



**ELECTRICITIES
ANNUAL CONFERENCE**

Aug. 12-14 | Williamsburg, Va.

Assessing Your Long-Term Competitiveness

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.”

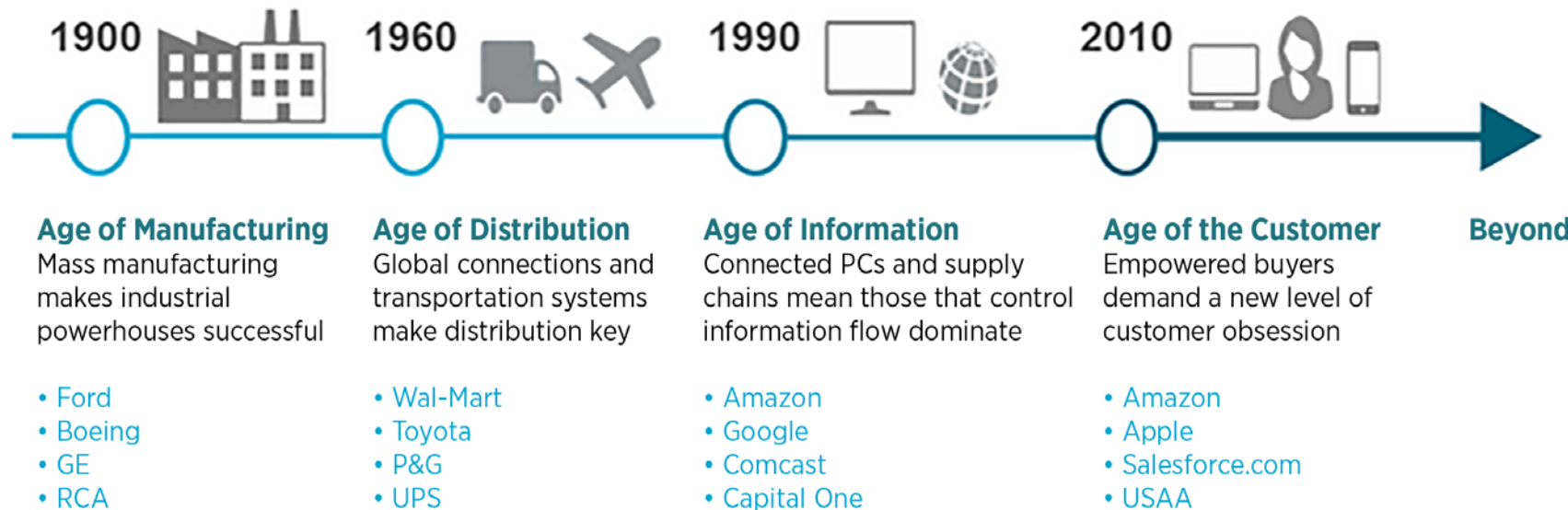
-Center for Energy Workforce Development, 2018 Game Changers National Strategic Workforce Plan



Customer Expectations

We are now in the “age of the customer”

 **76%**
OF CONSUMERS
expect companies
to understand their
needs and expectations



- Amazon singlehandedly raised the bar on customer expectations
- Increased demand for instant gratification and personalization
- Innovation transforms into expectation

(Source: Forrester Research, Inc.)



Infrastructure Modernization

Infrastructure modernization is needed as the energy industry moves from the one-way power flow model to a model focused on the distribution system.

