

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

## Board Self-Assessment and MRC Assessment of Board of Trustees Effectiveness Results

Prepared by Survey Design & Analysis

**RELIABILITY | ACCOUNTABILITY**



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# Objectives & Methods

- To assess the performance and effectiveness of the NERC Board of Trustees (Board).
- NERC developed an assessment questionnaire and has been using the same questionnaire for at least the past three years, 2015-2017.
- The assessment has 29 questions (see appendix) to be answered by Board members, 21 of which are also answered by MRC members.
- 8 out of 8 board members participated in the assessment. 22 out of 28 MRC members participated, for response rates of 100% and 79%, respectively.

- All questions ask respondents to rate a single statement on a “Levels of Effectiveness” scale from 1 to 5 where:
  - 1 = Needs Prompt Attention (“unacceptable performance”)
  - 2 = Below Expectations (“performance area with opportunity for improvement”)
  - 3 = Meets Expectations (“meets the required standard of performance”)
  - 4 = Exceeds Expectations (“exceeds the required standard of performance”)
  - 5 = Outstanding (“far exceeds the required standard of performance”)
- Ability to see trends and difference was enhanced by combining questions within the six question areas: Strategy, Oversight, Stakeholder Relations, Composition/Structure, Board Functioning and NERC Management.



# Executive Summary

## Positive Highlights

- Excellent response rate as in past years; Board of Trustees (Board), 100%; Member Representatives Committee (MRC), 79%.
- Board & MRC members show commitment to the process by providing thoughtful comments, a total of 63 in all.
- The Board is clearly meeting expectations in five of the six topic areas; Strategy, Stakeholder Relations, Composition/Structure, Board Functioning and NERC Management scoring 3's, 4's and 5's by virtually all respondents on all questions.
- 100% of Board members feel they and their peers are making meaningful contributions to the corporation as Board members.
- Assessment levels have remained virtually the same for the last three years.
- NERC Management has shown a commitment to improving the assessment process, by having the assessment instrument reviewed and the analysis refreshed.

## Potential Focus Areas

- For the Board Oversight topic area, potential areas for focus are:
  - “Considers costs and benefits associated with new reliability standards”
  - “Efficient and cost-effective operation of ERO enterprise”
  - “Ensures that compliance and enforcement processes are efficient and cost effective”
  - “Ensures decision-making process is not inappropriately influenced by either management or the stakeholders.”
- Succession Planning

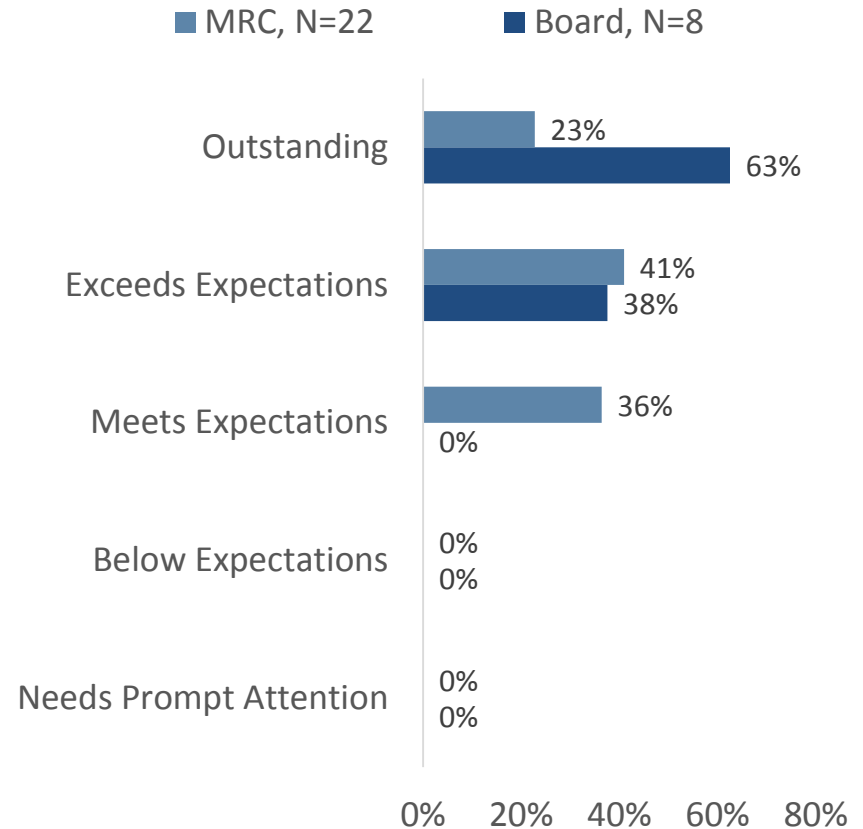
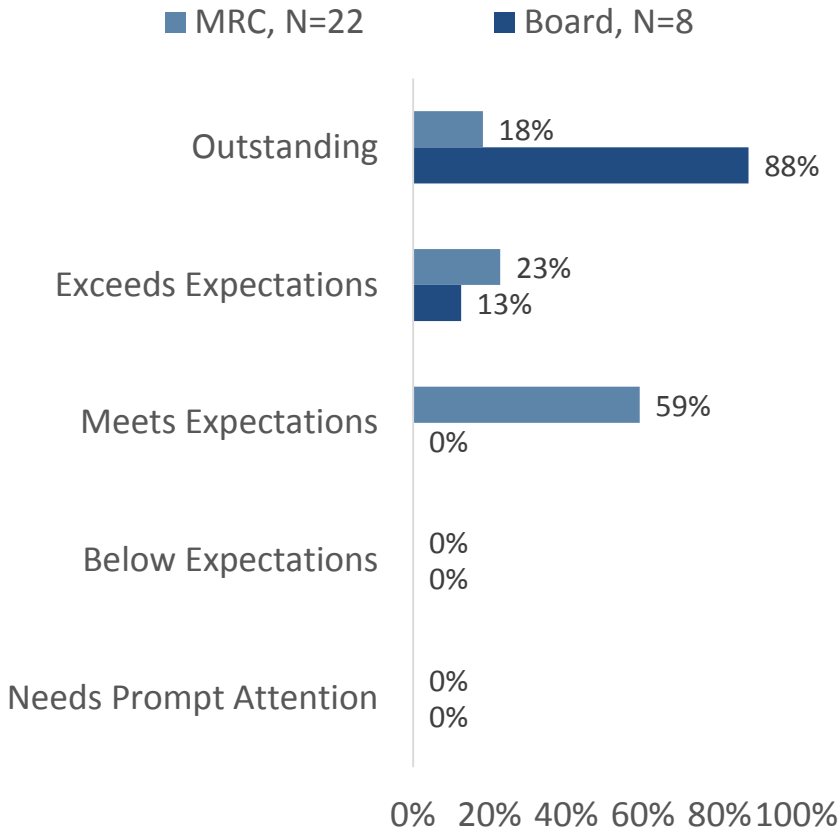




# Strategy

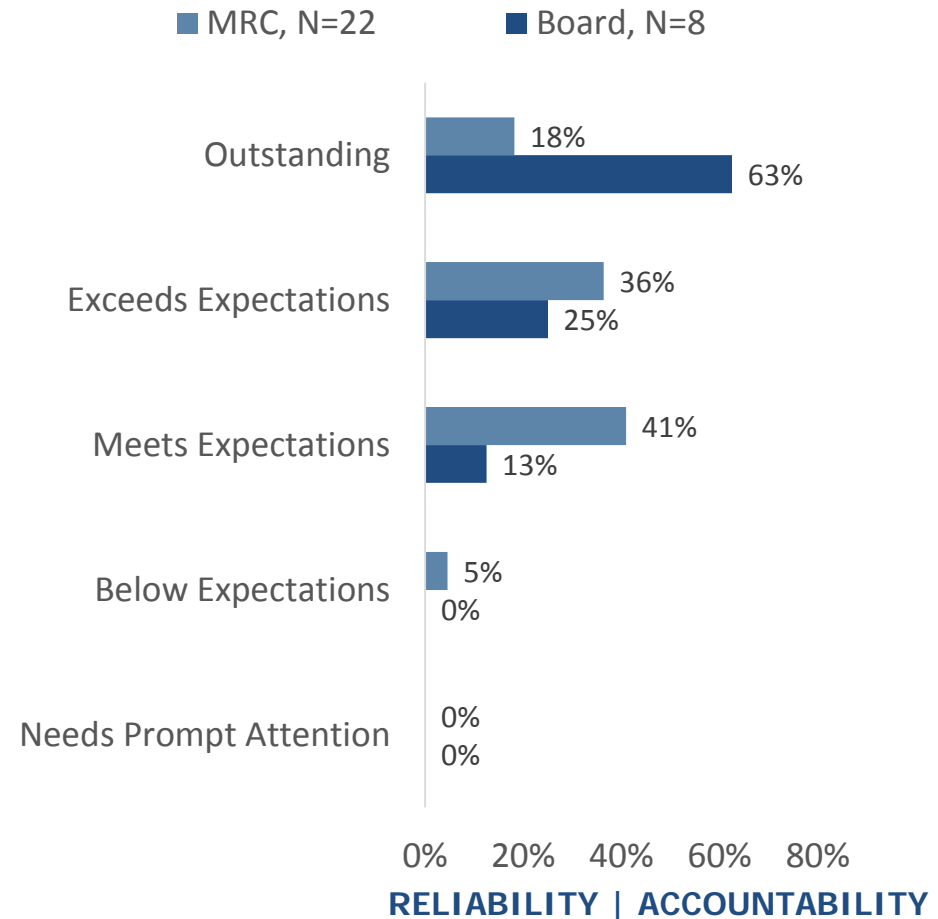
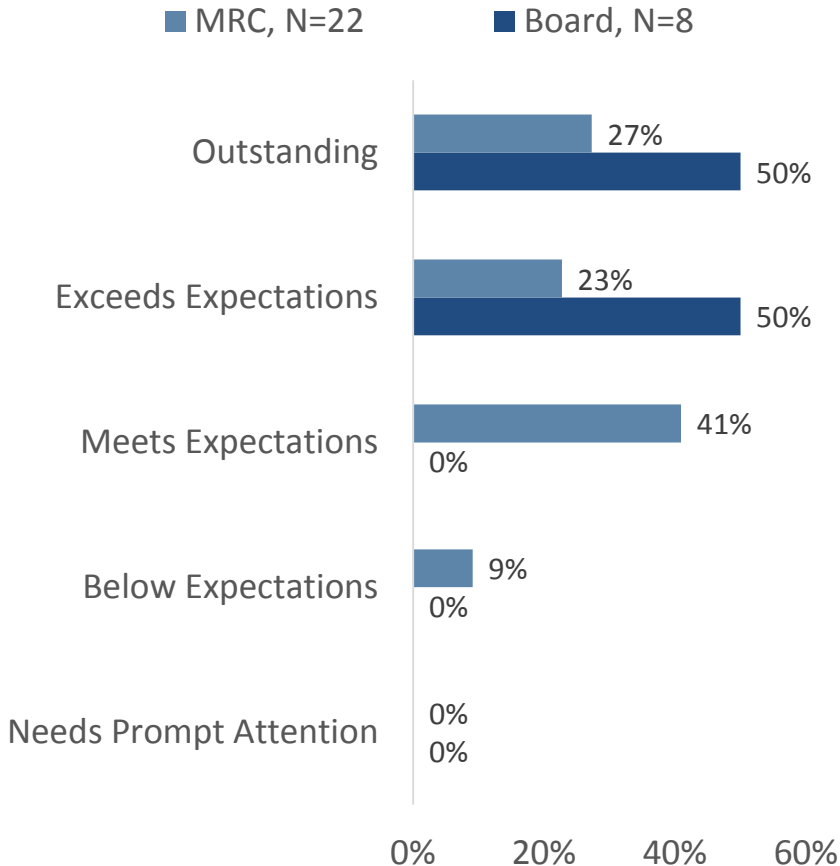
*1. The Board has knowledge of and familiarity with NERC's corporate values, mission, vision, strategic plan, and business plan and reflects this understanding in evaluating key issues.*

*2. The Board effectively works with management to establish NERC's strategic and business plans.*

