



# Application of Forecasted and Real-time Ambient Adjusted Ratings (RSC-2018-54A)

**Reliability Subcommittee**

October 28, 2021



# Purpose & Key Takeaways



**Purpose:** Review Results of the MISO-TO AAR Candidate Process

## Key Takeaways:

- MISO TOs have reviewed 634 unique facilities to date, 4.5% of the 14,000+ MISO functional control Transmission lines and transformers
- Nearly half of MISO-TO AAR candidate equipment has AARs applied or planned for further review
- There are distinct differences among TOs on the use of AARs

# MISO and TO Collaboration on Advancing AARs

MISO and the TOs have been and continue to collaborate on quarterly reviews of AAR candidate identification

Intent is to identify high value facilities and curate a prioritized set of equipment for AAR evaluation

TOs review and categorize the identified elements and return the updated list to MISO, their State Regulators, and the IMM

# Candidate Identification Methodology

Every quarter, MISO provides the TOs a list of facilities that have bound in the RT Market in the past 2 years

- Constraints are ranked by the summation of shadow price over the study period. This establishes a savings floor.
- Cutoff of \$1000.
- Study found 504 candidates for 2020 Q4, 526 candidates for 2021 Q1, 520 candidates for 2021 Q2

TOs then review

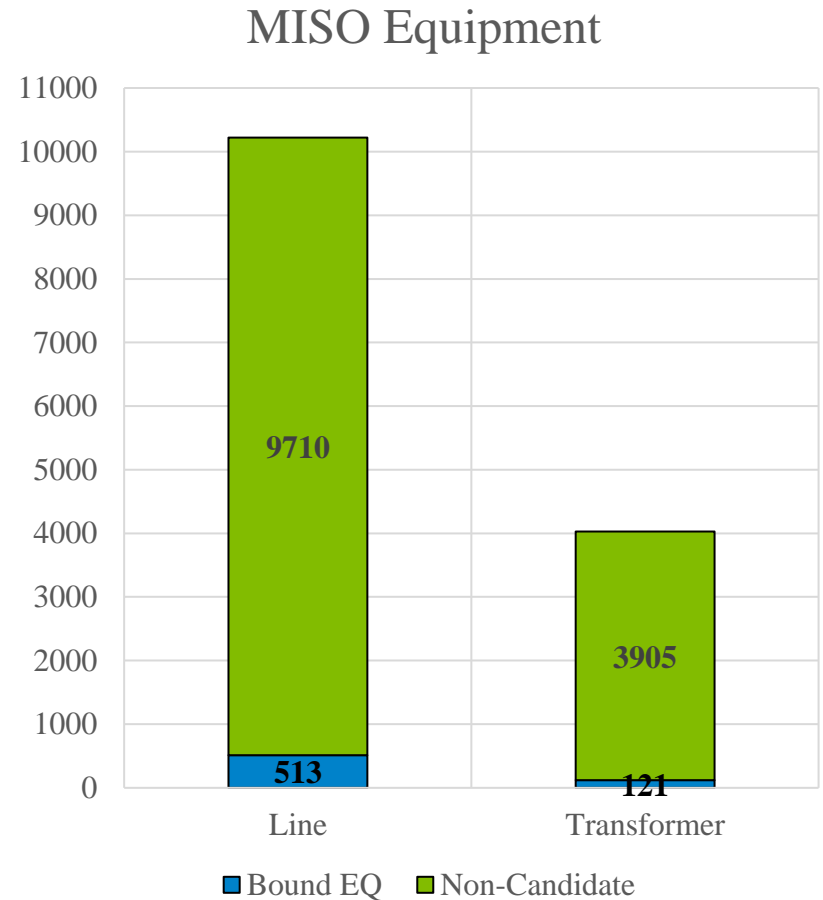
Review and results completed for 2020Q4, 2021Q1, and 2021Q2

# Candidate Facility Evaluation Categories

Category	Subcategories
<b>Under Evaluation</b>	
<b>Apply AAR</b>	<input type="checkbox"/> In Program <input type="checkbox"/> Pending <input type="checkbox"/> Future
<b>Not Applicable</b>	<input type="checkbox"/> Not Owner <input type="checkbox"/> Not Adjustable
<b>Not Candidate</b>	<input type="checkbox"/> Completed Upgrade <input type="checkbox"/> Pending Upgrade <input type="checkbox"/> Temporary Condition <input type="checkbox"/> No/Minimal Benefit

