FMEA Utility Education Trade Show Days

ELECTRIC T&D BENCHMARKING

How Does Your Utility Rate?

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AGENDA

Methods for Benchmarking Transmission & Distribution

Measures and Metrics of Interest

Trends and Best Practices

- ✓ **Benchmarking in general**
- ✓ **T&D benchmarking**

Summary and Questions

USES OF BENCHMARKING

Benchmarking has many applications

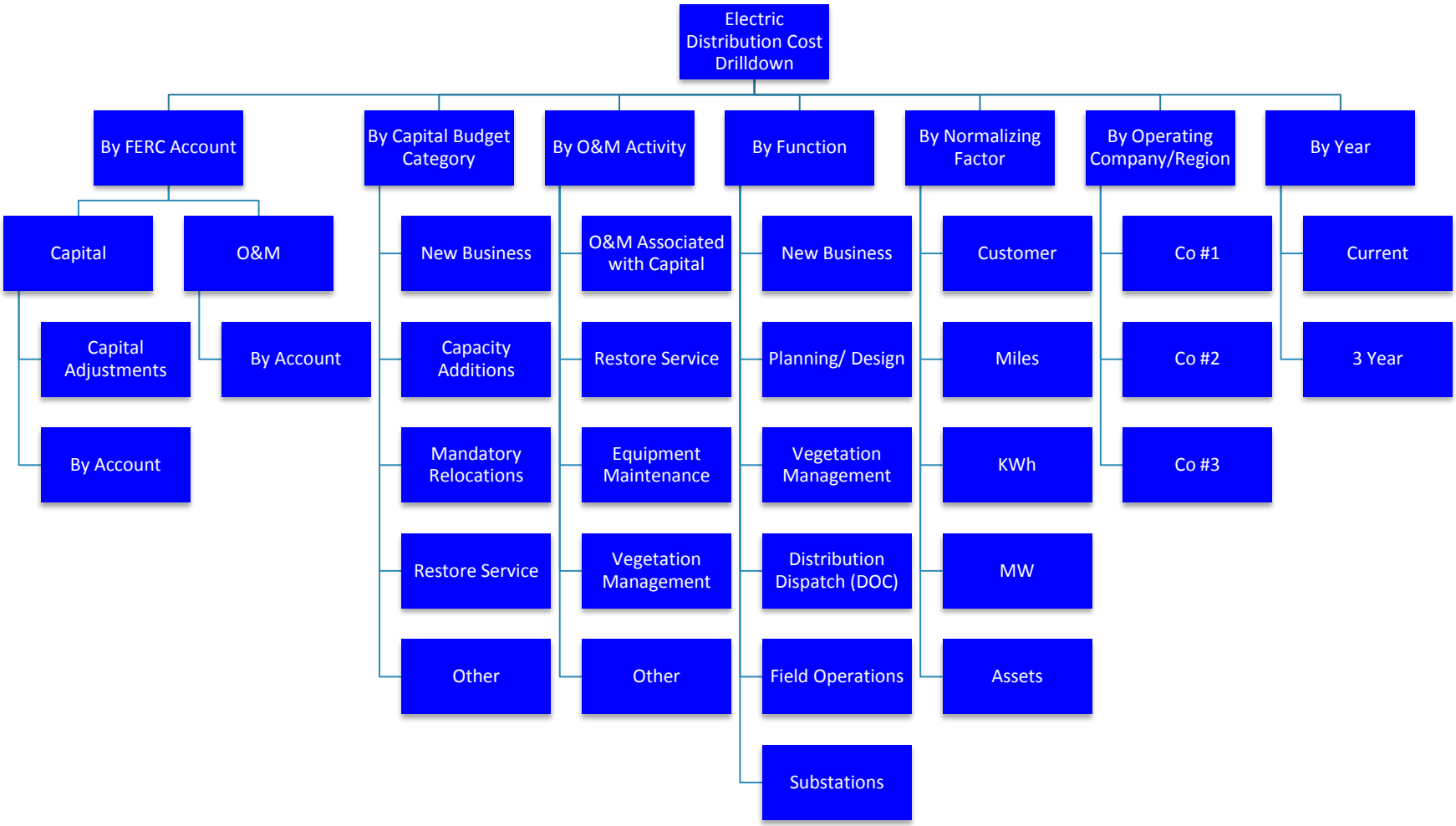
- ✓ **Strategic**
  - Identify strengths and weaknesses
  - Set direction and targets
  - Highlight focus areas for improvement
  - Track long-term progress
- ✓ **Operational**
  - Drill down to specific areas of emphasis
  - Highlight best practices for adaptation and use
  - Understand demographics and their impact on performance results

