Assessing and Improving Member Competitiveness

Andrew Fusco
Vice President, Member Services and Corporate Planning
ElectriCities of North Carolina, Inc.
Agenda

• Significant changes in the energy industry
• Creating a roadmap
  • Retail customer survey
  • Utility Assessment
• Case Study #1
• Case Study #2
• Summary and discussion
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Enabling Technologies

- Emergence of 5G communications
- Artificial Intelligence (AI) and machine learning
- Emergence of the Internet of Things (IoT)
- Autonomous vehicles (autos and drones)
- Evolving data analytics capabilities
  - Integration across AI, IoT, customers, and grid
- Declining renewable and storage costs
  - Batteries
  - Solar
Strategic Workforce Focus

Players on the bench – Do you have the right mix?

- The Energy industry is evolving at a rapid pace creating both traditional and new skill requirements
- Effective, cross-functional workforce planning tied to an organization’s strategic plan will be critical to ensure the right mix of skills

Upskill, buy, outsource, or partner?

- Organizations will be challenged to rethink attraction and retention practices to quickly address changing needs
- Flexible development programs will be required to upskill current resources

“Strategic business decisions may have profound changes on a company’s workforce size, demographic makeup, skill sets, and knowledge requirements.”

- Center for Energy Workforce Development, 2018 Game Changers National Strategic Workforce Plan
Amazon singlehandedly raised the bar on customer expectations

- Increased demand for instant gratification and personalization
- Innovation transforms into expectation

Customer Expectations
We are now in the “age of the customer”

(Source: Forrester Research, Inc.)
Infrastructure modernization is needed as the energy industry moves from the one-way power flow model to a model focused on the distribution system.
Retail competition is happening in an unexpected manner

New competitors are generally not the usual players

Market opportunity of $1.3 trillion

Technology and non-utility experiences are shaping customer expectations

Customer choice and control

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>CORE BUSINESS</th>
<th>WHAT IS THE THREAT?</th>
</tr>
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<tbody>
<tr>
<td>Amazon, Google, Apple</td>
<td>Tech</td>
<td>Retail customers purchase energy directly from retail giants</td>
</tr>
<tr>
<td>T-Mobile, Verizon, AT&amp;T</td>
<td>Telecom</td>
<td>Telecom providers utilize utility data to provide energy products to retail customers</td>
</tr>
<tr>
<td>Total, Shell</td>
<td>Oil &amp; Gas</td>
<td>Fossil fuel companies provide onsite charging services off of the electric grid</td>
</tr>
<tr>
<td>Sonnen, SolarCity</td>
<td>DER</td>
<td>DERs continue to get market share and the technology matures to allow cutting ties with the grid</td>
</tr>
<tr>
<td>Tesla, Toyota, Mercedes-Benz</td>
<td>Auto</td>
<td>Automobiles mature to the point of being grid resources, giving automakers a market opportunity</td>
</tr>
<tr>
<td>Current, Drift</td>
<td>Energy Retail</td>
<td>Retail players continue to find ways to circumvent regulated retail markets</td>
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(Source: Navigant)
Three Areas of Focus
• Significant changes in the energy industry
• Creating a roadmap
  • Retail customer survey
  • Utility Assessment
• Case Study #1
• Case Study #2
• Summary and discussion
Creating a Roadmap

- Utility Assessment
- Energy Industry Trends
- Retail Customer Survey

ROADMAP
Retail Customer Survey

2017-2019 Survey Participants

- Apex
- Ayden
- Belhaven
- Benson
- Cherryville
- Clayton
- Cornelius
- Edenton
- Elizabeth City
- Farmville
- Fayetteville PWC
- Gastonia
- Huntersville
- Lexington
- Lincolnton
- Louisburg
- Lumberton
- Maiden
- Morganton
- New Bern
- New River Light & Power
- Newton
- Pineville
- Rocky Mount
- Shelby
- Smithfield
- Tarboro
- Wake Forest
- Washington
- Winterville
Customer Survey: Market Segments