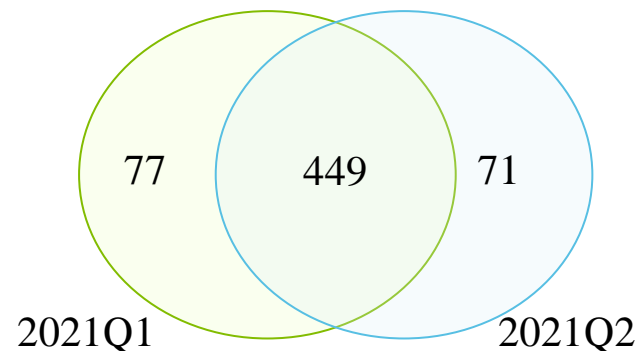
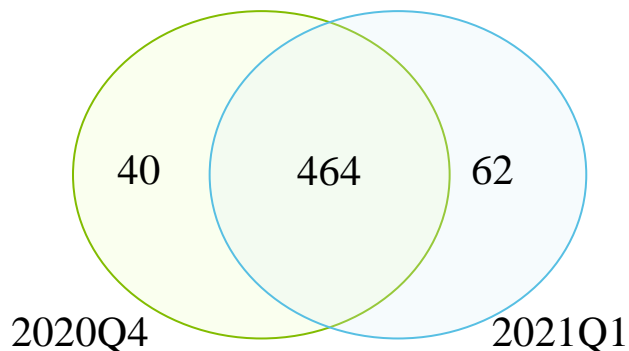
# The Candidate Equipment

- Only a small fraction of MISO equipment binds
- Total
  - LN: 10223; XF: 4026
- Unique Candidates
  - LN: 513; XF: 121

