

IEEE Benchmarking 2005 Results

July 2006

Working Group on Distribution Reliability

Benchmarking

- ◆ **Data is Never exactly the same!**
- ◆ **Two main reasons for differences:**
 - ◆ **Data Collection Process/System Differences**
 - ◆ **Exclusion Criteria Differences (Basis)**
- ◆ **IEEE 1366-2003**
 - ◆ **addresses data basis issues by clearly defining the rules.**
 - ◆ **It DOES NOT address the data collection issues**

The following slides...

- ◆ **Show company performance using the IEEE 2.5 Beta method to segregate data into:**
 - ◆ **Day-to-Day operating Indices vs.**
 - ◆ **Performance considering the whole customer experience (All)**
- ◆ **To date 135 companies have participated in our benchmarking at sometime.**
- ◆ **88 companies total with 86 companies returning supporting details**
 - ◆ **Customer density, use of step restoration, computerized reporting system, connected model, level of devices recorded.**
 - 97% of utilities use step restoration
 - 98% of utilities use a computerized reporting system
 - 90% of utilities had a connected model
 - 67% can record to the customer level
 - 96% can record to the transformer level

Classification of Respondents

- ◆ **Urban, Suburban, Rural**
 - ◆ **Rural ≤ 50 cust/mi (31 cust/km)**
 - ◆ **Suburban > 50 cust/mi < 150 cust/mi**
 - ◆ **Urban ≥ 150 cust/mi (93 cust/km)**
- ◆ **2005 Survey**
 - ◆ **9 Urban companies**
 - ◆ **41 Suburban companies**
 - ◆ **36 Rural companies**

Classification of Respondents

- ◆ **67,334,777 customers represented in US & Canada**
- ◆ **Small, Medium, Large**
 - ◆ **Small =< 100,000 customers**
 - ◆ **Medium >100,000 and <1,000,000 customers**
 - ◆ **Large >= 1M customers**
- ◆ **2005 Survey**
 - ◆ **19 Small companies**
 - ◆ **44 Medium companies**
 - ◆ **25 Large companies**

Supporting details available only for a subset of respondents.

Promoting Community Worldwide

Respondents

- ◆ **135 Companies** have responded at some time
- ◆ **2005 Survey**
 - ◆ **88 responded in 2005**
 - 86 provided details
 - ◆ **46 were same as 2004 respondents**

All Respondents 2005						
Quartile	SAIDI IEEE	SAIDI AII	SAIFI IEEE	SAIFI AII	CAIDI IEEE	CAIDI AII
1	98.27	128.39	1.09	1.25	82.50	101.40
2	144.63	216.52	1.39	1.63	104.87	134.12
3	191.83	365.99	1.63	2.13	127.42	179.82
4	410.37	2091.07	7.25	7.25	224.36	759.96

2003 vs. 2004 vs. 2005

All Respondents						
Quartile	SAIDI IEEE	SAIDI All	SAIFI IEEE	SAIFI All	CAIDI IEEE	CAIDI All
1	89.31	126.71	0.93	1.23	77.61	90.55
2	114.57	223.68	1.29	1.54	95.34	158.78
3	154.63	407.93	1.45	2.04	116.51	212.83
4	401.55	2352.29	2.88	5.53	424.74	1154.85
Average	129.55	381.36	1.28	1.81	106.14	192.69

