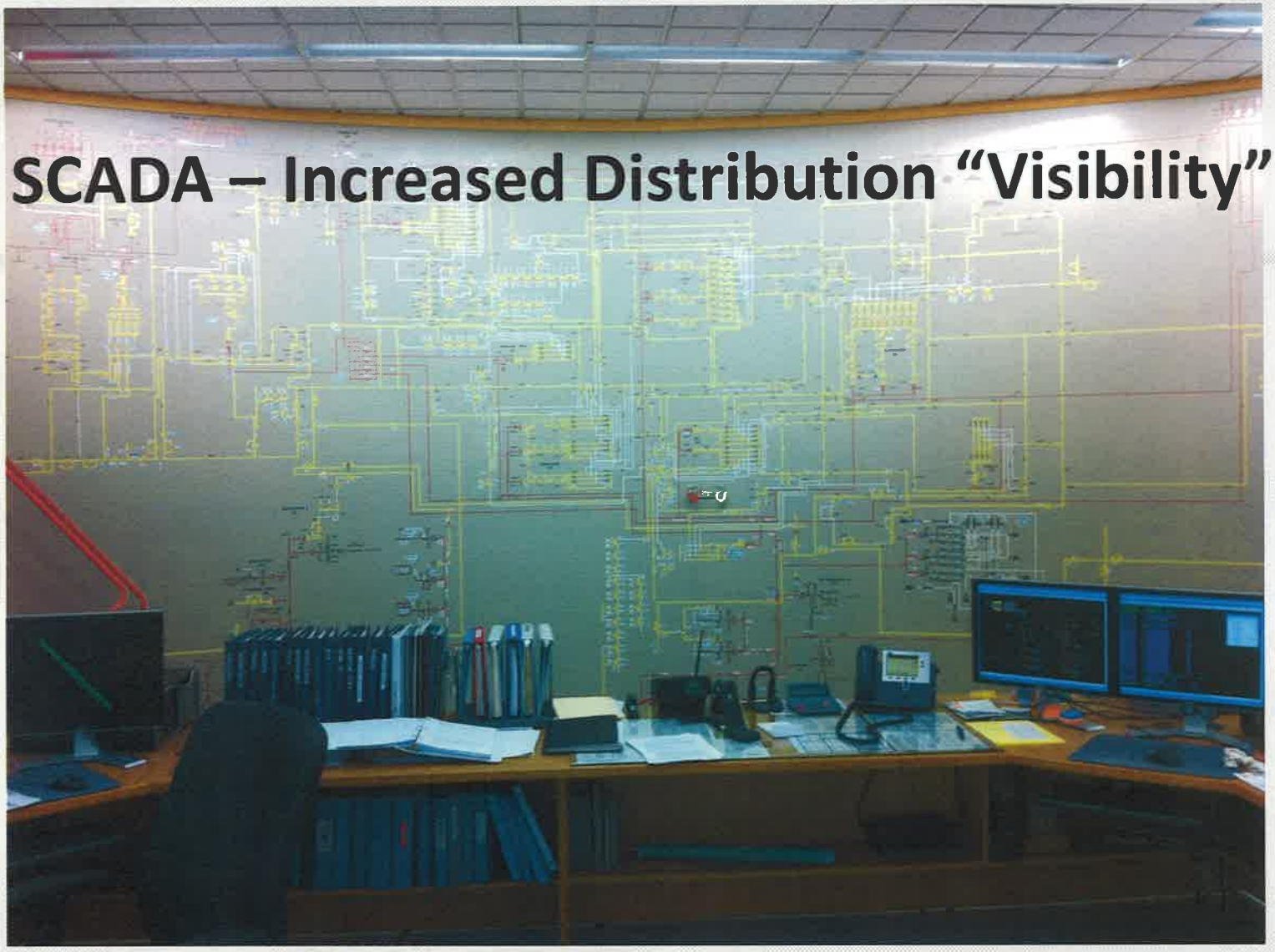
SmartHub® App Available

SmartHub® app is available through the App Store or Google Play.

BENTON P·U·D

Reliable Public Power Provider

Smart Grid is Happening @ BPUD: SCADA



- Control
- Measure
- Protect
- Record
- Optimize

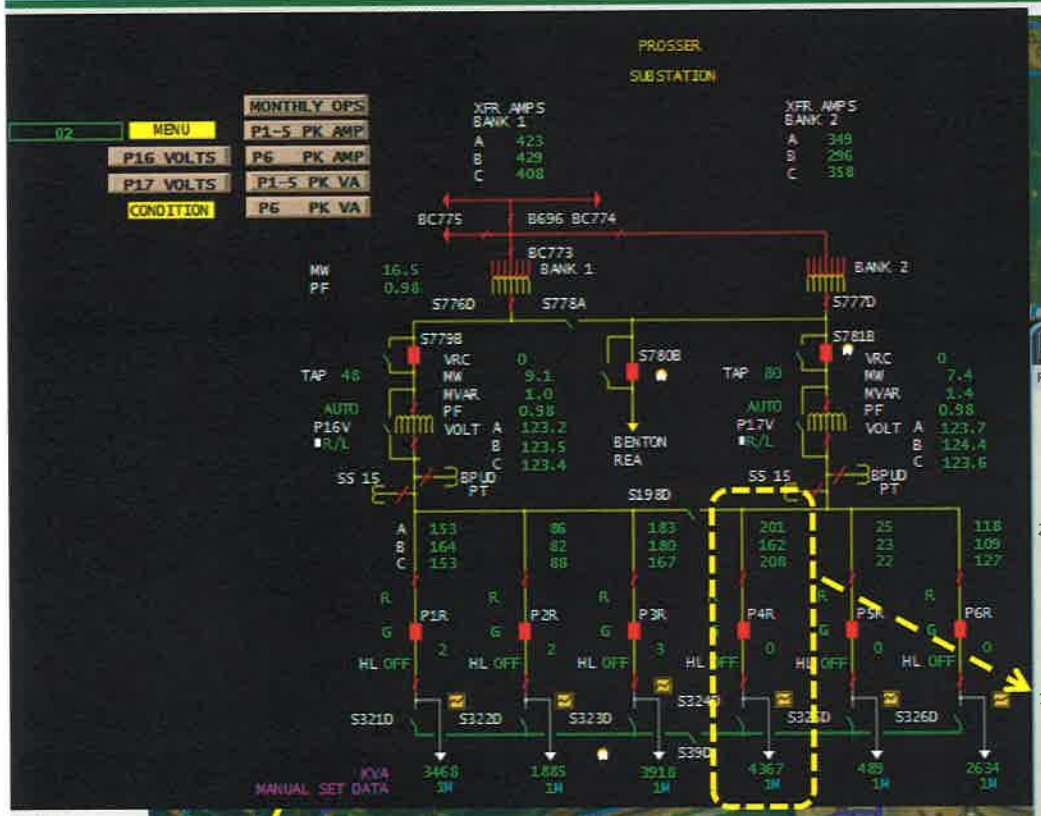
Smart Grid is Happening @ BPUD: SCADA

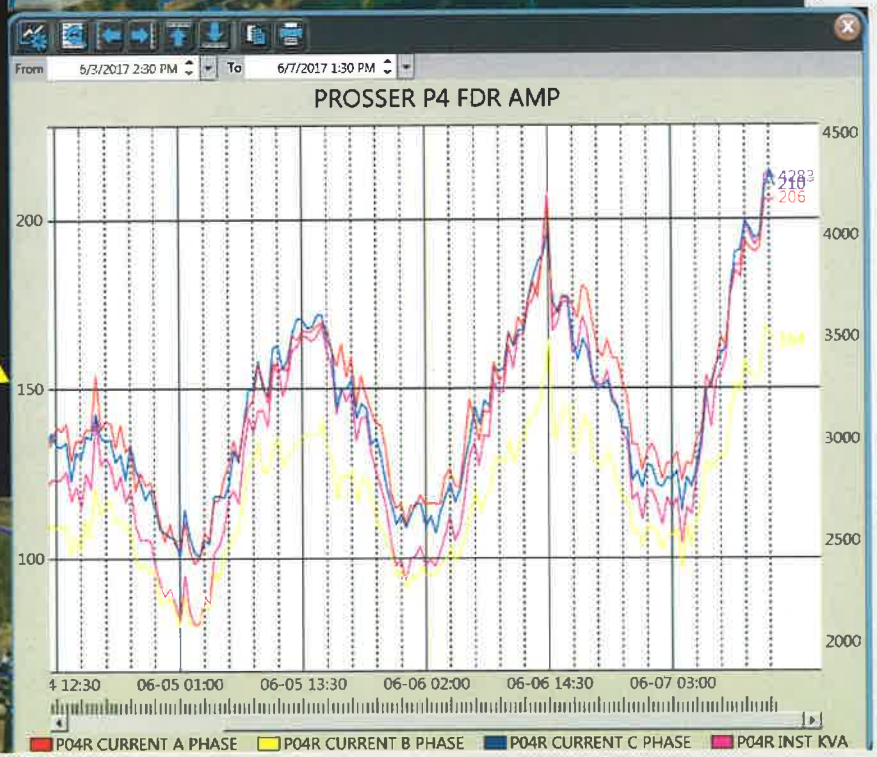
Voltage Regulator
SCADA Automation

Recloser (Circuit Breaker)
SCADA Automation

SCADA – Increased Distribution "Visibility"

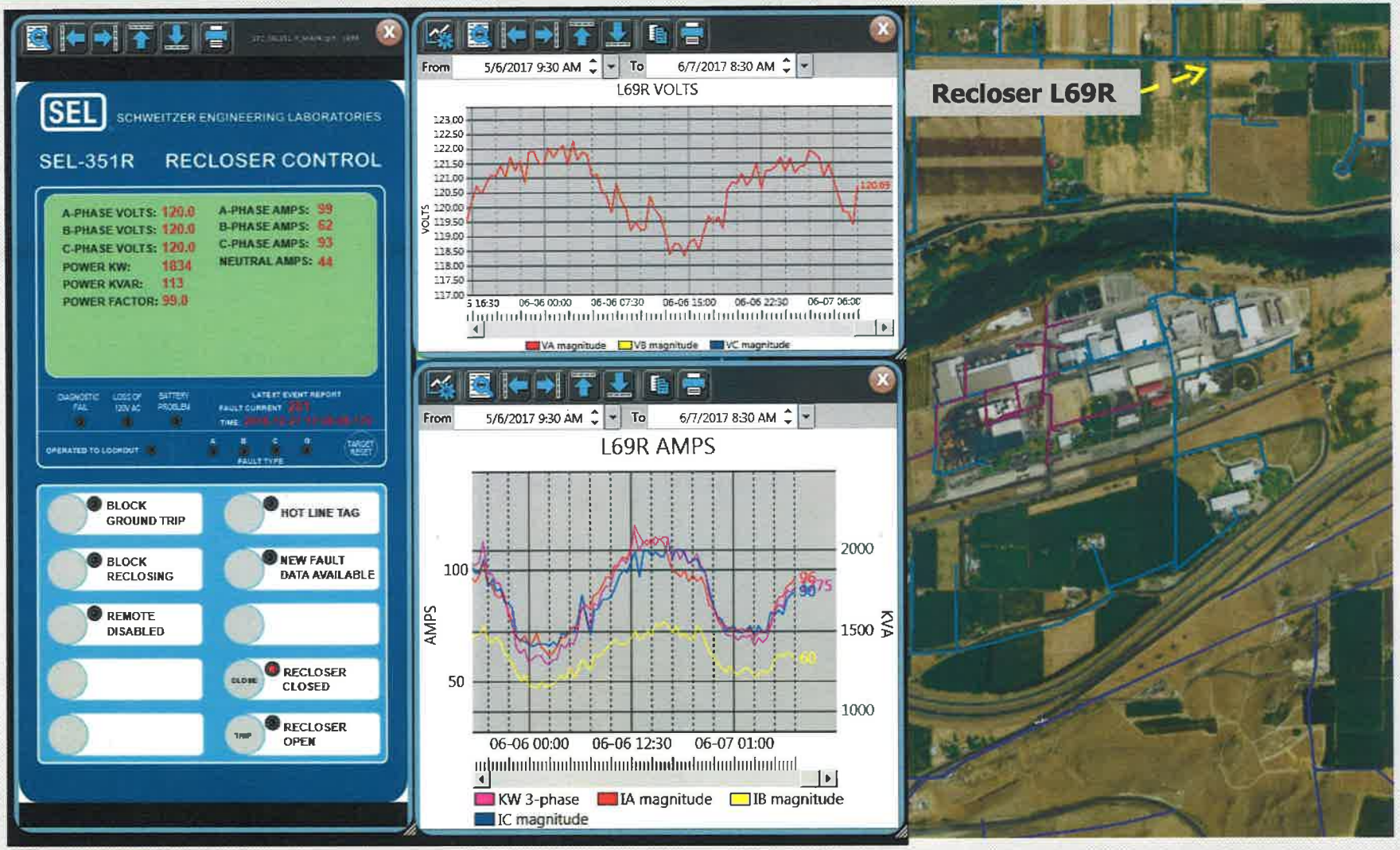
SCADA – Increased Distribution "Visibility"