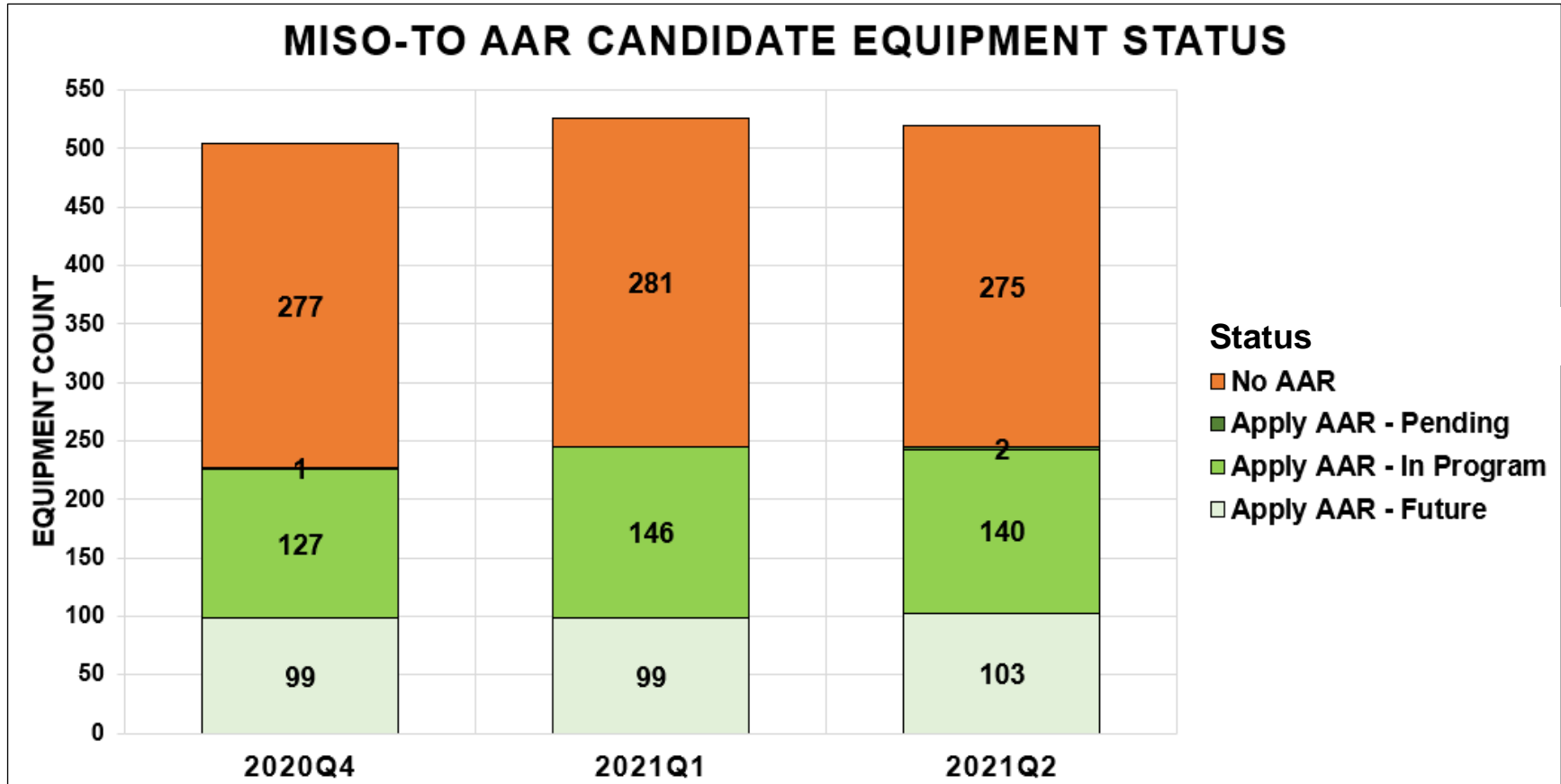


# Quarterly Results of MISO-TO AAR Candidate Process

- 2020Q4
  - 504 number of equipment – 406 (81%) lines and 98 (19%) transformers
  - 43,508 total binding hours in MISO market
- 2021Q1
  - 526 number of equipment – 426 (81%) lines and 100 (19%) transformers
  - 46,695 total binding hours in MISO market
- 2021Q2
  - 520 number of equipment – 428 (82%) lines and 92 (18%) transformers
  - 48,046 total binding hours in MISO market
- 85-90% overlap of binding equipment between quarterly reviews



# Changes from Quarter to Quarter



<b>AAR Candidate Evaluation Total</b>	<b>504</b>	<b>526</b>	<b>520</b>
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**Total Equipment Evaluated**  
634

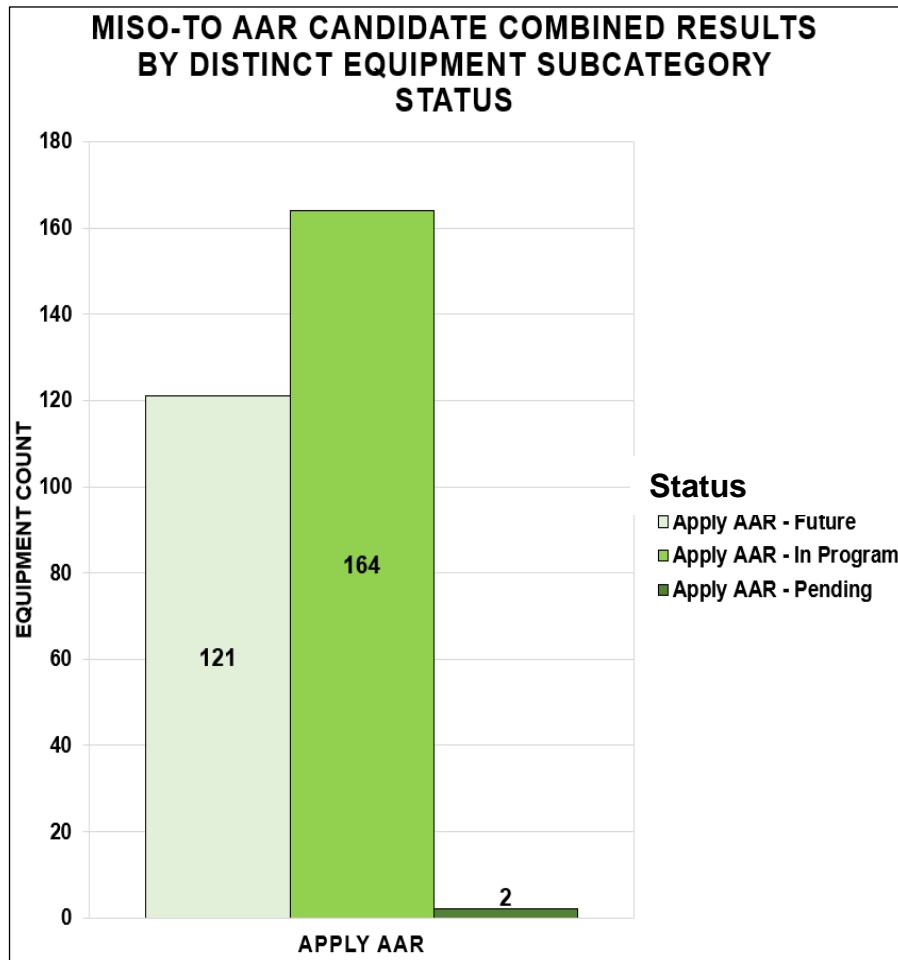
27% of candidate equipment had AARs at the time of binding