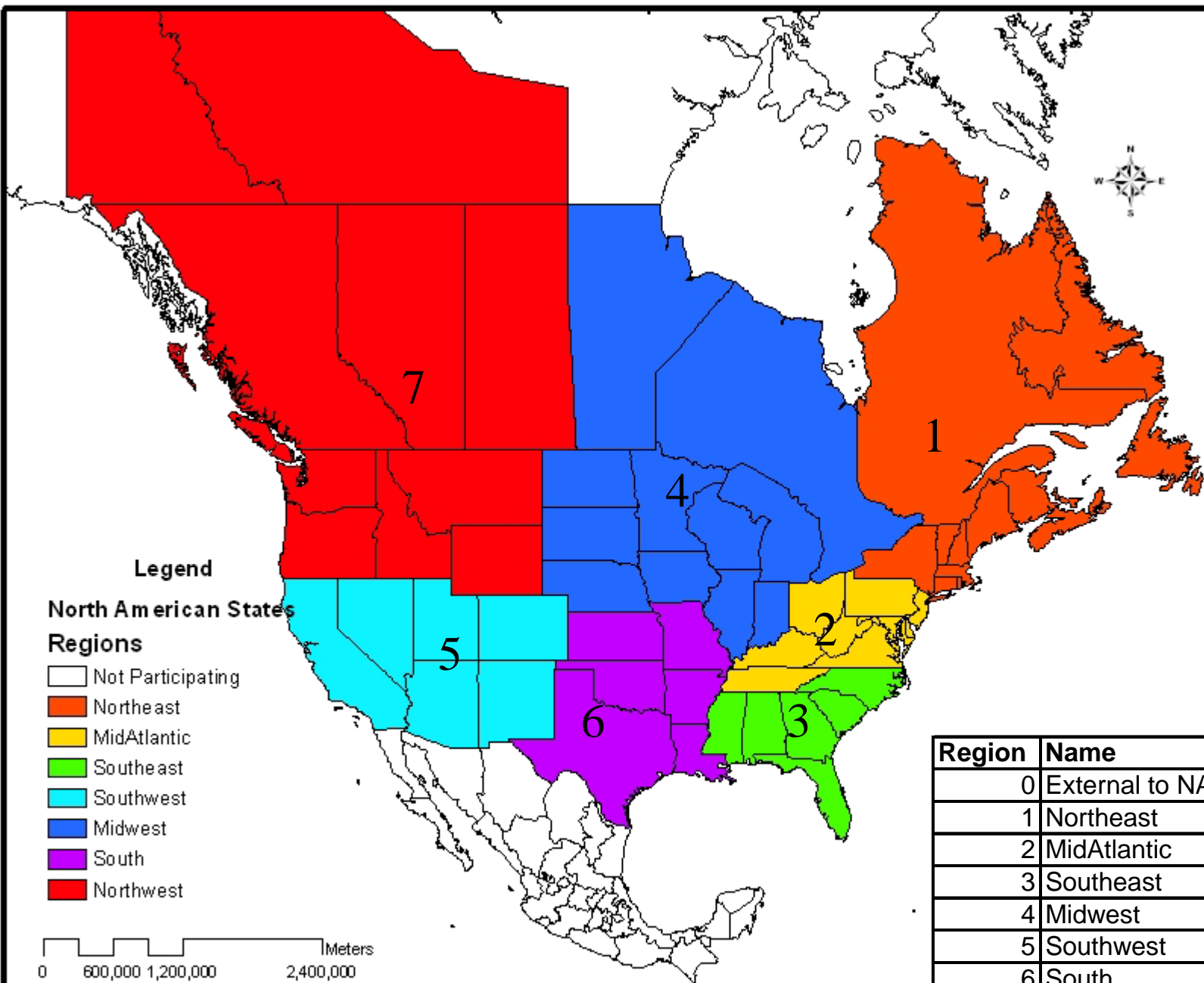
2003

Without Co 8 - 2004						
Quartile	SAIDI IEEE	SAIDI All	SAIFI IEEE	SAIFI All	CAIDI IEEE	CAIDI All
1	78.28	135.83	0.90	1.10	71.93	88.13
2	116.26	167.23	1.22	1.46	91.93	117.44
3	163.77	311.66	1.55	2.00	112.91	157.37
4	313.23	1113.20	3.66	4.73	472.81	472.81