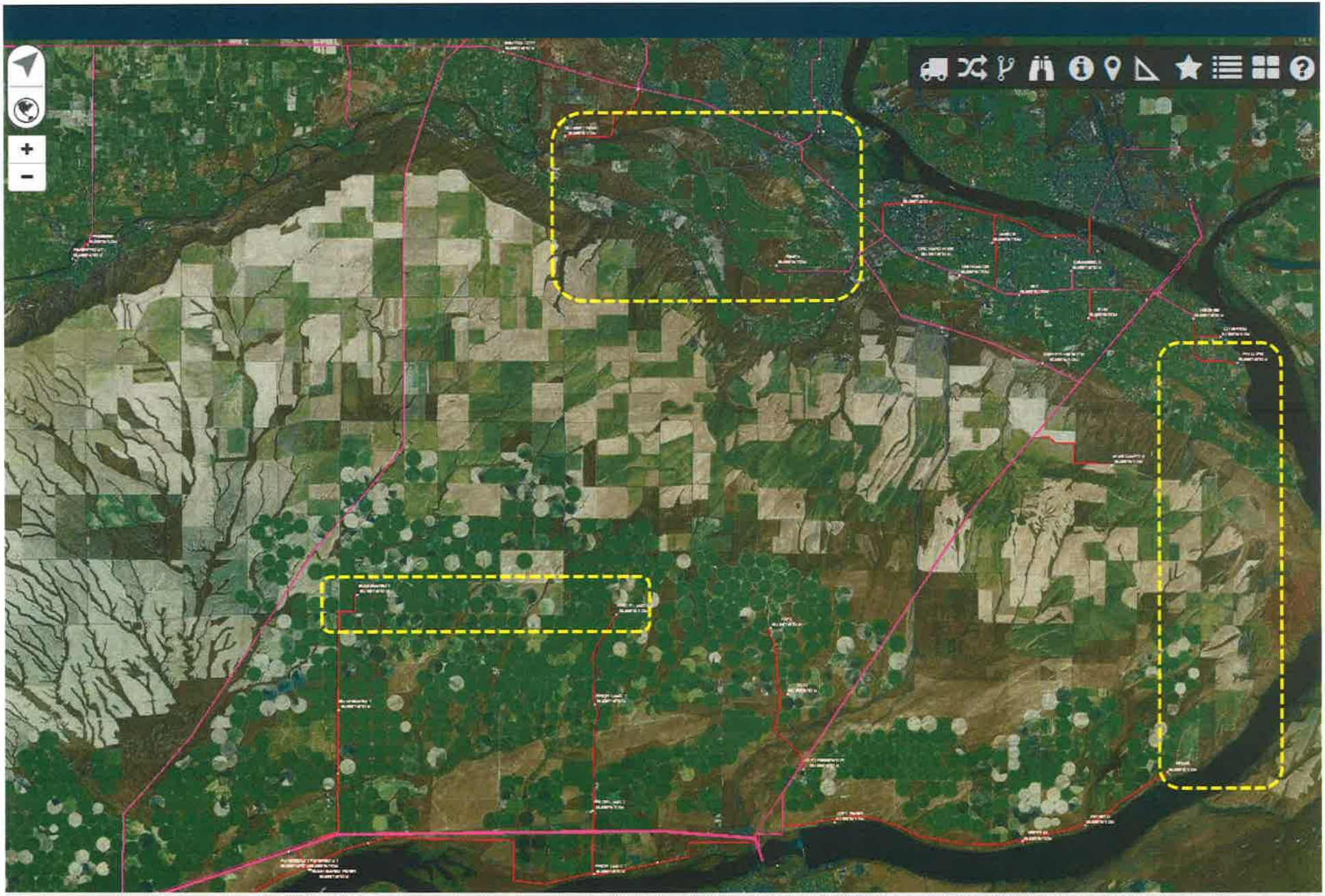


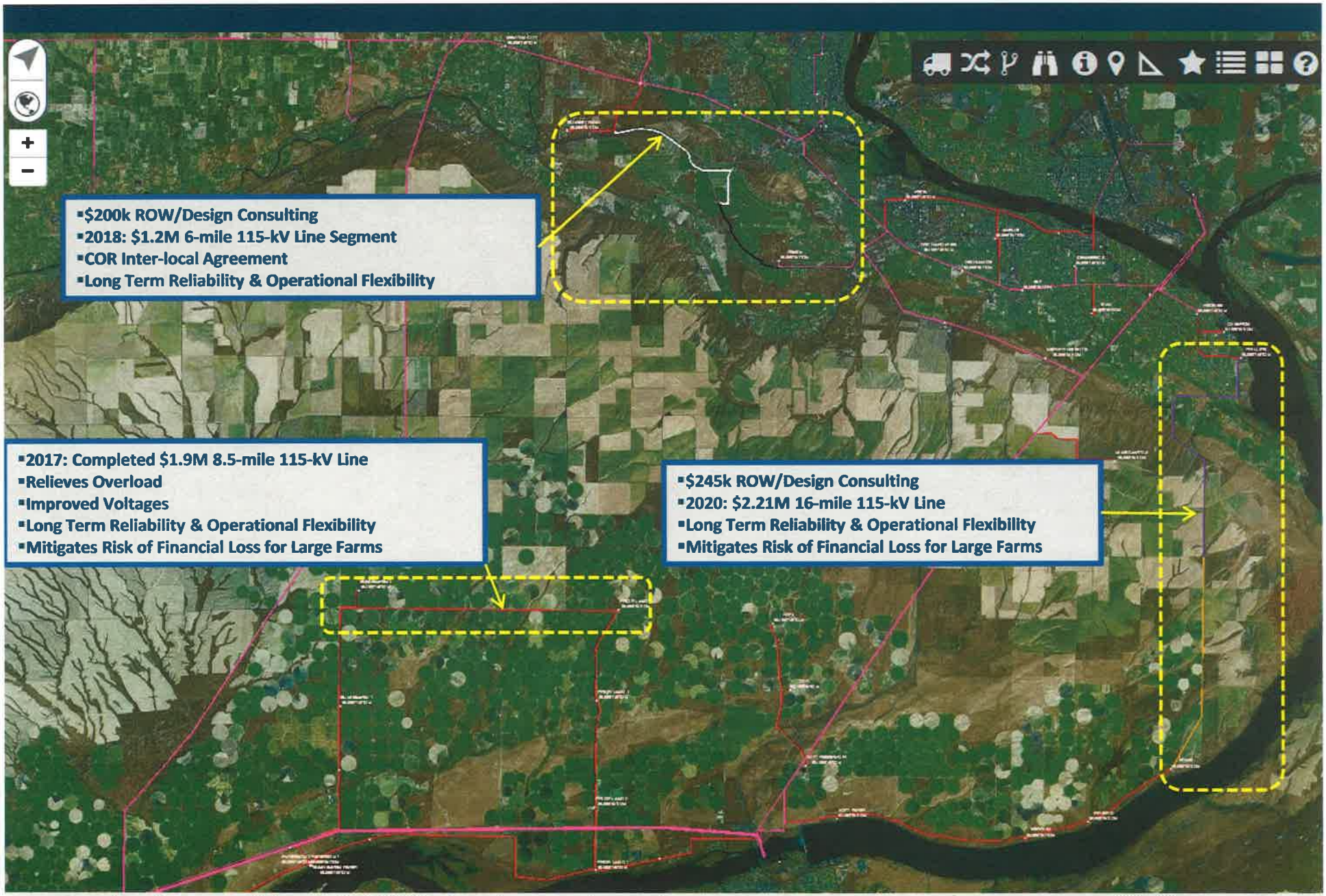
SCADA – Increased Distribution "Visibility"

SCADA – Increased Distribution "Visibility"

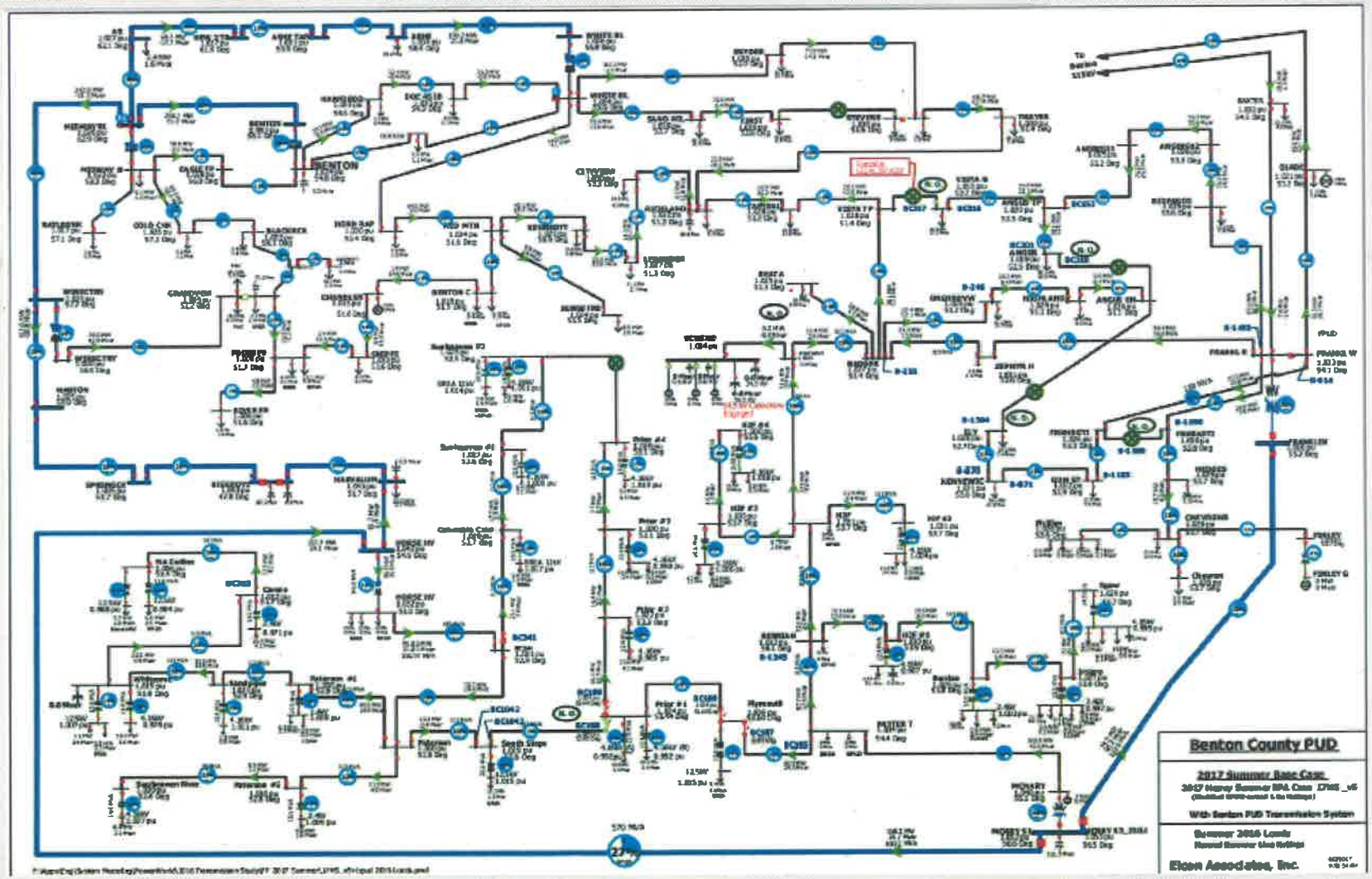


Transmission Reliability Improvement Projects "TRIP"




▪$200k ROW/Design Consulting
▪2018: $1.2M 6-mile 115-kV Line Segment
▪COR Inter-local Agreement
▪Long Term Reliability & Operational Flexibility
▪2017: Completed $1.9M 8.5-mile 115-kV Line
▪Relieves Overload
▪Improved Voltages
▪Long Term Reliability & Operational Flexibility
▪Mitigates Risk of Financial Loss for Large Farms
▪$245k ROW/Design Consulting
▪2020: $2.21M 16-mile 115-kV Line
▪Long Term Reliability & Operational Flexibility
▪Mitigates Risk of Financial Loss for Large Farms

Transmission System Analysis



Improved Planning and Coordination with BPA

Transmission Switching Improvements

Evaluate Existing Switches

- **Transmission Switching is not a trivial matter**
  - ✓ **Operator and Public Safety**
  - ✓ **Mechanical and Electrical condition is important**
- **Operational Requirements**
  - ➢ **Circuit Interrupting Capabilities:**
    - ✓ **Line Dropping**
    - ✓ **Loop Breaking**
    - ✓ **Load Breaking**

Transmission Switching Improvements

Add New Switches

- ✓ **Operational Flexibility**
- ✓ **Facilitates Transmission Line Maintenance**
- ✓ **Improves Outage Response and Reliability**

BENTON P·U·D RP3 Reliable Public Power Provider

Transmission Projects & Budgets

			Accounting Codes			Year (amounts in constant year dollars)			
Project Description	Project	Comments	Dept	Res	FERC	2017	2018	2019	2020
BPA Interconnection - Leslie Road	121357	Joint w/ COR near Reata & Leslie Rd.	21	021	353.00	208,627			
BPA Interconnection - Southridge	121359	At BPA Franklin-Badger tower 12/3	21	021	353.00			600,000	
Transmission Line - Sunheaven#2 to Prior #4	124255	River System (TRIP-A) - 8.5 mi., 397.5 ACSR	21	total	varies	549,008			
Transmission Line - Red Mountain to Reata	124479	Reata tie - w/City of Richland - 6 mi.	21	total	varies	200,000	1,200,000		
Transmission Line - Phillips to Spaw	121360	River System (TRIP-E,F) - 15.8 mi., 397.5 ACSR	21	tbd	355.00			245,690	2,211,210
Transmission Line - Mabton to Riverfront	tbd	Prosser tie - split 50/50 w/Benton REA - 10.2 mi.	21	tbd	355.00		120,000	1,200,000	
Transmission Steel Pole - Kennedy Rd.	124832	Resolve easement issue and provide tap to Reata	21	total	varies				
Switch Upgrade/Additions	tbd	$31 K per switch	21	total	varies	62,000	62,000	62,000	62,000
Poles & Fixtures, Misc repairs	n/a	Replace Poles/Davit Arms	21	total	varies	15,000	15,000	15,000	15,000
Misc		BPUD Labor & Overheads				52,121			
Transmission (Table 1)						$ 1,086,756	$ 1,397,000	$ 2,122,690	$ 2,288,210

Conclusions

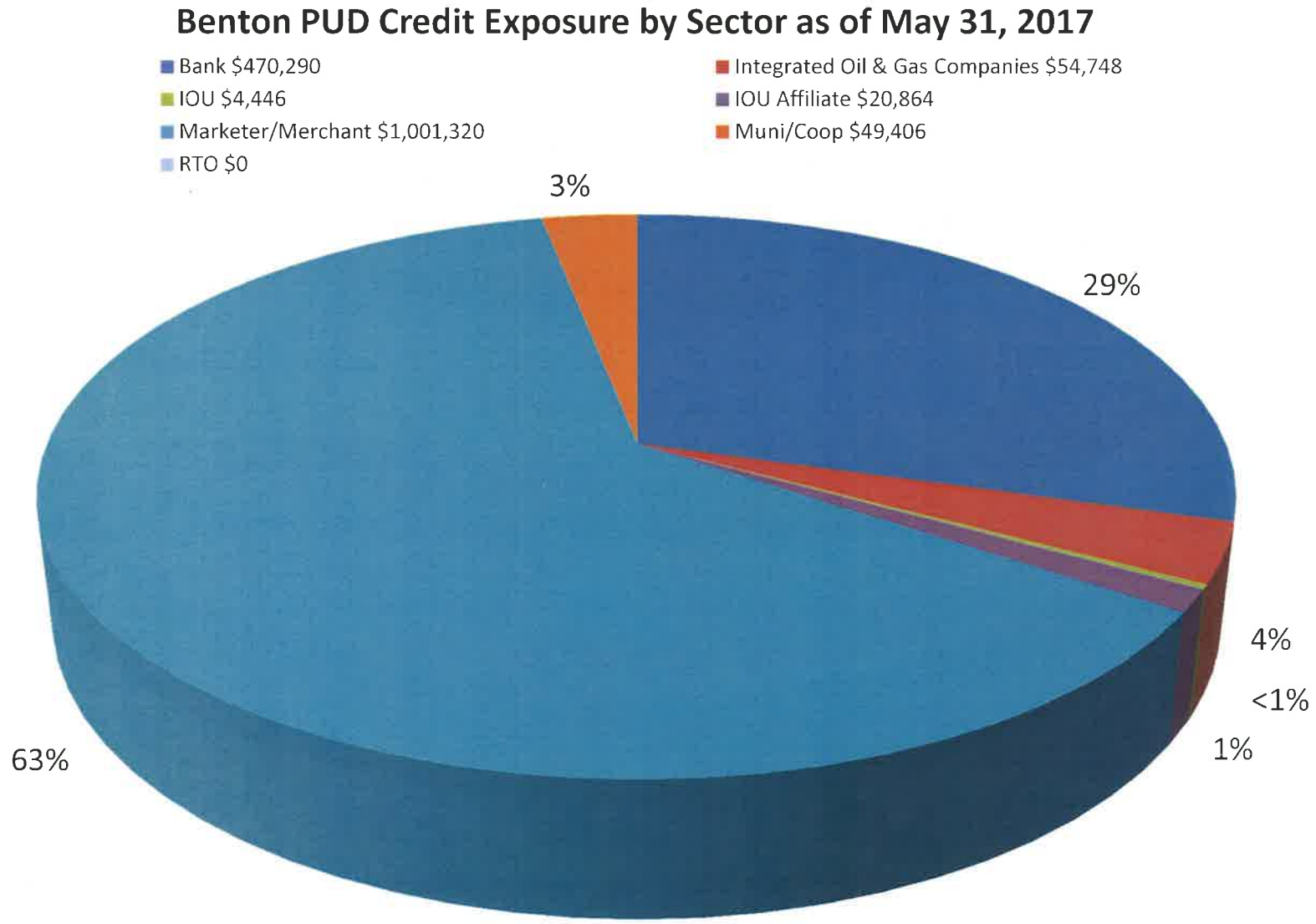
- **District's Electrical System is well positioned to:**

1) Meet continued incremental customer growth
   - Distribution system keeping up with growth (Some Reata Area Challenges)
   - Feeder capacity reserves are adequate for growth and contingencies
   - Reata area needs additional substation capacity to meet expected growth rate
     - Leslie Road Substation lease with City of Richland

2) Accommodate new large load interconnections and associated revenue growth opportunities
   - Feeder and Substation Capacity Reserves available for "spot load" growth
   - Need to improve coordination with local economic development entities

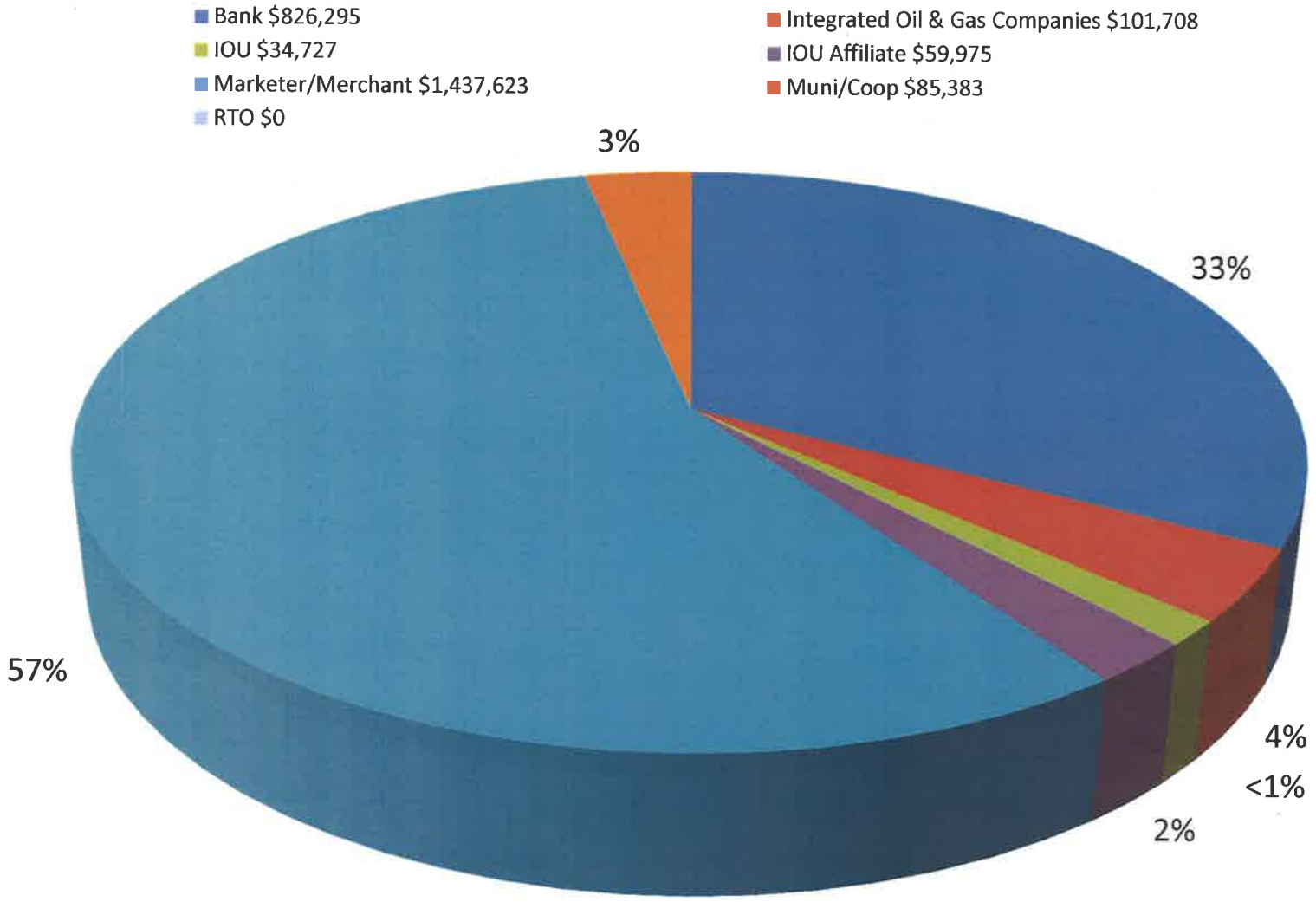
3) Meet customer expectations for a "21st Century Power Grid"
   - Smart Grid is Happening at Benton PUD
   - Improved distribution visibility (AMI & SCADA)
     - Anticipate and respond more quickly to disturbances
     - Optimize system operations and asset utilization
   - 115-kV Transmission Loops
   - Improved Transmission System Analysis and Planning
     - Continue to work closely with BPA Operations and Planning to minimize outages

Questions?