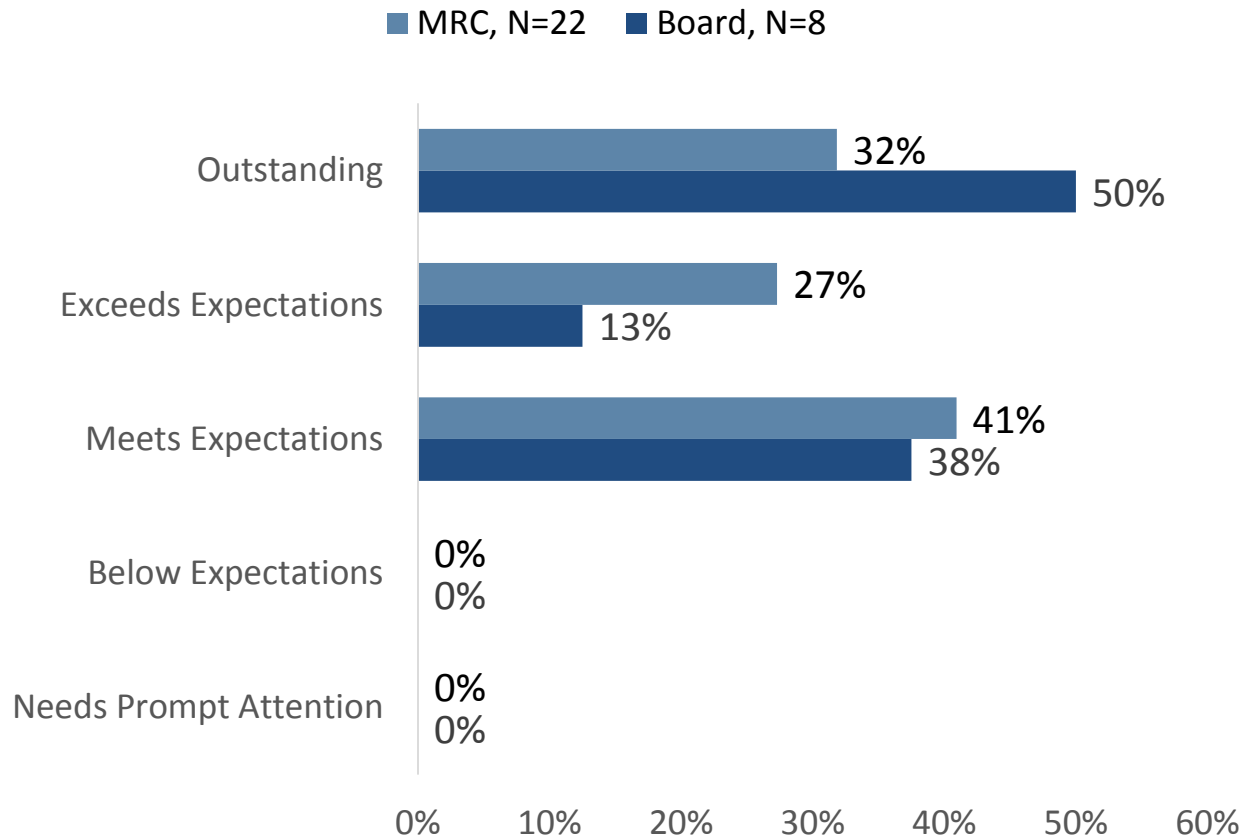


*3. Board members stay abreast of issues and trends affecting NERC and the industry and use this information to assess and guide NERC performance.*

*4. The Board effectively sets priorities through the strategic and annual business plans.*



*5. The Board takes appropriate account of the international charter of the North American bulk power system., N=30*

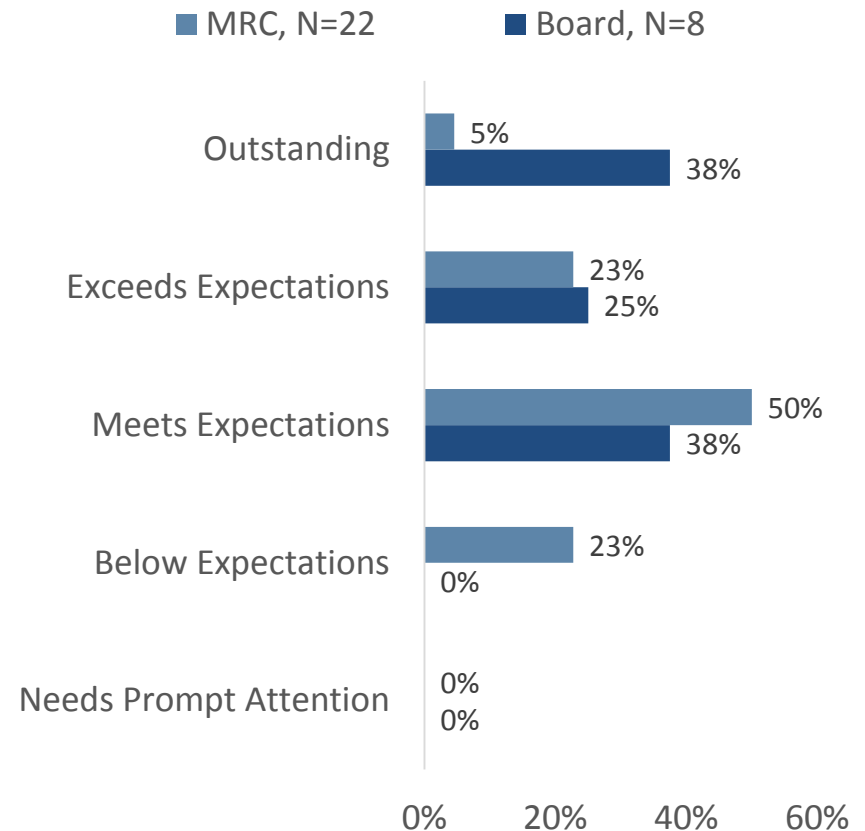
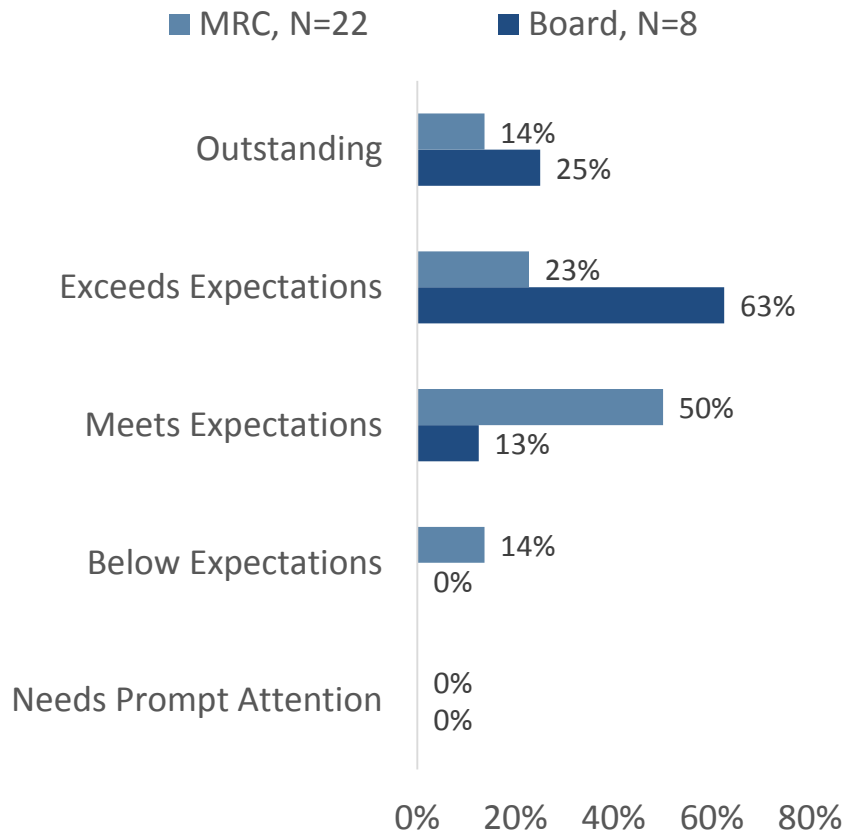




# Oversight

*1. The Board is sufficiently involved in the ERO Enterprise (NERC and the Regional Entities) annual business planning and budgeting process.*

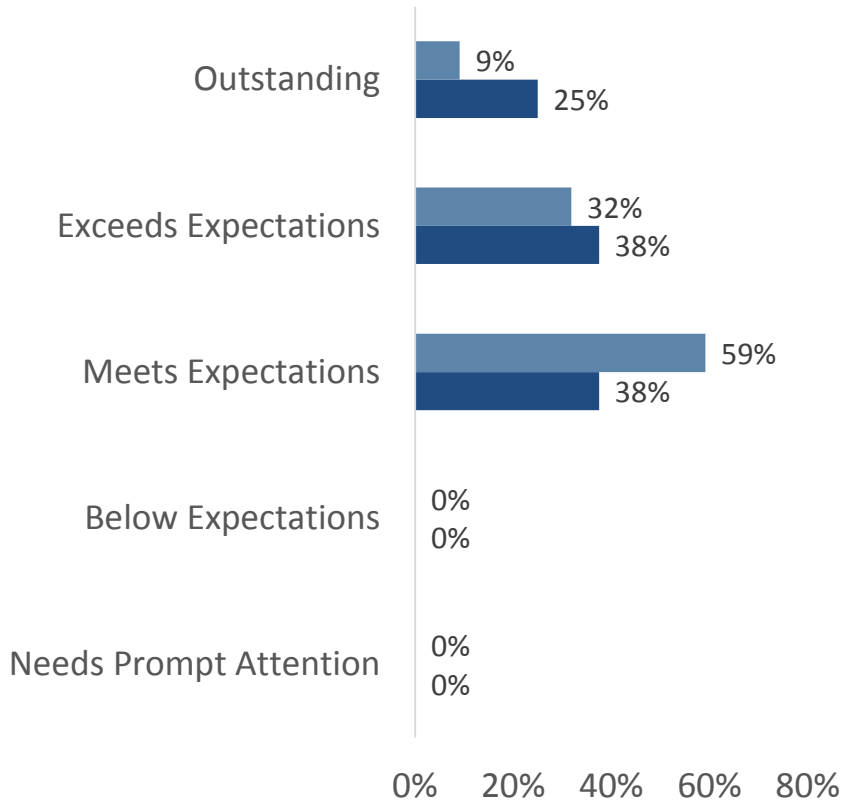
*2. The Board sufficiently ensures that the ERO Enterprise business plan and budget provides for the efficient and cost-effective operation of the ERO Enterprise.*



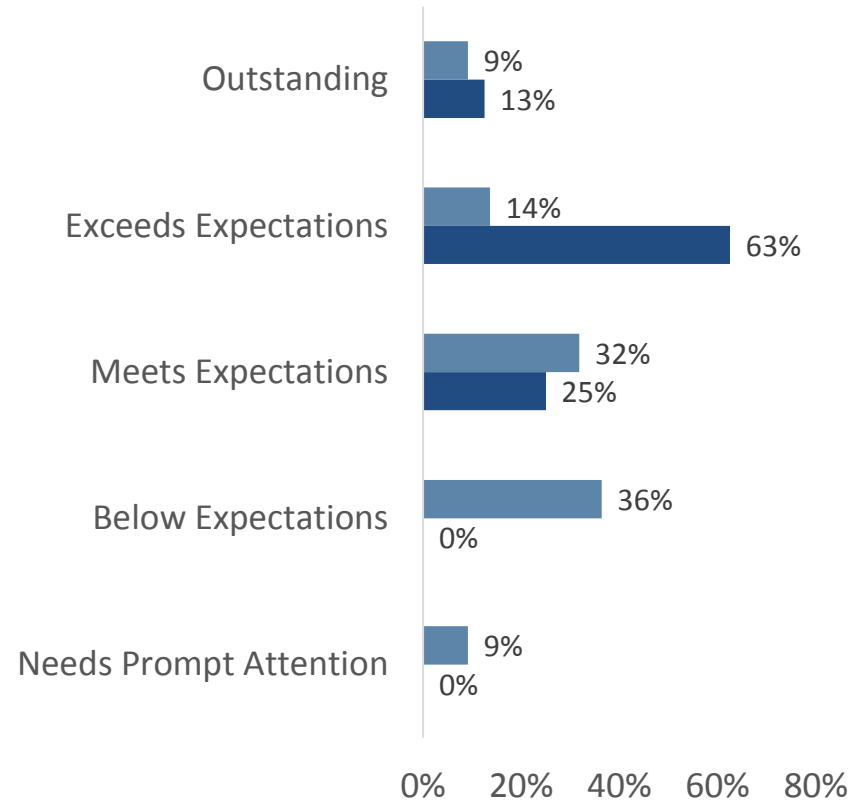
*3. The Board is sufficiently involved in monitoring the corporation's compliance with regulatory requirements and directives.*

*4. The Board sufficiently ensures that the standards development and approval process considers the costs and benefits of new reliability standards.*