- **Status Quo**: Not engaged, middle-aged, middle-income, families, focused elsewhere, satisfied
- **Technology Cautious**: Older and traditional, established, middle-income, very satisfied
- **Savings Seekers**: Lower income, engaged with utility, focused on lower costs, not satisfied
- **Movers and Shakers**: Upper income, educated, engaged, tinkerers, not satisfied
- **Green Champions**: Younger, mid to upper income, engaged, focused on environment, moderately satisfied
Customer Survey: Market Segments

NC PUBLIC POWER
- 35.2% - Status Quo
- 16.1% - Technology Cautious
- 11.2% - Savings Seekers
- 12.0% - Movers and Shakers
- 25.4% - Green Champions

IOU
- 39.1% - Status Quo
- 19.8% - Technology Cautious
- 10.3% - Savings Seekers
- 14.1% - Movers and Shakers
- 16.7% - Green Champions

CO-OP
- 50.0% - Status Quo
- 24.5% - Technology Cautious
- 7.5% - Savings Seekers
- 6.6% - Movers and Shakers
- 11.3% - Green Champions
# Retail Customer Survey Results

<table>
<thead>
<tr>
<th></th>
<th>NC Public Power Residential*</th>
<th>IOU Residential*</th>
<th>Rural Electric Coop Residential*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communicating with customers</strong></td>
<td>79.2</td>
<td>77.7</td>
<td>84.9</td>
</tr>
<tr>
<td><strong>Providing services and products I expect of a modern utility</strong></td>
<td>84.4</td>
<td>83.4</td>
<td>89.4</td>
</tr>
<tr>
<td><strong>Reliable electric service</strong></td>
<td>91.6</td>
<td>90.5</td>
<td>92.8</td>
</tr>
<tr>
<td><strong>Providing good value for the cost of electricity</strong></td>
<td>66.3</td>
<td>65.2</td>
<td>74.3</td>
</tr>
<tr>
<td><strong>Responsible steward of the environment</strong></td>
<td>84.0</td>
<td>64.0</td>
<td>85.0</td>
</tr>
<tr>
<td><strong>Responding promptly to questions and complaints</strong></td>
<td>84.4</td>
<td>79.2</td>
<td>85.3</td>
</tr>
<tr>
<td><strong>Helpful and knowledgeable staff</strong></td>
<td>86.9</td>
<td>82.3</td>
<td>90.0</td>
</tr>
<tr>
<td><strong>Being supportive of community activities and events</strong></td>
<td>89.5</td>
<td>82.5</td>
<td>90.2</td>
</tr>
<tr>
<td><strong>Overall satisfaction</strong></td>
<td>83.3</td>
<td>83.4</td>
<td>88.2</td>
</tr>
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*NC Public Power and competitor scores based off of 2017 and 2018 survey results*
Utility Assessment

40 out of 72 members responded in 2018 (45%)

Topics Covered:
- Strategic Planning
- Finance & Capital Spending
- System Losses
- Outsourcing
- Customer Engagement
- Value of Public Power
- Reliability
- Technology
  - 26% of members have AMI
- Security
- System Maintenance
- Safety
  - Members average 1.38 reportable safety incidents per 200,000 hours worked

SAIDI = System Average Interruption Duration Index (measured in minutes/customer/year)
SAIFI = System Average Interruption Frequency Index (measured in number of outages/customer/year)
Roadmap Key Questions

• How do I know where I am NOW?
  • Retail Customer Survey
  • Utility Assessment

• How do I know where I SHOULD be?
  • Retail Customer Survey (every 3 years)
  • Utility Assessment
  • Monitoring traditional competitors, as well as non-traditional competitors (e.g., Google)

• Checklist for Success
  ✓ Independent assessment of prerequisite staffing needs/requirements
  ✓ Links back to customer expectations and/or competition (existing or potential)
  ✓ Understanding of costs and willingness to pay
  ✓ Realistic schedule of expectations
Roadmap Framework

**GROUP A**
States Go / Tech Cautious

**CUSTOMER EXPECTATIONS:**
- Low Cost
- Reliable

**UTILITY CAPABILITIES:**
- Reliable Power (SAIDI)
- Low Cost (Comparison)
- Staff 1.0
- Requisite Skillsets
- Adequate Procedures
- Cost of Service
- Some Form Of Software (Billing/Financial)
- Meters (Manual/Drive By)
- Long-term Planning (O&M/Capex)
- Communications w/Customer (Web/Text/Email)