# Equipment Identified as Apply AAR

Distinct equipment combined results from 2020Q4, 2021Q1, 2021Q2

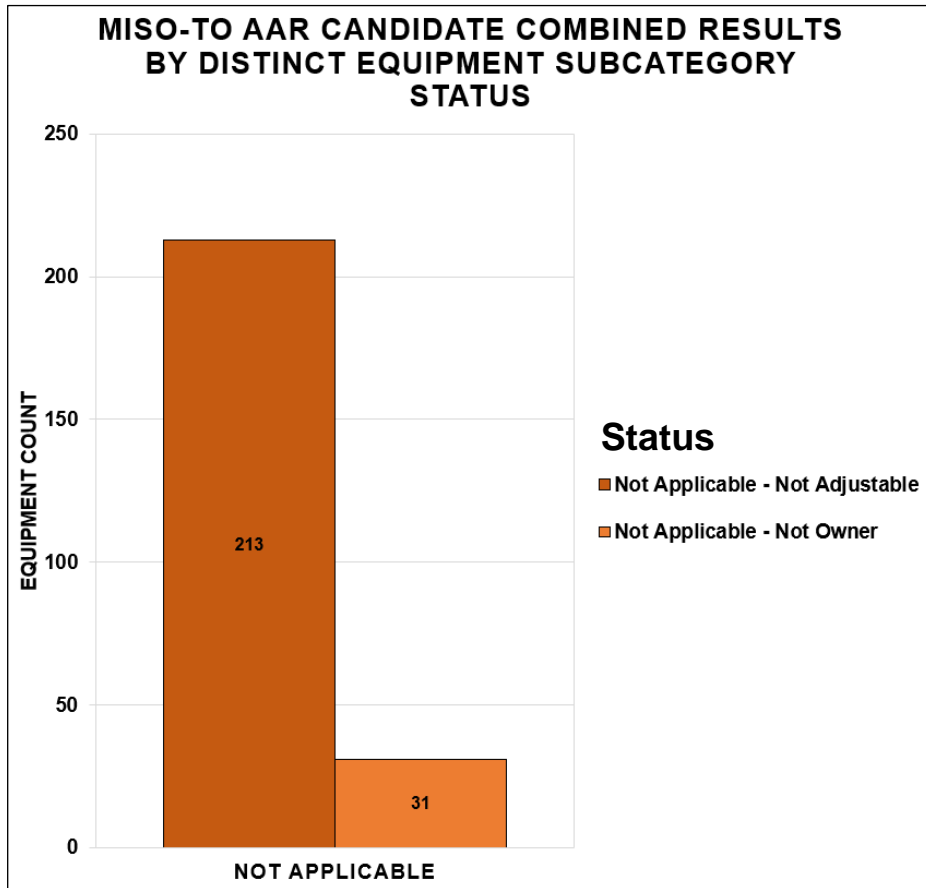


Apply AAR Subcategory	Distinct Equipment Count	% of Total Distinct Equipment Count
Future	121	19%
In Program	164	26%
Pending	2	<1%
<b>Total Apply AAR</b>	<b>259</b>	<b>45%</b>