■ MRC, N=22      ■ Board, N=8

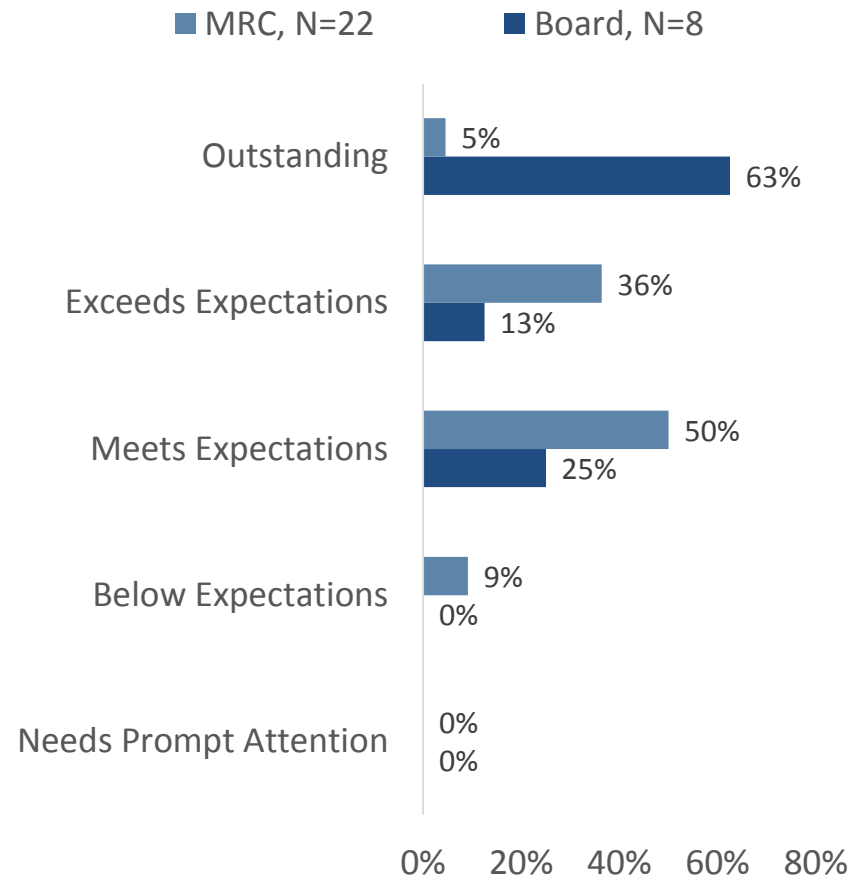
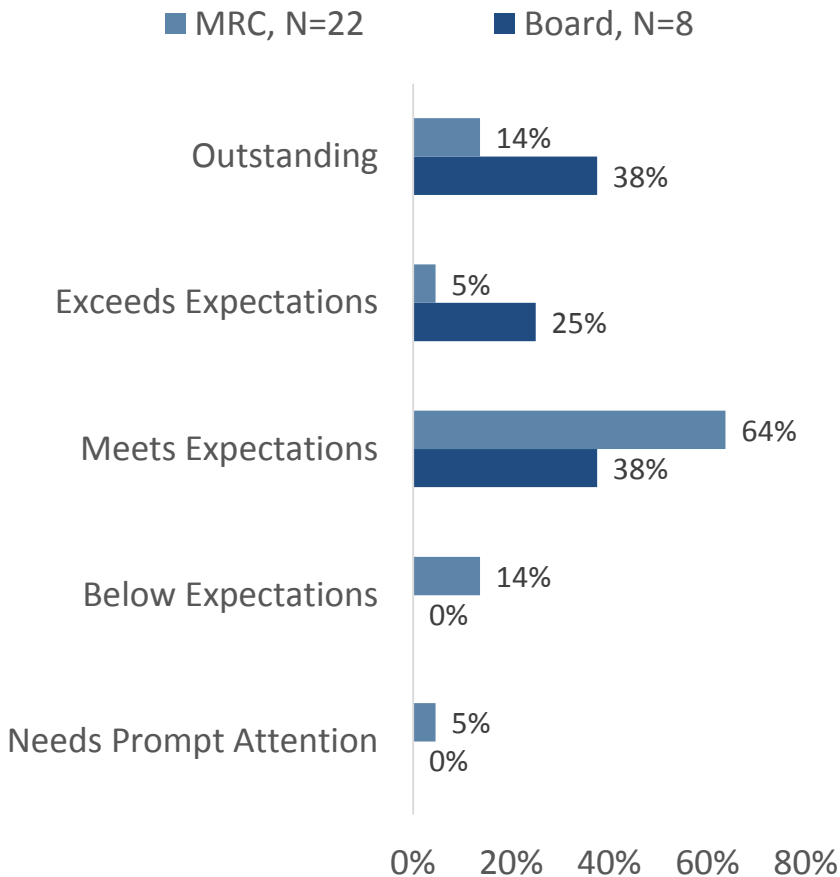


■ MRC, N=22      ■ Board, N=8



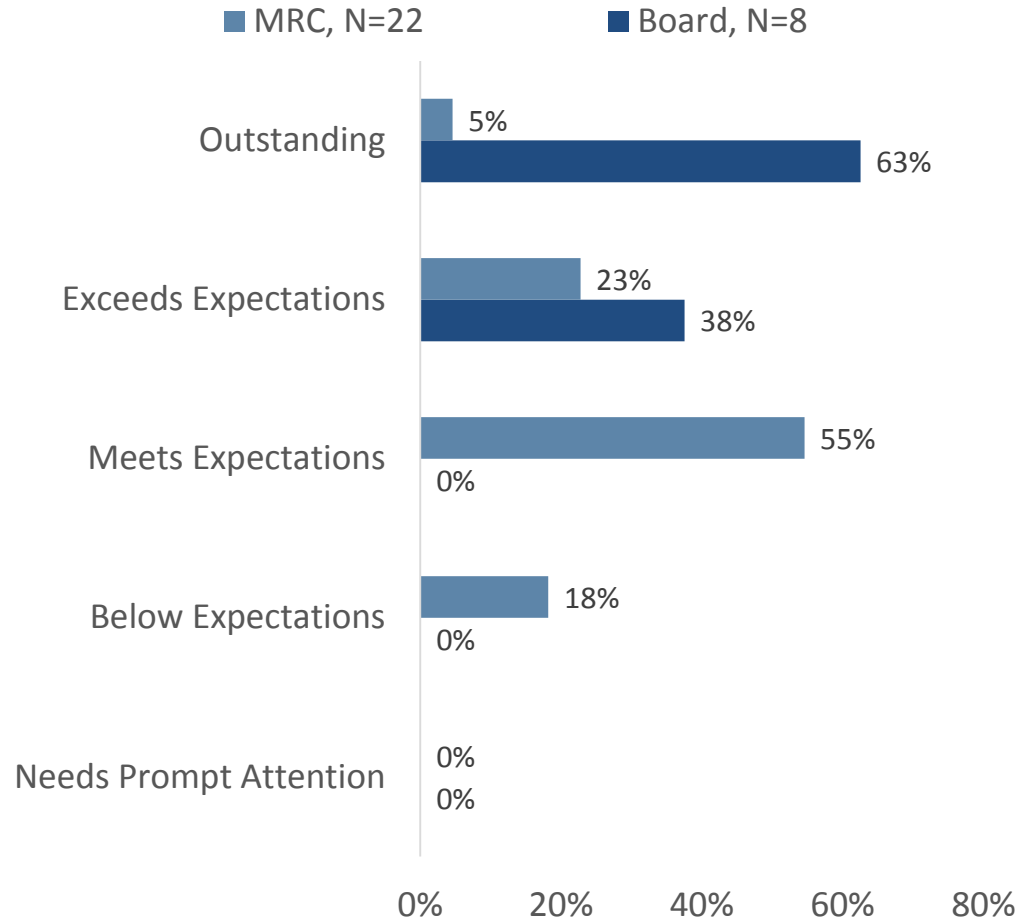
*5. The Board sufficiently ensures that the ERO Enterprise's compliance and enforcement processes are efficient and cost effective.*

*6. The Board's decision making process is sufficiently transparent and open.*





*7. The Board's decision making process is not inappropriately influenced by either management or the stakeholders.*

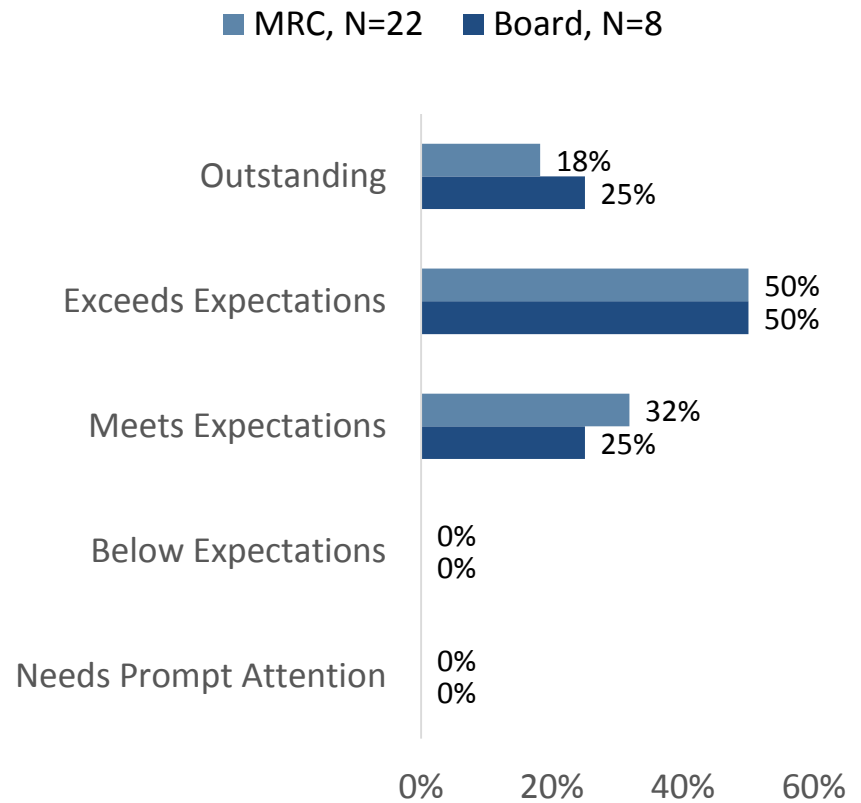
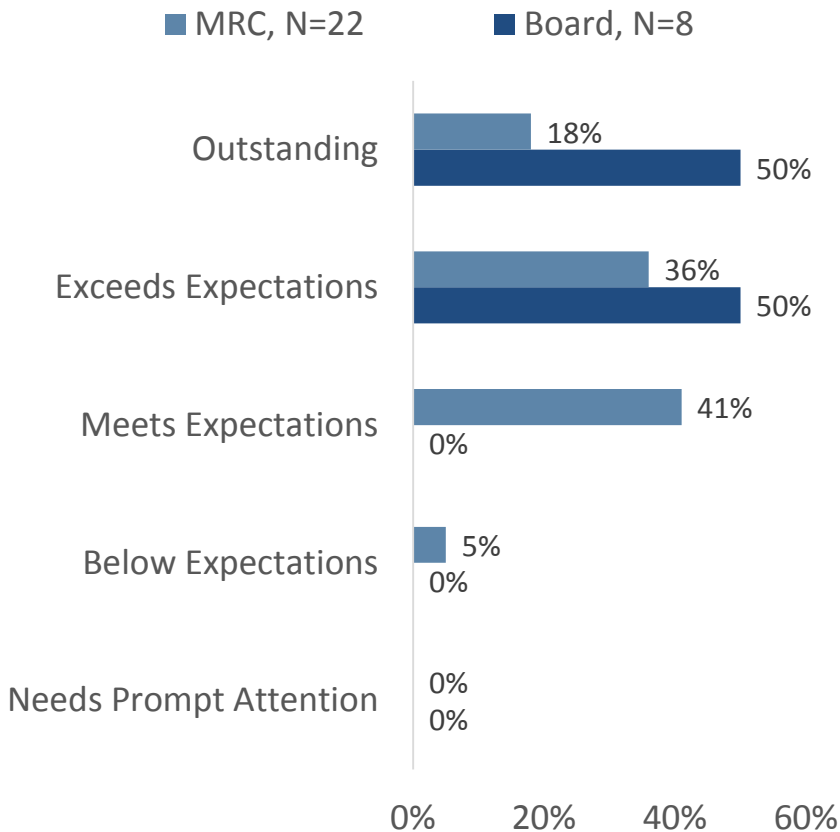