MEASURES OF INTEREST FOR ELECTRIC DISTRIBUTION

			Mean	Q1	Q2	Q3
Reliability						
		SAIFI (inc major events & planned interruptions)	1.49	1.07	1.36	1.58
		SAIFI (ex major events & planned interruptions)	1.08	0.81	1.02	1.30
		CAIDI (inc major events & planned interruptions)	147.20	93.58	142.01	175.87
		CAIDI (ex major events & planned interruptions)	98.14	83.28	92.26	110.66
		SAIDI (inc major events & planned interruptions)	226.44	112.98	176.65	306.57
		SAIDI (ex major events & planned interruptions)	103.04	82.07	91.27	116.74
		Customer minutes of interruption by cause per circuit mile (excluding events)	5149	3092	5041	6815
		Customer interruptions by cause per circuit mile (excluding events)	5050	5767	4827	3388
		% of customers with less than 3 interruptions	82.26%	90.76%	85.08%	75.54%
O&M Cost						
		Distribution O&M per customer	$79.38	$64.72	$75.06	$91.92
		Distribution O&M per circuit miles	$2,923	$2,310	$2,625	$4,115
		Distribution O&M per MWh	$2.83	$2.20	$2.55	$3.47
		Distribution O&M per Total Dist. Assets	2.76%	2.32%	2.53%	3.44%
Investment Rate						
		Distribution Line Capital Spending less New Lines per Asset [Activity Based]	3.77%	4.05%	3.42%	2.90%

Data drawn from 2011 First Quartile T&D study

ELECTRIC DISTRIBUTION COST DRILLDOWN



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UNDERSTANDING THE DATA - DEMOGRAPHICS

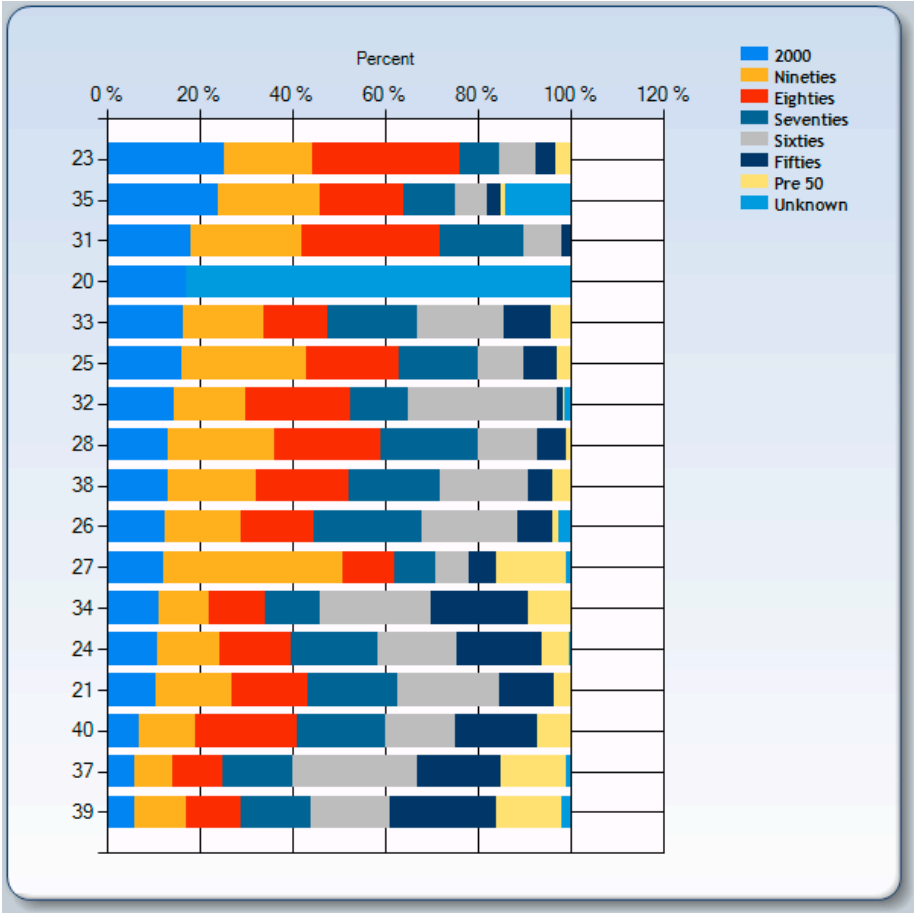
Understanding comparisons across multiple utilities requires understanding of the differences that drive results.