Benton's total exposure (principal and agent) is $1,601,074

Benton PUD Credit Exposure by Sector as of April 30, 2017



Benton's total exposure (principal and agent) is $2,545,711

TEA
THE EnergyAuthority

Credit Exposure: Public Utility District No. 1 of Benton County, Washington

Counterparty	Agreement Type	Credit Limit	Credit Available	Percent Available	Credit Adj	Collateral	Receivable Balance	Unbilled Rec/ Pay	Fwd Physicals	Fwd Financials	Credit Exposure	S&P Rating
American Electric Power Service Corporation		$2,250,000	$2,250,000			$0						BBB
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Arizona Public Service Company		$1,912,500	$1,912,500			$0						A-
	WSPP	-	$1,912,500	100.00%	-	$0	-	-	$0	-	-	
Avangrid Renewables, LLC			$100,000			$100,000						
	ISDA w/ Pwr Anx	-	$100,000	100.00%	-	$0	-	-	$0	-	-	
	TRNC	-	$100,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$100,000	100.00%	-	$0	-	-	$0	-	-	
Avista Corporation		$1,162,500	$1,162,500			$0						BBB
	TRNC	-	$1,162,500	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$1,162,500	100.00%	-	$0	-	-	$0	-	-	
BP Energy Company			$2,847,644			$2,900,000						
	ISDA	-	$2,847,644	98.19%	-	$0	$0	$51,276	$0	$1,080	$52,356	
	TRNC	-	$2,847,644	98.19%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,847,644	98.19%	-	$0	-	-	$0	-	-	
CP Energy Marketing (US) Inc.			$2,000,000			$2,000,000						
	WSPP	-	$2,000,000	100.00%	-	$0	-	-	$0	-	-	
Cargill Power Markets, LLC			$2,250,000			$2,250,000						
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Chelan County PUD No. 1		$2,250,000	$2,250,000			$0						AA
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	

Counterparty	Agreement Type	Credit Limit	Credit Available	Percent Available	Credit Adj	Collateral	Receivable Balance	Unbilled Rec/ Pay	Fwd Physicals	Fwd Financials	Credit Exposure	S&P Rating
Citigroup Energy Inc.			$2,249,253			$2,250,000						
	ISDA w/ Pwr Anx	-	$2,249,253	99.97%	-	$0	$0	-$80,239	$0	$80,986	$747	
	TRNC	-	$2,249,253	99.97%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,249,253	99.97%	-	$0	-	-	$0	-	-	
City of Seattle, by and through its City Light Dept		$2,250,000	$2,250,000			$0						AA
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Clatskanie People's Utility District		$1,031,250	$1,031,250			$0						BBB+
	TRNC	-	$1,031,250	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$1,031,250	100.00%	-	$0	-	-	$0	-	-	
EDF Trading North America, LLC			$0			$0						
	ISDA w/ Pwr Anx	-	$1,728,223	76.81%	-	$2,250,000	$0	$41,702	$0	$480,075	$521,777	
Emerald People's Utility District		$2,250,000	$2,250,000			$0						NR
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	Transmission	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Eugene Water & Electric Board		$2,250,000	$2,250,000			$0						AA-
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Exelon Generation Company, LLC		$2,250,000	$2,250,000			$0						BBB
	ISDA	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
FortisBC Energy Inc.		$450,000	$450,000			$0						
	Gas EDI	-	$450,000	100.00%	-	$0	-	-	$0	-	-	
Grant County Public Utility District No. 2		$2,250,000	$2,250,000			$0						AA
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
IGI Resources, Inc.		$0	$100,000			$100,000						
	Gas	-	**$100,000**	**0.00%**	-	$0	-	-	$0	-	-	

Counterparty	Agreement Type	Credit Limit	Credit Available	Percent Available	Credit Adj	Collateral	Receivable Balance	Unbilled Rec/ Pay	Fwd Physicals	Fwd Financials	Credit Exposure	S&P Rating
Idaho Falls Power		$2,250,000	$2,250,000			$0						
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Idaho Power Company		$2,250,000	$2,250,000			$0						BBB
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
J. Aron & Company LLC			$2,250,000			$2,250,000						
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
JP Morgan Ventures Energy Corporation			$2,250,000			$2,250,000						
	ISDA	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
LL&P Wind Energy, Inc.		$500,000	$500,000			$0						
	Power	-	$500,000	100.00%	-	$0	-	-	$0	-	-	
Macquarie Energy, LLC			$0			$0						
	ISDA w/ Pwr Anx	-	$1,859,109	86.47%	-	$2,150,000	$0	$0	$0	$290,891	$290,891	
Morgan Stanley Capital Group, Inc.			$2,238,231			$2,250,000						
	ISDA	-	$2,238,231	99.48%	-	$0	$0	$0	$0	$11,769	$11,769	
	TRNC	-	$2,238,231	99.48%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,238,231	99.48%	-	$0	-	-	$0	-	-	
NorthWestern Corporation d/b/a NorthWestern Energy		$562,500	$562,500			$0						BBB
	TRNC	-	$562,500	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$562,500	100.00%	-	$0	-	-	$0	-	-	
PacifiCorp		$3,000,000	$3,000,000			$0						A-
	TRNC	-	$3,000,000	100.00%	-	$0	-	-	$0	-	-	
	Transmission	-	$3,000,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$3,000,000	100.00%	-	$0	-	-	$0	-	-	
Pacific Northwest Generating Cooperative		$2,250,000	$2,250,000			$0						
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	

Counterparty	Agreement Type	Credit Limit	Credit Available	Percent Available	Credit Adj	Collateral	Receivable Balance	Unbilled Rec/ Pay	Fwd Physicals	Fwd Financials	Credit Exposure	S&P Rating
Portland General Electric Company		$2,250,000	$2,250,000			$0						BBB
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Powerex Corp.			$1,312,500		$0	$1,312,500						
	ISDA	-	$1,312,500	100.00%	-	$0	-	-	$0	-	-	
	NAESB	-	$1,312,500	100.00%	-	$0	-	-	$0	-	-	
	TRNC	-	$1,312,500	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$1,312,500	100.00%	-	$0	-	-	$0	-	-	
Public Service Company of Colorado		$2,103,750	$2,103,750			$0						A-
	WSPP	-	$2,103,750	100.00%	-	$0	-	-	$0	-	-	
Public Utility District No. 1 of Clark County, Washington		$2,250,000	$2,250,000			$0						
	TRNC	-	$2,250,000	100.00%	-	$0	$0	$0	$0	$0	$0	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Public Utility District No. 1 of Cowlitz County, Washington		$2,250,000	$2,250,000			$0						NR
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Public Utility District No. 1 of Franklin County, Washington		$2,250,000	$2,250,000			$0						A
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	Transmission	-	$2,250,000	100.00%	-	$0	$0	$0	$0	$0	$0	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Public Utility District No. 1 of Grays Harbor County, Washington		$2,250,000	$2,250,000			$0						A
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	Transmission	-	$2,250,000	100.00%	-	$0	$0	$0	$0	$0	$0	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Public Utility District No. 1 of Klickitat County, Washington		$1,875,000	$1,875,000			$0						BBB+
	Power	-	$1,875,000	100.00%	-	$0	-	-	$0	-	-	
	TRNC	-	$1,875,000	100.00%	-	$0	$0	$0	$0	$0	$0	
	Transmission	-	$1,875,000	100.00%	-	$0	$0	$0	$0	$0	$0	
	WSPP	-	$1,875,000	100.00%	-	$0	-	-	$0	-	-	

Counterparty	Agreement Type	Credit Limit	Credit Available	Percent Available	Credit Adj	Collateral	Receivable Balance	Unbilled Rec/ Pay	Fwd Physicals	Fwd Financials	Credit Exposure	S&P Rating
Public Utility District No. 1 of Lewis County, Washington		$2,250,000	$2,250,000			$0						
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Public Utility District No. 1 of Snohomish County		$2,250,000	$2,250,000			$0						AA-
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Public Utility District No. 2 of Pacific County, Washington		$2,250,000	$2,250,000			$0						
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Public Utility District No. 3 of Mason County		$656,250	$655,482			$0						A+
	WSPP	-	$655,482	99.88%	-	$0	$0	$749	$19	$0	$768	
Puget Sound Energy Inc.		$2,250,000	$2,250,000			$0						BBB
	NAESB	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	TRNC	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Rainbow Energy Marketing Corporation			$0			$0						
	WSPP	-	**$50,000**	**0.00%**	-	$50,000	-	-	$0	-	-	
Sacramento Municipal Utility District		$2,250,000	$2,250,000			$0						AA-
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Shell Energy North America (Canada), Inc.		$100,000	$100,000			$0						
	NAESB	-	$100,000	100.00%	-	$0	-	-	$0	-	-	
Shell Energy North America (US), L.P.		$2,150,000	$2,150,000			$0						A-
	ISDA	-	$2,150,000	100.00%	-	$0	-	-	$0	-	-	
	TRNC	-	$2,150,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,150,000	100.00%	-	$0	-	-	$0	-	-	
Tacoma Power		$2,250,000	$2,250,000			$0						AA
	Transmission	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$2,250,000	100.00%	-	$0	-	-	$0	-	-	
Tenaska Marketing Ventures			$0			$0						
	NAESB	-	$1,893,750	100.00%	-	$1,893,750	-	-	$0	-	-	

Counterparty	Agreement Type	Credit Limit	Credit Available	Percent Available	Credit Adj	Collateral	Receivable Balance	Unbilled Rec/ Pay	Fwd Physicals	Fwd Financials	Credit Exposure	S&P Rating
Tenaska Power Services Company			$1,893,750			$1,893,750						
	TRNC	-	$1,893,750	100.00%	-	$0	-	-	$0	-	-	
	Transmission	-	$1,893,750	100.00%	-	$0	-	-	$0	-	-	
	WSPP	-	$1,893,750	100.00%	-	$0	-	-	$0	-	-	
The Energy Authority, Inc.		$4,000,000	$3,521,401		$0	$0						
	Acct RMA	-	$3,521,401	88.04%	-	$0	$0	$394,854	-$5,461	$14	$389,407	
	Transmission	-	$3,521,401	88.04%	-	$0	$0	$87,715	$0	$1,477	$89,192	

BCPD:49011:20170531:135403

Mission Statement:

The UTC protects consumers by ensuring that utility and transportation services are fairly priced, available, reliable, and safe.

UTILITIES AND TRANSPORTATION COMMISSION

Washington Utilities and Transportation Commission

Rate Spread and Rate Design Elements

Prepared for the Kyrgyz Republic SEA

Joelle Steward, Regulatory Analyst

http://pubs.naruc.org/pub/5388D73D-2354-D714-51BB-F6B7381290C7

Presentation Overview

WASHINGTON UTC UTILITIES AND TRANSPORTATION COMMISSION

- Rate Spread
- Rate Design
- Special Contracts
- Tariff Requirements

Rate Spread

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- WUTC does not strictly apply cost studies to rate spread: "Allocation must depend on principled judgment rather than science."
- Rate Spread is where Cost Allocation results are combined with policy considerations to develop class specific Revenue Requirements.
- Cost-of-Service is a moving target over time.
- One of the most critical and contested parts of a rate case.

Customer Classes

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- Classes reflect generally similar use patterns.
- Five basic customer classes:
  - Residential
  - General Service (commercial & industrial)
  - Large Power Service
  - Irrigation – pumping
  - Lighting – security, street and traffic
- There may be multiple rate structures (tariff schedules) within a class.

Rate Spread – Factors for Consideration

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- Conservation impacts – will the rates send a conservation signal?
- Consistency with economic and social goals in the community – is the community trying to attract or discourage additional population? Are tax incentives being offered to attract industry?
- Cost of service – do the rates for each class reflect the cost of providing service to that class?

Rate Spread – Factors for Consideration

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- Differential risk – do some customer classes impose greater risks on the utility, possibly causing it to make long-term investments or commitments, without assurance of long-run revenues?
- Economic efficiency – will the rates for each class be based upon the incremental cost of serving load growth in each class?
- Gradualism – are rates for any class being increased so quickly that severe customer impacts may occur?

Rate Spread – Factors for Consideration

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- Perceptions of fairness and equity – does any customer class believe that they are being treated unreasonably relative to other classes?
- Revenue stability for utility – can customer classes actually pay the rate assigned them, or will a rate increase force customers in one class off the system, which could mean the utility does not get enough revenue?

Rate Spread Options

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For Example:

- Move each class to parity (parity = a class pays 100% of costs to serve that class)
- Move each class half way to parity
- Move each class half way to parity with the constraint that no class's increase is greater than 150% of the average increase and no increase is less than 50% of the average increase
- Increase by an equal percent of revenue

Example
Cost Study to Rate Spread

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	Rate Spread of Deficiency from COS	Final Rate Spread of Deficiency	% Increase to Class Rates	% to Average Increase
Total			4.9%	
Residential	84%	54%	5.3%	107.9%
Commercial	-21%	14%	4.1%	84.3%
Industrial	3%	2%	5.1%	104.5%
Lighting	4%	1%	5.1%	104.5%

Cross-Subsidies

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- Cross-subsidies may occur both between customer classes and within customer classes.
- Should be justified on policy considerations.
- Interveners inevitably endorse rate spread that attributes more cost to customer classes they don't represent. (Parity is rarely argued in a rate case.)
- Occur between existing and new customers if new customers do not bear the full incremental cost of connecting to the system.
- WUTC has historically preferred to recover fixed costs over volumetric charges resulting in low-use customers being subsidized within their class.

Rate Design

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- Creating structures of rates for customer classes that will collect the Revenue Requirement.
- Rate components include fixed charges and volumetric charges (by energy and/or demand).
- Multiple components allow us to relate costs and consumer behavior, resulting in enhanced decision-making for all.
- Cost study elements considered in design.
- Consider capability of meters.
- Consistency of rate structures between utilities is a consideration, but not a priority due to differences in service area characteristics between the utilities.

Attributes of a Sound Rate Structure (in no particular order)

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1. Practical attributes of simplicity, understandability, public acceptability and feasibility of application
2. Freedom from controversy in interpretation
3. Effectiveness of yielding total Revenue Requirement under the fair return standard
4. Stability and predictability of revenue
5. Stability of rate structure

Attributes of a Sound Rate Structure (in no particular order)

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6. Fairness in apportionment of total cost of service among different customers
7. Avoidance of undue discrimination
8. Efficiency in discouraging wasteful use while promoting justified use
9. Reflection of present and future social costs and benefits
10. Dynamic efficiency in promoting innovation and responding economically to changing usage patterns

(Source: J. Bonbright, Principles of Public Utility Rates, 1961.)

Fixed Charge

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- Customer pays regardless of consumption
- Minimum bill vs. Customer charge
  - WUTC has moved away from minimum bill to customer charge for smaller customers
  - Residential customer charge ~$5-6 per month
- Typically guided by the customer-related allocation (services, meters, meter reading and billing) from the cost study

Block rates for volumetric charges

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Goals of rate differentiation may be:

1. More efficient use of scarce resources
2. Increased use of excess resources
3. Equitable allocation of price to follow costs
4. Conservation and environmental concerns

Types of multiple block rates: declining blocks, inverted blocks, time of use, energy per kW demand (load factor rate), demand blocks

Block Rates

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- Break points for blocks can be determined from:
  - Class load studies
  - Billing determinant studies
  - Can be politically set (e.g., low income rates)
- Many block rates are designed to recover fixed costs in the 1st block and variable costs in subsequent blocks.
- Average price paid under rate structure varies with load factor: typically reward higher load factors with lower average rates.

Block Rates – WUTC Experience

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- History: Saw declining block structures prior to late 1970s; since then, have relied on inverted block structures for electric utilities.
- Purpose of inverted block rates:
  - To equitably allocate the amount of low-cost (hydro) power in 1st block
  - To reflect the actual cost of new resources in the tail block

Consider Customer Impact of Rate Structure

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- Bill comparisons to determine if impact is as expected
  - For instance, verify that x% of customers will see a bill impact no greater than or no less than x% of the average
- Consider quantifying anticipated customer response to price signal
  - Elasticity = estimates the change in consumption expected for a change in price (% change in quantity divided by % change in price)
  - Example: Oregon has applied to rate change an elasticity factor of –0.172 for residential and –0.11 for commercial
  - Gradual adjustments preferred to the accuracy of elasticities.

Example – WUTC Rates

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- Puget Sound Energy has 30 rate schedules:
  - 1 Residential
  - 20 Commercial & Industrial (General Service)
    - Divided by customers receiving service at secondary voltage, primary voltage and high voltage
    - Sub-divided by demand, seasonal irrigation, interruptible, retail wheeling service, back-up power
  - 9 Lighting
    - Divided by company-owned, customer-owned, area lighting, residential & farm area lighting
- Larger customers have less similarity between usage patterns, resulting in more rate structures.