Overall results show 45% of candidate equipment has AARs applied or planned for further review

# Equipment Identified as Not Applicable

Distinct equipment combined results from 2020Q4, 2021Q1, 2021Q2

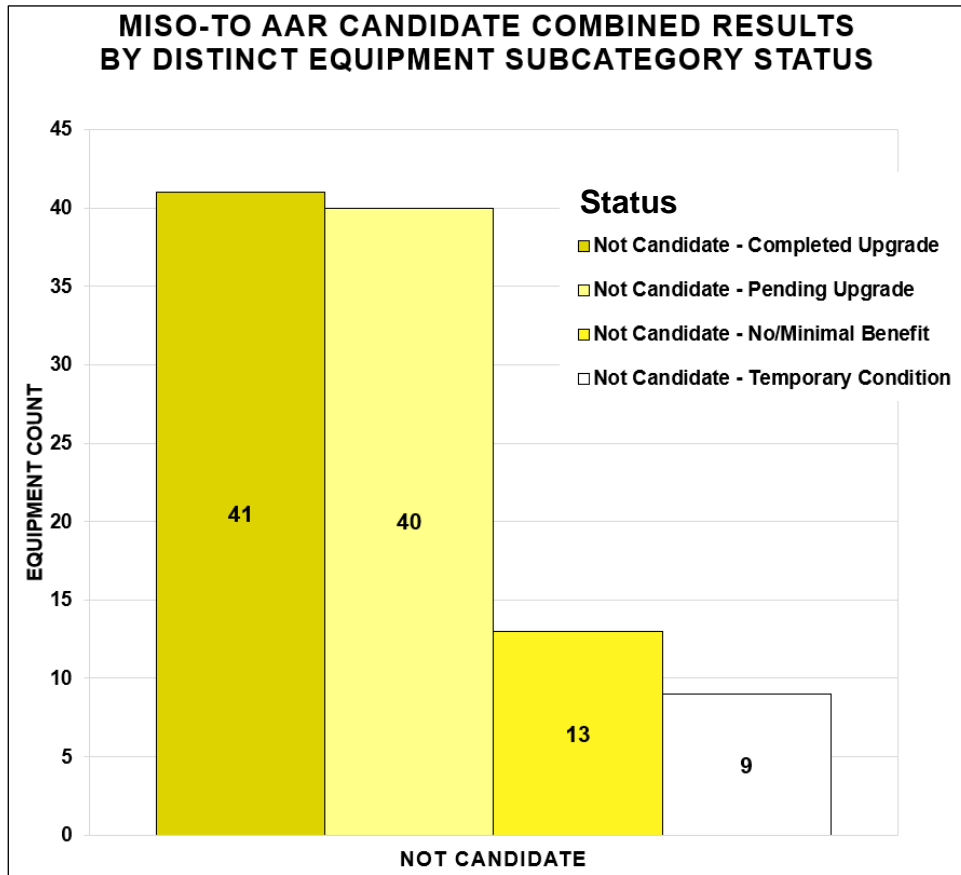


Not Applicable Subcategory	Distinct Equipment Count	% of Total Distinct Equipment Count
Not Adjustable	213	34%
Not Owner	31	5%
<b>Total Not Applicable</b>	<b>244</b>	<b>39%</b>

