Proposed Revisions to Reliability Metrics

MI Power Grid Financial Incentive/Disincentive Workgroup

November 30, 2023

Presentation Agenda

- **Review stakeholder feedback**
- **Discuss key objectives of revisions**
- **Summary of revisions**
- **Review proposed reliability performance metrics**
- **Q&A**

Summary of Stakeholder Feedback

- **Address reliability performance**
  - **Different perspectives on downside only vs. symmetric incentives**
- **Complement Service Quality Rules**
- **Implement incentives/disincentives through stakeholder process**
  - **Prioritizing reliability with pace of implementation and scope of Reliability + framework**
- **Address equity in reliability metrics**

Key Objectives with Proposed Revisions

- **Prioritize reducing outage duration and improving storm response**
- **Maintain focus on customer-level outcomes**
- **Incorporate stakeholder feedback in revisions**
- **Balance incentives/penalties to improve reliability and prioritize investment**
- **Reduce complexity where possible**
- **Clarify how reliability metrics address equity**

Summary of Major Proposed Revisions to Reliability Metrics

Metric	Baseline	Target Performance			Potential Incentive/Disincentive Mechanism
		Penalty Threshold	Incentive Threshold	Long-Term Goal	
SAIDI (Excluding MEDs)					
SAIDI (All weather) (5-yr average)					
Storm Restoration (48-hour storm response)					
Worst performing circuits					

1) Modify outage duration metrics

- SAIDI (excluding MEDs) and SAIDI (all weather) replace CAIDI metrics; include 48-hour storm response

2) Reduce complexity

- Prioritize SAIDI over SAIFI
- CEMI removed from these metrics but penalties (bill credits) remain in Service Quality Rules

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SAIDI (All weather) (5-yr average)					
Storm Restoration (48-hour storm response)					
Worst performing circuits					

3) Total incentive potential based on maximum customer impact of $10/year

- Caps incentives customers pay to improve grid and penalties paid by shareholders
- DTE - $23 million/yr. and CE - $19 million/yr.

4) Incentive allocation addresses today's priorities

- 60% for SAIDI metrics (30% each), 20% storm restoration, and 20% for worst performing circuit
- Performance incentives/penalties assessed independently of Service Quality Rules

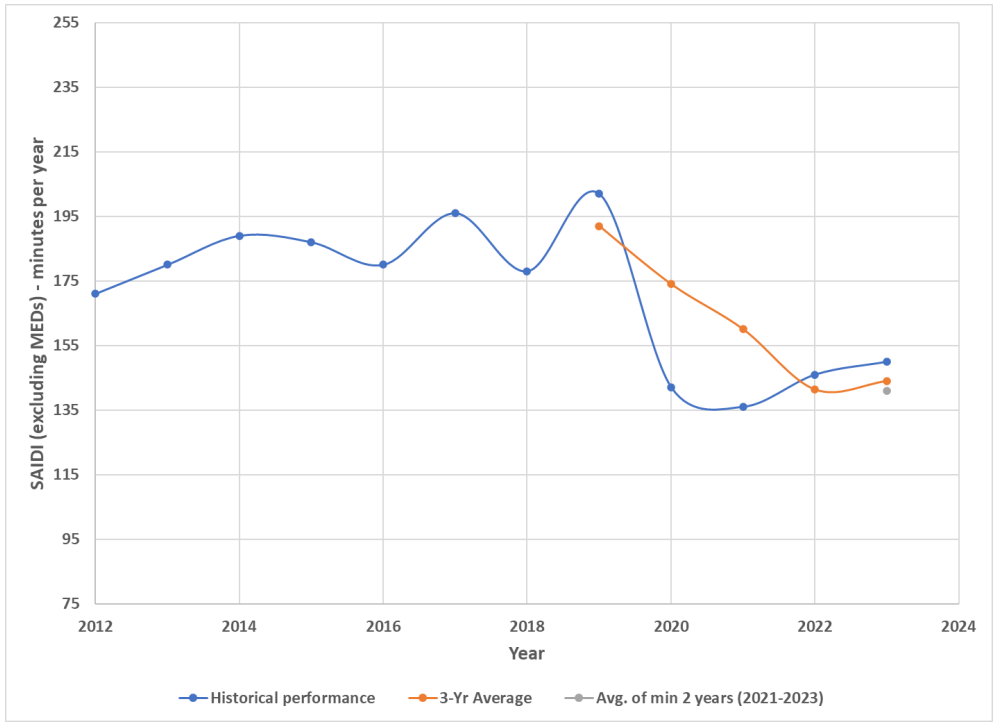
5) Penalty threshold = 5% cumulative reduction over 5 years; Incentive threshold = 10% cumulative reduction over 5 years

- 1 st. dev. deadband proposed for SAIDI metrics; linear glidepath for interim years
- 1 st. dev. range for penalty/incentive for SAIDI metrics