Past

One-way power flow model



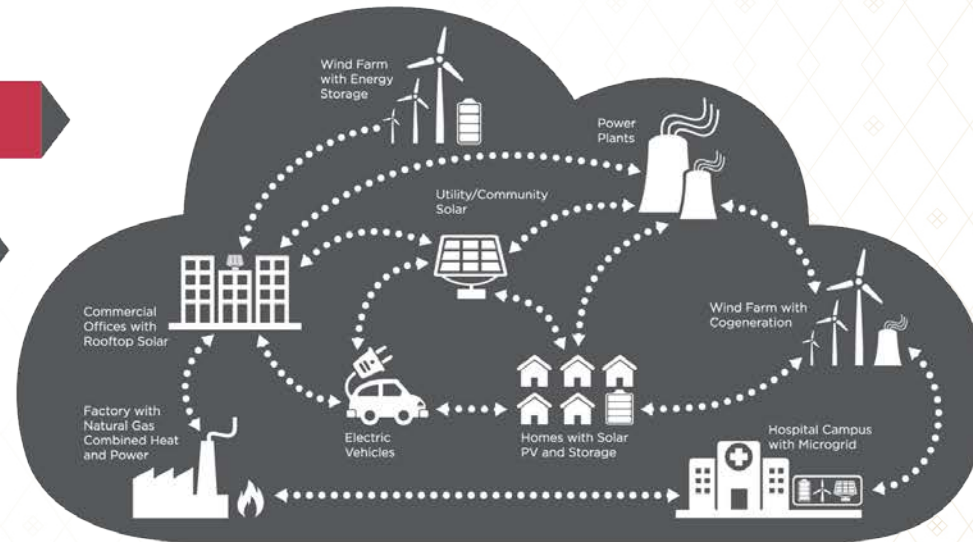
Market Demand

Technology Innovation

Policy & Regulation







Emerging

Distribution system-focused model



Non-Traditional Competition

- 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

COMPANY	CORE BUSINESS	WHAT IS THE THREAT?
	Tech	Retail customers purchase energy directly from retail giants
	Telecom	Telecom providers utilize utility data to provide energy products to retail customers
	Oil & Gas	Fossil fuel companies provide onsite charging services off of the electric grid
	DER	DERs continue to get market share and the technology matures to allow cutting ties with the grid
	Auto	Automobiles mature to the point of being grid resources, giving automakers a market opportunity
	Energy Retail	Retail players continue to find ways to circumvent regulated retail markets

(Source: Navigant)