Example – WUTC Rates

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Puget Sound Energy Rate Structures				
Rate Class	Limitations	Basic Charge	Demand Charge	Energy Charge
Residential (7)	Residential	$5.50	none	$0.0627/kWh for first 600 kWh $0.07144/kWh over 600 kWh
General Service (24)	2nd Voltage Demand < 50kW	$5.50	none	$0.067545/kWh for Oct-Mar $0.064967/kWh April-Sep
Small Demand General Service (25)	2nd Voltage Demand > 50kW < 350kW	$24.90	No charge 1st 50kW $6.66/kW Oct-Mar $4.44/kW Apr-Sep	$0.0696/kWh **Oct-Mar** 1st 20,000 kWh $0.0522/kWh **Oct-Mar** > 20,000 kWh $0.0626/kWh **April-Sep** 1st 20,000 kWh $0.0522/kWh **April-Sep** >20,000 kWh
Large Demand General Service (26)	2nd Voltage demand > 350kW	$29.10	$6.99/kW Oct-Mar $4.65/kW Apr-Sep	$0.0476/kWh $0.0011/reactive kvar

Example – WUTC Rates

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Puget Sound Energy Rate Structures				
Rate Class	Limitations	Basic Charge	Demand Charge	Energy Charge
Seasonal Irrigation & Pumping (29)	Seasonal pumping only for agricultural use 2nd Voltage	$5.50	No charge 1st 50kW $6.66/kW Oct-Mar $3.28/kW Apr-Sep	$0.061/kWh **Oct-Mar** 1st 20,000 kWh $0.0543/kWh **Oct-Mar** > 20,000 kWh $0.0473/kWh **April-Sep** 1st 20,000 kWh $0.0411/kWh **April-Sep** >20,000 kWh
Primary General Service (31)	Primary Voltage	$200	$6.35/kW Oct-Mar $4.23/kW Apr-Sep	$0.0421/kWh $0.0008/reactive kvar
High Voltage (49)	Delivery > 50kW	none	$2.79/kVa Minimum 4400 kVa	$0.0372/kWh
Area Lighting (55)	Dusk-to-Dawn Lighting on Company owned poles	none	Lamp wattage 175 250	Rate per Month (Metal Halide) $16.54 $17.87

Special Contracts

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- For charges or conditions that do not conform to, or are not addressed in, the company's existing tariff.
- Basis for contract could be alternative power source.
- Each contract must be approved by the Commission.

WUTC rule sets out specific conditions for contract:

1. Must show that contract meets the requirement of law prohibiting unreasonable preference and prohibiting rate discrimination
   - Show there are no other similarly situated customers
2. Demonstrate that contract charges recover all costs for service, including a contribution to fixed costs

Requirements for Tariff Content (WAC 480-80-102)

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- Title page
- Index or table of contents
- Legend of Symbols
- Rules section: sets forth conditions governing services under tariff
- Rate Schedule must include:
  - An accurate title of service, availability, rates to be paid, any special terms or conditions.

Other types of rates

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- Time of Use
- Interruptible Rates

(To be discussed in next presentation.)

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Electric Utility Residential Customer Charges and Minimum Bills:

Alternative Approaches for Recovering Basic Distribution Costs

By Jim Lazar[1]

Electric utilities have certain costs that do not vary with the usage of electricity. It is generally accepted that these include the costs of metering, billing, and payment processing. These costs are most often recovered through what is variously called a "customer charge" or a "service charge" or a "basic charge." In the United Kingdom, this is known as a "standing charge."

Regardless of the title, it is a charge (usually less than $10/month for residential service) that is levied each month regardless of electricity usage, with additional charges applying for each kilowatt-hour of electricity consumed. For most utilities in the US, the customer charge covers the cost of billing and collection, and perhaps other customer-specific costs like meter reading, but not the costs of distribution facilities like poles, conductors, or transformers.

Nearly all electric utilities worldwide bundle the cost of distribution service, as well as the power supply cost, into a usage charge, calculated as a price per kilowatt-hour. This is consistent with how competitive firms price their products, whether it is gasoline, groceries, or hotel rooms: the price per unit recovers all of the costs involved in producing, transporting, and retailing of goods and services.

Some rate analysts argue that a portion of the distribution system – poles, wires, and transformers – constitute a fixed cost that does not vary with sales and should be included in the fixed customer charge. Some recent proposals from electric utilities reflect this view. This is controversial.

Many state regulatory authorities rejected this approach when they held hearings and made determinations under the Public Utility Regulatory Policies Act of 1978.[2] The Washington Utilities and Transportation Commission, for example, explicitly rejected the concept that distribution costs were customer-related in nature:

> *In this case, the only directive the Commission will give regarding future cost of service studies is to repeat its rejection of the inclusion of the costs of a minimum-sized distribution system among customer-related costs. As the Commission stated in previous orders, the minimum system method is likely to lead to the double allocation of costs to residential customers and over-allocation of costs to low-use customers. Costs such as meter reading, billing, the cost of meters and service drops, are properly attributable to the marginal cost of serving a single customer. The cost of a minimum sized system is not. The parties should not use the minimum system approach in future studies.*[3]

However, as sales have flattened or declined in recent years, and as more customers install on-site generating resources but remain dependent on grid services for some service, the concept of recovering distribution network costs in fixed charges has experienced resurgence.

Utility sales volumes in some regions have stagnated or declined as appliances, homes, equipment and systems become more efficient. Sales volumes also vary with weather, declining in mild years. Many state net-metering laws allow consumers installing rooftop solar arrays to incur net-bills for zero or very few kilowatt-hours, depending on the geographic location and the design of the net-metering tariff. To improve revenue stability, and to collect distribution system costs from PV customers, some utilities are arguing that "fixed" costs should be recovered in fixed customer charges. Some utilities are seeking customer charges of $20/month or more. In one extreme case, Madison Gas and Electric Company proposed a $69/month customer charge, to recover all costs except for fuel and purchased power expenses.[4] The Wisconsin PUC recently voted 2-1 to approve an increase in the customer charge to

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1 Rich Sedano, Janine Migden-Ostrander, Brenda Hausauer and Camille Kadoch provided reviews.

2 Public Utility Regulatory Policies Act of 1978, 16 U.S.C. §§2601-2645 (1978). Available at: http://www.gpo.gov/fdsys/pkg/STATUTE-92/pdf/STATUTE-92-Pg3117.pdf.

3 WUTC v. Puget Sound Power and Light Company, Cause U-89-2688-T, Third Supp. Order, P. 71, 1990.

$19/month for Wisconsin Public Service Company.[5]

An electric utility has a defined revenue requirement, determined by their regulator. A higher customer charge therefore means a lower per-kWh rate will be required. This has important impacts on the utility and its customers. Utility revenue is stabilized by a high customer charge, independent of weather, conservation, or other impacts on sales. However, the impacts on customers of high customer charges can be inconsistent with policy objectives:

- Small-use customers, such as apartment dwellers, low-income households, and second homes will receive much higher electric bills; the vast majority of low-income consumers are also low-use consumers. This is anathema to public policy objectives that normally tend to protect low-income customers and/or reward low usage;
- Urban area residents who use natural gas for space and water heat will receive much higher electric bills;
- Large-use customers, including large single-family homes in suburban and rural areas without access to natural gas most often will receive lower electric bills, depending on the existing utility rate design; and
- The lower per-kWh prices that result when a significant portion of costs are recovered in a fixed monthly customer charge will stimulate consumption. This creates consequences for incremental utility investment and for the environment. It also reduces the economic incentive for careful customer energy management practices and investment in energy efficiency measures by increasing pay-back periods.

There are several ways besides high fixed charges to address utility revenue stability issues:

- **Financial Reserves:** The traditional approach has been to set rates in a manner that recovers distribution and power costs in a per-kWh charge, and expect utilities to have adequate financial reserves to manage the volatility that occurs with weather. This is reflected in the 40% – 50% equity ratios allowed for electric utilities in determining the cost of capital.
- **Frequent rate cases**: If regulators hold rate proceedings every year or two, there is little time for sales volumes to deviate far from the level used to set volumetric rates.
- **Revenue Decoupling:** Many regulators have adopted revenue regulation mechanisms that calculate a true-up at the end of the month or year to align actual revenues with allowed revenues.

All of these methods allow the per-kWh charge to continue to reflect substantially all of the costs of service. By structuring rates this way, regulators preserve the consumer incentive to use electricity wisely.

Rate Designs with Minimum Bill Charges

One alternative to address utility concerns for revenue adequacy in addition to Revenue Regulation and frequent rate cases is a concept known as a "minimum bill." A minimum bill guarantees the utility a minimum annual revenue level from each customer, even if their usage is zero. The vast majority of customers, who consume the overwhelming majority of energy, have usage that exceeds those low thresholds. For these customers, a minimum bill "disappears" when the usage passes that level, and the customer effectively pays a volumetric rate to cover both power supply and distribution costs.

It is important to understand that a very small number of customers will be adversely affected by the minimum bill, because a large majority of all customers have usage in excess of the minimum billed amount. Figure 1 compares the number of customers served at each usage level, and the kilowatt-hours used by those customers at each usage level. Only a few percent of the customers, using less than one percent of the energy, have usage below 150 kWh per month in this illustrative example, and are arguably not making a meaningful contribution to system costs when those costs are built into the per-kWh charge.

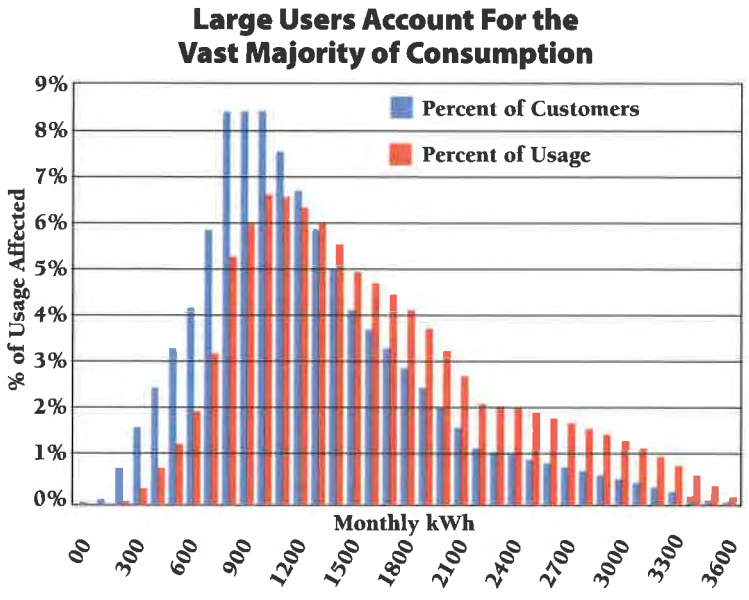
Table 1 compares three example residential rates, all designed to produce the same total level of residential revenue for an illustrative utility with average usage for this example of 1,000 kWh/month/customer.

- **Low Customer Charge:** $5/month, to cover billing and collection
- **High Customer Charge:** $20/month, to cover billing, collection, and a portion of distribution costs
- **Minimum Bill:** $5.00/month to cover billing and collection, with a minimum bill of $20 (which applies if usage falls below 150 kWh/month).

4 Application of Madison Gas and Electric Company for Authority to Change Electric and Natural Gas Rates, Docket 3270-UR-120, April 9, 2014. Available at: http://psc.wi.gov/apps40/dockets/content/detail.aspx?dockt_id=3270-UR-120.

5 Content, T. (2014, November 6). State regulators approve 83% increase in Green Bay utility's fixed charge. *Milwaukee Journal-Sentinel*. Retrieved from: www.jsonline.com.

Figure 1



This shows that for the average customer, the three rate designs produce almost identical bills. With a high customer charge rate design, because the $20 customer charge is collecting $15 more than the $5 low customer charge, the price per kWh is lower by $0.015/kWh. For the minimum bill rate design, however, less than 1% of kWh sales will typically be to those customers using under 150 kWh/month. This group has historically been limited to unoccupied dwellings; more recently, it has come to include customers with solar PV systems that produce as many kilowatt-hours as they consume, but remain dependent on the grid to serve as a "battery" taking excess production during the day, and supplying power when the sun is not shining.

Therefore, there will not be a lot of revenue recovered by the minimum bill charge, leaving most of the revenue requirement recovered by the volumetric charge. The per-kWh rate would only be reduced by about $0.001/kWh (1%) as a result. Under this rate design, very small-use customers, such as PV customers whose panels produce as many kilowatt-hours as the house uses, would pay slightly higher bills. However, as nearly all usage by customers remains priced at a cost-based rate that includes all of the costs of producing and distributing electricity, the low-use PV customer would have negligible usage charges.

Table 1

	kWh	Low Customer Charge	High Customer Charge	$20 Minimum Bill*
Customer Charge		$5.00	$20.00	$5.00
Minimum Bill				$20.00
Per-kWh Charge		$0.10	$0.085	$0.099
Customer Bills	10 kWh	$6.00	$20.85	$20.00
	100 kWh	$15.00	$28.50	$20.00
	200 kWh	$25.00	$37.00	$24.80
	500 kWh	$55.00	$62.50	$54.50
	1,000 kWh	$105.00	$105.00	$104.00
	1,500 kWh	$155.00	$147.50	$153.50
	2,000 kWh	$205.00	$190.00	$203.00

**The minimum bill will only apply when customer's usage is so low that their bill falls below $20.*

Impact on Usage

Electricity usage varies with the price paid. Higher kWh charges create greater incentives for consumers to turn out unneeded lights, manage thermostat settings, and invest in more efficient appliances, windows, and insulation. There is an economic science tool, price elasticity, which measures the expected change in consumption if prices change. Economists variously estimate the price elasticity of demand for electricity in the range of -0.1 to -0.7, with some long-run estimates going higher. An elasticity of -0.2, meaning that a 1% increase in price results in a 0.2% decrease in the quantity demanded, is considered a conservative estimate of long-run price elasticity.

The high customer charge rate design results in a 15% lower price per kilowatt-hour compared to the low customer charge rate design. Assuming an elasticity of -0.2, that would imply that customers would consume about 3% more electricity (-0.2 elasticity x 15% change in rate = 3% change in usage) as a result of the lower per-kWh price.

The minimum bill rate form, on the other hand, only reduces the price per kWh by 1% compared to the low customer charge rate design; assuming the same elasticity factor, the minimum bill design would increase usage by only about 0.2% among customers using more than the minimum billed quantity, when compared with their usage under the low customer charge rate form.

There is, however, a chance that the very small users might increase their usage up to the 150 kWh minimum. With this $20 minimum bill, customers using less than

150 kWh per month would see no change in their bills if they increased usage up to 150 kwh. But, since only a small percentage of customers use that little power, even if they did so, usage would not increase very much.

Evaluating a choice between a $20 fixed customer charge and a $20 minimum bill charge, we would expect about 15 times as much additional usage under the $20 fixed charge as under the $20 minimum bill charge.

Impact on PV Customers

Part of the concern that is raised by utilities is that customers with solar PV systems are "net-metering" to zero kWh, and paying only the customer charge in a monthly bill. These customers remain dependent on the grid for storage and shaping of their daytime energy production. Solar advocates argue that the grid is receiving a more valuable product – daytime renewable energy – than it is providing to the customers at night from conventional generation, and that this is a form of rough equity.

A minimum bill would ensure that a PV customer with net consumption of zero would still contribute to system costs. In the example, these customers would pay $20 per month. But, rather than distort the rate design for all customers, only the low-consumption consumers would be affected, allowing rates that continue to reflect all system costs to be applied to the overwhelming majority of energy sales.

Advantages and Disadvantages

A rate design that uses a customer charge combined with a kWh charge is simple to understand and administer. It provides a clear price signal for each kWh. If the customer charge is lower, the per-kWh charge is higher. However, the public is used to doing business for other purchases with a zero customer charge – grocery stores, gas stations, and virtually all other retailers only charge customers for what they buy, not for the privilege of being a customer (membership warehouse clubs are exceptions, with fees designed to weed out "browsers" from their stores.) There may also be conflict with intended outcomes for low use customers.

A minimum bill rate design has an advantage in that the per-kWh price is higher, more closely reflecting long-run marginal costs (all costs are variable in the long run). This rate design encourages prudent usage, better aligned with investment impacts from consumption and investment in energy efficiency. This means customer choices about usage and, importantly, energy-related investments, will be informed by electricity prices that reflect long run grid value. The disadvantage is that, for the very small number of customers whose usage is below the "minimum," this rate design provides no disincentive at all to using the minimum amount of electricity. It can be perceived to have a disadvantage of encouraging additional usage by those users with usage below the minimum billed amount, but there are very few of these customers, and their prospective additional usage increase is minimal. Users in this group may argue that the minimum bill is unfair to them.

Finally, a minimum bill rate form ensures that second-homes, which may have no consumption during the off-season, contribute to utility revenues. This is sometimes presented as an economic justice issue, since second homes are generally held only by upper-income consumers.

Conclusion

The primary purpose of utility regulation is to enforce the pricing discipline on monopolies that competitive markets impose on most firms. Competitive firms nearly always recover all of their costs in the price per unit of their products. Therefore, any fixed monthly charge for electricity service represents a deviation from this underlying principle of utility regulation. The most commonly applied customer charges recover only customer-specific costs, such as billing and collection, in a fixed customer charge, leaving all costs of the shared system to be recovered in usage charges.

A regulator seeking to increase the contribution to utility system costs from those customers with minimal consumption can do so with either a higher customer charge, or establishing a minimum bill. The minimum bill option will ensure that all customers contribute to distribution costs, but without significantly stimulating consumption by higher-use customers or raising the bills of lower-income, low-use customers.

Forthcoming in Second Quarter, 2015: *Electric Rate Design for the Utility of the Future.* Watch for this on our website, www.raponline.org

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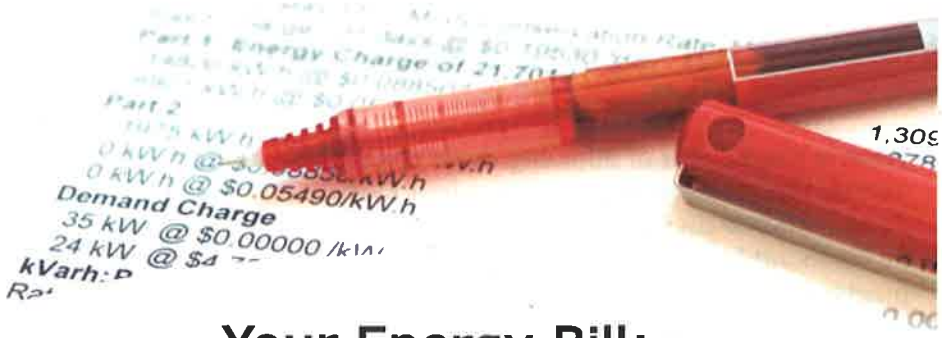

Your Energy Bill: Monthly Customer Charge

The monthly customer charge—sometimes referred to as the basic charge—is designed to recover a portion of a company's fixed costs. Fixed costs are constant no matter the amount of electricity or natural gas produced and sold. For utilities, these include:

- Bill preparation and processing;
- Cost of meters, service drops, meter reading, meter maintenance; and
- Cost of maintaining equipment such as poles, wires, transformers, pipes, vehicles, and telecommunications equipment.