Overall results show 39% of candidate equipment is not applicable for AARs

# Equipment Identified as Not Candidate

Distinct equipment combined results from 2020Q4, 2021Q1, 2021Q2

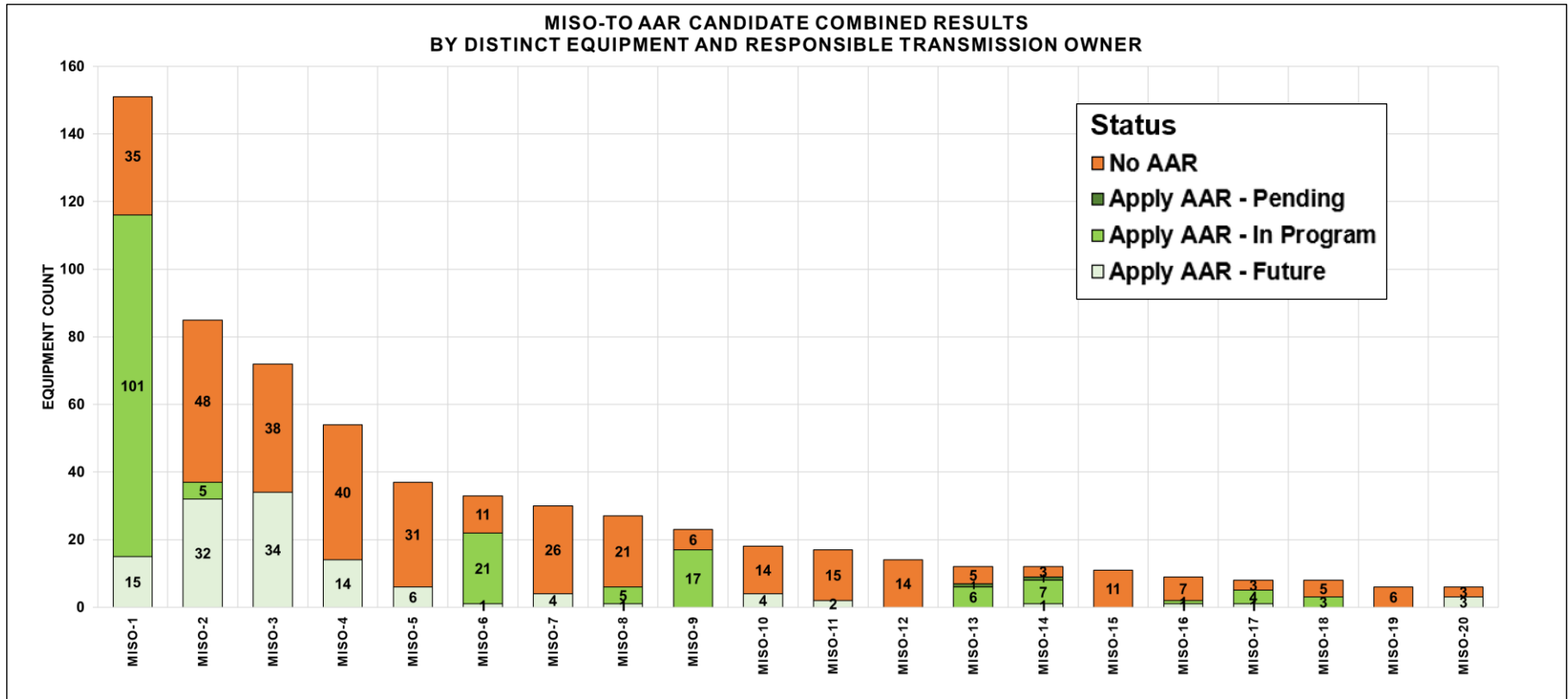


Not Candidate Subcategory	Distinct Equipment Count	% of Total Distinct Equipment Count
Completed Upgrade	41	7%
Pending Upgrade	40	6%
No/Minimal Benefit	13	2%
Temporary Condition	9	1%
<b>Total Not Candidate</b>	<b>103</b>	<b>16%</b>