Three Areas of Focus

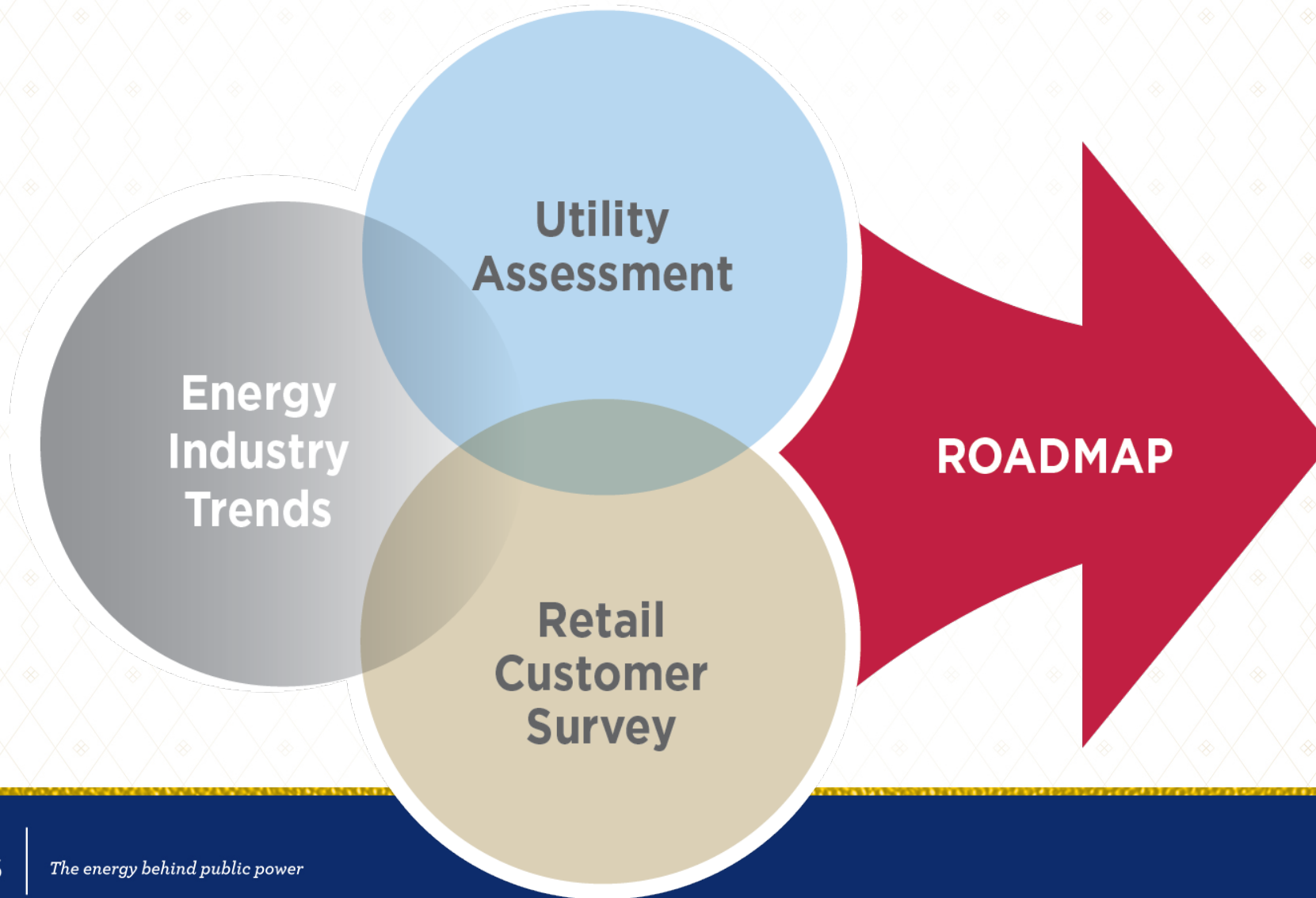


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Creating a Roadmap



Retail Customer Survey



2017-2019 Survey Participants

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



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

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, tinkers, 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

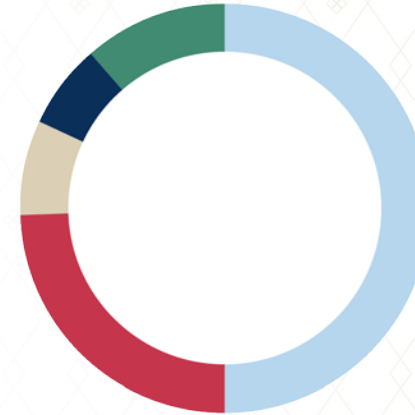
19.8% - Technology Cautious

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

	NC Public Power Residential*	IOU Residential*	Rural Electric Coop Residential*
Communicating with customers	79.2	77.7	84.9
Providing services and products I expect of a modern utility	84.4	83.4	89.4
Reliable electric service	91.6	90.5	92.8
Providing good value for the cost of electricity	66.3	65.2	74.3
Responsible steward of the environment	84.0	64.0	85.0
Responding promptly to questions and complaints	84.4	79.2	85.3
Helpful and knowledgeable staff	86.9	82.3	90.0
Being supportive of community activities and events	89.5	82.5	90.2
Overall satisfaction	83.3	83.4	88.2