This charge appears whether or not you use any energy because all the equipment used to serve you is in place and you pay for this even if, for example, you are away for several months and do not consume any energy at all. It would be the same as if you were renting a home and were away for vacation. You still pay the rent.

Why is the monthly customer charge increasing?
The monthly customer charge is one element of a utility's rate structure and is used to recover a portion of the company's fixed costs.

In 2007, the commission determined that a regulated utility should recover about 25 percent of its fixed costs in a monthly customer charge. At that time, this was about eight to ten percent of an average monthly energy bill.

Times are changing, and so is the monthly customer charge. There is now less growth in energy usage even though the need to replace aging infrastructure such as pipes and wires continues. Increased emphasis on conservation is making our homes more efficient, but decreases the amount of capital the company relies on to invest in vital infrastructure.

All of these factors make it harder for a utility to recover its fixed costs. Even if customers are using fewer kilowatt-hours, distribution lines must be maintained and ready to serve customers no matter how much electricity is demanded.

As a result, utilities are requesting the monthly customer charge cover a higher percentage of their fixed costs so they can continue to maintain the infrastructure and services all customers require.

Your Energy Bill: Monthly Customer Charge

What is the benefit of allowing more of the fixed costs to be recovered in the monthly basic charge versus the variable usage charge (per kWh)?
Fixed costs remain relatively constant throughout the year. Having a higher percentage of fixed costs covered by the monthly customer charge provides more stable operating revenues to cover essential business functions. Usage-based charges can be unpredictable and potentially fall short of the needs of the utility to provide reliable and safe service. It also creates a disincentive to the utility to promote energy conservation.

Why do you separate fixed costs from other costs when setting rates?
Customers benefit from removing fixed costs from the usage based prices for two reasons:

- It helps reduce a disincentive on the utility's part to promote conservation or energy-efficiency; and
- It improves the certainty of recovery of customer-related fixed costs.

Both effects will benefit customers by reducing bill volatility over the year, and by promoting cost-effective conservation for all, which will reduce costs in general.

The rationale behind the monthly customer charge is to minimize complexity while maximizing predictability and stability for customers while giving utilities additional certainty about its revenues to recover fixed costs.

What role does conservation play in my rates?
In 2006, voters approved Initiative I-937 which resulted in the Washington Energy Independence Act (EIA). The EIA requires electric utilities to "pursue all available conservation that is cost-effective, reliable, and feasible." Utilities must also encourage customers to use less of their product even though it will cost them sales revenue – which they need to maintain operations. The commission is obligated to ensure compliance with the law and must maintain a balance when approving rates that is both fair to the consumer and the utility.

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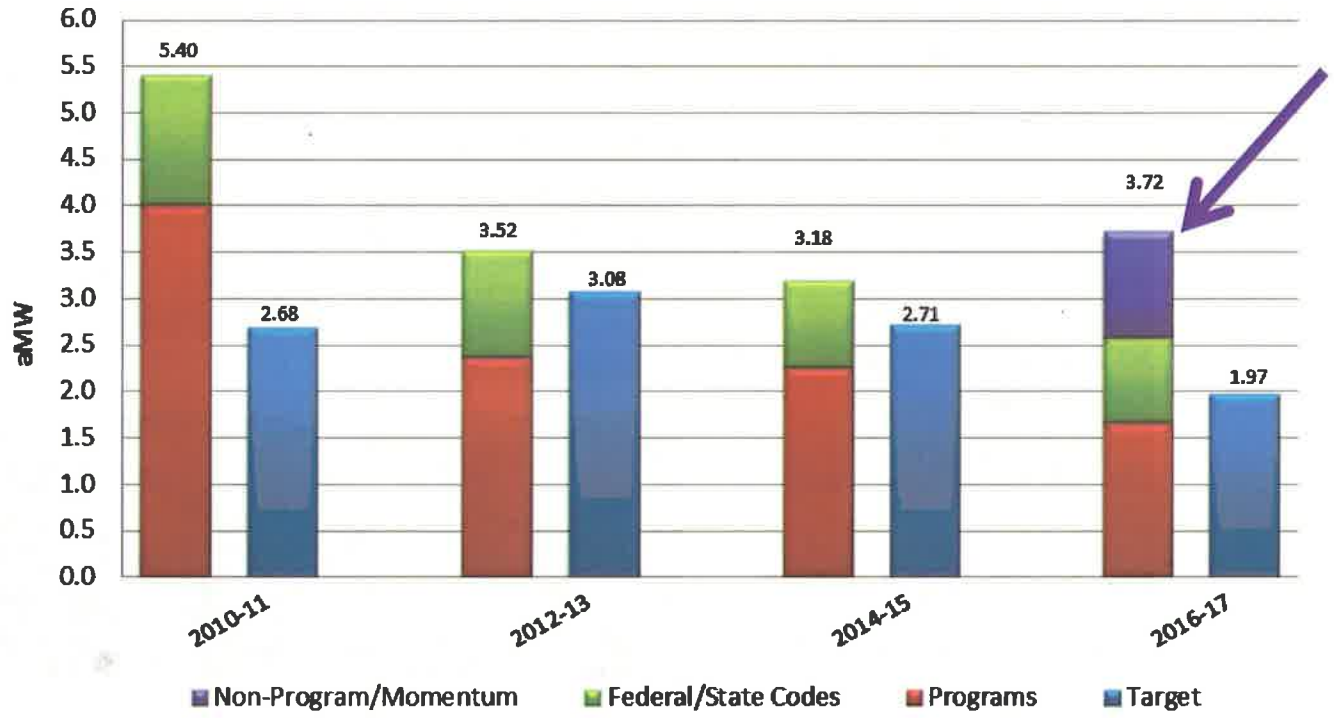
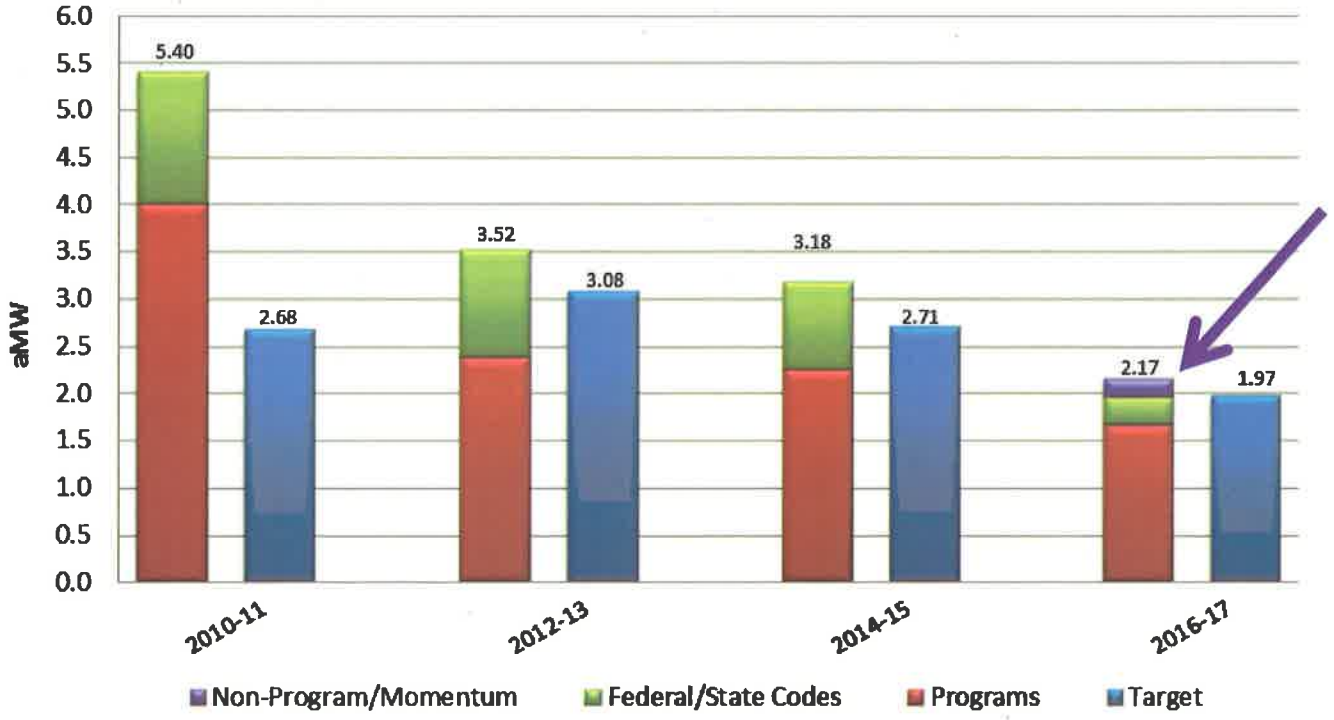
Past / Present Targets and Achievements



Past / Present Targets and Achievements



Conservation Budget Plan 2016-2017

November 24, 2015
Commission Meeting

FINANCIAL STATEMENTS

April 2017
(Unaudited)

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Financial Highlights
April 2017

Issue date: 5 22 17

Financial highlights for the month of April:

- District operations resulted in a decrease in net assets of $1.3M for the month.
- The average temperature of 52.0° was 1.4° below normal. Heating degree days were 9% above the 14 year average.
- Total retail kWh billed during April was 17% below last year.
- Net power supply costs were $6.6M for the month with energy sales for resale of $1.0M and an average price of $11 per MWh.
- April's non-power operating costs of $1.7 million before taxes and depreciation were 3% above last year.
- Net capital expenditures were $2.0M for the month.

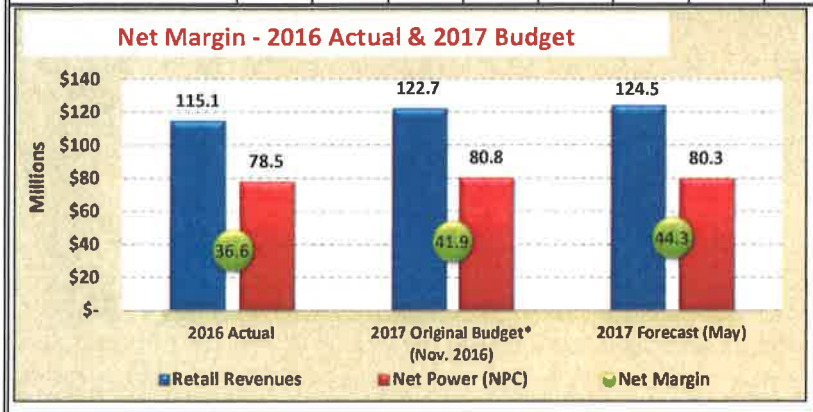
(in thousands of dollars)

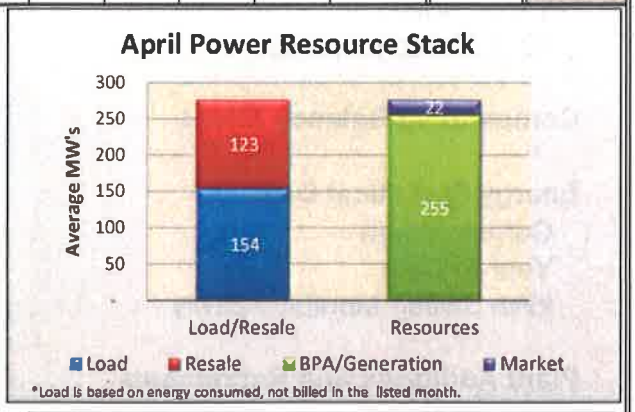
Change in Net Position	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total YTD	Budget	2017 Forecast
Actual	$2,016	$709	($131)	($1,268)									$1,326		$6,300
Budget	$729	($792)	($1,977)	($1,596)									($3,637)	$1,983	

Net Margin	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Budget	Forecast
Retail Revenues	$12,877	$10,163	$7,899	$8,297									$39,236	$122,676	$124,911
Less: Net Power Costs	(7,775)	(6,567)	(5,320)	(6,634)									(26,291)	(80,796)	(79,905)
Net Margin	$5,102	$3,596	$2,579	$1,663	$0	$0	$0	$0	$0	$0	$0	$0	$12,945	$41,880	$45,006

Net Capital Costs	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Budget
Capital Expenditures	$766	$1,001	$1,759	$2,008									$5,533	$15,041
Less: Capital Contributions	(29)	(11)	(36)	(45)									(120)	(1,057)
Net Capital Costs	$737	$990	$1,722	$1,963	$0	$0	$0	$0	$0	$0	$0	$0	$5,413	$13,984
Net Capital Budget	$1,065	$944	$1,486	$942	$1,139	$1,100	$959	$1,236	$1,209	$1,034	$1,442	$1,427	$13,984	

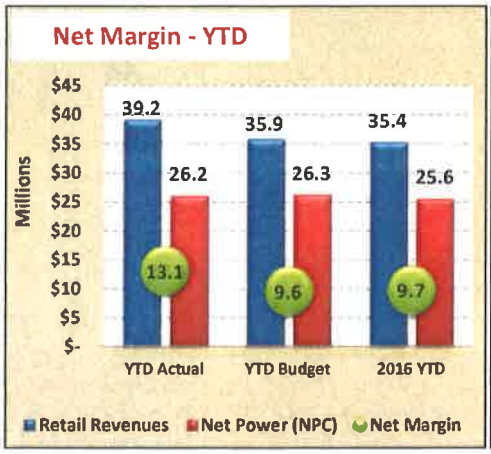
Load Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Average	Budget
aMW - Retail Sales (Billed)	228	221	169	161									195	200
aMW - Sales for Resale	48	68	111	123									88	53





*Load is based on energy consumed, not billed in the listed month.

*2017 budget included a 2.9% revenue increase, and the 2017 forecast has a 1.6% revenue increase. +Actual retail revenues in the graph above and below include unbilled revenue to match revenues with expenses.



Key Ratios	
Current Ratio	3.56 : 1
Debt Service Coverage (2014 Actual)	3.38
Debt Service Coverage (2015 Actual)	2.93
Debt Service Coverage (2016 Actual)	2.91
Debt Service Coverage (2017 Projection)	3.37
(includes capital contributions)	

Other Statistics			
Unrestricted Undesignated Reserves	$	29.8	million
Bond Insurance Replacement (designated)	$	3.0	million
Power Market Volatility (designated)	$	3.3	million
Special Capital (designated)	$	16.9	million
Customer Deposits (designated)	$	1.4	million
Bond Principal & Interest (restricted)	$	1.5	million
Bond Reserve Account (restricted)	$	1.1	million
Net Utility Plant	$	124.8	million
Long-Term Debt	$	64.6	million
Non-Contingent Employees		150.25	
Contingent YTD FTE's		1.14	

PUBLIC UTILITY DISTRICT NO.1 OF BENTON COUNTY
STATEMENT OF REVENUES, EXPENSES, AND CHANGE IN NET POSITION
APRIL 2017

	4/30/17			4/30/16	
	ACTUAL	BUDGET	PCT VAR	ACTUAL	PCT VAR
OPERATING REVENUES					
Energy Sales - Retail	8,296,902	8,728,163	-5%	8,207,459	1%
City Occupation Taxes	432,000	420,595	3%	401,366	8%
Bad Debt Expense	(15,000)	(16,784)	-11%	(16,530)	-9%
Energy Sales for Resale	1,078,855	631,507	71%	1,173,525	-8%
Transmission of Power for Others	107,976	52,917	104%	97,686	11%
Broadband Revenue	177,464	173,393	2%	167,896	6%
Other Revenue	47,115	93,371	-50%	77,069	-39%
TOTAL OPERATING REVENUES	**10,125,312**	**10,083,162**	**0%**	**10,108,471**	**0%**
OPERATING EXPENSES					
Purchased Power	6,634,660	6,619,768	0%	6,762,894	-2%
Purchased Transmission & Ancillary Services	1,064,731	1,067,361	0%	1,048,210	2%
Conservation Program	121,547	55,553	119%	60,645	100%
Total Power Supply	7,820,937	7,742,682	1%	7,871,749	-1%
Transmission Operation & Maintenance	14,986	9,419	59%	33,026	-55%
Distribution Operation & Maintenance	768,110	788,084	-3%	707,747	9%
Broadband Expense	31,398	69,946	-55%	78,214	-60%
Customer Accounting, Collection & Information	296,970	334,188	-11%	278,252	7%
Administrative & General	563,829	591,709	-5%	530,492	6%
Subtotal before Taxes & Depreciation	1,675,294	1,793,346	-7%	1,627,731	3%
Taxes	985,185	957,467	3%	966,648	2%
Depreciation & Amortization	831,482	1,124,238	-26%	1,199,710	-31%
Total Other Operating Expenses	3,491,961	3,875,051	-10%	3,794,089	-8%
TOTAL OPERATING EXPENSES	**11,312,898**	**11,617,733**	**-3%**	**11,665,838**	**-3%**
OPERATING INCOME (LOSS)	**(1,187,587)**	**(1,534,571)**	**-23%**	**(1,557,367)**	**-24%**
NONOPERATING REVENUES & EXPENSES					
Interest Income	45,869	20,833	120%	12,269	>200%
Other Income	18,375	31,339	-41%	22,533	-18%
Other Expense	-	-	n/a	-	n/a
Interest Expense	(245,014)	(243,291)	1%	(220,230)	11%
Debt Discount/Premium Amortization & Loss on Defeased Debt	41,348	41,348	0%	35,230	17%
MtM Gain/(Loss) on Investments	14,580	-	n/a	(3,260)	>-200%
TOTAL NONOPERATING REVENUES & EXPENSES	**(124,842)**	**(149,771)**	**-17%**	**(153,458)**	**-19%**
INCOME (LOSS) BEFORE CAPITAL CONTRIBUTIONS	**(1,312,428)**	**(1,684,342)**	**-22%**	**(1,710,825)**	**-23%**
CAPITAL CONTRIBUTIONS	**44,889**	**88,102**	**-49%**	**52,806**	**-15%**
CHANGE IN NET POSITION	**(1,267,540)**	**(1,596,240)**	**-21%**	**(1,658,019)**	**-24%**