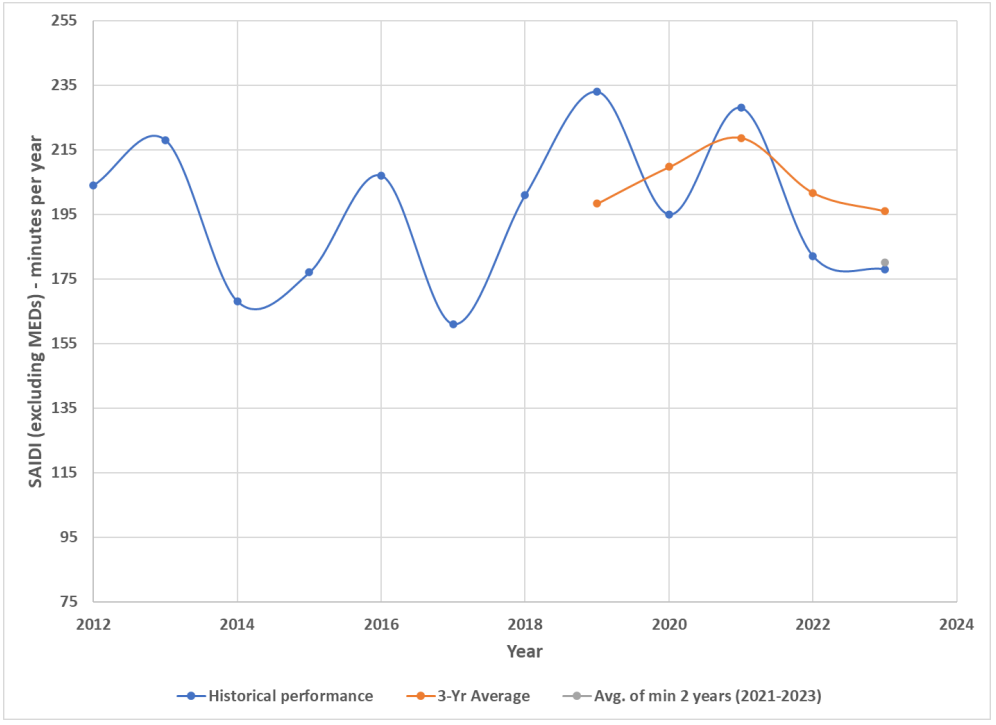
SAIDI Metrics Need to Address Recent Trends

1) **Different SAIDI (excl MEDs) trends for DTE and CE Influence Baselines**
   - DTE increasing from 2021-2023
   - CE decreasing from 2021-2023
   - ComEd baseline set at minimum 2 of past 3 years