Utility Assessment

40 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



55% OF MEMBERS HAVE A UTILITY STRATEGIC PLAN

SYSTEM LOSSES

AVERAGE FOR NCPP 6.7%

RELIABILITY

NCPP SAIDI

54.19

NCPP SAIFI

0.67



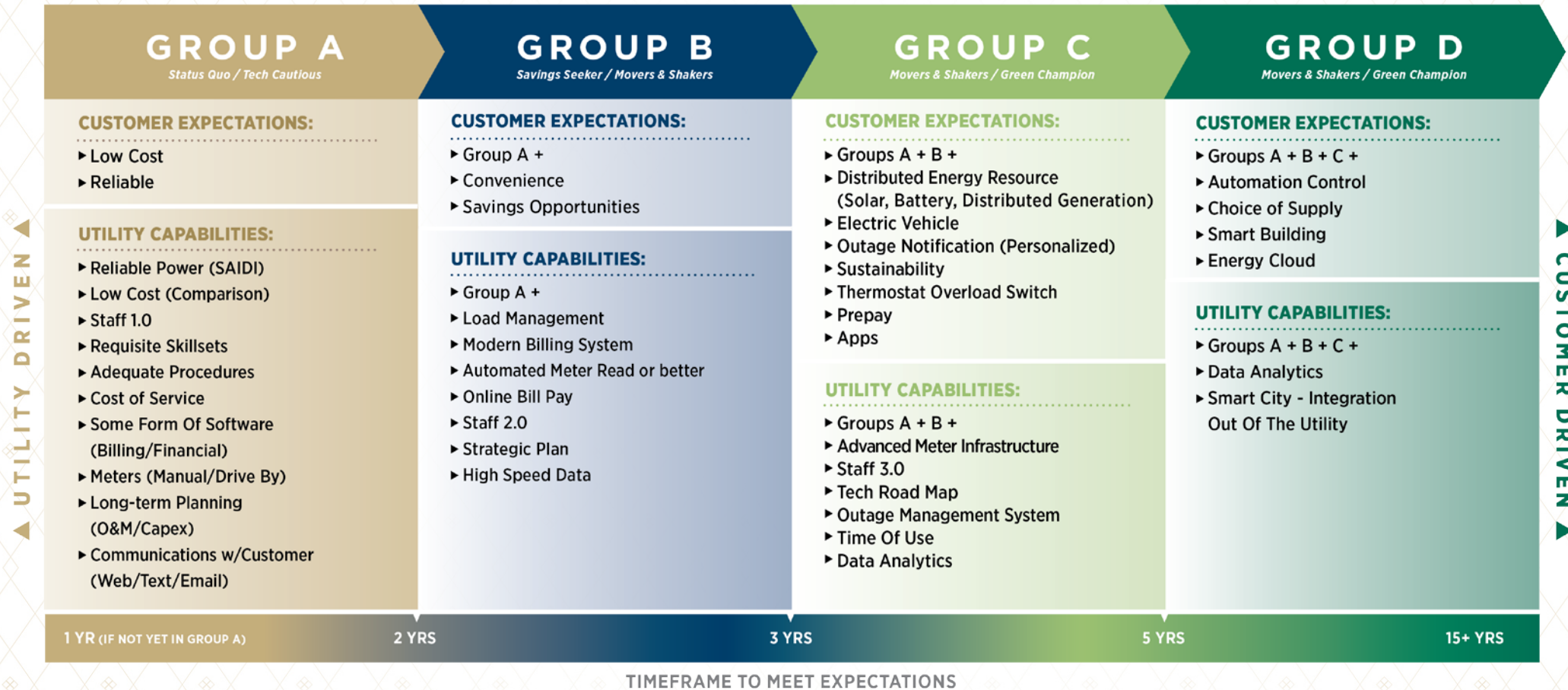
SAIDI = System Average Interruption Duration Index (measured in minutes/customer/year)
SAIFI = System Average Interruption Frequency Index (measured in number of outages/customer/year)

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



▲ CUSTOMER DRIVEN



Agenda

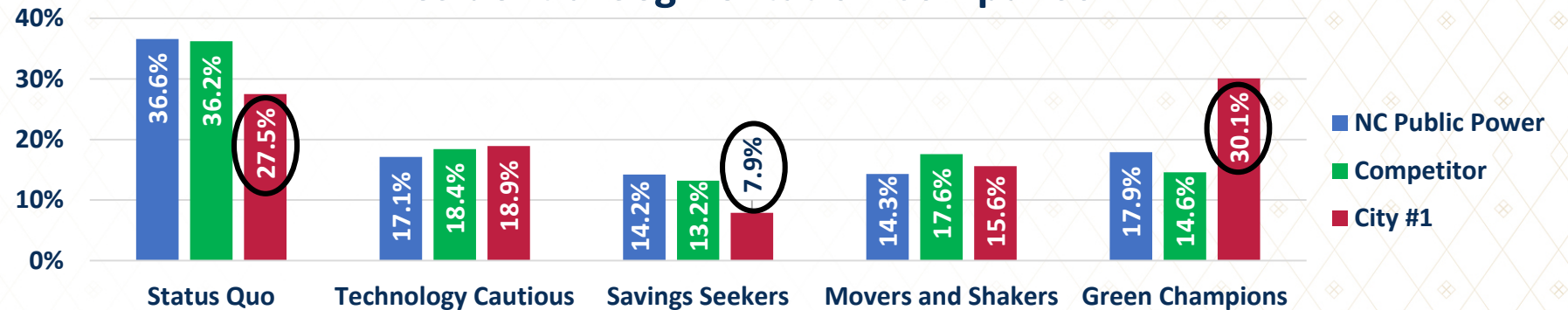
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Case Study #1