PUBLIC UTILITY DISTRICT NO.1 OF BENTON COUNTY
STATEMENT OF REVENUES, EXPENSES, AND CHANGE IN NET POSITION
YEAR TO DATE

	4/30/17			4/30/16	
	ACTUAL	BUDGET	PCT VAR	ACTUAL	PCT VAR
OPERATING REVENUES					
Energy Sales - Retail	39,236,222	35,924,747	9%	35,364,100	11%
City Occupation Taxes	2,382,616	1,903,790	25%	1,945,799	22%
Bad Debt Expense	(73,000)	(75,970)	-4%	(67,530)	8%
Energy Sales for Resale	5,628,025	5,837,708	-4%	5,558,848	1%
Transmission of Power for Others	484,595	228,808	112%	337,099	44%
Broadband Revenue	729,610	693,572	5%	670,415	9%
Other Revenue	717,901	838,983	-14%	771,697	-7%
TOTAL OPERATING REVENUES	**49,105,969**	**45,351,638**	**8%**	**44,580,428**	**10%**
OPERATING EXPENSES					
Purchased Power	27,751,644	27,891,502	-1%	26,966,762	3%
Purchased Transmission & Ancillary Services	4,341,582	4,276,477	2%	4,321,282	0%
Conservation Program	171,441	222,213	-23%	229,686	-25%
Total Power Supply	32,264,667	32,390,192	0%	31,517,730	2%
Transmission Operation & Maintenance	47,733	38,956	23%	62,792	-24%
Distribution Operation & Maintenance	3,162,627	3,224,233	-2%	2,835,262	12%
Broadband Expense	216,084	280,152	-23%	238,919	-10%
Customer Accounting, Collection & Information	1,138,911	1,288,755	-12%	1,071,868	6%
Administrative & General	2,417,232	2,394,309	1%	2,231,719	8%
Subtotal before Taxes & Depreciation	6,982,587	7,226,405	-3%	6,440,560	8%
Taxes	5,049,379	4,550,640	11%	4,300,699	17%
Depreciation & Amortization	3,323,458	4,594,243	-28%	4,787,972	-31%
Total Other Operating Expenses	15,355,423	16,371,288	-6%	15,529,231	-1%
TOTAL OPERATING EXPENSES	**47,620,090**	**48,761,480**	**-2%**	**47,046,961**	**1%**
OPERATING INCOME (LOSS)	**1,485,878**	**(3,409,842)**	**-144%**	**(2,466,533)**	**-160%**
NONOPERATING REVENUES & EXPENSES					
Interest Income	165,362	83,332	98%	94,979	74%
Other Income	311,000	125,356	148%	120,878	157%
Other Expense	-	-	n/a	-	n/a
Interest Expense	(963,521)	(980,248)	-2%	(852,511)	13%
Debt Discount/Premium Amortization & Loss on Defeased Debt	165,394	165,394	0%	140,920	17%
MtM Gain/(Loss) on Investments	16,970	-	n/a	63,680	-73%
TOTAL NONOPERATING REVENUES & EXPENSES	**(304,795)**	**(606,166)**	**-50%**	**(432,054)**	**-29%**
INCOME (LOSS) BEFORE CAPITAL CONTRIBUTIONS	**1,181,084**	**(4,016,008)**	**-129%**	**(2,898,587)**	**-141%**
CAPITAL CONTRIBUTIONS	**120,381**	**352,408**	**-66%**	**415,478**	**-71%**
CHANGE IN NET POSITION	**1,301,464**	**(3,663,600)**	**-136%**	**(2,483,109)**	**-152%**
TOTAL NET POSITION, BEGINNING OF YEAR	**110,681,246**	**111,617,453**	**0%**	**116,306,568**	**-2%**
TOTAL NET POSITION, END OF YEAR	**111,982,710**	**107,953,853**	**0.1%**	**113,823,459**	**-4%**

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
STATEMENT OF REVENUES, EXPENSES, AND CHANGE IN NET POSITION
2017 MONTHLY ACTIVITY

	January	February	March	April	May	June	July	August	September	October	November	December	Total
OPERATING REVENUES													
Energy Sales - Retail	$12,877,280	$10,163,012	$7,899,029	$8,296,902									$39,236,223
City Occupation Taxes	733,677	658,463	558,477	$432,000									$2,382,617
Bad Debt Expense	(22,000)	(19,000)	(17,000)	($15,000)									($73,000)
Energy Sales for Resale	1,446,055	1,178,034	1,925,081	1,078,855									5,628,025
Transmission of Power for Others	108,734	134,027	133,857	107,976									484,594
Broadband Revenue	176,959	199,708	175,479	177,464									729,610
Other Electric Revenue	545,143	76,138	49,504	47,115									717,900
TOTALOPERATING REVENUES	15,865,848	12,390,382	10,724,427	10,125,312	-	-	-	-	-	-	-	-	49,105,969
OPERATING EXPENSES													
Purchased Power	8,154,138	6,811,765	6,151,081	6,634,660									27,751,644
Purchased Transmission & Ancillary Services	1,131,119	1,070,971	1,074,761	1,064,731									4,341,582
Conservation Program	44,887	113	4,894	121,547									171,441
Total Power Supply	9,330,144	7,882,849	7,230,736	7,820,938	-	-	-	-	-	-	-	-	32,264,667
Transmission Operation & Maintenance	4,750	7,015	20,981	14,986									47,732
Distribution Operation & Maintenance	930,887	733,370	730,260	768,110									3,162,627
Broadband Expense	60,533	84,130	40,023	31,398									216,084
Customer Accounting, Collection & Information	231,037	314,475	296,428	296,970									1,138,910
Administrative & General	825,800	528,202	499,401	563,829									2,417,232
Subtotal before Taxes & Depreciation	2,053,007	1,667,192	1,587,093	1,675,293	-	-	-	-	-	-	-	-	6,982,585
Taxes	1,538,303	1,369,962	1,155,928	985,185									5,049,378
Depreciation & Amortization	831,104	830,410	830,462	831,482									3,323,458
Total Other Operating Expenses	4,422,414	3,867,564	3,573,483	3,491,960	-	-	-	-	-	-	-	-	15,355,421
TOTAL OPERATING EXPENSES	13,752,558	11,750,413	10,804,219	11,312,898	-	-	-	-	-	-	-	-	47,620,088
OPERATING INCOME (LOSS)	2,113,290	639,969	(79,792)	(1,187,586)	-	-	-	-	-	-	-	-	1,485,881
NONOPERATING REVENUES & EXPENSES													
Interest Income	35,989	37,148	46,357	45,869									165,363
Other Income	31,346	221,255	40,024	18,375									311,000
Other Expense	-	-	-	-									-
Interest Expense	(241,836)	(239,737)	(236,935)	(245,014)									(963,522)
Debt Discount & Expense Amortization	41,348	41,348	41,348	41,348									165,392
MtM Gain/(Loss) on Investments	7,420	(2,050)	(2,980)	14,580									16,970
Loss in Joint Ventures/Special Assessments	-	-											-
TOTAL NONOPERATING REV/EXP	(125,733)	57,964	(112,186)	(124,842)	-	-	-	-	-	-	-	-	(304,797)
INCOME (LOSS) BEFORE CAPITAL CONTRIBUTIONS	1,987,557	697,933	(191,978)	(1,312,428)	-	-	-	-	-	-	-	-	1,181,084
CAPITAL CONTRIBUTIONS	28,676	10,648	36,169	44,889									120,382
CHANGE IN NET POSITION	$2,016,233	$708,581	($155,809)	($1,267,539)	$0	$0	$0	$0	$0	$0	$0	$0	1,301,466

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
COMPARATIVE STATEMENT OF NET POSITION
ASSETS AND DEFERRED OUTFLOWS OF RESOURCES

	4/30/2017	4/30/2016	Increase/(Decrease) Amount	Percent
ASSETS				
CURRENT ASSETS				
Cash & Cash Equivalents				
Unrestricted Cash & Cash Equivalents	11,378,837	$26,127,828	($14,748,991)	
Restricted Construction Account	-	-	-	
Investments	19,931,860	3,895,423	16,036,437	
Designated Debt Service Reserve Fund	3,032,152	3,056,020	(23,868)	
Designated Power Market Voltly	3,300,000	3,300,000	-	
Designated Special Capital Rsv	16,863,084	5,300,000	11,563,084	
Designated Customer Deposits	1,400,000	1,400,000	-	
Accounts Receivable, net	10,533,106	9,747,727	785,379	
BPA Prepay Receivable	600,000	600,000	-	
Accrued Interest Receivable	75,959	34,294	41,665	
Wholesale Power Receivable	885,661	872,349	13,312	
Accrued Unbilled Revenue	3,000,000	2,600,000	400,000	
Inventory Materials & Supplies	5,722,867	5,078,388	644,479	
Prepaid Expenses & Option Premiums	344,910	452,303	(107,393)	
Total Current Assets	**77,068,436**	**62,464,332**	**14,604,104**	**23%**
NONCURRENT ASSETS				
Restricted Bond Reserve Fund	1,107,865	1,083,997	23,868	
Other Receivables	97,191	96,377	814	
Unamortized Debt Expense	-	-	-	
Preliminary Surveys	50,491	415,989	(365,498)	
BPA Prepay Receivable	6,250,000	6,850,000	(600,000)	
Deferred Purchased Power Costs	7,263,430	9,141,730	(1,878,300)	
	14,768,977	**17,588,093**	**(2,219,116)**	**-16%**
Utility Plant				
Land and Intangible Plant	3,500,510	3,461,036	39,474	
Electric Plant in Service	305,027,221	296,416,237	8,610,984	
Construction Work in Progress	7,953,089	4,026,515	3,926,574	
Accumulated Depreciation	(191,632,598)	(184,019,394)	(7,613,204)	
Net Utility Plant	**124,848,222**	**119,884,394**	**4,963,828**	**4%**
Total Noncurrent Assets	**139,617,199**	**137,472,487**	**2,144,712**	**2%**
Total Assets	**216,685,635**	**199,936,819**	**16,748,816**	**8%**
DEFERRED OUTFLOWS OF RESOURCES				
Unamortized Loss on Defeased Debt	(7,781)	75,446	(83,227)	
Pension Deferred Outflow	2,019,756	1,303,577	716,179	
Accumulated Decrease in Fair Value of Hedging Derivatives	827,245	2,031,924	(1,204,679)	
Total Deferred Outflows of Resources	**2,839,219**	**3,410,947**	**(571,728)**	
TOTAL ASSETS & DEFERRED OUTFLOWS OF RESOURCES	**219,524,854**	**203,347,766**	**16,177,088**	**8%**

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
COMPARATIVE STATEMENT OF NET POSITION
LIABILITIES AND DEFERRED INFLOWS OF RESOURCES

	4/30/2017	4/30/2016	Increase/(Decrease) Amount	Percent
LIABILITIES				
CURRENT LIABILITIES				
Warrants Outstanding	-	$89,448	($89,448)	
Accounts Payable	8,967,092	8,085,239	881,853	
Customer Deposits	1,502,465	1,429,557	72,908	
Accrued Taxes Payable	4,136,076	3,946,449	189,627	
Other Current & Accrued Liabilities	2,839,152	1,473,288	1,365,864	
Accrued Interest Payable	1,455,469	-	1,455,469	
Revenue Bonds, Current Portion	3,045,000	2,920,000	125,000	
Total Current Liabilities	**21,945,254**	**17,943,981**	**4,001,273**	**22%**
NONCURRENT LIABILITIES				
2010 Bond Issue	17,345,000	17,345,000	-	
2011 Bond Issue	17,090,000	29,470,000	(12,380,000)	
2016 Bond Issue	22,470,000	-	22,470,000	
Unamortized Premium & Discount	4,674,484	2,951,174	1,723,310	
Pension Liability	13,019,386	11,212,267	1,807,119	
Deferred Revenue	1,156,180	471,338	684,842	
BPA Prepay Incentive Credit	1,841,037	2,002,293	(161,256)	
Other Liabilities	1,258,961	3,930,735	(2,671,774)	
Total Noncurrent Liabilities	**78,855,048**	**67,382,807**	**1,382,241**	**17%**
Total Liabilities	**100,800,303**	**85,326,788**	**5,383,515**	**18%**
DEFERRED INFLOWS OF RESOURCES				
Pension Deferred Inflow	245,673	1,754,229	(1,508,556)	
Accumulated Increase in Fair Value of Hedging Derivatives	1,141,562	2,441,462	(1,299,900)	
Total Deferred Inflows of Resources	**1,387,235**	**4,195,691**	**(2,808,456)**	**-67%**
NET POSITION				
Net Investment in Capital Assets	60,215,957	67,273,665	(7,057,708)	
Restricted for Debt Service	1,107,865	1,083,997	23,868	
Unrestricted	56,013,495	45,467,625	10,545,870	
Total Net Position	**117,337,317**	**113,825,287**	**3,512,030**	**3%**
TOTAL NET POSITION, LIABILITIES AND DEFERRED INFLOWS OF RESOURCES	**219,524,854**	**203,347,766**	**16,177,088**	**8%**
CURRENT RATIO: **(Current Assets / Current Liabilities)**	**3.51:1**	**3.48:1**		
WORKING CAPITAL: **(Current Assets less Current Liabilities)**	**55,123,182**	**$44,520,351**	**$10,602,831**	**24%**

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
ENERGY STATISTICAL DATA
CURRENT MONTH

	4/30/2017			4/30/2016	
	ACTUAL	BUDGET	PCT VAR	ACTUAL	PCT VAR
ENERGY SALES RETAIL - REVENUE					
Residential	4,340,774	$4,111,698	6%	$3,790,644	15%
Small General Service	627,292	655,250	-4%	636,061	-1%
Medium General Service	939,781	857,117	10%	915,292	3%
Large General Service	1,069,110	993,335	8%	1,014,306	5%
Large Industrial	298,851	300,575	-1%	268,288	11%
Small Irrigation	43,315	72,776	-40%	84,856	-49%
Large Irrigation	1,121,729	1,879,415	-40%	2,142,861	-48%
Street Lights	17,465	17,438	0%	18,032	-3%
Security Lights	22,403	23,920	-6%	21,495	4%
Unmetered Accounts	16,182	16,639	-3%	15,625	4%
Billed Revenues Before Taxes & Unbilled Revenue	**$8,496,902**	**$8,928,163**	**-5%**	**$8,907,459**	**-5%**
Unbilled Revenue	(200,000)	(200,000)	0%	(700,000)	-71%
Energy Sales Retail Subtotal	**$8,296,902**	**$8,728,163**	**-5%**	**$8,207,459**	**1%**
City Occupation Taxes	432,000	420,595	3%	401,366	8%
Bad Debt Expense (reduced from 0.18% to 0.16% of retail sales in Jan 2017)	(15,000)	(16,784)	-11%	(16,530)	-9%
TOTAL SALES - REVENUE	**$8,713,902**	**$9,131,974**	**-5%**	**$8,592,295**	**1%**
ENERGY SALES RETAIL - kWh					
Residential	50,897,608	48,533,337	5%	45,886,799	11%
Small General Service	8,459,581	8,922,007	-5%	9,093,517	-7%
Medium General Service	13,953,993	13,592,596	3%	13,939,681	0%
Large General Service	17,691,033	17,214,968	3%	17,360,382	2%
Large Industrial	5,959,920	5,905,742	1%	5,547,175	7%
Small Irrigation	434,783	1,213,195	-64%	1,607,439	-73%
Large Irrigation	17,886,279	32,460,536	-45%	45,291,455	-61%
Street Lights	211,253	227,853	-7%	224,494	-6%
Security Lights	91,545	115,221	-21%	113,180	-19%
Unmetered Accounts	253,715	250,982	1%	257,045	-1%
TOTAL kWh BILLED	**115,839,710**	**128,436,438**	**-10%**	**139,321,167**	**-17%**
NET POWER COST					
BPA Power Costs					
Slice	2,825,681	$2,805,001	1%	$2,895,787	-2%
Block	2,424,737	2,450,812	-1%	2,418,642	0%
Subtotal	$5,250,418	5,255,813	0%	5,314,429	-1%
Other Power Purchases	629,275	723,687	-13%	703,835	-11%
Frederickson	754,968	640,266	18%	744,630	1%
Transmission	772,766	757,170	2%	761,620	1%
Ancillary	291,964	310,191	-6%	286,590	2%
Conservation Program	121,547	55,553	119%	60,645	100%
Gross Power Costs	$7,820,938	$7,742,680	1%	7,871,748	-1%
Less Sales for Resale-Energy	(973,145)	(631,507)	54%	(1,091,325)	-11%
Less Sales for Resale-Gas	(105,710)		n/a	(82,200)	29%
Less Transmission of Power for Others	(107,976)	(57,202)	89%	(97,686)	11%
NET POWER COSTS	**$6,634,107**	**$7,053,971**	**-6%**	**6,600,537**	**1%**
NET POWER - kWh					
BPA Power Costs					
Slice	117,285,000	83,088,000	41%	115,442,000	2%
Block	64,014,000	64,177,000	0%	63,493,000	1%
Subtotal	181,299,000	147,265,000	23%	178,935,000	1%
Other Power Purchases	21,196,000	4,772,000	>200%	24,967,000	-15%
Frederickson	-	-	n/a	-	n/a
Gross Power kWh	202,495,000	152,037,000	33%	203,902,000	-1%
Less Sales for Resale	(88,468,000)	(22,069,000)	>200%	(68,329,000)	29%
Less Transmission Losses/Imbalance	(3,036,000)	(2,010,000)	51%	(2,364,000)	28%
NET POWER - kWh	**110,991,000**	**127,958,000**	**-13%**	**133,209,000**	**-17%**
COST PER MWh: (dollars)					
Gross Power Cost (average)	$38.62	$50.93	-24%	$38.61	0%
Net Power Cost	$59.77	$55.13	8%	$49.55	21%
BPA Power Cost	$28.96	$35.69	-19%	$29.70	-2%
Sales for Resale	$11.00	$24.52	-55%	$15.97	-31%

ACTIVE SERVICE AGREEMENTS:*

*Due to a new Customer Information System, District staff is reviewing the methodology of counting active service agreements.