# Stakeholder Relations

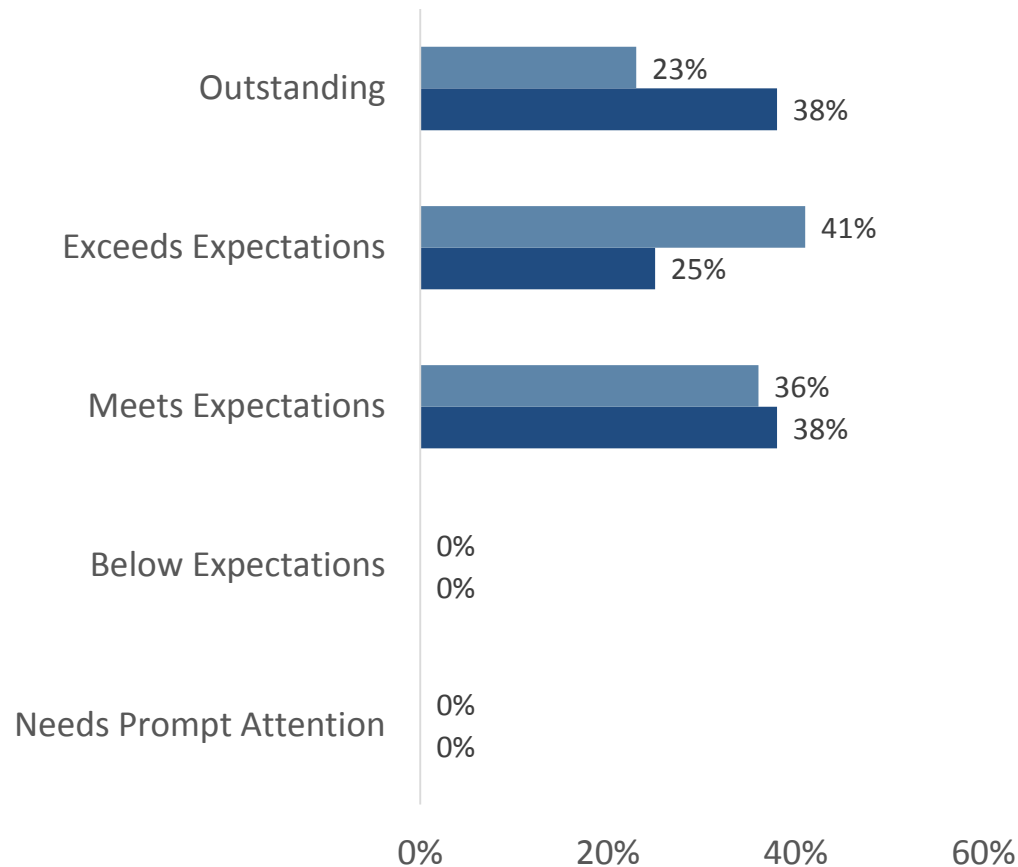
*1. The Board effectively works with the MRC and other stakeholders to seek and consider stakeholder input when establishing ERO priorities and considering key policy issues.*

*2. The Board establishes a positive and cooperative dialogue with U.S. federal and state regulators.*



*3. The Board establishes a positive and cooperative dialogue with Canadian federal and provincial regulators.*

■ MRC, N=22   ■ Board, N=8



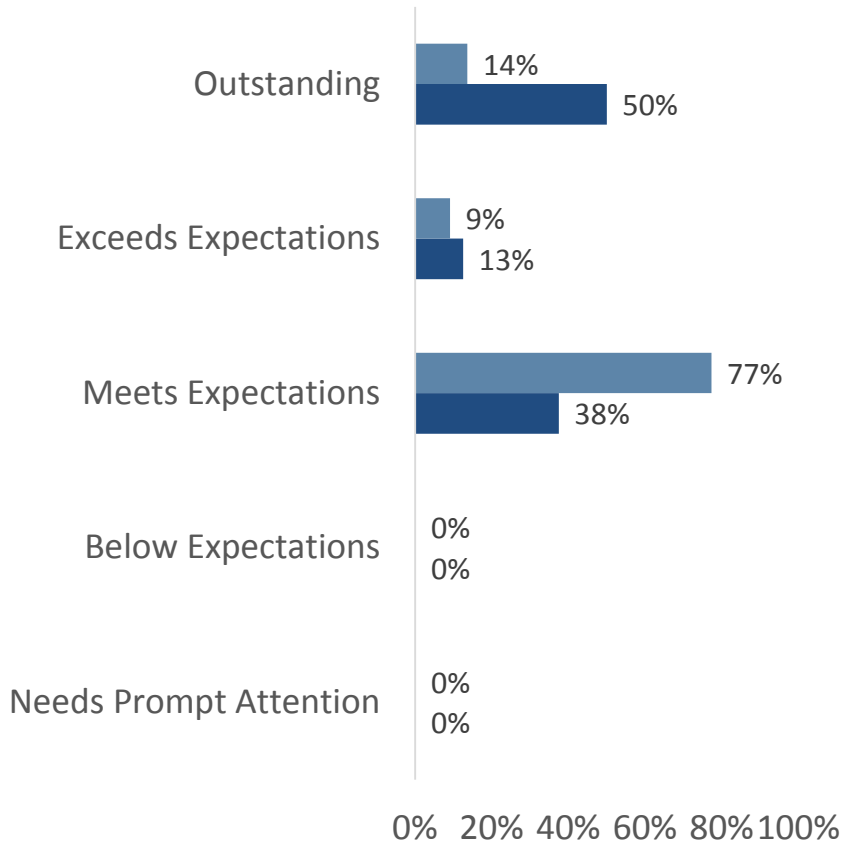


# Composition/Structure

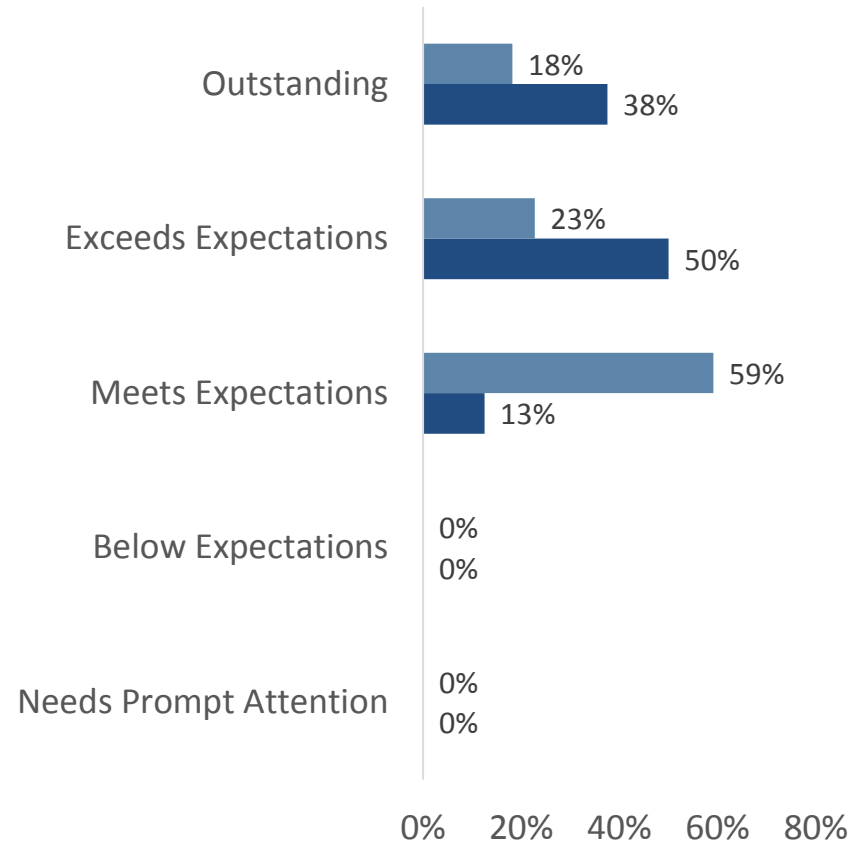
*1. The Board's size is appropriate and effective.*

*2. Board members reflect broad diversity of competency strengths and professional experience.*

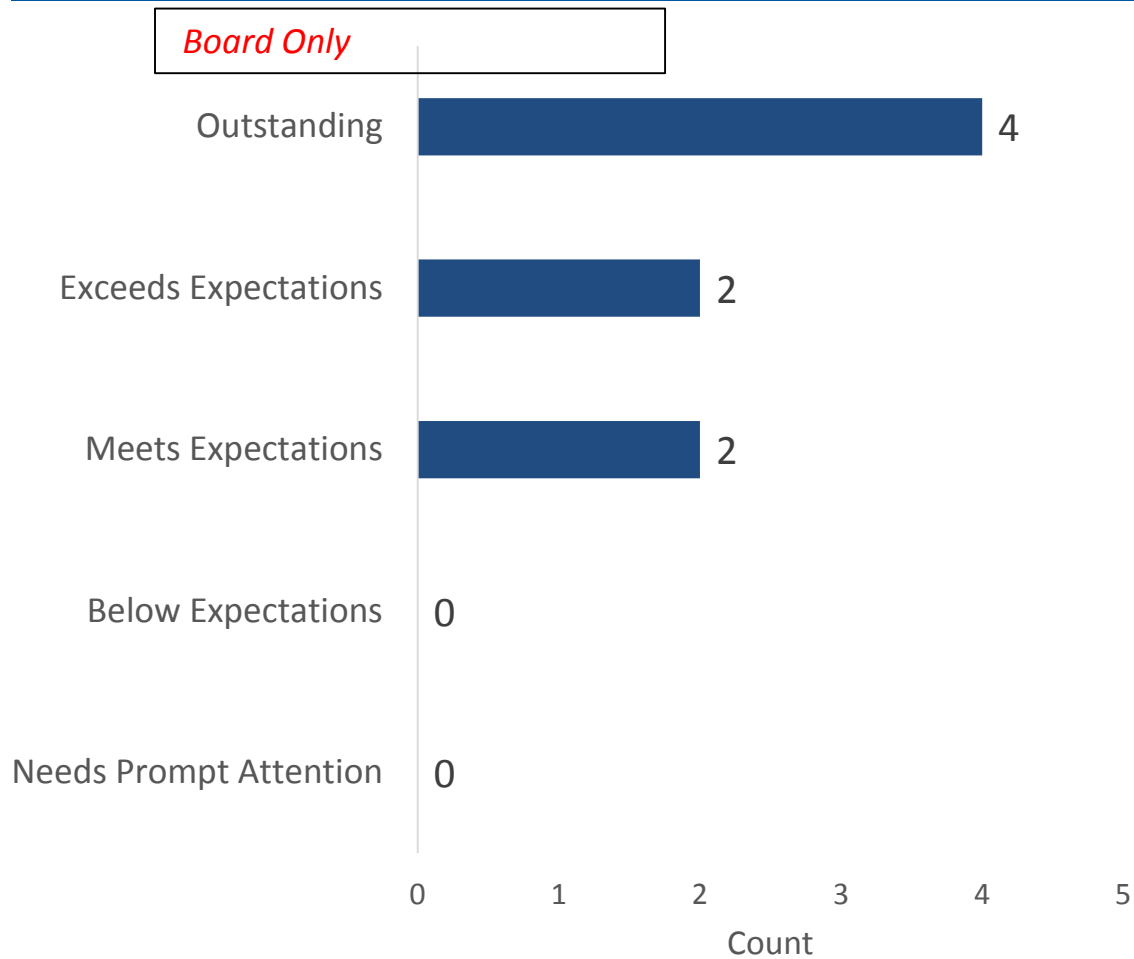
■ MRC, N=22      ■ Board, N=8



■ MRC, N=22      ■ Board, N=8



*3. The Board's Committees have suitable mandates and membership., N=8*



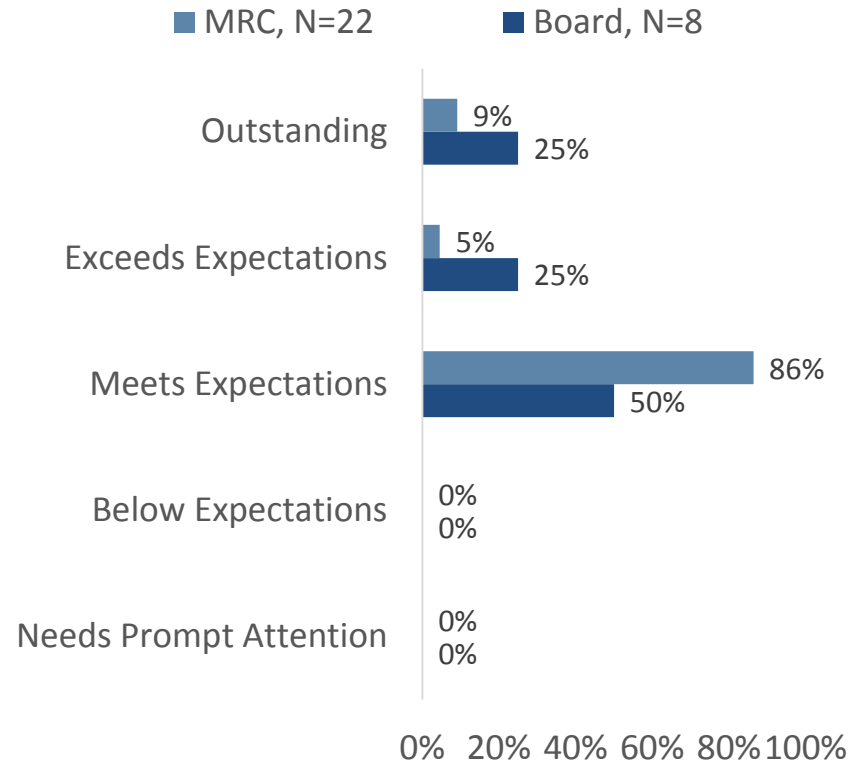
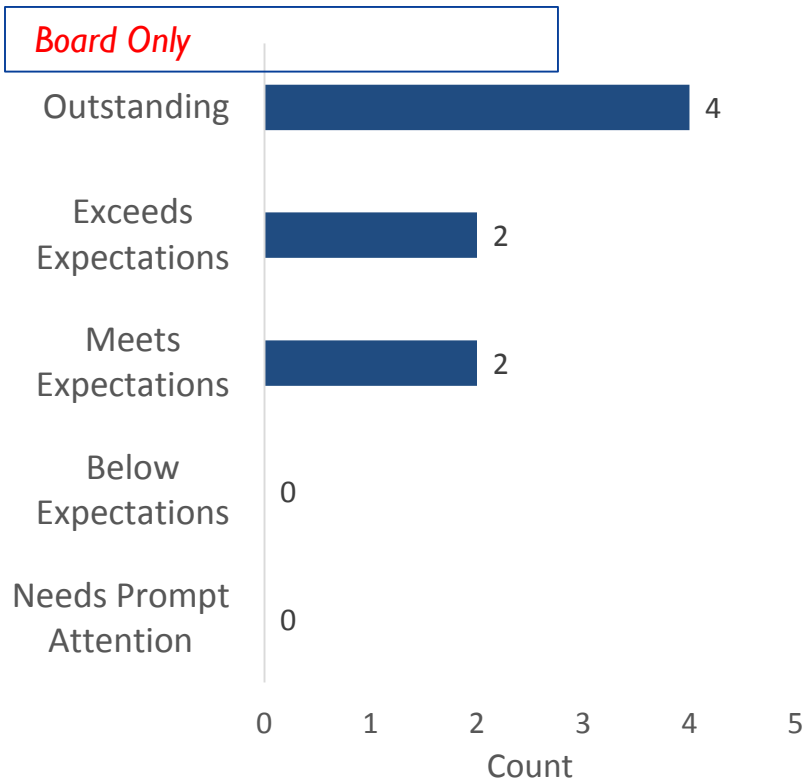