Customer Survey Results

Residential Segmentation Comparison



	Town #1 Residential	NC Public Power Residential*	IOU Residential*	Rural Electric Coop Residential*
Communicating with customers	77.1	77.9	77.4	82.1
Reliable electric service	93.1	91.0	91.1	92.9
Providing good value for the cost of electricity	82.6	64.4	64.3	68.7
Responsible steward of the environment	89.5	83.0	60.0	82.0
Responding promptly to questions and complaints	87.3	83.0	77.0	82.1
Helpful and knowledgeable staff	89.3	86.2	80.2	87.9
Overall satisfaction	91.7	82.3	82.5	85.3

*NC Public Power and competitor scores based off of 2017 and 2018 survey results

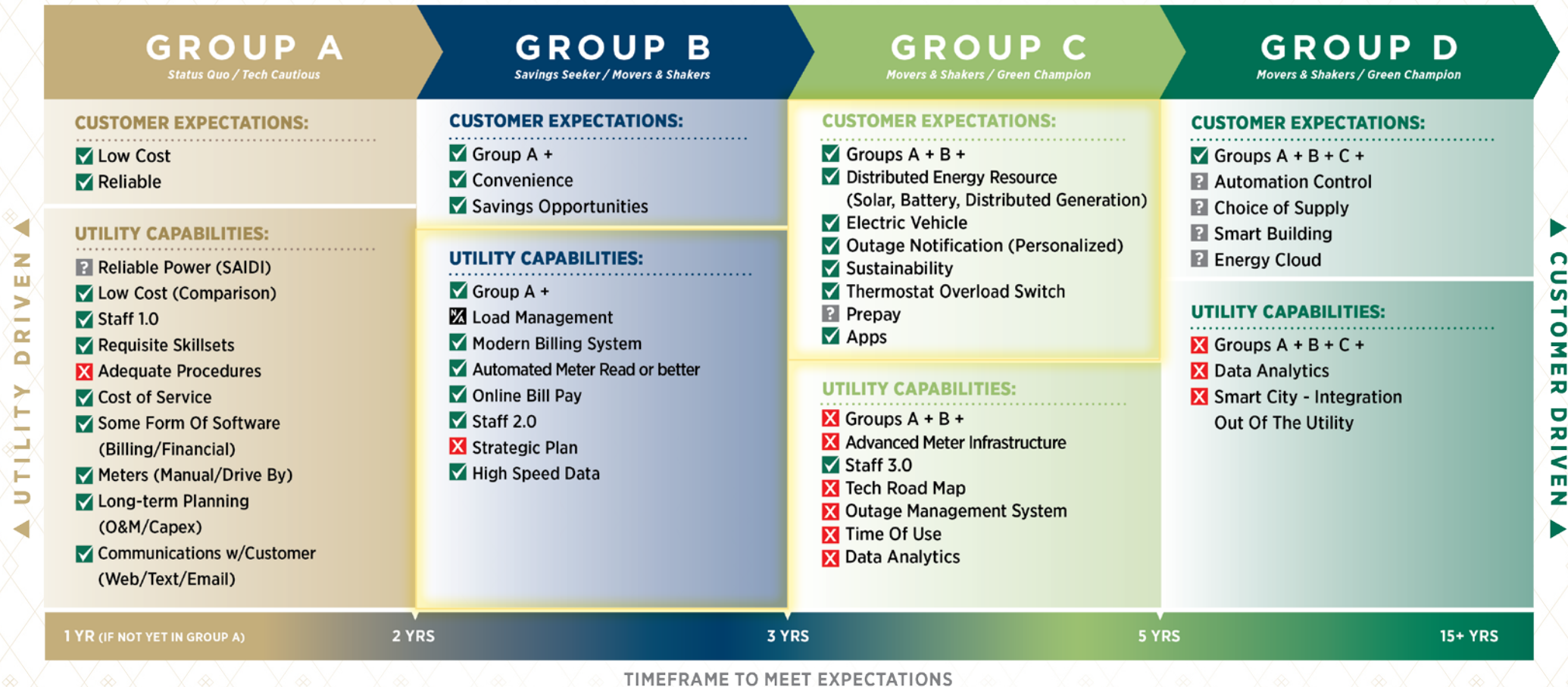


Utility Assessment for Case Study #1

- **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



Example #1



Case Study #1: Recommendations

- **Suggested immediate actions:**

- Address procedure gaps
- Root cause analysis on SAIDI

Completion Date

Immediate
Immediate

- **Suggested foundational first steps:**

- Develop utility strategic plan
- AMI pilot

Early 2020
Early 2020

- **Strategic next steps:**

- Develop customer program roadmap
- Develop technology roadmap
- Implement first customer program
- Deploy AMI