**TIMEFRAME TO MEET EXPECTATIONS**
1 YR (if not yet in GROUP A)

**GROUP B**
Savings Seeker / Movers & Shakers

**CUSTOMER EXPECTATIONS:**
- Group A +
- Convenience
- Savings Opportunities

**UTILITY CAPABILITIES:**
- Group A +
- Load Management
- Modern Billing System
- Automated Meter Read or better
- Online Bill Pay
- Staff 2.0
- Strategic Plan
- High Speed Data

**TIMEFRAME TO MEET EXPECTATIONS**
2 YRS

**GROUP C**
Movers & Shakers / Green Champion

**CUSTOMER EXPECTATIONS:**
- Groups A + B +
- Distributed Energy Resource (Solar, Battery, Distributed Generation)
- Electric Vehicle
- Outage Notification (Personalized)
- Sustainability
- Thermostat Overload Switch
- Prepay
- Apps

**UTILITY CAPABILITIES:**
- Groups A + B +
- Advanced Meter Infrastructure
- Staff 3.0
- Tech Road Map
- Outage Management System
- Time Of Use
- Data Analytics

**TIMEFRAME TO MEET EXPECTATIONS**
3 YRS

**GROUP D**
Movers & Shakers / Green Champion

**CUSTOMER EXPECTATIONS:**
- Groups A + B + C +
- Automation Control
- Choice of Supply
- Smart Building
- Energy Cloud

**UTILITY CAPABILITIES:**
- Groups A + B + C +
- Data Analytics
- Smart City - Integration
  Out Of The Utility

**TIMEFRAME TO MEET EXPECTATIONS**
5 YRS

15+ YRS
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- Significant changes in the energy industry
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Case Study #1

Customer Survey Results

Residential Segmentation Comparison

<table>
<thead>
<tr>
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<th>Status Quo</th>
<th>Technology Cautious</th>
<th>Savings Seekers</th>
<th>Movers and Shakers</th>
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</thead>
<tbody>
<tr>
<td>NC Public Power</td>
<td>36.6%</td>
<td>36.2%</td>
<td>27.5%</td>
<td>14.3%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Competitor</td>
<td>17.1%</td>
<td>18.4%</td>
<td>18.1%</td>
<td>13.2%</td>
<td>15.6%</td>
</tr>
<tr>
<td>City #1</td>
<td>14.9%</td>
<td>7.9%</td>
<td>7.9%</td>
<td>7.9%</td>
<td>17.9%</td>
</tr>
<tr>
<td>Rural Electric Coop</td>
<td>14.6%</td>
<td>14.6%</td>
<td>14.3%</td>
<td>14.6%</td>
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<td>77.9</td>
<td>77.4</td>
<td>82.1</td>
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*NC Public Power and competitor scores based off of 2017 and 2018 survey results
Utility Assessment for Case Study #1

- **SAIDI**: 65 minutes/year
- **Cost**: Lower than all traditional competitors
- **Staff**: Appropriate capabilities on staff or through contracts
- **Procedures**: Missing security and emergency response procedures
- **Cost of Service**: Performed recently
- **Billing System**: Advanced Meter Infrastructure-capable billing system in place
- **Customer communication plan**: Plan in place
- **Meters**: Automated Meter Read
- **Online bill pay**: In place
- **Access to high speed data**: Yes
- **Long-term Planning**: Long-term capital plan in place (investment criteria)
- **Strategic Plan**: Not in place
- **Tech Roadmap**: Not in place
- **Outage management system**: Not in place
- **Time of use rates**: Not offered
- **Analytics**: Not in place
- **Smart city**: No smart city capabilities
Case Study #1

**Group A**
- Status Quo / Tech Curious
- **Customer Expectations:**
  - ✓ Low Cost
  - ✓ Reliable
- **Utility Capabilities:**
  - ✓ Reliable Power (SAIDI)
  - ✓ Low Cost (Comparison)
  - ✓ Staff 1.0
  - ✓ Requisite Skillsets
  - ✓ Adequate Procedures
  - ✓ Cost of Service
  - ✓ Some Form Of Software (Billing/Financial)
  - ✓ Meters (Manual/Drive By)
  - ✓ Long-term Planning (O&M/Capex)
  - ✓ Communications w/Customer (Web/Text/Email)
- ✓ 1 YR (If Not Yet in Group A)