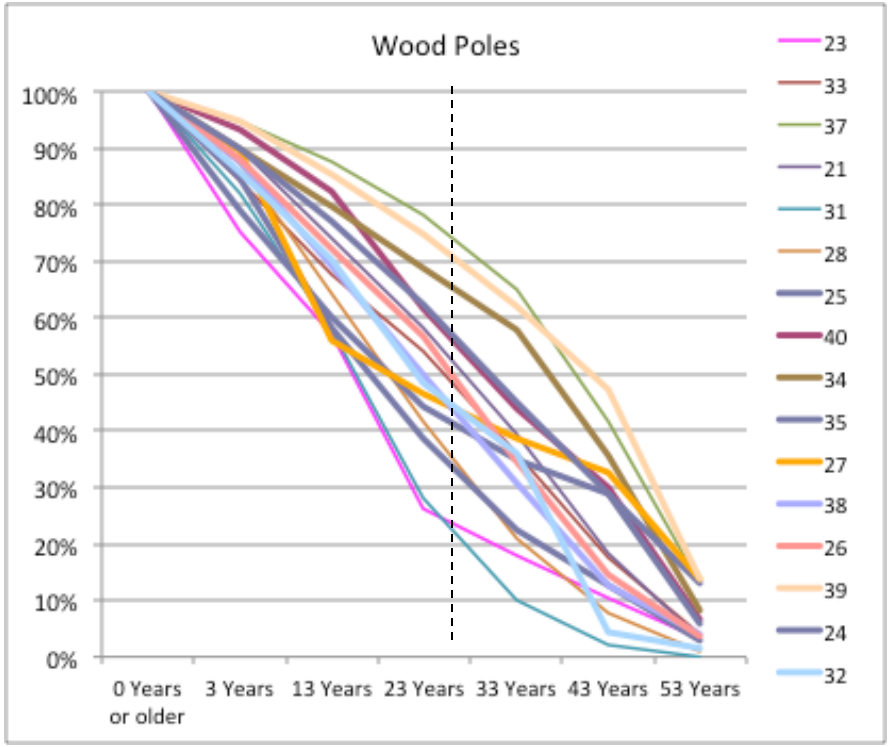
	Min	Mean	Max	# of Bars
Service Territory				
Density: Customers per Square mile	3.00	230.97	794.56	17
Density: Customers per Distribution Circuit mile	16.12	41.37	58.82	16
Percent of Distribution Circuit Miles Underground	4%	33%	62%	17
Percent Distribution Scada (control & data)	5%	71%	100%	15
Managed Trees per OH Distribution Structure Mile	1.84	94.81	227.24	4
Wage Rate: Distribution Journey Level Line Worker	$29.76	$35.21	$39.56	13
Percent of staffing group represented by a union/bargaining unit: Distribution Field	0%	79%	100%	13
KWh Sold per Distribution End-Use Customer	18219	29231	41612	18
Percent of Customers: Commercial/Industrial	7.72%	11.61%	18.67%	18
Percent of Load: Commercial/Industrial	49.00%	61.28%	70.41%	16

Data from 2009 APPA Customer Service Benchmark Study

DEMOGRAPHICS – AGE OF POLES

With one or two exceptions, the distribution of age of poles is consistent across the group, although there are a few companies with some very old poles still in service. Median age is approximately 27 years.