# Board Functioning



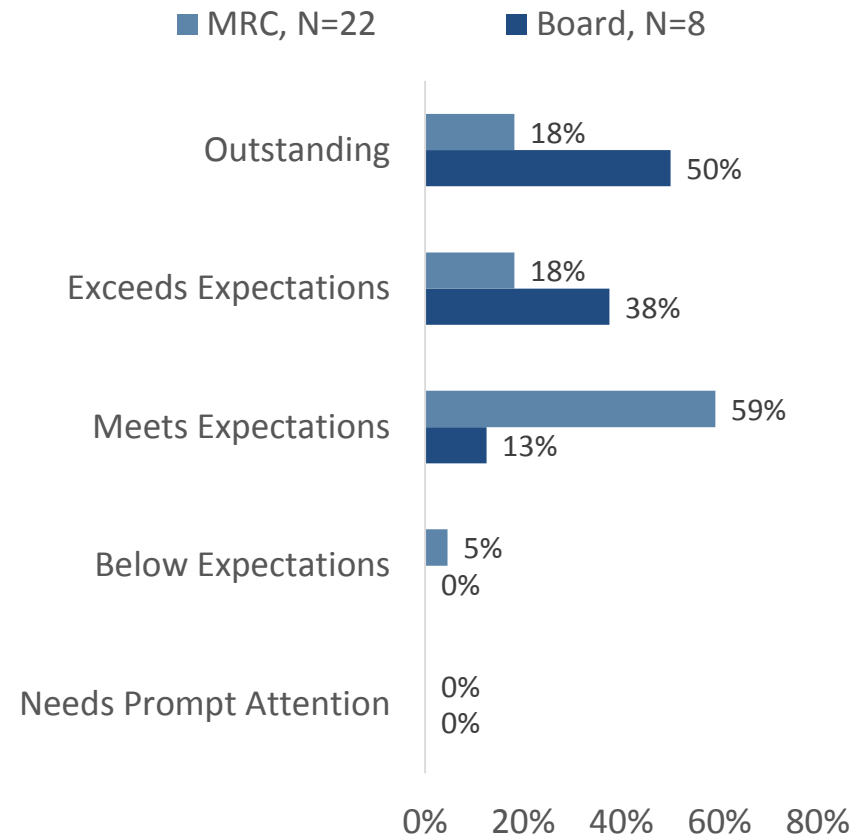
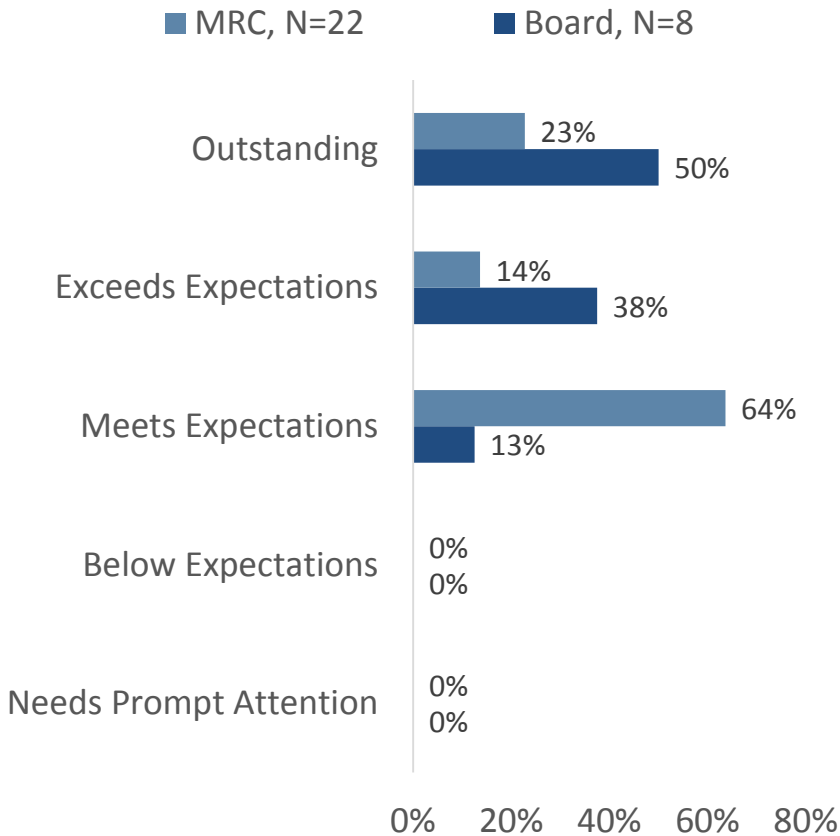
1. The Board has established procedures that ensure Board members receive written meeting notices, agendas and appropriate background material in time to prepare in advance of meetings, are presented meaningful information during meetings, and receive timely and accurate minutes., N=8

2. The number of Committee meetings is appropriate.



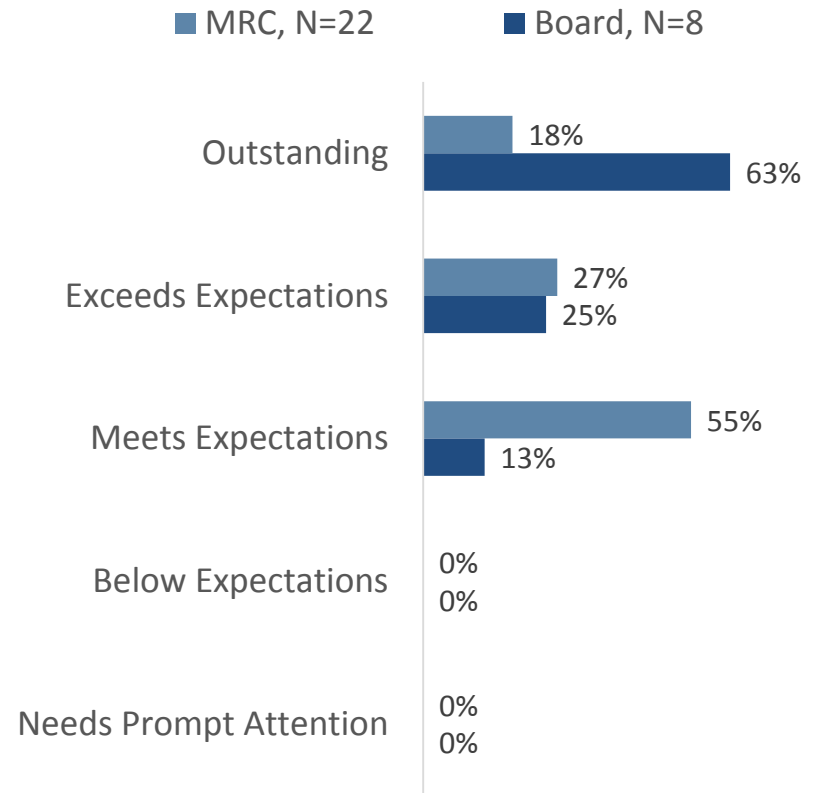
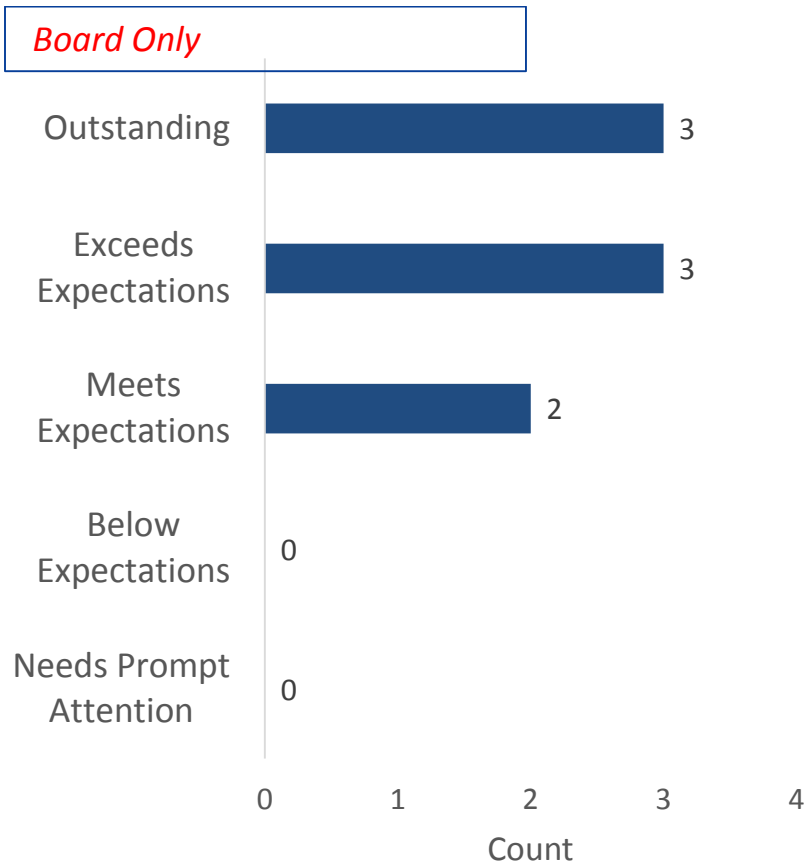
*3. The Chair of the Board effectively oversees and facilitates Board activities and direction.*

*4. The Chair manages meetings efficiently to allow for sufficient discussion and constructive input on important issues and provides appropriate allocation of time to agenda items.*



5. Board goals, expectations, and concerns are effectively communicated with the CEO and other senior management through sufficient, meaningful dialog during Board meetings or otherwise., N=8