2020
2020
Early 2021
2021

REMEMBER!

Do all of this in addition to:

- Maintaining your operation
- Maintaining a skilled workforce
- Continuing to collect data on customers and metrics



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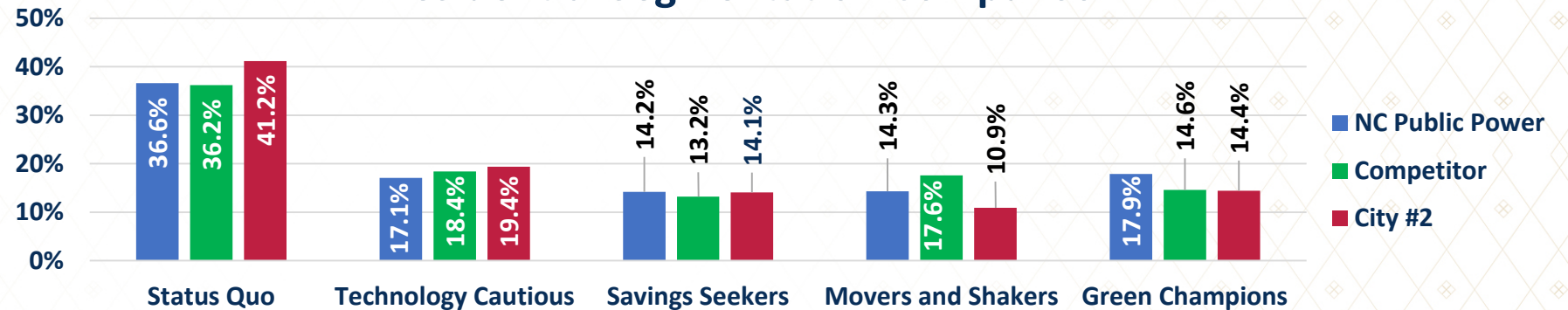
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Case Study #2

Customer Survey Results

Residential Segmentation Comparison



	Town #1 Residential	NC Public Power Residential*	IOU Residential*	Rural Electric Coop Residential*
Communicating with customers	83.4	77.9	77.4	82.1
Reliable electric service	93.8	91.0	91.1	92.9
Providing good value for the cost of electricity	68.3	64.4	64.3	68.7
Responsible steward of the environment	85.9	83.0	60.0	82.0
Responding promptly to questions and complaints	85.1	83.0	77.0	82.1
Helpful and knowledgeable staff	89.7	86.2	80.2	87.9
Overall satisfaction	86.7	82.3	82.5	85.3