Overall results show 16% of candidate equipment is not applicable for AARs

# Breakdown by Transmission Owner

Distinct equipment combined results from 2020Q4, 2021Q1, 2021Q2



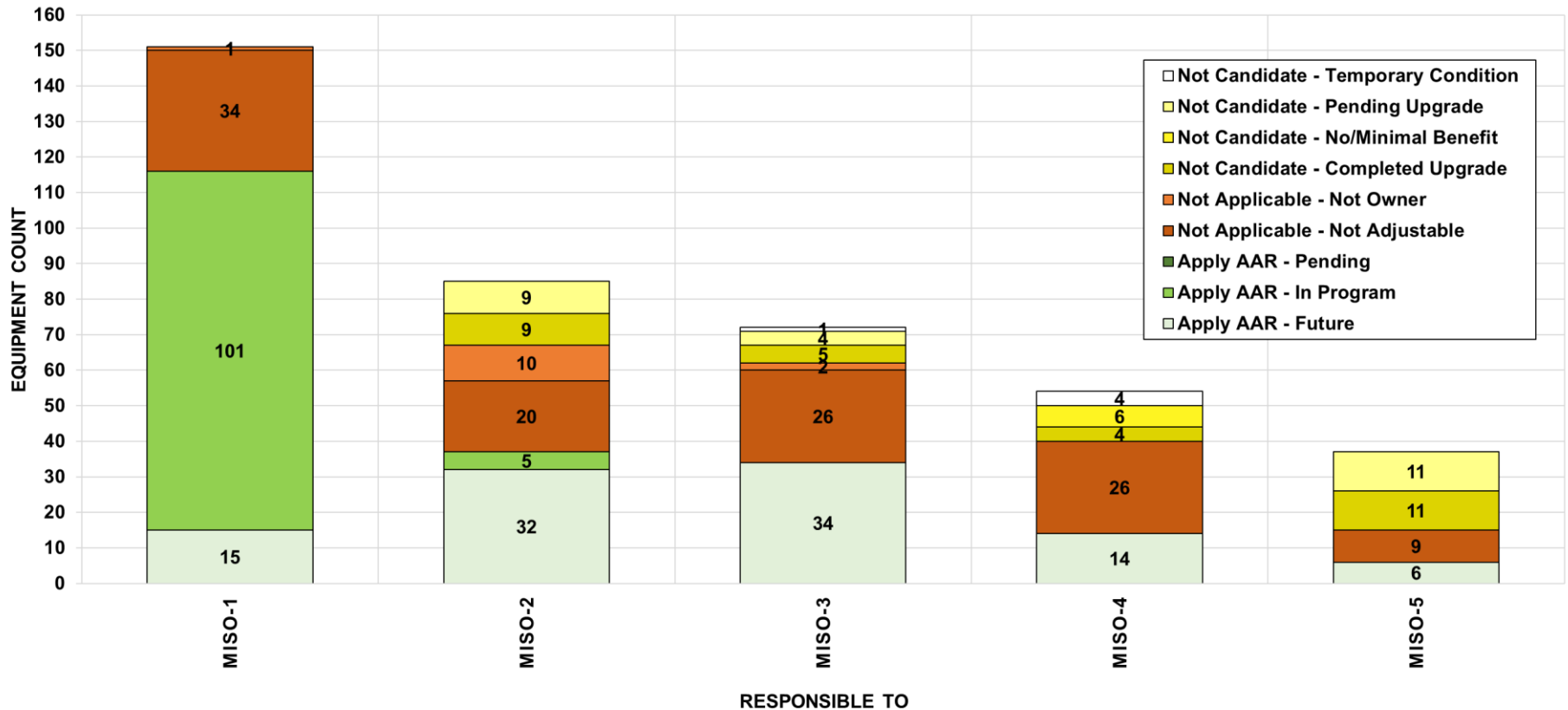
\*14 TOs with less than 5 candidate equipment are not shown

Equipment status of Transmission Owners.  
There are distinct differences among TOs on the use of AARs.

# Closer look at the top 5 TOs

Distinct equipment combined results from 2020Q4, 2021Q1, 2021Q2

**MISO-TO AAR CANDIDATE COMBINED RESULTS  
BY DISTINCT EQUIPMENT AND RESPONSIBLE TRANSMISSION OWNER**



Equipment status of top 5 Transmission Owners with the most candidate equipment

# Next Steps



## Continued Collaboration

MISO is committed to ongoing collaboration and transparency with regulators, TOs, and other stakeholders



## AAR Preparedness

MISO is ready and partnering with TOs to add their new AAR as they are made available.



## FERC Rulemaking

The FERC rating NOPR is still outstanding and directly impacts this space. FERC's recent ANOPR on transmission costs will also have ripple effects

# Contact Information

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