DTE SAIDI (excluding MEDs) 2012 - 2023



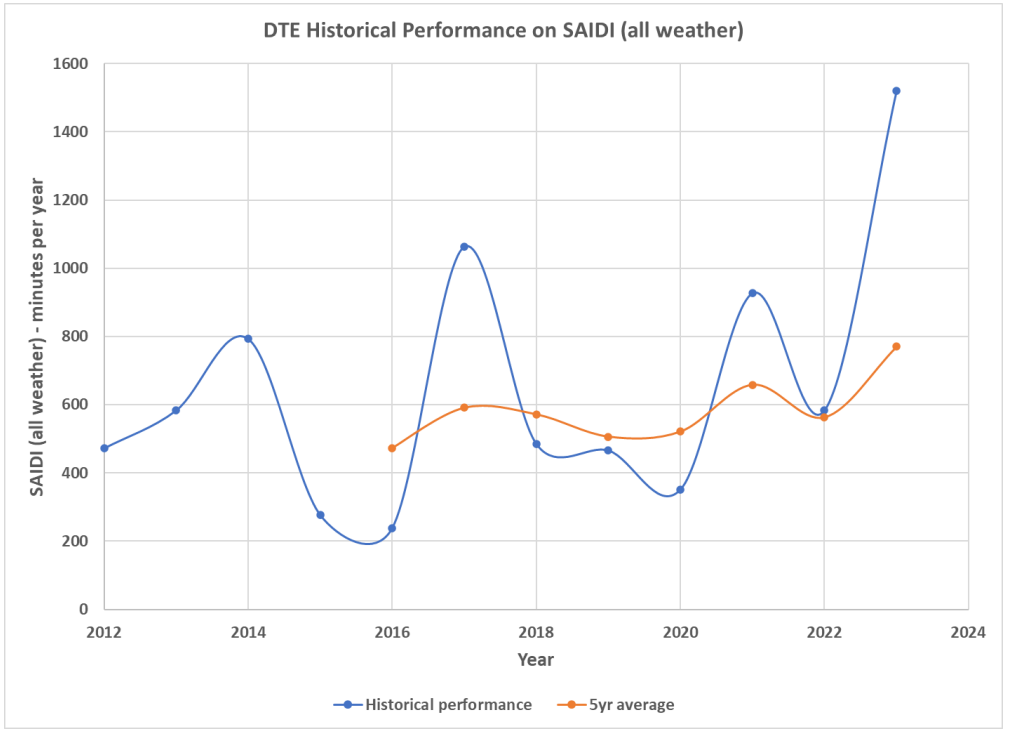
CE SAIDI (excluding MEDs) 2012 - 2023

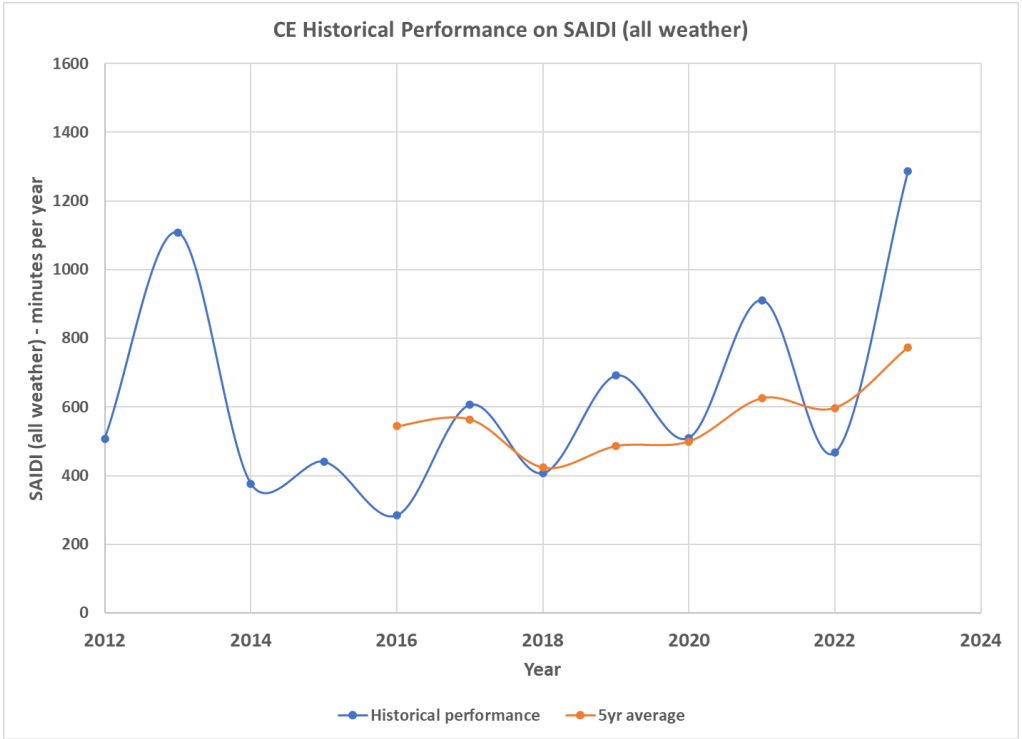


SAIDI Metrics Need to Address Recent Trends

2) High SAIDI (all weather) in 2023 YTD

- DTE reported exceptionally high SAIDI
- CE also appears to be trending high
- Revision includes deadband to address high variability and increase in baseline