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
ENERGY STATISTICAL DATA
YEAR TO DATE

	4/30/2017			4/30/2016	
	ACTUAL	**BUDGET**	**PCT VAR**	**ACTUAL**	**PCT VAR**
ENERGY SALES RETAIL - REVENUE					
Residential	26,669,248	$22,574,091	18%	$20,410,530	31%
Small General Service	3,287,692	2,975,500	10%	2,784,890	18%
Medium General Service	4,365,708	4,119,751	6%	3,941,895	11%
Large General Service	4,589,542	4,435,117	3%	4,261,625	8%
Large Industrial	1,140,781	1,186,747	-4%	1,077,547	6%
Small Irrigation	67,964	118,813	-43%	200,363	-66%
Large Irrigation	1,290,821	2,682,959	-52%	4,266,819	-70%
Street Lights	69,925	69,752	0%	71,698	-2%
Security Lights	89,818	95,680	-6%	86,326	4%
Unmetered Accounts	64,728	66,337	-2%	62,408	4%
Billed Revenues Before Taxes & Unbilled Revenue	**$41,636,227**	**$38,324,747**	**9%**	**$37,164,101**	**12%**
Unbilled Revenue	(2,400,000)	(2,400,000)	0%	(1,800,000)	33%
Energy Sales Retail Subtotal	**$39,236,227**	**$35,924,747**	**9%**	**$35,364,101**	**11%**
City Occupation Taxes	2,382,617	1,903,790	25%	1,945,799	22%
Bad Debt Expense (reduced from 0 18% to 0 16% of retail sales in Jan 2017)	(73,000)	(75,970)	-4%	(67,530)	8%
TOTAL SALES - REVENUE	**$41,545,844**	**$37,752,567**	**10%**	**$37,242,370**	**12%**
ENERGY SALES RETAIL - kWh					
Residential	335,090,227	279,974,770	20%	261,537,203	28%
Small General Service	46,057,601	41,155,913	12%	40,378,939	14%
Medium General Service	61,614,350	58,638,849	5%	58,084,074	6%
Large General Service	72,125,823	69,170,318	4%	69,586,942	4%
Large Industrial	22,351,790	23,454,942	-5%	22,313,206	0%
Small Irrigation	712,489	1,659,174	-57%	2,077,117	-66%
Large Irrigation	19,802,433	44,681,061	-56%	55,139,930	-64%
Street Lights	845,108	966,036	-13%	899,274	-6%
Security Lights	385,078	460,929	-16%	452,888	-15%
Unmetered Accounts	1,015,260	1,000,626	1%	1,028,180	-1%
TOTAL kWh BILLED	**560,000,159**	**521,162,619**	**7%**	**511,497,753**	**9%**
NET POWER COST					
BPA Power Costs					
Slice	$11,302,724	$11,220,005	1%	$11,372,830	-1%
Block	9,411,482	9,499,643	-1%	9,278,251	1%
Subtotal	$20,714,206	20,719,648	0%	20,651,081	0%
Other Power Purchases	3,051,859	4,167,495	-27%	2,339,689	30%
Frederickson	3,985,581	3,004,355	33%	3,975,992	0%
Transmission	3,072,476	3,028,680	1%	3,050,302	1%
Ancillary	1,269,105	1,247,796	2%	1,270,980	0%
Generation	0	-	n/a	-	n/a
Conservation Program	171,439	222,212	-23%	229,686	-25%
Gross Power Costs	$32,264,666	$32,390,186	0%	31,517,729	2%
Less Sales for Resale-Energy	(5,093,544)	(5,837,707)	-13%	(5,335,854)	-5%
Less Sales for Resale-Gas	(534,481)	-	n/a	(219,794)	143%
Less Transmission of Power for Others	(484,594)	(228,808)	112%	(337,099)	44%
NET POWER COSTS	**$26,152,047**	**$26,323,671**	**-1%**	**$25,624,982**	**2%**
NET POWER - kWh					
BPA Power Costs					
Slice	453,668,000	378,889,000	20%	406,329,000	12%
Block	264,797,000	264,960,000	0%	262,136,000	1%
Subtotal	718,465,000	643,849,000	12%	668,465,000	7%
Other Power Purchases	56,388,000	19,401,000	191%	62,030,000	-9%
Frederickson	32,400,000	0	n/a	37,173,000	-13%
Gross Power kWh	807,253,000	663,250,000	22%	767,668,000	5%
Less Sales for Resale	(252,851,000)	(187,067,000)	35%	(262,676,000)	-4%
Less Transmission Losses/Imbalance	(9,935,000)	(9,553,000)	4%	(7,165,000)	39%
NET POWER - kWh	**544,467,000**	**466,630,000**	**17%**	**497,827,000**	**9%**
COST PER MWh: (dollars)					
Gross Power Cost (average)	$39.97	$48.84	-18%	$41.06	-3%
Net Power Cost	$48.03	$56.41	-15%	$51.47	-7%
BPA Power Cost	$28.83	$32.18	-10%	$30.89	-7%
Sales for Resale	$20.14	$24.52	-18%	$20.31	-1%

AVERAGE ACTIVE SERVICE AGREEMENTS:*

*Due to a new Customer Information System, District staff is reviewing the methodology of counting average active service agreements.

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
KWH SALES
MONTHLY ACTIVITY

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Residential													
2013	85,933,904	77,488,047	56,513,417	48,071,841	41,520,865	42,301,535	51,932,912	59,463,795	53,272,213	41,006,176	52,879,427	87,502,483	697,886,615
2014	90,995,045	86,856,866	61,276,449	46,126,349	38,751,097	43,347,010	51,878,664	62,101,272	49,381,509	38,520,801	51,127,327	76,441,442	696,803,831
2015	81,753,251	70,842,807	51,195,817	43,964,172	38,845,198	48,995,659	62,750,008	58,699,674	48,136,350	37,850,154	46,905,821	75,565,855	665,504,766
2016	89,934,474	72,255,049	53,460,881	45,886,799	38,721,341	44,464,304	49,566,548	57,564,364	49,472,576	38,810,551	46,586,644	75,018,157	661,741,688
2017	114,089,923	97,473,618	72,629,078	50,897,608									335,090,227
Small General Service													
2013	11,394,724	10,700,711	8,862,866	8,958,701	9,285,161	9,833,210	10,896,923	12,097,199	11,379,590	8,965,721	9,306,967	11,245,947	122,927,720
2014	12,002,884	11,773,687	9,247,968	8,838,271	8,960,528	10,069,805	10,898,332	12,390,218	11,106,946	9,214,420	9,056,203	10,725,578	124,284,840
2015	11,273,647	10,444,066	8,399,963	8,630,563	9,005,788	10,616,996	12,060,700	11,955,370	10,809,845	9,065,197	8,719,747	10,515,898	121,497,780
2016	11,865,345	10,615,824	8,804,253	9,093,517	9,217,514	10,063,717	10,760,436	11,863,201	10,839,759	9,285,276	8,652,183	10,807,220	121,868,245
2017	13,896,042	12,326,759	11,375,219	8,459,581									46,057,601
Medium General Service													
2013	15,375,716	14,629,522	12,714,807	13,158,263	13,461,961	14,198,240	15,233,651	16,943,765	16,157,388	14,583,038	14,990,108	15,803,535	177,249,994
2014	16,255,765	16,174,267	13,320,761	13,438,288	13,403,247	14,808,800	15,526,971	17,145,841	15,985,439	15,533,136	14,950,232	15,501,055	182,043,802
2015	15,719,991	15,058,182	13,124,396	13,611,242	14,078,883	15,970,931	16,957,563	16,576,440	15,990,572	15,576,154	14,732,964	15,213,004	182,610,322
2016	16,032,684	15,129,401	12,982,308	13,939,681	13,879,726	14,686,797	15,578,700	16,516,307	16,093,629	15,538,491	14,711,127	15,377,852	180,466,703
2017	17,170,328	15,406,899	15,083,130	13,953,993									61,614,350
Large General Service													
2013	18,363,206	16,370,904	16,064,720	17,280,008	17,300,043	17,480,703	18,704,243	20,956,543	20,230,220	19,362,880	19,518,760	17,683,240	219,315,470
2014	18,043,140	18,004,500	16,529,440	16,641,080	17,175,060	18,408,820	19,689,940	21,264,420	21,006,340	21,502,220	19,841,340	18,573,000	226,679,300
2015	17,888,911	17,212,717	16,213,065	17,278,183	17,939,803	19,595,384	20,935,183	20,741,663	21,305,140	20,558,020	18,687,460	17,819,400	226,174,929
2016	18,188,600	17,545,840	16,492,120	17,360,382	17,583,712	18,140,663	18,545,919	20,497,271	19,923,658	21,179,801	19,314,538	18,495,415	223,267,919
2017	18,624,018	17,299,889	18,510,883	17,691,033									72,125,823
Large Industrial													
2013	6,303,530	5,690,550	5,970,720	6,363,470	6,331,645	6,273,940	6,074,935	6,052,520	3,037,994	6,374,590	4,922,960	6,405,925	69,802,779
2014	6,203,055	5,695,020	6,141,110	5,917,690	6,227,320	6,005,800	6,111,425	6,258,875	5,080,145	6,181,005	6,125,825	5,922,215	71,869,485
2015	5,597,495	5,394,485	5,337,365	5,784,330	5,632,340	5,678,570	4,981,620	6,171,695	5,623,820	5,598,540	5,408,760	5,732,865	66,941,885
2016	5,743,306	5,306,745	5,715,980	5,547,175	4,192,375	5,666,470	5,704,840	5,908,980	4,427,850	5,998,320	5,625,690	4,774,520	64,612,251
2017	5,118,880	5,319,830	5,953,160	5,959,920									22,351,790
Small Irrigation													
2013	101	-	480,748	1,347,003	2,288,143	2,390,103	3,152,789	2,941,397	1,826,383	742,890	41,696	30	15,211,283
2014	-	-	566,022	1,370,794	2,487,573	2,926,545	3,475,842	2,988,591	2,248,398	1,145,157	(52)	-	17,208,870
2015	-	9	648,290	1,481,286	2,159,616	2,668,782	3,213,086	3,002,663	2,075,784	1,172,302	2,846	-	16,424,664
2016	20	181	469,477	1,607,439	2,203,347	2,637,887	2,835,670	2,948,608	2,005,457	889,198	-	4	15,597,288
2017	(4)	-	277,710	434,783									712,489
Large Irrigation													
2013	259,061	415,476	10,346,643	24,726,514	62,939,428	75,510,554	97,242,342	66,591,892	27,504,705	18,933,975	5,069,220	(2,131,722)	387,408,088
2014	247,328	266,769	11,959,400	40,053,677	68,929,139	94,789,557	102,773,871	67,085,339	38,117,908	27,773,132	3,179,515	258,931	455,434,566
2015	214,532	210,554	14,636,633	39,362,242	61,259,905	103,842,869	98,850,190	67,471,445	37,832,472	24,467,386	3,414,781	214,109	451,777,118
2016	221,312	379,179	9,247,984	45,291,455	66,290,382	88,901,499	88,434,390	70,085,659	33,735,656	14,740,237	2,022,639	238,007	419,588,399
2017	200,892	229,629	1,485,633	17,886,279									19,802,433

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
KWH SALES
MONTHLY ACTIVITY

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Street Lights													
2013	229,267	229,267	229,161	229,161	229,161	229,161	229,161	229,209	229,209	229,245	229,395	229,425	2,750,822
2014	229,425	229,425	229,515	229,515	225,070	224,939	225,064	225,640	225,514	225,514	225,298	225,586	2,720,505
2015	225,624	225,624	225,624	225,672	225,672	225,672	224,880	224,880	224,928	225,024	225,024	225,024	2,703,648
2016	225,024	224,878	224,878	224,494	211,235	211,187	211,187	211,187	211,187	211,187	211,349	211,349	2,589,142
2017	211,349	211,253	211,253	211,253	-	-	-	-	-	-	-	-	845,108
Security Lights													
2013	104,964	104,964	105,351	105,258	105,222	105,163	105,163	104,948	104,561	104,346	103,807	103,678	1,257,425
2014	103,678	103,678	103,420	103,377	103,334	103,248	103,476	114,623	114,494	114,494	114,444	114,430	1,296,696
2015	114,451	114,408	114,073	113,696	113,531	113,488	113,488	113,445	113,402	113,359	113,359	113,309	1,364,009
2016	113,273	113,196	113,239	113,180	101,382	101,425	101,382	101,409	101,366	101,194	101,108	101,108	1,263,262
2017	100,963	100,920	91,650	91,545	-	-	-	-	-	-	-	-	385,078
Unmetered													
2013	243,914	245,210	246,506	246,506	247,676	247,676	247,676	247,676	247,676	247,676	247,676	247,686	2,963,554
2014	247,686	247,516	247,516	247,516	248,246	248,246	248,246	249,106	249,106	249,106	249,106	249,106	2,980,502
2015	249,106	249,106	249,106	248,919	248,919	248,919	248,919	254,930	254,845	255,749	257,045	257,045	3,022,608
2016	257,045	257,045	257,045	257,045	257,045	257,045	258,341	259,637	259,637	254,365	254,365	254,365	3,082,980
2017	253,915	253,915	253,715	253,715	-	-	-	-	-	-	-	-	1,015,260
Total													
2013	138,208,387	125,874,651	111,534,939	120,486,725	153,709,305	168,570,285	203,819,795	185,628,944	133,989,939	110,550,537	107,310,016	137,090,227	1,696,773,750
2014	144,328,006	139,351,728	119,621,601	132,966,557	156,510,614	190,932,770	210,931,831	189,823,925	143,515,799	120,458,985	104,869,238	128,011,343	1,781,322,397
2015	133,037,008	119,751,958	110,144,332	130,700,305	149,509,655	207,957,270	220,335,637	185,212,205	142,367,158	114,881,885	98,467,807	125,656,509	1,738,021,729
2016	142,581,083	121,827,338	107,768,165	139,321,167	152,658,059	185,130,994	191,997,413	185,956,623	137,070,775	107,008,620	97,479,643	125,277,997	1,694,077,877
2017	169,666,306	148,622,712	125,871,431	115,839,710	-	-	-	-	-	-	-	-	560,000,159

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
CAPITAL ADDITIONS AND RETIREMENTS
CURRENT MONTH

	BALANCE 3/31/2017	ADDITIONS	RETIREMENTS	BALANCE 4/30/2017
INTANGIBLE PLANT:				
Organizations	$28,379	$0	$0	$28,379
Franchises & Consents	10,022	-	-	10,022
Miscellaneous & Intangible Plant	29,078	-	-	29,078
TOTAL	**$67,480**	-	-	**67,480**
GENERATION PLANT:				
Land & Land Rights	-	-	-	-
Structures & Improvements	1,141,911	-	-	1,141,911
Fuel Holders & Accessories	-	-	-	-
Other Electric Generation	770,459	-	-	770,459
Accessory Electric Equipment	-	-	-	-
Miscellaneous Power Plant Equipment	-	-	-	-
TOTAL	**1,912,370**	-	-	**1,912,370**
TRANSMISSION PLANT:				
Land & Land Rights	156,400	-	-	156,400
Clearing Land & Right Of Ways	25,544	-	-	25,544
Transmission Station Equipment	832,047	-	-	832,047
Towers & Fixtures	256,175	-	-	256,175
Poles & Fixtures	3,975,802	-	-	3,975,802
Overhead Conductor & Devices	3,021,163	-	-	3,021,163
TOTAL	**8,267,131**	-	-	**8,267,131**
DISTRIBUTION PLANT:				
Land & Land Rights	1,705,260	-	-	1,705,260
Structures & Improvements	295,502	-	-	295,502
Station Equipment	39,506,932	-	-	39,506,932
Poles, Towers & Fixtures	19,376,180	240,883	(6,281)	19,610,782
Overhead Conductor & Devices	12,595,375	102,096	(2,252)	12,695,219
Underground Conduit	33,560,104	95,446	(7)	33,655,543
Underground Conductor & Devices	44,549,872	136,676	(20,867)	44,665,681
Line Transformers	29,781,807	62,679	(38,087)	29,806,399
Services-Overhead	2,718,200	529	-	2,718,729
Services-Underground	19,384,722	12,004	-	19,396,726
Meters	9,416,088	-	-	9,416,088
Security Lighting	869,397	74	-	869,471
Street Lighting	760,352	-	-	760,352
SCADA System	2,406,918	-	-	2,406,918
TOTAL	**216,926,710**	**650,387**	**(67,495)**	**217,509,603**
GENERAL PLANT:				
Land & Land Rights	1,130,759	-	-	1,130,759
Structures & Improvements	18,383,949	-	-	18,383,949
Information Systems & Technology	16,666,547	3,136	-	16,669,683
Transportation Equipment	7,615,630	-	-	7,615,630
Stores Equipment	54,108	-	-	54,108
Tools, Shop & Garage Equipment	461,913	-	-	461,913
Laboratory Equipment	489,135	-	-	489,135
Communication Equipment	2,432,645	-	-	2,432,645
Broadband Equipment	19,788,692	2,020	-	19,790,712
Miscellaneous Equipment	1,168,910	-	-	1,168,910
Other Capitalized Costs	12,024,307	-	-	12,024,307
TOTAL	**80,216,594**	**5,156**	-	**80,221,749**
TOTAL ELECTRIC PLANT ACCOUNTS	**307,390,285**	**655,543**	**(67,495)**	**307,978,333**
PLANT HELD FOR FUTURE USE	**388,589**	-	-	**388,589**
CONSTRUCTION WORK IN PROGRESS	**7,337,815**	**1,352,300**	**(737,025)**	**7,953,090**
TOTAL CAPITAL	**315,116,689**	**2,007,843**	**($804,520)**	**$316,320,012**