Source: 2011 First Quartile T&D Study

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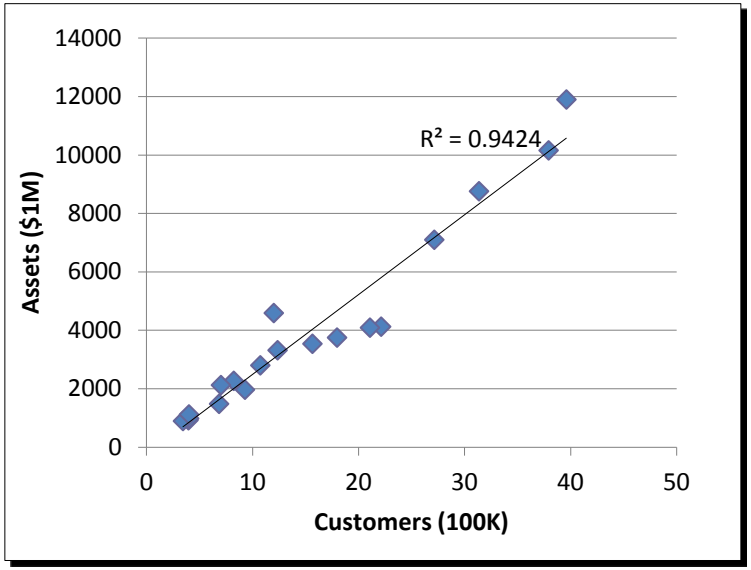
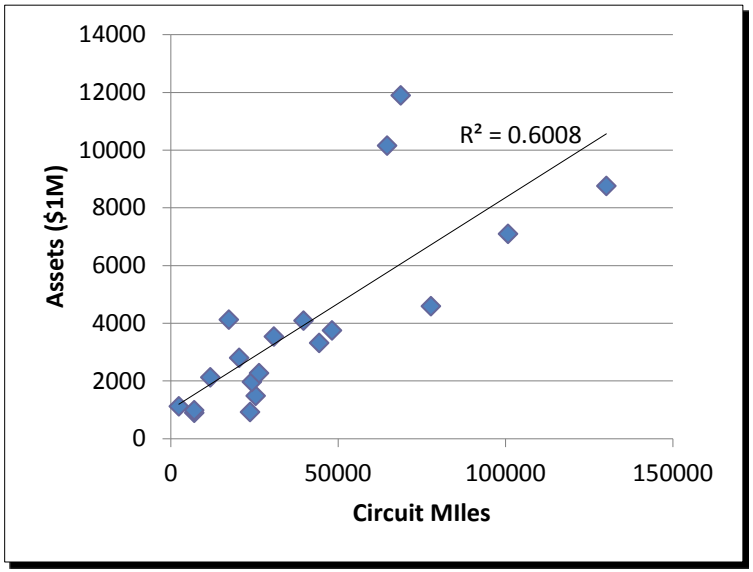
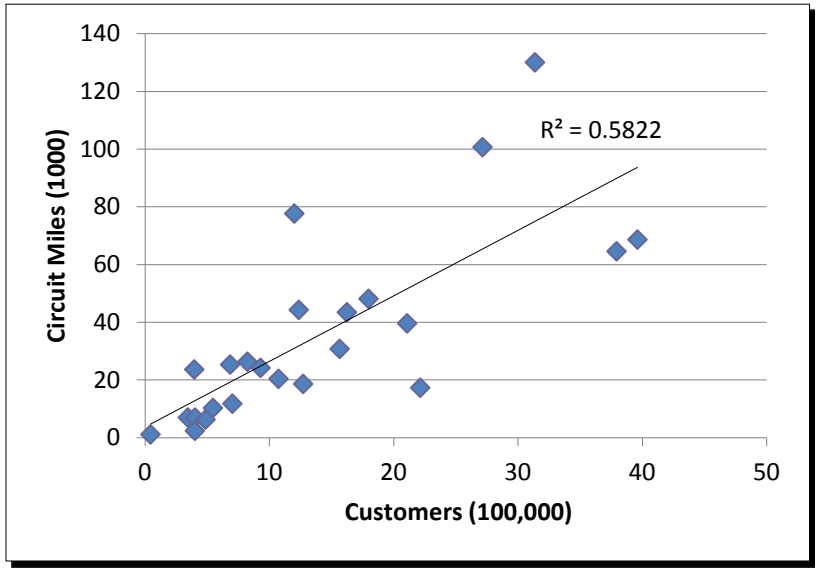
DEMOGRAPHICS – SYSTEM AND CUSTOMERS





The relationship between customers and assets remains very strong, while miles of line is less well correlated with either assets or customers.