6. Board members participate as equals and communicate openly.





# NERC Management

*1. The Board has appropriate access to management.*

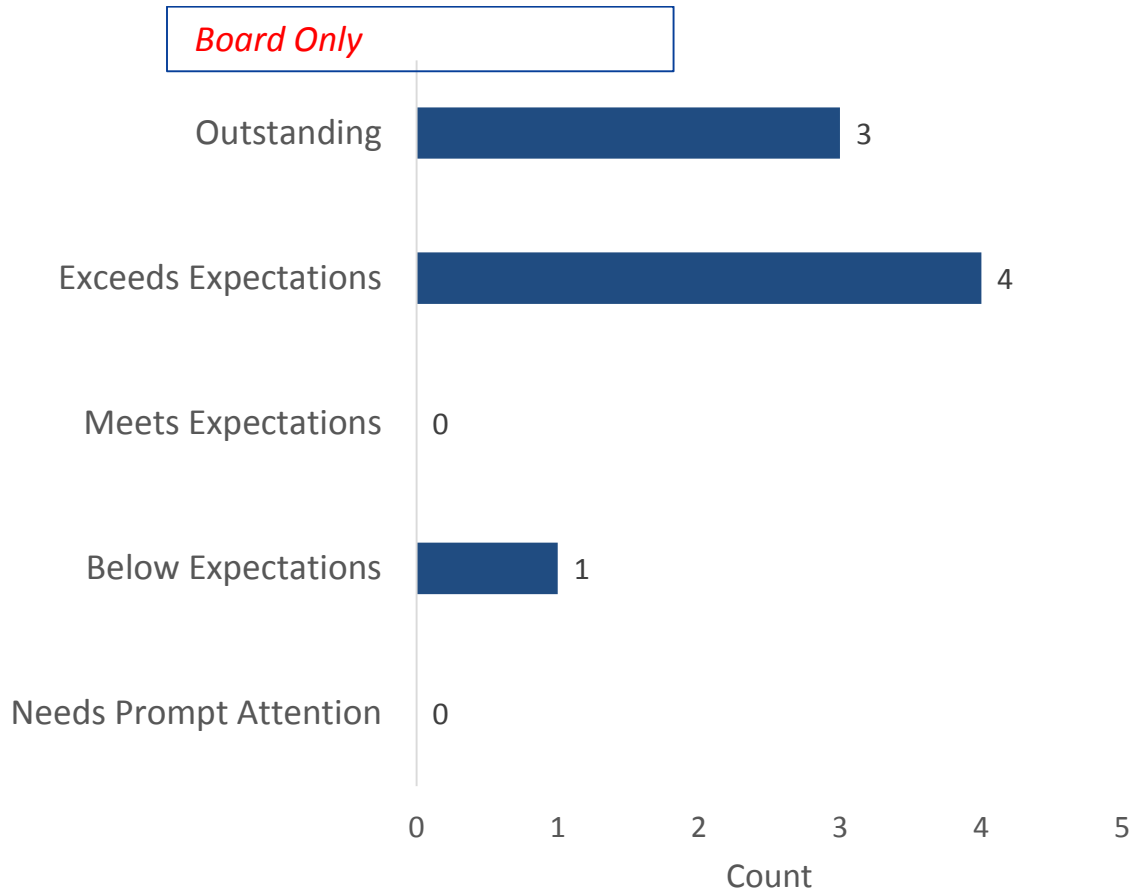
N=8

*2. The Board avoids excessive involvement in detail and day-to-day management.*

N=8



*3. The Board is sufficiently involved in ensuring competent and well-motivated senior management and ensuring that proper development and succession plans are in place for CEO and other senior management., N=8*

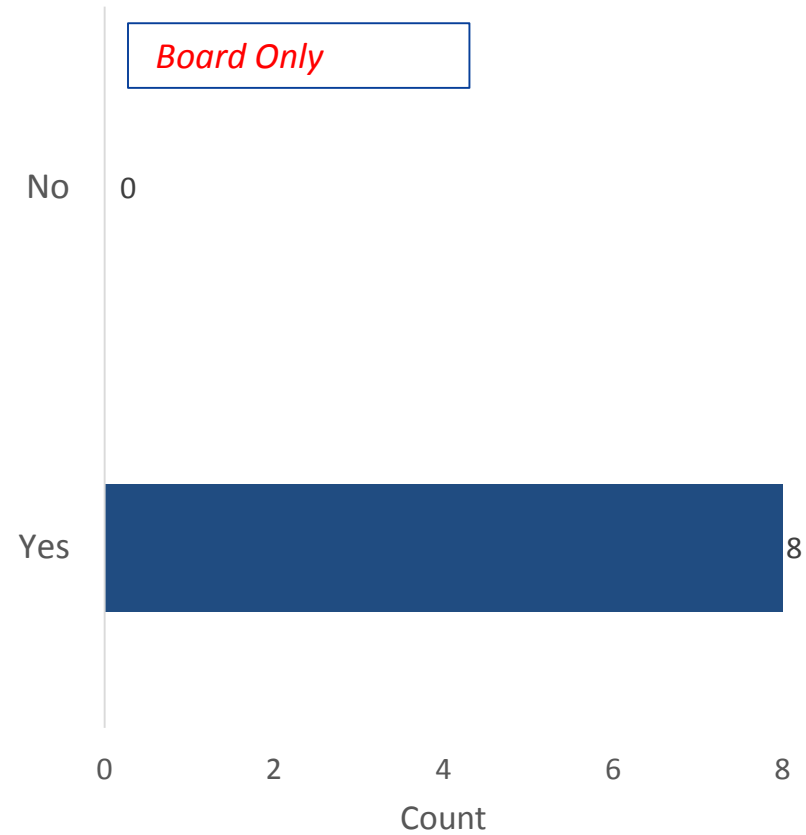
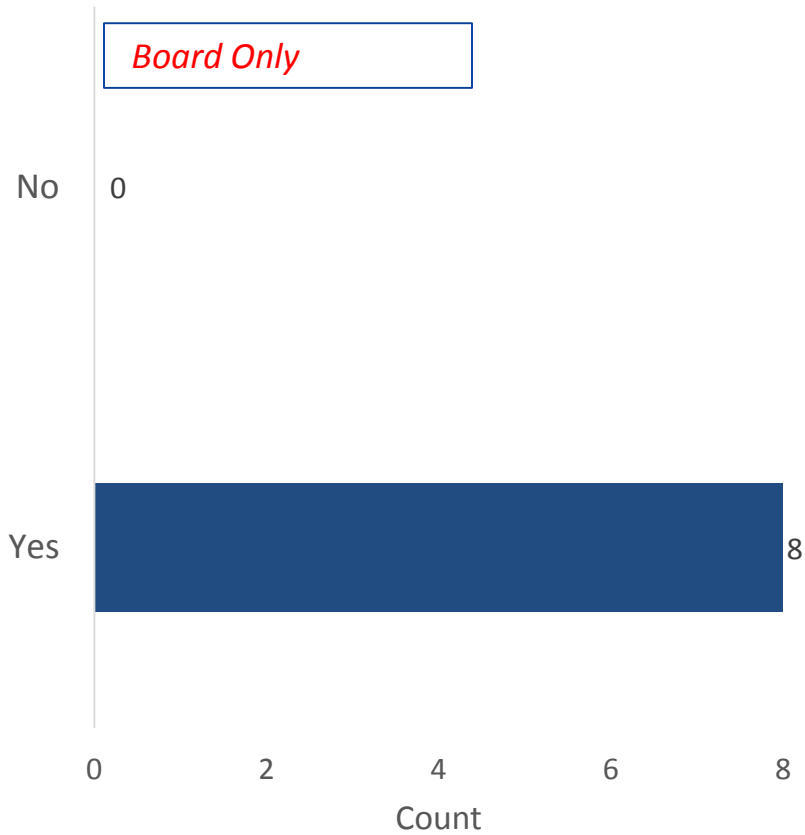




# Other Factors

*1. I feel I am personally making a meaningful contribution to the corporation by my attendance and participation at the Board, committee meetings, and other activities., N=8*

*2. I feel my peers are personally making a meaningful contribution to the corporation by their attendance and participation at the Board, committee meetings, and other activities., N=8*