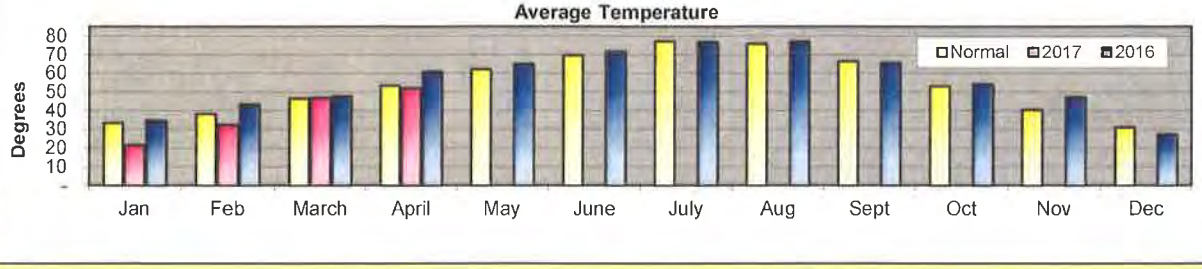
$1,030,229 Budget

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
CAPITAL ADDITIONS AND RETIREMENTS
YEAR TO DATE

	BALANCE 12/31/2016	ADDITIONS	RETIREMENTS	BALANCE 4/30/2017
INTANGIBLE PLANT:				
Organizations	$28,379	$0	$0	$28,379
Franchises & Consents	10,022	-	-	10,022
Miscellaneous & Intangible Plant	29,078	-	-	29,078
TOTAL	**67,480**	-	-	**67,480**
GENERATION PLANT:				
Land & Land Rights	-	-	-	-
Structures & Improvements	1,141,911	-	-	1,141,911
Fuel Holders & Accessories	-	-	-	-
Other Electric Generation	770,459	-	-	770,459
Accessory Electric Equipment	-	-	-	-
Miscellaneous Power Plant Equipment	-	-	-	-
TOTAL	**1,912,370**	-	-	**1,912,370**
TRANSMISSION PLANT:				
Land & Land Rights	156,400	-	-	156,400
Clearing Land & Right Of Ways	25,544	-	-	25,544
Transmission Station Equipment	832,047	-	-	832,047
Towers & Fixtures	256,175	-	-	256,175
Poles & Fixtures	3,975,802	-	-	3,975,802
Overhead Conductor & Devices	3,021,163	-	-	3,021,163
TOTAL	**8,267,131**	-	-	**8,267,131**
DISTRIBUTION PLANT:				
Land & Land Rights	1,703,988	1,272	-	1,705,260
Structures & Improvements	295,502	-	-	295,502
Station Equipment	39,410,815	96,117	-	39,506,932
Poles, Towers & Fixtures	19,218,866	410,814	(18,898)	19,610,782
Overhead Conductor & Devices	12,576,108	121,971	(2,859)	12,695,220
Underground Conduit	33,461,641	207,918	(14,016)	33,655,543
Underground Conductor & Devices	44,277,262	478,746	(90,327)	44,665,681
Line Transformers	29,598,443	289,750	(81,794)	29,806,399
Services-Overhead	2,721,175	18,972	(21,418)	2,718,729
Services-Underground	19,250,486	146,240	-	19,396,726
Meters	9,392,664	23,424	-	9,416,088
Security Lighting	869,023	1,338	(890)	869,471
Street Lighting	760,352	-	-	760,352
SCADA System	2,283,127	123,791	-	2,406,918
TOTAL	**215,819,452**	**1,920,353**	**(230,202)**	**217,509,603**
GENERAL PLANT:				
Land & Land Rights	1,130,759	-	-	1,130,759
Structures & Improvements	18,383,949	-	-	18,383,949
Information Systems & Technology	16,649,095	20,588	-	16,669,683
Transportation Equipment	7,324,621	314,426	(23,417)	7,615,630
Stores Equipment	54,108	-	-	54,108
Tools, Shop & Garage Equipment	461,913	-	-	461,913
Laboratory Equipment	489,135	-	-	489,135
Communication Equipment	2,412,166	20,479	-	2,432,645
Broadband Equipment	19,695,747	94,964	-	19,790,711
Miscellaneous Equipment	1,168,910	-	-	1,168,910
Other Capitalized Costs	11,967,255	57,555	(504)	12,024,306
TOTAL	**79,737,658**	**508,012**	**(23,921)**	**80,221,749**
TOTAL ELECTRIC PLANT ACCOUNTS	**305,804,090**	**2,428,365**	**(254,123)**	**307,978,332**
PLANT HELD FOR FUTURE USE	**388,589**	-	-	**388,589**
CONSTRUCTION WORK IN PROGRESS	**5,585,292**	**3,104,823**	**(737,025)**	**7,953,090**
TOTAL CAPITAL	**311,777,971**	**$5,533,188**	**($991,148)**	**$316,320,011**

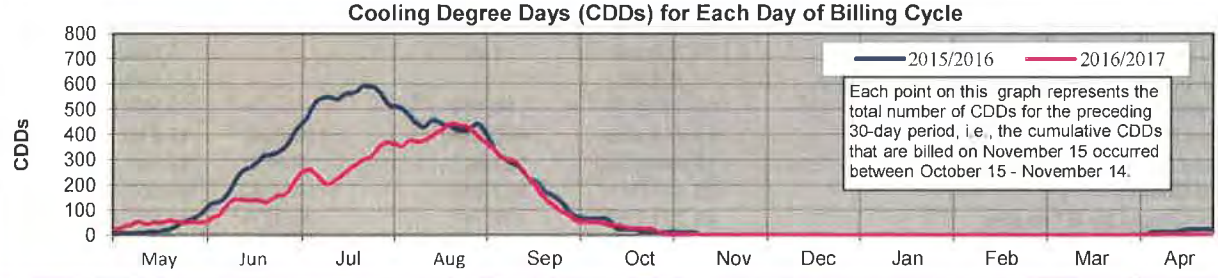
$4,789,256	**Budget**

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
WEATHER STATISTICS
April 30, 2017

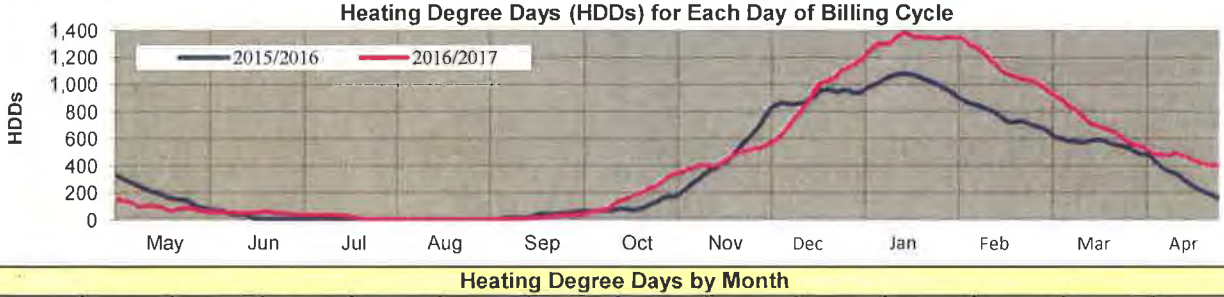


Average Temperature													
Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Normal	33.4	38.2	46.5	53.4	62.1	69.6	77.1	75.8	66.4	53.1	40.5	31.1	53.9
2017	21.6	32.4	46.8	52.0									38.2
2016	34.7	43.4	47.8	61.0	65.0	71.8	76.7	77.0	65.7	54.2	47.3	27.3	56.0
6-yr Avg	33.3	39.1	47.2	54.6	63.1	70.8	78.8	77.7	67.7	55.4	40.6	32.2	55.0

Average Precipitation													
Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Annual
Normal	0.94	0.70	0.57	0.55	0.51	0.51	0.23	0.18	0.31	0.49	0.95	1.20	7.14
2017	1.43	1.78	0.79	0.98									4.98
2016	1.47	0.27	1.01	0.34	0.21	0.38	0.27	-	0.08	2.59	0.57	0.47	7.66
6-yr Avg	0.72	0.43	0.76	0.33	0.83	0.67	0.11	0.19	0.13	0.97	0.47	0.84	6.45



Cooling Degree Days by Month													
Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
2017	-	-	-	-									-
2016	-	-	-	22	55	239	362	369	52	-	-	-	1,099
14-yr Avg	-	-	-	4	60	181	432	359	108	6	-	-	1,121
Cumulative CDDs in Billing Cycle													
2017	-	-	-	-									-
2016	-	-	-	347	1,422	4,038	8,411	12,276	6,531	1,044	-	-	34,069
14-yr Avg	-	-	-	36	750	3,319	9,734	13,092	7,133	1,538	57	-	34,746



Heating Degree Days by Month													
Year	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
2017	1,347	912	565	386									3,210
2016	938	631	526	143	54	35	-	-	33	335	530	1,167	4,392
14-yr Avg	995	746	564	353	138	28	0	2	47	342	753	1,054	5,021
Cumulative HDDs in Billing Cycle													
2017	40,813	33,085	24,376	14,293									112,567
2016	31,646	23,061	18,271	10,233	2,885	1,483	587	-	399	4,813	12,971	26,819	133,168
14-yr Avg	32,033	25,870	21,647	14,084	7,834	2,272	333	5	526	5,125	16,196	29,281	155,205

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
BROADBAND SUMMARY

April Highlights

Terra Blanca was connected to the fiber network with a 100Mbps Transport service. Cline Computers is now also connected to 100Mbps Transport service with Wholesale Internet Center of Excellence in Dermatology, Total Energy Management, U Rock Radio, and YMCA are all new 100Mbps Access Internet connections. Legacy Management and Lutheran Community Services both connected to 150Mbps Access Internet service. Aden Masonry upgraded from Transport to 150Mbps Access Internet on new 2 year contracts. Trios OBGYN Clinic closed and disconnected their Transport service with us. Verizon also disconnected their DS3 services as they lost their contract with Alamosa.

		ACTUALS														
	2017 Budget	Jan	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	YTD	Budget Variance	Inception to Date
OPERATING REVENUES																
Ethernet	**1,523,071**	$113,725	$115,216	$111,485	$111,901									$452,327	**1,070,744**	
Non-Recurring Charges	**-**	1,500	25,519	1,350	2,250									$30,619	**(30,619)**	
TDM	**69,372**	5,781	5,781	5,781	5,445									22,788	**46,584**	
Wireless	**312**	26	26	26	26									104	**208**	
Internet Transport Service	**123,540**	4,255	3,019	3,705	3,700									$14,679	**108,861**	
Fixed Wireless	**82,779**	5,976	5,832	5,790	5,726									$23,325	**59,454**	
Access Internet	**-**	182	2,388	3,622	4,697											
Broadband Revenue - Other	**281,642**	45,513	41,927	43,720	43,720									$174,881	**106,761**	
Subtotal	**2,080,716**	176,959	199,708	175,479	177,464	-	-	-	-	-	-	-	-	$729,610		
NoaNet Maintenance Revenue	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bad Debt Expense	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-		
Total Operating Revenues	**2,080,716**	176,959	199,708	175,479	177,464	-	-	-	-	-	-	-	-	$729,610	**1,351,106**	**16,968,226**
OPERATING EXPENSES																
Marketing & Business Development	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	
General Expenses	**318,185**	61,302	81,153	25,314	28,565									$196,334	**121,851**	
Other Maintenance	**90,000**	477	271	16,169	2,833									$19,750	**70,250**	
NOC Maintenance	**411,681**	1,460	-	(1,460)	-	-		-	-	-	-	-	-	-	**411,681**	
Wireless Maintenance	**-**	-	-	-	-	-	-	-	-	-	-	-	-	$0	**-**	
Subtotal	**819,866**	63,239	81,424	40,023	31,398	-	-	-	-	-	-	-	-	$216,084	**603,782**	**10,012,375**
NoaNet Maintenance Expense	**-**	-	-	-	-	-	-	-	-	-	-	-	-	$0	**-**	
Depreciation	**886,520**	65,230	65,039	64,369	64,336									$258,975	**627,545**	**10,059,576**
Total Operating Expenses	**1,706,386**	128,470	146,463	104,393	95,734	-	-	-	-	-	-	-	-	$475,059	**1,231,327**	**20,071,952**
OPERATING INCOME (LOSS)	**374,330**	48,489	53,245	71,087	81,730	-	-	-	-	-	-	-	-	$254,551	**119,779**	**(3,103,726)**
NONOPERATING REVENUES & EXPENSES																
Internal Interest due to Power Business Unit[1]	**(347,328)**	(28,913)	(28,729)	(28,278)	(28,092)									($114,012)	**233,316**	**(6,041,106)**
CAPITAL CONTRIBUTIONS																
Contributions in Aid of Broadband	**10,000**	1,688	98	6,325	98									$8,208	**(1,793)**	**4,824,788**
BTOP	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**2,282,671**
INTERNAL NET INCOME (LOSS)	**$37,002**	$21,264	24,613	49,134	53,736	-	-	-	-	-	-	-	-	$148,746	**$351,303**	**(2,037,373)**
NOANET COSTS																
Member Assessments	**-**	-	-	-	-	-	-	-	-	-	-	-	-	-		$3,159,092
Membership Support	**-**	657	522	2,842	24									$4,045		121,282
Total NoaNet Costs	**-**	657	522	2,842	24	-	-	-	-	-	-	-	-	$4,045	**($4,045)**	**$3,280,374**
CAPITAL EXPENDITURES	**$953,616**	$104,165	$55,558	($14,493)	$82,849									$228,079	**$725,537**	**$20,947,551**
NET CASH (TO)/FROM BROADBAND[2]	$317,234	$10,585	62,302	153,432	63,292	-	-	-	-	-	-	-	-	$289,610		($10,164,616)

(1) Internal interest budget is estimated based on cash flow projections (an interest rate of 3.53% is being used).

(2) Includes excess of revenues over operating costs, capital expenditures and NoaNet assessments; excludes depreciation and internal interest to Electric System.

Payroll Report

Pay Period Ending April 30, 2017

Headcount

Directorate	Department	2017 Budget	2017 Actual	Over (Under) Actual to Budget
Executive Administration				
	General Manager	4.00	4.00	-
	Human Resources	4.25	4.25	-
	Communications & Governmental Affairs	2.00	2.00	-
Customer Programs & Services				
	Customer Service	18.00	17.00	(1.00)
	Key Accounts	2.00	2.00	-
Finance & Business Services				
	Director of Finance	2.00	2.00	-
	Treasury & Risk Management	3.00	3.00	-
	Accounting	6.00	6.00	-
	Contracts & Purchasing	3.00	3.00	-
Engineering				
	Engineering	7.00	7.00	-
	Customer Engineering	10.00	10.00	-
	Power Management	3.00	3.00	-
	Energy Programs	5.25	5.00	(0.25)
Operations				
	Operations	7.00	7.00	-
	Supt. Of Transmission & Distribution	28.00	28.00	-
	Supt. of Operations	2.00	3.00	1.00
	Meter Shop	5.00	5.00	-
	Transformer Shop	6.00	6.00	-
	Automotive Shop	4.00	4.00	-
	Warehouse	7.00	7.00	-
	Prosser Branch	6.00	6.00	-
	IS Infrastructure	6.00	6.00	-
	IS Applications	11.00	10.00	(1.00)
Total Positions		**151.50**	**150.25**	**(1.25)**

Contingent Positions

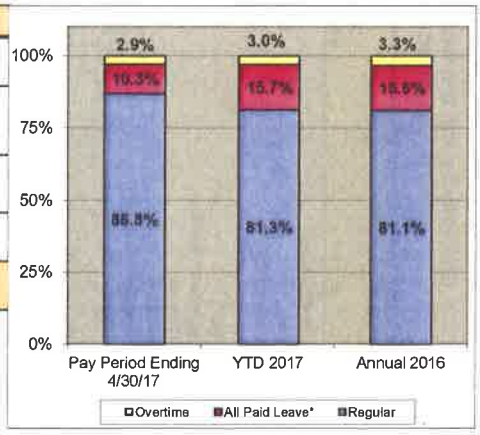
Position	Department	Hours 2017 Budget	Hours 4/30/2017	Hours 2017 Actual YTD	% YTD to Budget
NECA Lineman/Meterman	Operations	2,080	-	-	0%
Summer Intern	Engineering	522	-	-	0%
Summer Intern	Meter Shop	-	-	-	-
Financial Analyst	Accounting	-	-	-	-
CSR On-Call - Prosser	Prosser Branch	2,080	166	1,735	83%
CSR On-Call/LA - Kennewick	Customer Service	2,600	107	638	25%
Total All Contingent Positions		**7,282**	**272**	**2,373**	**33%**
Contingent YTD Full Time Equivalents (FTE)		**3.50**		**1.14**	

2017 Labor Budget

As of 4/30/2017

33.3% through the year

Labor Type	2017 Budget	YTD Actual	% Spent
Regular	$12,852,759	$4,155,874	32%
Overtime	653,140	244,439	37%
Subtotal	13,505,899	4,400,313	33%
Less: Mutual Aid			
Total	**$13,505,899**	**$4,400,313**	**33%**



** All Paid Leave includes personal leave, holidays, short-term disability, L&I, jury duty pay, and military leave pay.*