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IDENTIFYING BEST PRACTICES

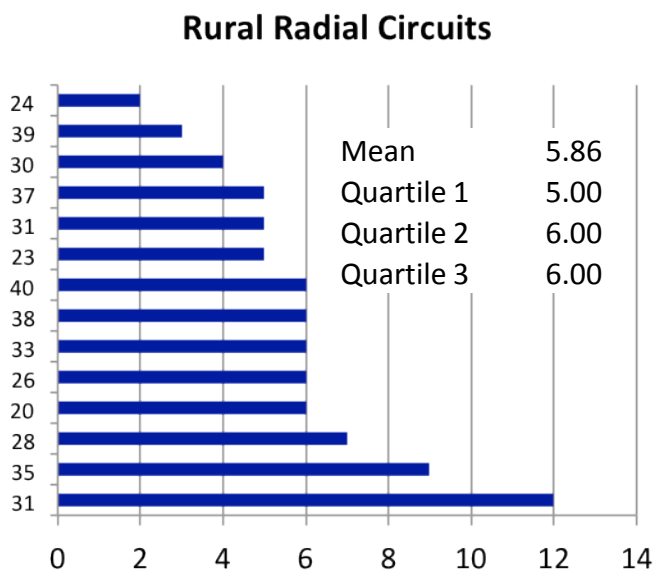
Best practices can be identified through many different means

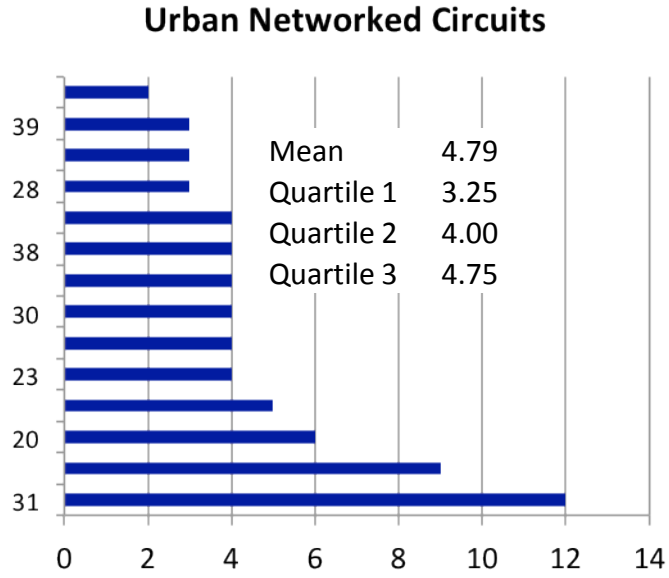
- ✓ **Almost all involve learning from others somehow**
  - Detailed research efforts
  - Large-scale benchmarking processes
  - Small-scale benchmarking studies, focused on very narrow niche
  - Investigations/discussions with a few companies (site visits, information exchanges)
  - Conferences and industry meetings
  - Vendors providing tools, services, equipment
- ✓ **A few can be developed through genuine pioneering**
  - Henry Ford and the continuous production line

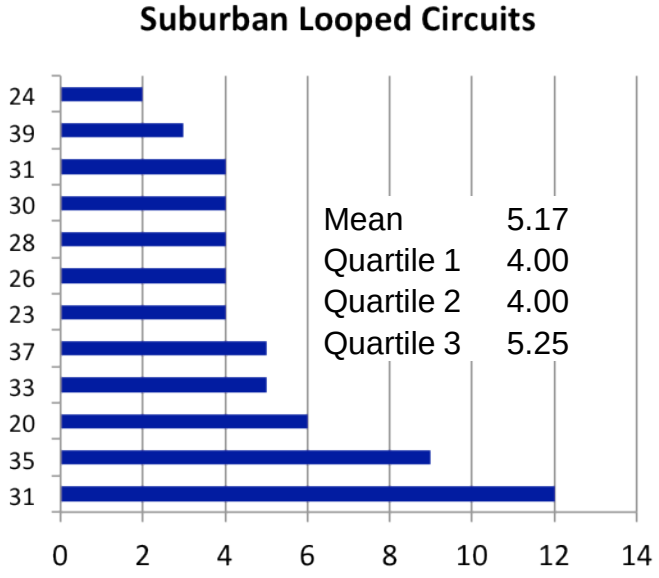
Recognizing the best practices isn't always easy