**Group B**
- Savings Seeker / Movers & Shakers
- **Customer Expectations:**
  - ✓ Group A +
  - ✓ Convenience
  - ✓ Savings Opportunities
- **Utility Capabilities:**
  - ✓ Group A +
  - ✓ Load Management
  - ✓ Modern Billing System
  - ✓ Automated Meter Read or better
  - ✓ Online Bill Pay
  - ✓ Staff 2.0
  - ✓ Strategic Plan
  - ✓ High Speed Data
- 2 YRS

**Group C**
- Movers & Shakers / Green Champion
- **Customer Expectations:**
  - ✓ Groups A + B +
  - ✓ Distributed Energy Resource (Solar, Battery, Distributed Generation)
  - ✓ Electric Vehicle
  - ✓ Outage Notification (Personalized)
  - ✓ Sustainability
  - ✓ Thermostat Overload Switch
  - ✓ Prepay
  - ✓ Apps
- **Utility Capabilities:**
  - ✓ Groups A + B +
  - ✓ Advanced Meter Infrastructure
  - ✓ Staff 3.0
  - ✓ Tech Road Map
  - ✓ Outage Management System
  - ✓ Time Of Use
  - ✓ Data Analytics
  - 3 YRS

**Group D**
- Movers & Shakers / Green Champion
- **Customer Expectations:**
  - ✓ Groups A + B + C +
  - ✓ Automation Control
  - ✓ Choice of Supply
  - ✓ Smart Building
  - ✓ Energy Cloud
- **Utility Capabilities:**
  - ✓ Groups A + B + C +
  - ✓ Data Analytics
  - ✓ Smart City - Integration Out Of The Utility
  - 5 YRS
  - 15+ YRS

**Timeframe to Meet Expectations:**
- 1 YR (If Not Yet in Group A)
- 2 YRS
- 3 YRS
- 5 YRS
- 15+ YRS
Case Study #1: Recommendations

- **Suggested immediate actions:**
  - Address procedure gaps
  - Root cause analysis on SAIDI
  - Completion Date: Immediate

- **Suggested foundational first steps:**
  - Develop utility strategic plan
  - AMI pilot
  - Completion Date: Early 2020

- **Strategic next steps:**
  - Develop customer program roadmap
  - Develop technology roadmap
  - Implement first customer program
  - Deploy AMI
  - Completion Dates: 2020, 2020, Early 2021, 2021

**REMEMBER!**
Do all of this is in addition to:
- Maintaining your operation
- Maintaining a skilled workforce
- Continuing to collect data on customers and metrics
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*NC Public Power and competitor scores based off of 2017 and 2018 survey results*
Utility Assessment for Case Study #2

- **SAIDI:** 8 minutes/year
- **Cost:** Higher than all traditional competitors
- **Staff:** Missing key staff capabilities
- **Procedures:** Missing security procedures, emergency response procedures, and key financial procedures
- **Cost of Service:** Performed recently
- **Billing System:** Substandard billing system in place
- **Customer communication plan:** Plan in place
- **Meters:** Manual read
- **Online bill pay:** Not in place
- **Access to high speed data:** Yes
- **Long-term Planning:** Long-term capital plan in place (investment criteria)
- **Strategic Plan:** Not in place
- **Tech Roadmap:** Not in place
- **Outage management system:** Not in place
- **Time of use rates:** Not offered
- **Analytics:** Not in place
- **Smart city:** No smart city capabilities
- **System Losses:** 10%
Case Study #2 Recommendations

• **Suggested immediate actions:**
  - Address procedure gaps
  - Address system losses
  - Conduct skills assessment for staff
  
  **Completion Date:** Immediate

• **Suggested foundational first steps:**
  - Develop utility strategic plan

  **Completion Date:** Early 2020

• **Strategic next steps:**
  - Develop customer program roadmap
  - Develop technology roadmap
  - Take next appropriate steps per roadmaps

  **Completion Dates:**
  - 2020
  - 2021

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