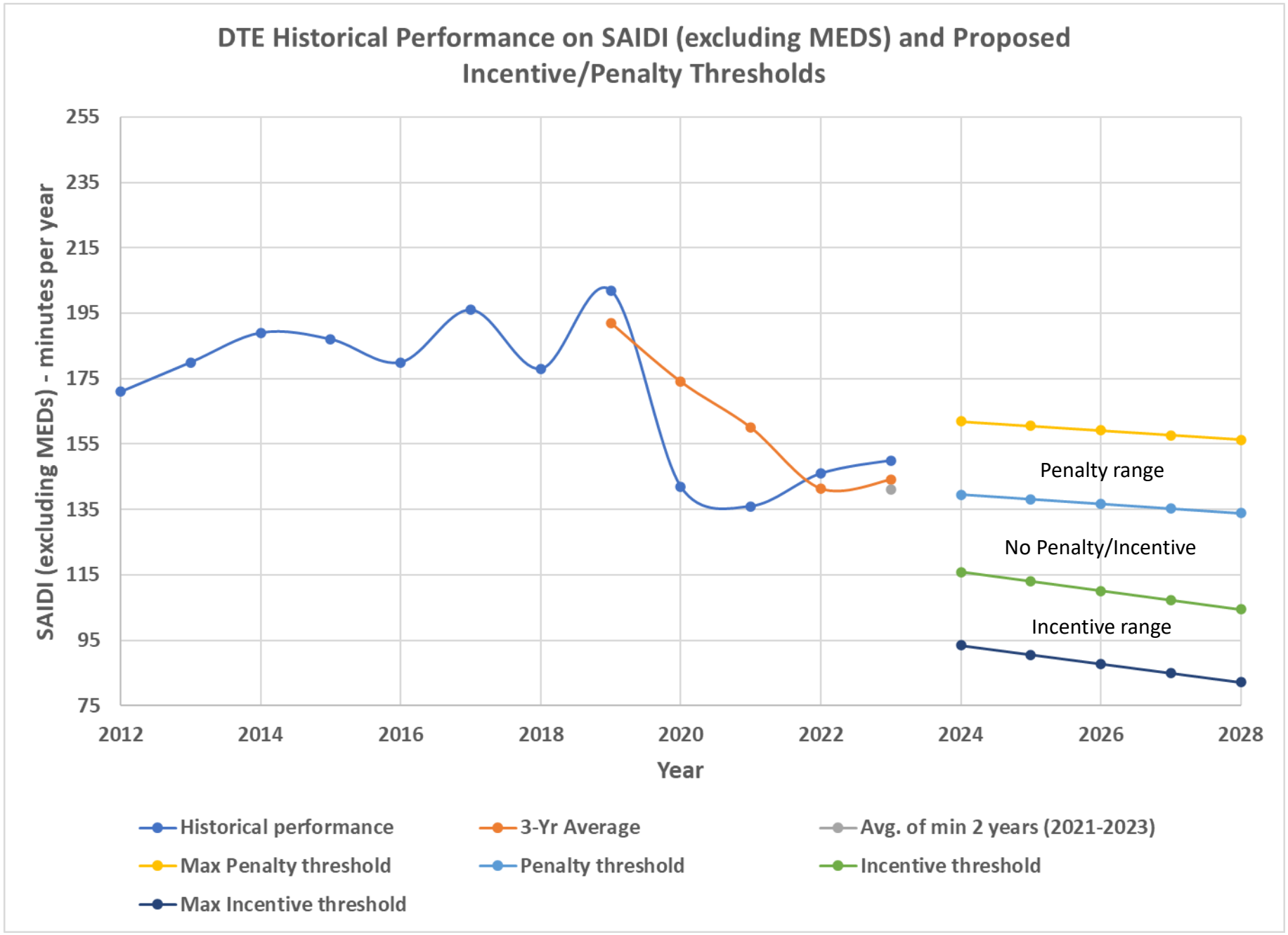


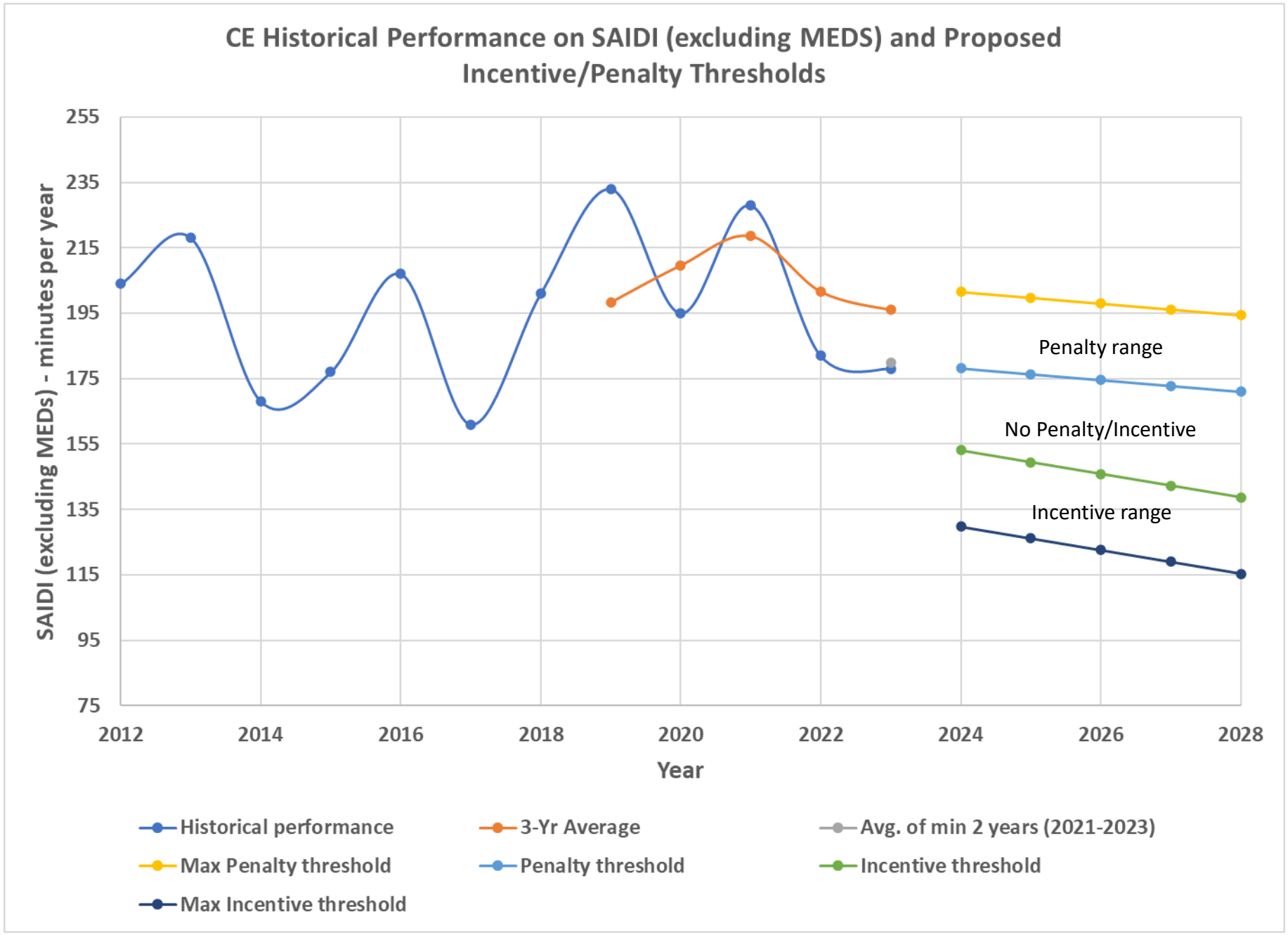


SAIDI (excl MEDs) Metric Incentivizes Median Performance

Metric	Baseline	Target Performance			Potential Incentive/Disincentive Mechanism
		Penalty Threshold	Incentive Threshold	Long-Term Goal	
SAIDI (Excluding MEDs)	Average of lowest 2 years from 2021-2023 DTE(2023)[1]:141 CE (2023): 180	SAIDI > 5% reduction from baseline over 5 years (linear glidepath)	1 st. dev. deadband + SAIDI < 10% reduction from baseline over 5 years (linear glidepath)	129 (2022 5-yr historical average of Industry median in 5 years)	Symmetric incentive/disincentive Max incentive/penalty scales linearly over 1 SD range 30% of incentive/disincentive pool (DTE ~ $6.9 million, CE ~ $5.7 million)
SAIDI (All weather) (5-yr average)					
Storm Restoration (48-hour storm response)					
Worst performing circuits					

Notes: 1 – Based on DTE 2023 goal of 150 mins. Actual YTD currently trending higher