- ✓ **A measureable difference in outcomes**
  - Better service, lower cost, higher customer satisfaction
- ✓ **Something just obviously better**
  - Mobile data versus manual dispatch for field service workers

TREE-TRIM CYCLES (YEARS)







- Urban circuits are trimmed more frequently than suburban, which in turn are trimmed more frequently than rural radial circuits.
- 10 of 15 responding companies indicate they are successfully keeping up with planned cycles.

Source: 2011 First Quartile T&D study

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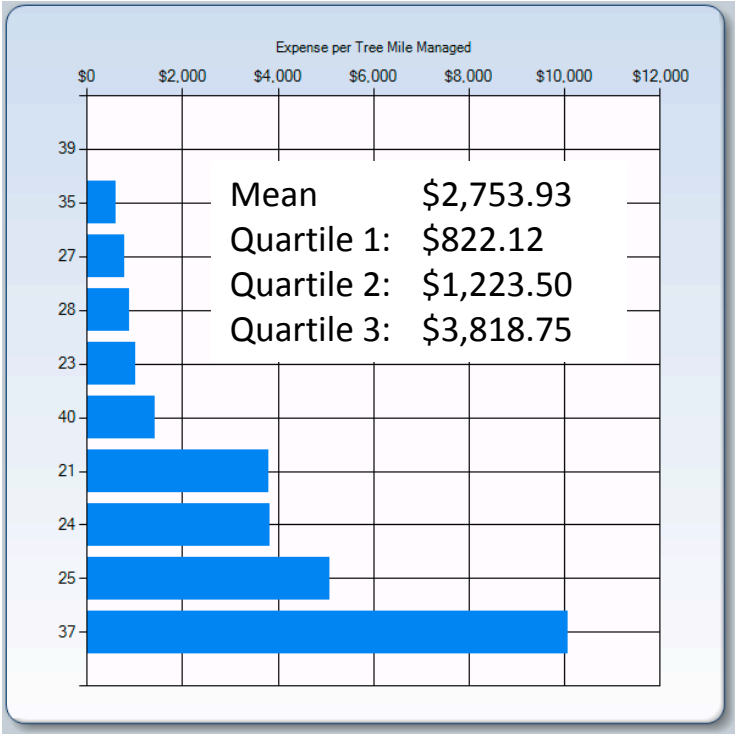
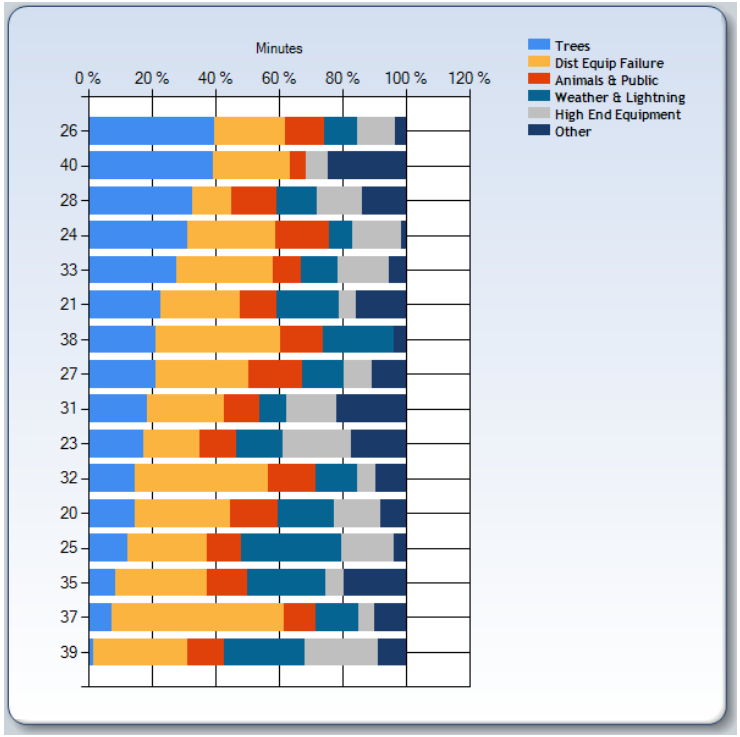
VEGETATION MANAGEMENT SPENDING VERSUS RELIABILITY