*NC Public Power and competitor scores based off of 2017 and 2018 survey results

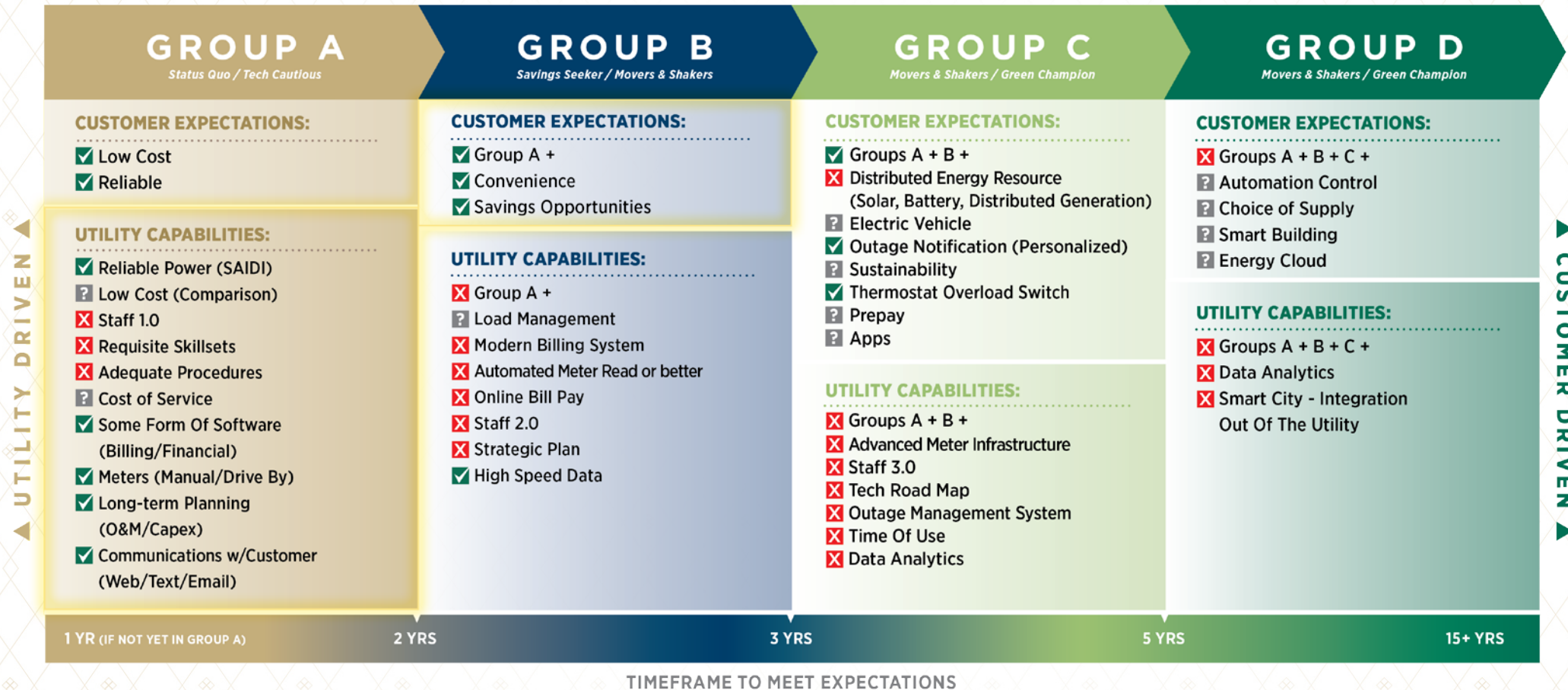


Utility Assessment for Example #2

- **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%



Example #2



Case Study #2: Recommendations

- **Suggested immediate actions:**

- Address procedure gaps
- Address system losses
- Conduct skills assessment for staff

Completion Date

Immediate
Immediate
Immediate

- **Suggested foundational first steps:**

- Develop utility strategic plan

Early 2020

- **Strategic next steps:**

- Develop customer program roadmap
- Develop technology roadmap
- Take next appropriate steps per roadmaps

2020
2020
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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Questions and Discussion





Thank You

**Participate in conference discussions on Twitter:
#ECAC2019**



@ncpublicpower



facebook.com/Electricities



@ElectriCitiesNC



ROADMAP – Key Takeaways

- All groups have some number of customers from Group D (Green Champions and Movers & Shakers). It's important to monitor that customer segment.
- You don't have to make an entire move to another group. Selecting elements to implement from another group may make more sense.

*"A **GOOD** hockey player plays where the puck is. A **GREAT** hockey player plays where the puck is going to be."*

- Wayne Gretzky



Key Takeaways for Public Power



“Both the External and Internal Game Changers indicate a shift to an industry that is more rapidly transforming, with technology playing an increasingly important role”

Center for Energy Workforce Development, State of the Energy Workforce 2018 report

To be successful in this environment, Public Power utilities must do the following:

- Focus on customers more than ever before
- Adopt a strategic plan, an entrepreneurial outlook, and identify new business opportunities
- Recruit and retain key employee skillsets (new and old), and pay competitively
- Identify value in partnerships and collaboration, both internally and externally
- Continually remind all stakeholders of the Public Power value proposition; shamelessly self-promote
- Take more risks, accept failures and learn from them