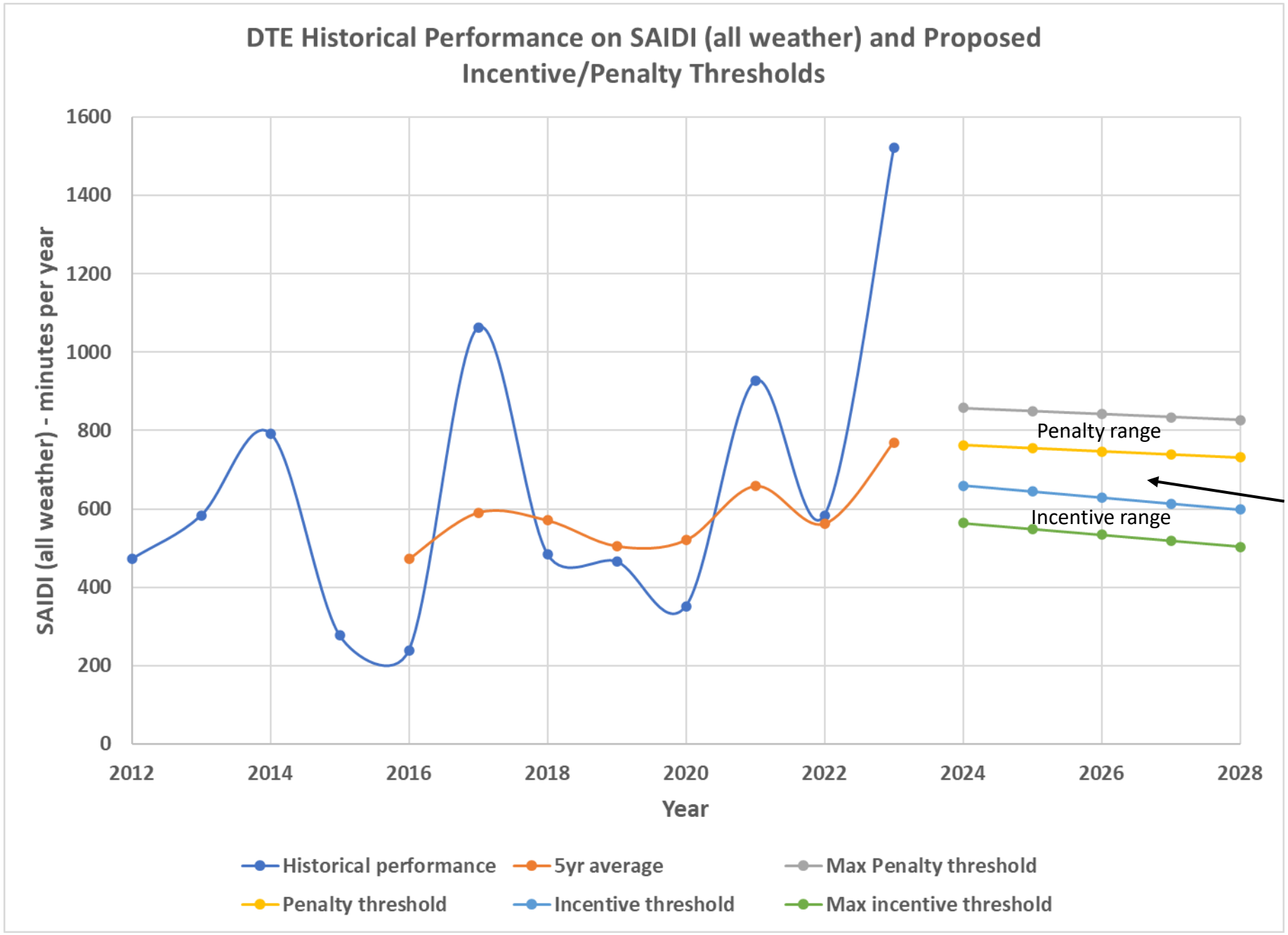

DTE Historical Performance on SAIDI (excluding MEDS) and Proposed Incentive/Penalty Thresholds
SAIDI (excluding MEDs) - minutes per year
255
235
215
195
175
155
135
115
95
75
2012
2014
2016
2018
2020
2022
2024
2026
2028
Year
Penalty range
No Penalty/Incentive
Incentive range
Historical performance
3-Yr Average
Avg. of min 2 years (2021-2023)
Max Penalty threshold
Penalty threshold
Incentive threshold
Max Incentive threshold

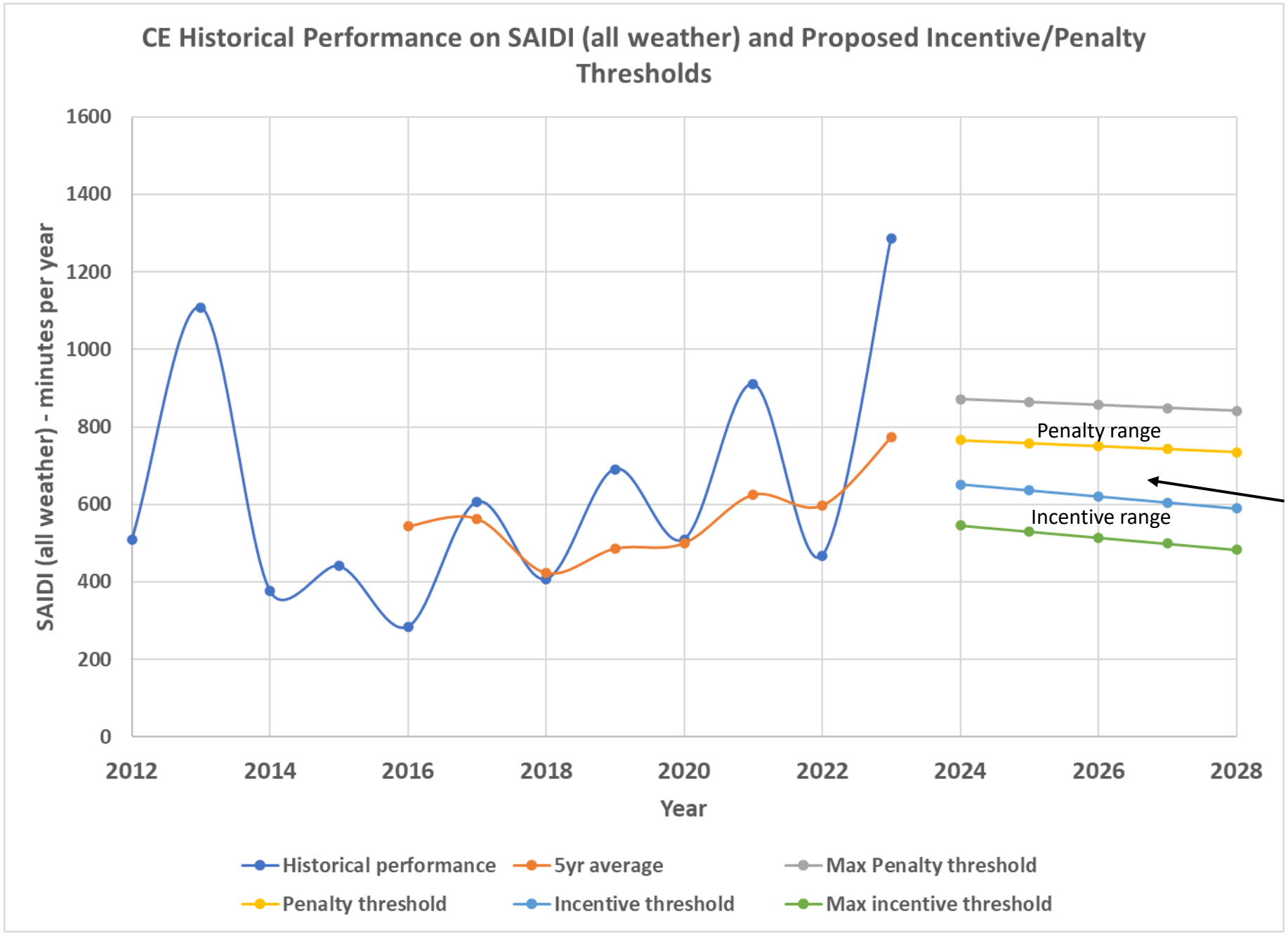

CE Historical Performance on SAIDI (excluding MEDS) and Proposed Incentive/Penalty Thresholds
SAIDI (excluding MEDs) - minutes per year
255
235
215
195
175
155
135
115
95
75
2012
2014
2016
2018
2020
2022
2024
2026
2028
Year
Penalty range
No Penalty/Incentive
Incentive range
Historical performance
3-Yr Average
Avg. of min 2 years (2021-2023)
Max Penalty threshold
Penalty threshold
Incentive threshold
Max Incentive threshold