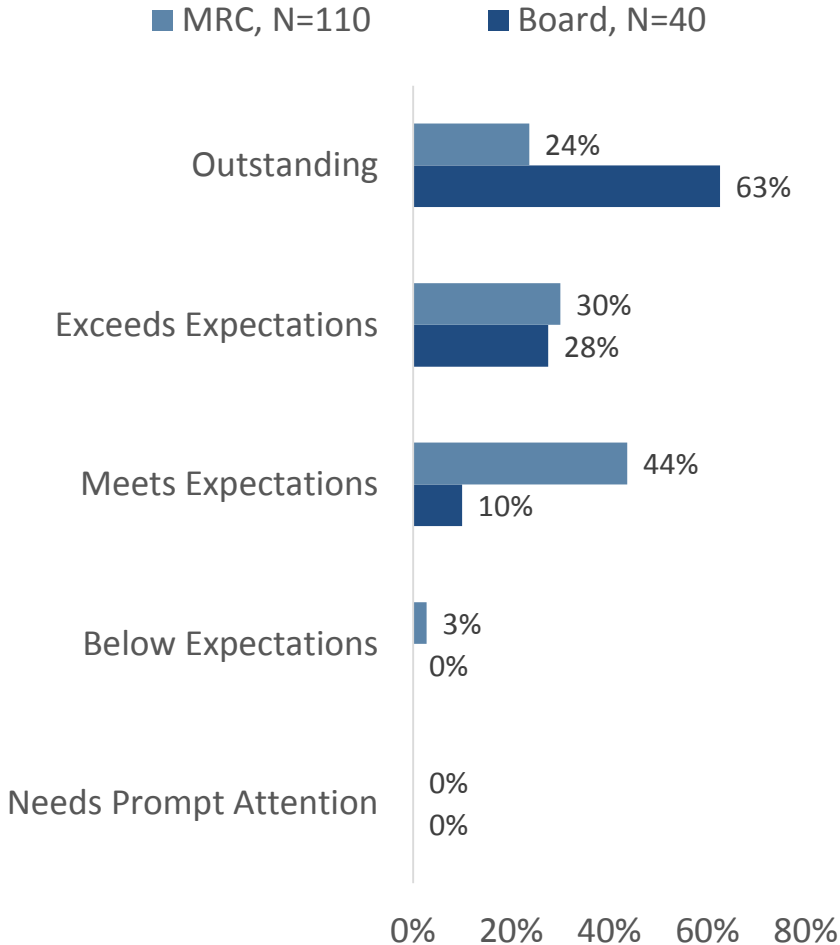




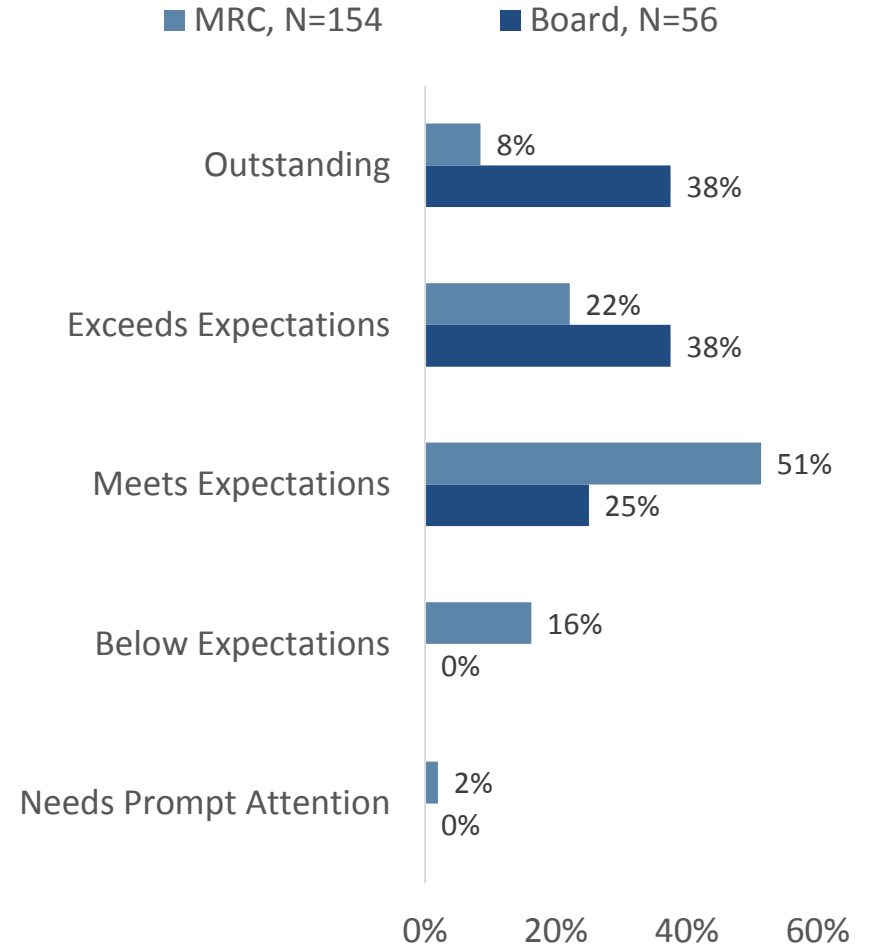


# Area Overall Summaries

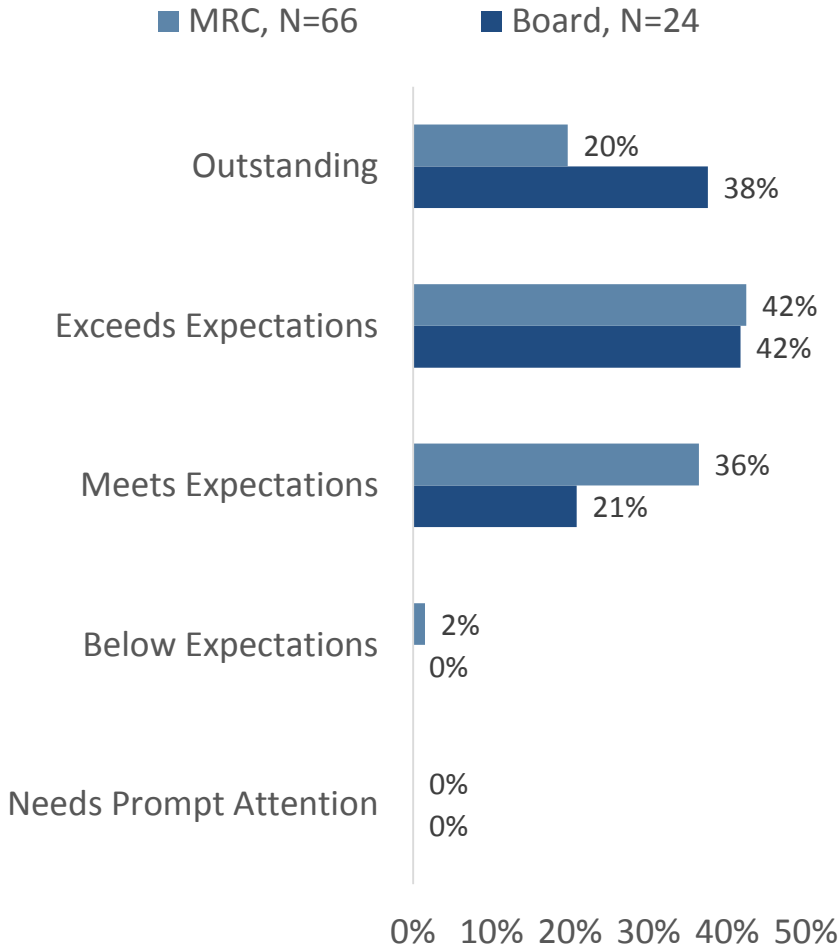
## Strategy – Five Questions



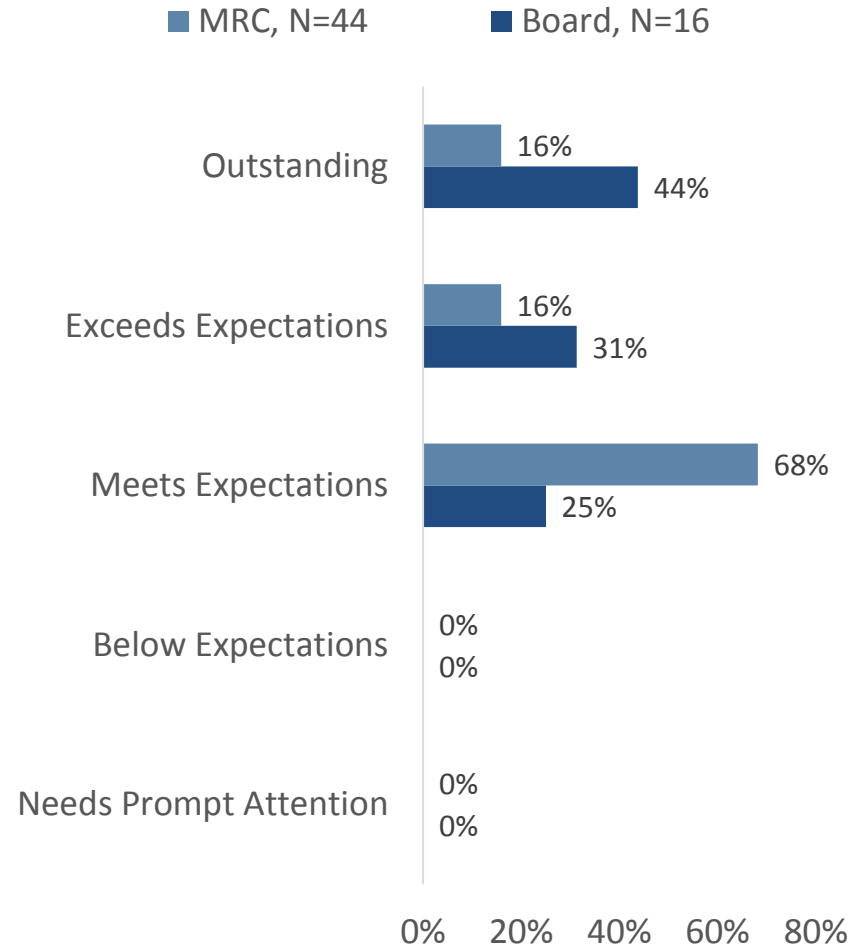
## Oversight – Seven Questions



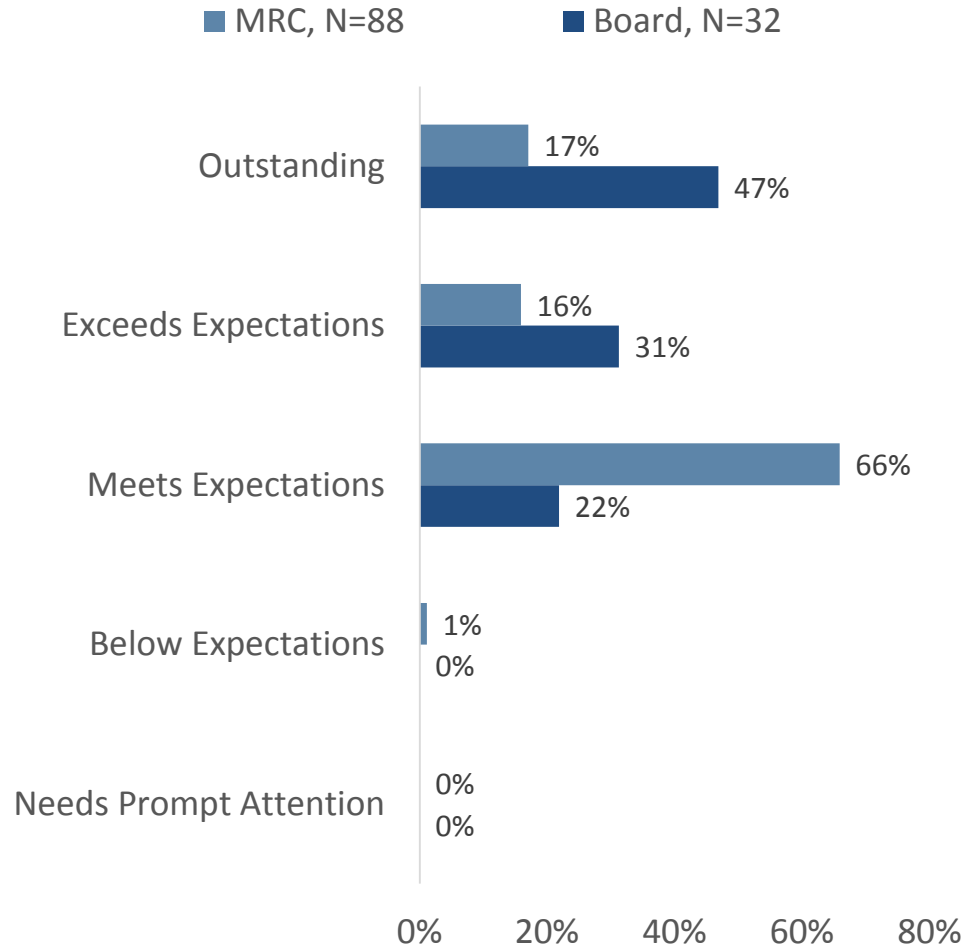
## Stakeholder Relations – Five Questions



## Composition/Structure – Three Questions



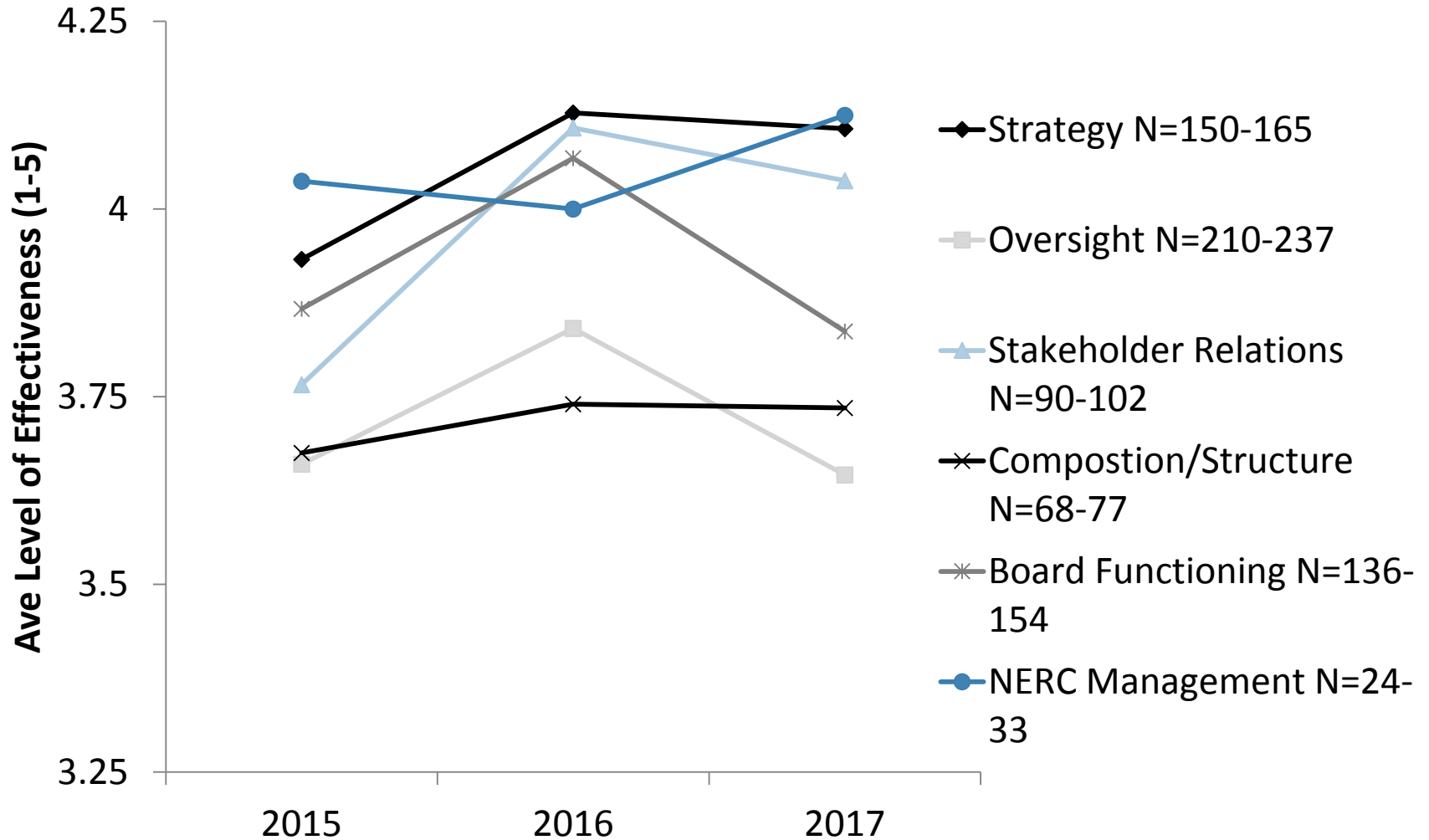
## Board Functioning – Six Questions





# Trend and Comment Analyses

- This analysis includes three years of data; 2015, 2016 and 2017.
- Trends in ratings were looked at for all 29 questions.
- Two questions showed year-over-year changes:
  - Stakeholder Relations Q2 – “The Board establishes a positive and cooperative dialogue with U.S. federal and state regulators,” showed an increase in average effectiveness rating from 2015 (5 ratings below “3”) to 2017 (0 ratings below “3”).
  - Board Functioning Q4 – “The Chair manages meetings efficiently to allow for sufficient discussion and constructive input on important issues and provides appropriate allocation of time to agenda items,” showed a decrease in average effectiveness rating from 2016 (7 ratings below “3”) to 2017 (15 ratings below “3”).
- Questions were combined across all questions within a topic area. See following chart showing no dramatic yearly change.





# Appendix



## Board of Trustees/Member Representatives Committee Proposed 2017 Survey Questions

### Levels of Effectiveness (Rating Scale)

- 1 = Needs Prompt Attention (“unacceptable performance”)
- 2 = Below Expectations (“performance area with opportunity for improvement”)
- 3 = Meets Expectations (“meets the required standard of performance”)
- 4 = Exceeds Expectations (“exceeds the required standard of performance”)
- 5 = Outstanding (“far exceeds the required standard of performance”)

The survey will include a prompt requiring comment for any item rated “No” in response to a “Yes/No” item or a “Needs Prompt Attention” or “Below Expectations” in response to the 5-point levels of effectiveness scale. Optional comments may be provided for items rated “Yes” in response to a “Yes/No” item or “Meets Expectations”, “Exceeds Expectations” or “Outstanding” on the 5-point levels of effectiveness scale.

### Strategy

1. The Board has knowledge of and familiarity with NERC’s corporate values, mission, vision, strategic plan, and business plan and reflects this understanding in evaluating key issues.
2. The Board effectively works with management to establish NERC’s strategic and business plans.
3. Board members stay abreast of issues and trends affecting NERC and the industry and uses this information to assess and guide NERC performance.
4. The Board effectively sets priorities through the strategic and annual business plans.
5. The Board takes appropriate account of the international charter of the North American bulk power system.