Vegetation management is the largest single O&M expense item for Distribution O&M. Comparisons of cost versus tree density can be helpful, as can reliability versus vegetation management spending

Cost per mile Managed



SAIDI by Cause Codes



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IMPLEMENTATION IS THE HARD (AND MOST IMPORTANT) PART

You can't simply "adopt". You have to "adapt" first.

- ✓ **Every utility is unique in some important way**
  - Individual functional departments are different from other companies' similar functional departments
  - External circumstances (local economy, service territory demographics, etc.) are different
- ✓ **Differences mean you have to implement new practices in your own way, to fit your circumstances and capabilities**
  - Fit your existing IT systems
  - Fit your electric system configuration
  - Fit within your corporate strategy and vision of where you want to be in the future
  - Understanding the demands of your specific customer base
- ✓ **You can learn from the experiences of others, but you still have to make your own plans**
  - AMI Implementation (smart metering) – Oncor and Austin

Ownership by the line organization is critical to ultimate success

- ✓ **Can't be just a product of a staff organization**

TRENDS AND BEST PRACTICES IN BENCHMARKING

There are multiple avenues to improved performance through benchmarking

- ✓ **Large-Scale Industry Surveys**
  - Examples: APPA Reliability Survey, Southern Company Distribution study
- ✓ **Cross-industry Focused Studies**
  - Example: Fleet Management studies
- ✓ **Focused Consortium Studies**
  - Example: Vegetation Management Studies
- ✓ **Individual Utility-Driven Best Practices Study**
  - Examples: Many examples annually – companies using benchmarking as a way to learn and adapt better practices. Typically includes site visits.

TRENDS AND EMERGING T&D PRACTICES

Trends we've seen through large-scale benchmarking studies

- ✓ **Growing emphasis on Asset Management**
  - Better repair/replace decisions
  - Managing multi-year capital expenditures
  - More comprehensive analytics
- ✓ **A focus on Customer Experience**
  - Not just in the call center, but in all customer-facing groups (outage response, new service connections,
- ✓ **A move toward greater automation**
  - Smart meters, smart grid, OMS
- ✓ **Expanded use of mobile data and supporting processes to handle a growing amount of Distribution work (field services already essentially 100%)**
  - Requires system implementation and integration
  - Changes the role of supervisors and schedulers

Customer Experience Program

Customer Experience. We Deliver.

Brand and Communication Program	Education Program	*CIM Program	Benchmarking and Customer Satisfaction	Customer Interaction Transformation
•Brand and Messaging •Social Media Strategy •Employee Communications and Feedback Program •Leadership Engagement Plan	•Customer Experience Education Materials •Customer Interaction Training	•Content Management •Internet Transformation •Mobility Solutions •Governance and Enhancements	•Customer Satisfaction Survey Assessment •Customer Experience Benchmarking	•Outage Communications •Online Chat •Customer Issue Management •Customer Information Management •1-800 Number Strategy

*CIM=Content Management, Internet and Mobility

SUMMARY

Benchmarking, done right, leads to long-term improvements

- ✓ **Measureable performance results**
- ✓ **Demonstrably better practices in place and operating**

As with any other improvement technique, its conceptually simple

- ✓ **Very understandable steps**
- ✓ **Straightforward process**

Doing it well is harder than it looks

- ✓ **Subtleties of the techniques**
- ✓ **Selection of appropriate metrics and peer groups**
- ✓ **Getting, and keeping, management attention**
- ✓ **Ownership by the line organization**

CONTACT INFORMATION

Feel free to contact me about this presentation, or any questions you may have about benchmarking and its application to Customer Service for utilities.

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