SAIDI (all weather) Metric Proposes to Alter Increasing Trend

Metric	Baseline	Target Performance			Potential Incentive/Disincentive Mechanism
		Penalty Threshold	Incentive Threshold	Long-Term Goal	
SAIDI (Excluding MEDs)	Average of lowest 2 years from 2021-2023 DTE(2023)[1]:141 CE (2023): 180	SAIDI > 5% reduction from baseline over 5 years (linear glidepath)	1 st. dev. deadband + SAIDI < 10% reduction from baseline over 5 years (linear glidepath)	129 (2022 5-yr historical average of Industry median in 5 years)	Symmetric incentive/disincentive Max incentive/penalty scales linearly over 1 SD range 30% of incentive/disincentive pool (DTE ~ $6.9 million, CE ~ $5.7 million)
SAIDI (All weather) (5-yr average)	5-yr historical average DTE (2022): 563 DTE(2023 YTD)[2]: 770 CE (2022): 597 CE(2023 est.)[3]: 773	SAIDI > 5% reduction from baseline over 5 years (linear glidepath)	1 st. dev. deadband + SAIDI < 10% reduction from baseline over 5 years (linear glidepath)	250 (2nd/3rd quartile) 5yr-average value = 375	Symmetric incentive/disincentive Max incentive/penalty scales linearly over 1 SD range 30% of incentive/disincentive pool (DTE ~ $6.9 million, CE ~ $5.7 million)
Storm Restoration (48-hour storm response)					
Worst performing circuits					

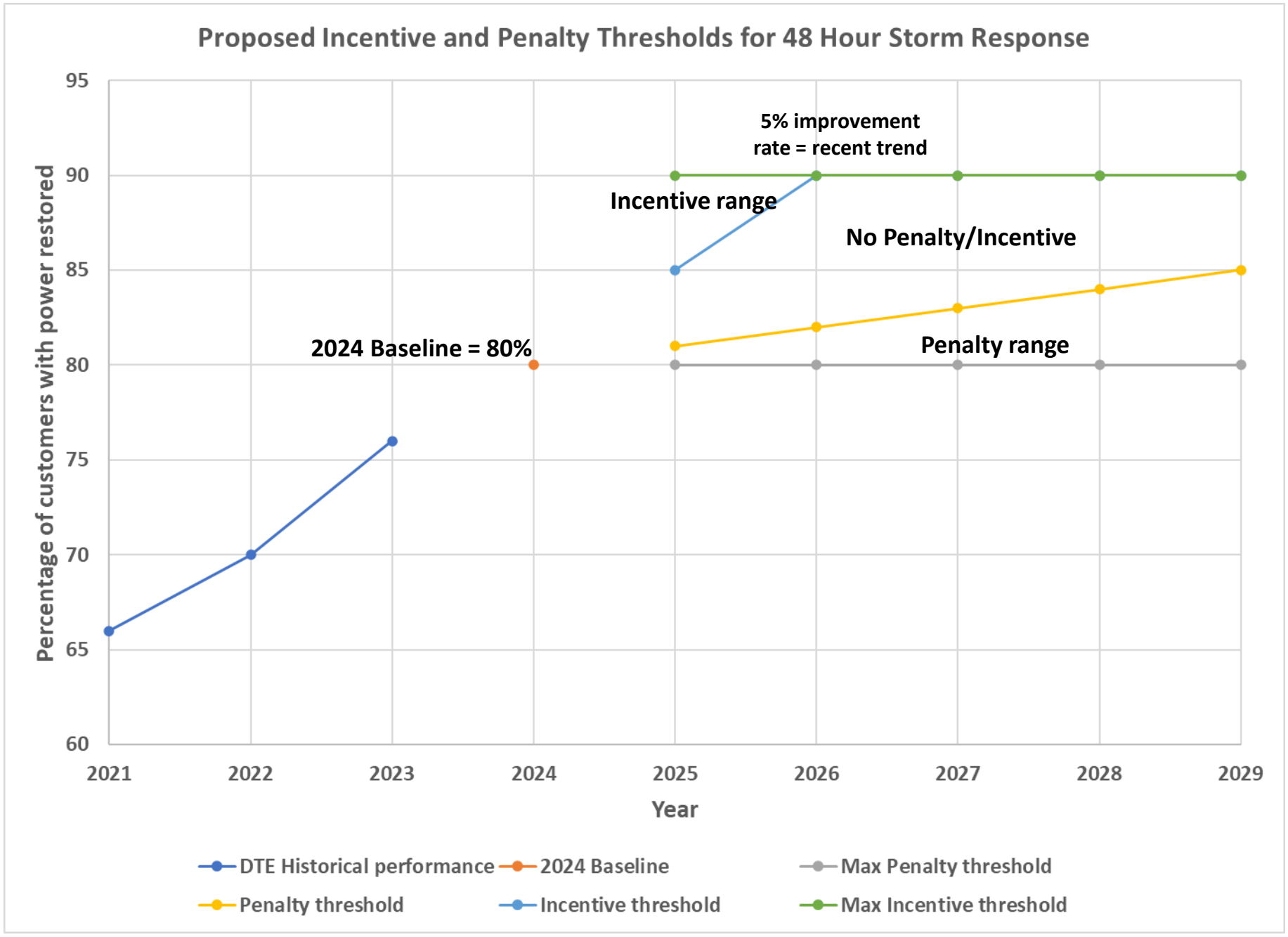
Notes: 1 – Based on DTE 2023 goal of 150 mins. Actual YTD currently trending higher. 2 – Based on DTE YTD results for SAIDI (all weather) – 1521 mins.
3 – Based on CE estimated YTD results for SAIDI (all weather) – 1287 mins.