## Oversight

1. The Board is sufficiently involved in the ERO Enterprise (NERC and the Regional Entities) annual business planning and budgeting process.
2. The Board sufficiently ensures that the ERO Enterprise (NERC and the Regional Entities) business plan and budget provides for the efficient and cost-effective operation of the ERO Enterprise.
3. The Board is sufficiently involved in monitoring the corporation's compliance with regulatory requirements and directives.
4. The Board sufficiently ensures that the standards development and approval process considers the costs and benefits of new reliability standards.
5. The Board sufficiently ensures that the ERO Enterprise's compliance and enforcement processes are efficient and cost effective.
6. The Board's decision making process is sufficiently transparent and open.
7. The Board's decision making process is not inappropriately influenced by either management or the stakeholders.

## Stakeholder Relations

1. The Board effectively works with the MRC and other stakeholders to seek and consider stakeholder input when establishing ERO priorities and considering key policy issues.
2. The Board establishes a positive and cooperative dialogue with U.S. federal and state regulators.
3. The Board establishes a positive and cooperative dialogue with Canadian federal and provincial regulators.

## Composition/Structure

1. The Board's size is appropriate and effective.
2. Board members reflect broad diversity of competency strengths and professional experience.
3. The Board's Committees have suitable mandates and membership.\*

## **Board Functioning**

1. The Board has established procedures that ensure Board members receive written meeting notices, agendas and appropriate background material in time to prepare in advance of meetings, are presented meaningful information during meetings, and receive timely and accurate minutes.\*
2. The number of Committee meetings is appropriate.
3. The Chair of the Board effectively oversees and facilitates Board activities and direction.
4. The Chair manages meetings efficiently to allow for sufficient discussion and constructive input on important issues and provides appropriate allocation of time to agenda items.
5. Board goals, expectations, and concerns are effectively communicated with the CEO and other senior management through sufficient, meaningful dialog during Board meetings or otherwise.\*
6. Board members participate as equals and communicate openly.

## **NERC Management**

1. The Board has appropriate access to management.\*
2. The Board avoids excessive involvement in detail and day-to-day management.\*
3. The Board is sufficiently involved in ensuring competent and well-motivated senior management and ensuring that proper development and succession plans are in place for CEO and other senior management.\*

## **Other Factors^**

1. I feel I am personally making a meaningful contribution to the corporation by my attendance and participation at the Board, committee meetings, and other activities.\*
2. I feel my peers are personally making a meaningful contribution to the corporation by their attendance and participation at the Board, committee meetings, and other activities.\*

^ Yes/No Questions

\*Board Only Questions

# NERC

NORTH AMERICAN ELECTRIC  
RELIABILITY CORPORATION

# 2017 ERO Enterprise Metrics

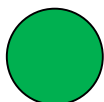
## Year End Status

Mark Lauby, Senior Vice President and Chief Reliability Officer  
Corporate Governance and Human Resources Committee Meeting  
February 7, 2018

**RELIABILITY | ACCOUNTABILITY**

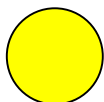


**Green**



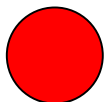
**On schedule and expected to meet by  
year-end (YE)**

**Yellow**



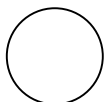
**Behind schedule but expected to meet  
by YE**

**Red**



**Not expected to meet by YE**

**No Color**



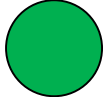
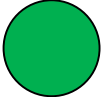
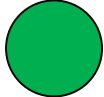
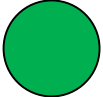
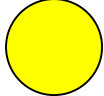
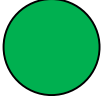
**Status not available**

- **Why is it important?**

- Measures risk to the BPS from cyber or physical security attacks

- **How is it measured?**

- Number of load losses or disruptions to BES operations due to cyber attack
- Number of load losses over 100 MW due to physical attack and the trend line for events over the most recent two year period

	Data Trend	Q3	Q4/YE
<b>Threshold 1</b> <b>Target 1</b>	No load loss or disruption of BES operations due to cyber attack		
<b>Threshold 2</b>	No load loss over 100 MW due to physical attack		
<b>Target 2</b>	Trend of physical security events was negative		

- **Why is it important?**

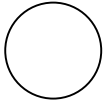

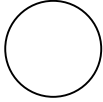
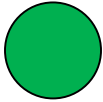
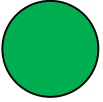

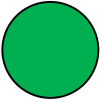

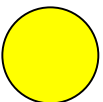
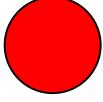
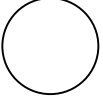
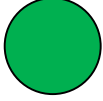
- Incentivizes discovery and mitigation of violations by registered entities and measures violation severity as well as completion of mitigations

- **How is it measured?**

- Trend of compliance severity risk index (with and without CIP V5) and amount of repeat moderate and severe risk violations
- Percentage of self-identified noncompliance
- Mitigation completions rates



# Metric 5: Reduced Reliability Risk from Noncompliance

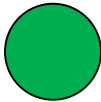
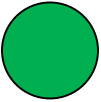
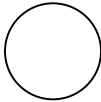
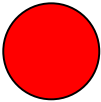
	Data Trend	Q3	Q4/YE
<b>Threshold 1 Target 1</b>	Compliance severity index (excluding CIP V5) trend is statistically significant and less than 50% of the 2011 index (23%)		
<b>Threshold 2 Target 2</b>	Compliance severity index (including CIP V5) is below 55% of the 2011 index (28%)		
<b>Threshold 3 Target 3</b>	87% of all noncompliance was self-identified		
<b>Threshold 4</b>	Mitigation completion rates are 76.4% (2016), 98.3% (2015), and 99.9% (2014 & older).		
<b>Target 5</b>			
<b>Target 4</b>	Repeat moderate and severe risk trends were reduced		

- **Why is it important?**

- Measures risks to BPS reliability from five priority causes:
  - a. Generating unit forced outages due to cold weather
  - b. Misoperations rate of performance
  - c. Automatic AC transmission outages caused by human error
  - d. Transmission outages due to AC substation equipment failures
  - e. Transmission line outages due to vegetation

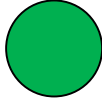
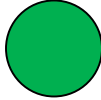
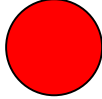
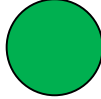
- **How is it measured?**

- Number of load losses from generating units forced outages due to cold weather
- Comparison of annual Effective Forced Outage Rate (EFOR) of generating units to previous years during the most extreme cold winter months

	Data Trend	Q3	Q4/YE
<b>Threshold 1</b>	No events with firm load loss in winter months		
<b>Target 1</b>	EFORs increased in three regions		

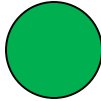
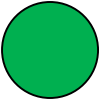
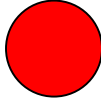
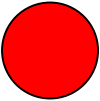
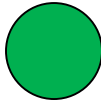
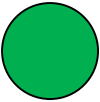
- **How is it measured?**

- Annual Misoperations rate (cumulative rate through Q2 2017), with a threshold of less than 9% and target of less than 8%

	Data Trend	Q3	Q4/YE
<b>Threshold 1</b>	Annual Misoperations rate was 7.5%		
<b>Target 1</b>			

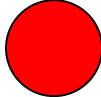
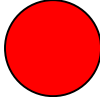
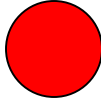
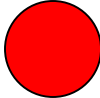
- **How is it measured?**

- Number of load losses greater than 300 MW caused by human error
- Trend of outages per circuit caused by human error (target is 5% decline with reduced impacts)
- Comparison of outages caused by human error resulting in firm load loss to previous five-year average

	Data Trend	Q3	Q4/YE
<b>Threshold 1</b>	No events with load loss greater than 300 MW from human error		
<b>Target 1</b>	Outages per circuit caused by human error did not decline by 5% (increased by 3%)		
<b>Target 2</b>	Average number of events was fewer than the five-year average (average is 3.6 events; there were 0 in 2017)		

- **How is it measured?**

- Number of FAC-003 violations that are identified, processed, and filed
- Number of vegetation-related outages that are not violations of FAC-003 gathered through quarterly data submittals

	Data Trend	Q3	Q4/YE
<b>Threshold 1</b>	There were six FAC-003 violations		
<b>Target 1</b>	There were 20 vegetation-related outages that were not FAC-003 violations (data available through Q3)		

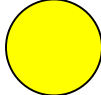
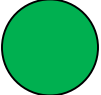
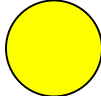
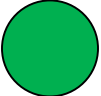
- **Why is it important?**

- Measures NERC's performance in meeting important financial and operational objectives:
  - a. Execution of business plan and budget
  - b. Implementation of ERO Enterprise technology solutions
  - c. Implementation of the Regional Entity oversight plans and NERC adherence to the Rules of Procedure
  - d. Implementation of action plans in response to ERO Enterprise Effectiveness Survey results



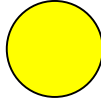
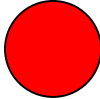
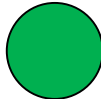
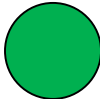
- **How is it measured?**

- NERC is at or under budget for expenses and fixed assets (exclusive of authorized operating reserves for threshold and inclusive of operating reserves for target)

	Data Trend	Q3	Q4/YE
<b>Threshold 1</b>	NERC was less than 1% under budget		
<b>Target 1</b>			

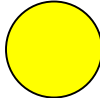
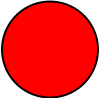
- **How is it measured?**

- Completion of ERO Enterprise IT projects for Entity Registration, data reporting (event analysis, misoperations, or TADS), and NERC’s public-facing website
- Development of a method to measure and track the cost-benefit of ERO Enterprise IT projects

	Data Trend	Q3	Q4/YE
<b>Target 1</b>	All projects delivered except the website		
<b>Target 2</b>	Processes and procedure for cost-benefit was developed		

- **How is it measured?**

- Implementation of 2017 milestones identified in the action plans

	<b>Data Trend</b>	<b>Q3</b>	<b>Q4/YE</b>
<b>Target 1</b>	One action plan for Registration was not completed due to shifting priorities		



# Questions and Answers

A stylized map of North America is centered on the page. The map is divided into three horizontal color bands: a light purple band at the top covering Canada, a dark blue band in the middle covering the United States, and a light grey band at the bottom covering Mexico. The text 'Back-up Slides' is overlaid in the dark blue band.





# Back-up Slides

- **Why is it important?**

- Measures risk to the bulk power system (BPS) from Bulk Electric System (BES) events

- **How is it measured?**

- Number of Category 3–5 events
- Cumulative trend line in the composite daily event Severity Risk Index (eSRI) for Category 1–3 events





	<b>Data Trend</b>	<b>Q3</b>	<b>Q4/YE</b>
<b>Threshold 1 Target 1</b>	No Category 3 or above events		
<b>Threshold 2 Target 2</b>	Slope of trend line was negative		

- **Why is it important?**

- Reduces risk to BPS reliability from potential gaps in standards and compliance by employing corrective action

- **How is it measured?**

- Using a consistent process, analysis of all Category 3–5 and select events for any gaps in standards and compliance and mitigation implementation
- Any gaps result in action plans to address reliability risks





	<b>Data Trend</b>	<b>Q3</b>	<b>Q4/YE</b>
<b>Threshold 1</b>	No Category 3 or above events to study; studied sample events of interest		
<b>Target 1</b>	No gaps identified/no action plans needed		

- **Why is it important?**

- Ensures ERO Enterprise is performing comprehensive and timely reliability assessments that identify and spotlight resource adequacy deficiencies

- **How is it measured?**

- Number of resource deficiencies that caused load outages over 300 MW or Energy Emergency Alert Level 3s (EEA-3s) that were not identified in prior seasonal or long-term reliability assessments in the past three years







	<b>Data Trend</b>	<b>Q3</b>	<b>Q4/YE</b>
<b>Threshold 1</b>	No firm load outages over 300 MW due to resource deficiencies or common mode failures		
<b>Target 1</b>	No EEA-3s declared due to resource deficiencies		



- **How is it measured?**

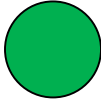
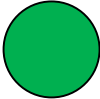
- Number of load losses greater than 300 MW due to AC substation equipment failures
- Trend of outages per circuit caused by AC substation equipment failures (target is 5% decline with reduced impacts)
- Comparison of outages caused by AC substation equipment failures resulting in firm load loss to previous five-year average

# Metric 6d: Number of Transmission Outages Due to AC Substation Equipment Failures

	Data Trend	Q3	Q4/YE
<b>Threshold 1</b>	No events with load loss greater than 300 MW from substation equipment failures		
<b>Target 1</b>	Outages per circuit caused by substation equipment declined by greater than 5% (declined by 28%)		
<b>Target 2</b>	Average number of events was fewer than the five-year average (average is 6.6 events; there were 1 in 2017)		

- **How is it measured?**

- Implementation of the recommendations and schedule from 2016 audits
- Number of significant new noncompliance findings in NERC’s implementation of the Regional Entity oversight plans or adherence to the Rules of Procedure

	<b>Data Trend</b>	<b>Q3</b>	<b>Q4/YE</b>
<b>Threshold 1</b>	Implementation of audit recommendations completed		
<b>Target 1</b>	NERC performed oversight in accordance with oversight plans	