DTE Historical Performance on SAIDI (all weather) and Proposed Incentive/Penalty Thresholds
SAIDI (all weather) - minutes per year
1600
1400
1200
1000
800
600
400
200
0
2012
2014
2016
2018
2020
2022
2024
2026
2028
Year
Penalty range
No Penalty/Incentive
Incentive range
Historical performance
5yr average
Max Penalty threshold
Penalty threshold
Incentive threshold
Max incentive threshold


CE Historical Performance on SAIDI (all weather) and Proposed Incentive/Penalty Thresholds
SAIDI (all weather) - minutes per year
1600
1400
1200
1000
800
600
400
200
0
2012
2014
2016
2018
2020
2022
2024
2026
2028
Year
Penalty range
No Penalty/Incentive
Incentive range
Historical performance
5yr average
Max Penalty threshold
Penalty threshold
Incentive threshold
Max incentive threshold

Storm Restoration and Circuit-Level Metrics Address Priority Improvement Areas

Metric	Baseline	Target Performance			Potential Incentive/Disincentive Mechanism
		Penalty Threshold	Incentive Threshold	Long-Term Goal	
SAIDI (Excluding MEDs)					
SAIDI (All weather) (5-yr average)					
Storm Restoration (48-hour storm response)	80% by 2024 DTE and CE report ≈76% YTD in 2023 Recent DTE trend: 5% improvement/yr	1% improvement/yr. from baseline over 5 years	Exceed recent improvement trend (5%/yr) from baseline to 90%	Early compliance with 90% standard	Symmetric incentive/disincentive Account for 20% of incentive/disincentive pool (DTE ~ $4.6 million, CE ~ $3.8 million) Incentive scaled from threshold to 90% Penalty scaled from threshold to 80%
Worst performing circuits	Reviewing historical top 10 rankings	Circuits ranked by SAIDI (exc MEDs) No circuits remain in top 10 for more than 2 of past 5 years	N/A	N/A	Penalty only but not bill credit Seeking feedback on system- or circuit-level metric Account for 20% of disincentive pool (DTE ~ $4.6 million, CE ~ $3.8 million)


Proposed Incentive and Penalty Thresholds for 48 Hour Storm Response
Percentage of customers with power restored
95
90
85
80
75
70
65
60
2021
2022
2023
2024
2025
2026
2027
2028
2029
Year
5% improvement
rate = recent trend
Incentive range
No Penalty/Incentive
2024 Baseline = 80%
Penalty range
DTE Historical performance
2024 Baseline
Max Penalty threshold
Penalty threshold
Incentive threshold
Max Incentive threshold

Worst Performing Circuits

Definition

Penalty triggered if a circuit is in Top 10 worst performing list for 3 years out of 5

Key Considerations

- Circuits ranked by SAIDI (excluding MEDs)
- Address circuits with persistent reliability problems
- Seeking stakeholder feedback on system- vs. circuit-level focus
- Will review historical data to identify geographic patterns
- Penalty triggered if circuit meets criteria

Key Parameters	DTE	CE
Baseline	N/A	N/A
Penalty Allocation	20% ($4.6 M)	20% ($3.8 M)

DTE 2022 Report

2A. Reliability Performance - 5 Worst Performing SAIDI Circuits - System Basis

	Circuit Name and Number	Substation	Location	Circuit Miles	Customers Served	SAIDI All Wthr Sys Basis	SAIDI ex MEDs Sys Basis	SAIDI All Wthr Cct Basis	SAIDI ex MEDs Cct Basis	Last Tree Trimming
1	CONRD8130	Conrad	Howell Twp	153.3	2,688	4.58	0.35	3814.59	288.62	2021
2	SLOAN8524	Sloan	Sterling Heights	23.4	2,560	3.98	0.11	3487.61	93.70	2015
3	PROUD9475	Proud	Milford Twp	59.9	3,259	3.79	0.31	2608.59	210.82	2014
4	AKRON9000	Akron	Novi	38.3	3,442	3.41	0.11	2220.86	69.41	2014
5	LOMRD8516	Lombard	Warren	16.9	2,124	3.30	0.29	3480.14	307.37	2014

CE 2022 Report

10 Worst SAIDI Performing Circuits for 2022

Circuit SAIDI Excluding MEDs	Circuit SAIFI Excluding MEDs	Feeder ID	Substation/Circuit	Service Center Location	Length (Miles)	Number of Customers Served	Last Circuit Trim	Number of Customer Interruptions	Outage Causes	Corrective Action Plan to Improve Performance
1987	7.99	42301	GERRISH/ LEGION	West Branch	105	2153	2017	17199	Equipment Failure and Trees	2022 - Forestry Zone Clearing 2022 - 2023 - HVD Line Projects 2022 - Substation Projects 2022-2024 - LVD Line Projects
1786	4.25	151602	HUBBARD LAKE/ MILLER ROAD	Tawas	68	633	2017	2693	Weather, No Specific Cause Found, and Trees Outside ROW	2024 - LVD Line Project

Summary Table of Revised Reliability Metrics

Metric	Baseline	Target Performance			Potential Incentive/Disincentive Mechanism
		Penalty Threshold	Incentive Threshold	Long-Term Goal	
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Equity Considerations

- **Partially addressed w/ Service Quality Rules and Bill Credits**
  - **Includes CEMI, CELID, and Outage duration metrics**
- **Improving outage/storm response metrics reduces outage burden on IQ/DI Communities**
- **Circuit-level metric intended to address equity**
- **Utility metric reporting on circuit, census tract, and ZIP Code basis under Case No. U-21122 can be combined with work to identify environmental justice communities under SB 271 to further evaluate equity impacts**
- **Next Reliability + metrics will also address equity**

Procedural/Ratemaking Considerations

- **Incentive/Disincentive metrics implemented through contested case proceeding**
- **Conduct a review every two years**
- **“Offramp” mechanism should be included**
  - **Scope of offramp mitigated by initial review cycle**
- **Incentives/disincentives tracked in regulatory asset**
- **Next Reliability + metrics can build on initial steps**

Topics for Discussion

- **Feedback on revised metrics**
- **Incentive/disincentive potential**
  - **Allocation by metric**
  - **Symmetric incentives for SAIDI and storm response metrics**
- **Focus area for worst performing circuit metric (system- vs. circuit-level)**
- **Other areas of interest to stakeholders**

Backup Slides

System Average Interruption Duration Index (SAIDI excluding MEDs)

Definition

Total amount of time average customer experiences a sustained interruption in a year excluding Major Event Days

Key Considerations

- Baseline uses avg. of lowest 2 yrs. from 2021-2023 to reflect recent improvements
- Long-term goal at median performance in IEEE benchmarking study
- Incentive/penalty scales linearly over 1 st. dev. range

Key Parameters	DTE	CE
Baseline (est. 2023)	141	180
5% Improvement Target	134	171
10% Improvement Target	127	162
Long-Term Goal	129	129
1 Standard Deviation (2012-2023)	22	23
Max Incentive/Penalty Allocation	30% ($6.9 M)	30% ($5.7 M)

DTE SAIDI (excl MEDs) Incentive/Penalty Mechanism

Year	Penalty	No Penalty/Incentive	Incentive
1	>162 – 140	140 – 116	116 – 93 >
2	>161 – 138	138 – 113	113 – 91 >
3	>159 – 137	137 – 110	110 – 88 >
4	>158 – 135	135 – 107	107 – 85 >
5	>156 – 134	134 – 105	105 – 82 >

CE SAIDI (excl MEDs) Incentive/Penalty Mechanism

Year	Penalty	No Penalty/Incentive	Incentive
1	>202 – 178	178 – 153	153 – 130 >
2	>200 – 176	176 – 149	149 – 126 >
3	>198 – 175	175 – 146	146 – 123 >
4	>196 – 173	173 – 142	142 – 119 >
5	>194 – 171	171 – 139	139 – 115 >

System Average Interruption Duration Index (SAIDI all weather)

Definition

Total amount of time average customer experiences a sustained interruption in a year under all weather conditions

Key Considerations

- Metric uses 5-yr average of SAIDI (all weather)
- Baseline uses 5-yr historical average to reflect recent improvements
- Long-term goal at median performance in IEEE benchmarking study
- Incentive/penalty scales linearly over 1 st. dev. range
- Includes a 1 st. dev. deadband to address variability

Key Parameters	DTE	CE
Baseline 5-yr avg. (est. 2023)	770	773
5% Cumulative Improvement	39 mins	39 mins
10% Cumulative Improvement	77 mins	77 mins
Long-Term Goal	250	250
1 Standard Deviation 5-yr avg. (2016-2023)	95	106
Max Incentive/Penalty Allocation	30% ($6.9 M)	30% ($5.7 M)

DTE SAIDI (all weather) Incentive/Penalty Mechanism

Year	Penalty	No Penalty/Incentive	Incentive
1	>857 – 762	762 – 660	660 – 565 >
2	>850 - 755	755 – 644	644 – 549 >
3	>842 – 747	747 – 629	629 – 534 >
4	>834 – 739	739 – 613	613 – 518 >
5	>827 - 732	732 – 598	598 – 503 >

CE SAIDI (all weather) Incentive/Penalty Mechanism

Year	Penalty	No Penalty/Incentive	Incentive
1	>872 – 765	765 – 651	651 – 545 >
2	>864 – 758	758 – 636	636 – 530 >
3	>856 – 750	750 – 620	620 – 514 >
4	>849 – 742	742 – 605	605 – 499 >
5	>841 – 735	735 – 590	590 – 483 >

48 Hour Storm Response

Definition

Percentage of customers restored within 48 hours of a catastrophic event

Key Considerations

- 2023 YTD for DTE and CE is 76%
- Penalty threshold reflects DTE proposal
- Incentive threshold accelerates compliance to 90%
- Penalty linearly scaled from 80%
- Incentive linearly scaled to 90%

Key Parameters	DTE/CE
2024 Baseline	80%
Penalty Threshold	1%/yr
Incentive Threshold	5%/yr
Long-Term Goal	90+%
Max Incentive/Penalty Allocation	20% (DTE - $4.6 M, CE - $3.8 M)

DTE and CE 48 Hour Storm Response Incentive/Penalty Mechanism

Year	Penalty	No Penalty/Incentive	Incentive
1	< 81%	81% - 85%	> 85%
2	< 82%	82% - 90%	> 90%
3	< 83%	83% - 90%	> 90%
4	< 84%	84% - 90%	> 90%
5	<85%	85% - 90%	> 90%

Worst Performing Circuits

Definition

Penalty triggered if a circuit is in Top 10 worst performing list for 3 years out of 5

Key Considerations

- Circuits ranked by SAIDI (excluding MEDs)
- Address circuits with persistent reliability problems
- Seeking stakeholder feedback on system- vs. circuit-level focus
- Will review historical data to identify geographic patterns
- Penalty triggered if circuit meets criteria

Key Parameters	DTE	CE
Baseline	N/A	N/A
Penalty Allocation	20% ($4.6 M)	20% ($3.8 M)

DTE 2022 Report

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CE 2022 Report

10 Worst SAIDI Performing Circuits for 2022

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