2004

All Respondents 2005						
Quartile	SAIDI IEEE	SAIDI All	SAIFI IEEE	SAIFI All	CAIDI IEEE	CAIDI All
1	98.27	128.39	1.09	1.25	82.50	101.40
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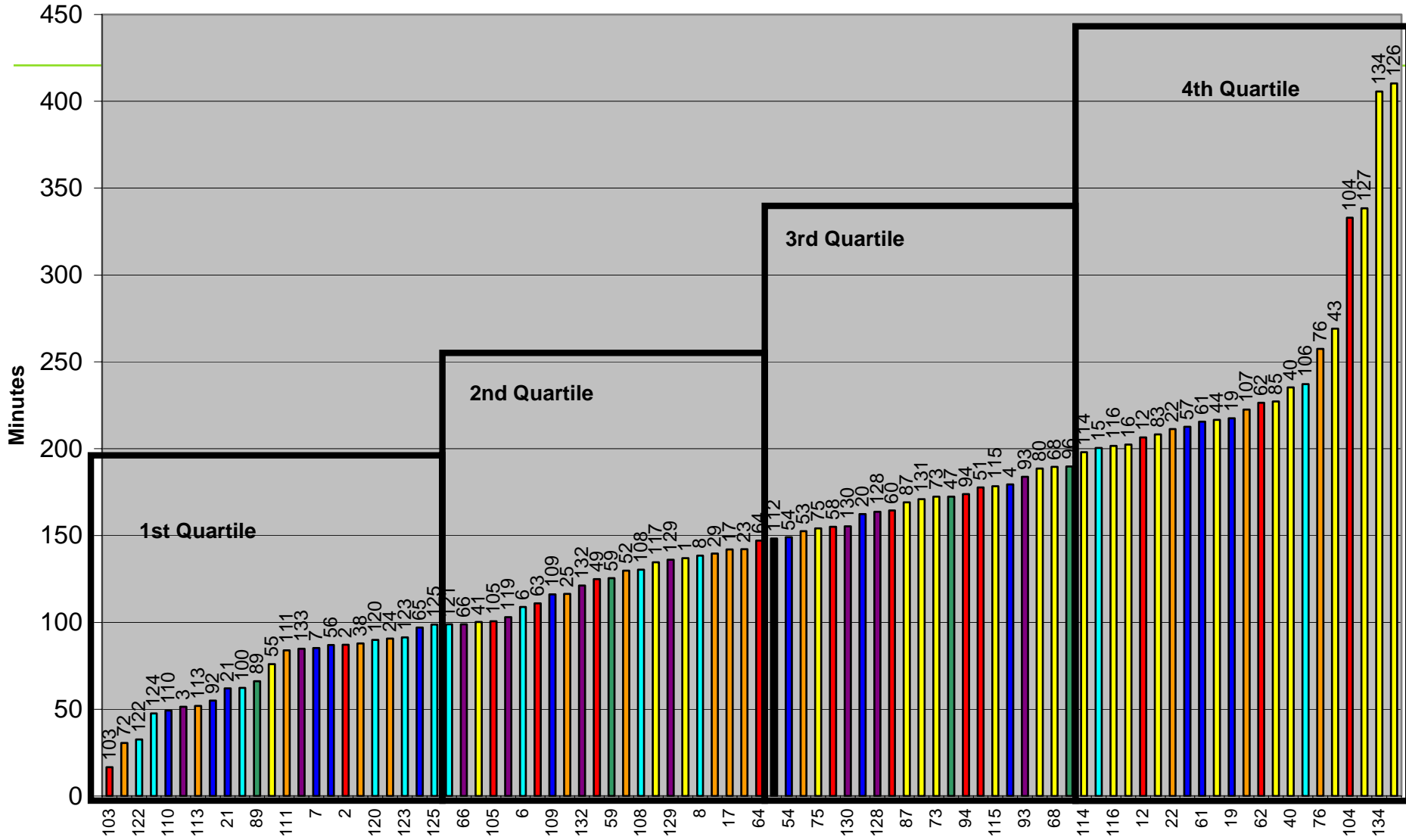
2005



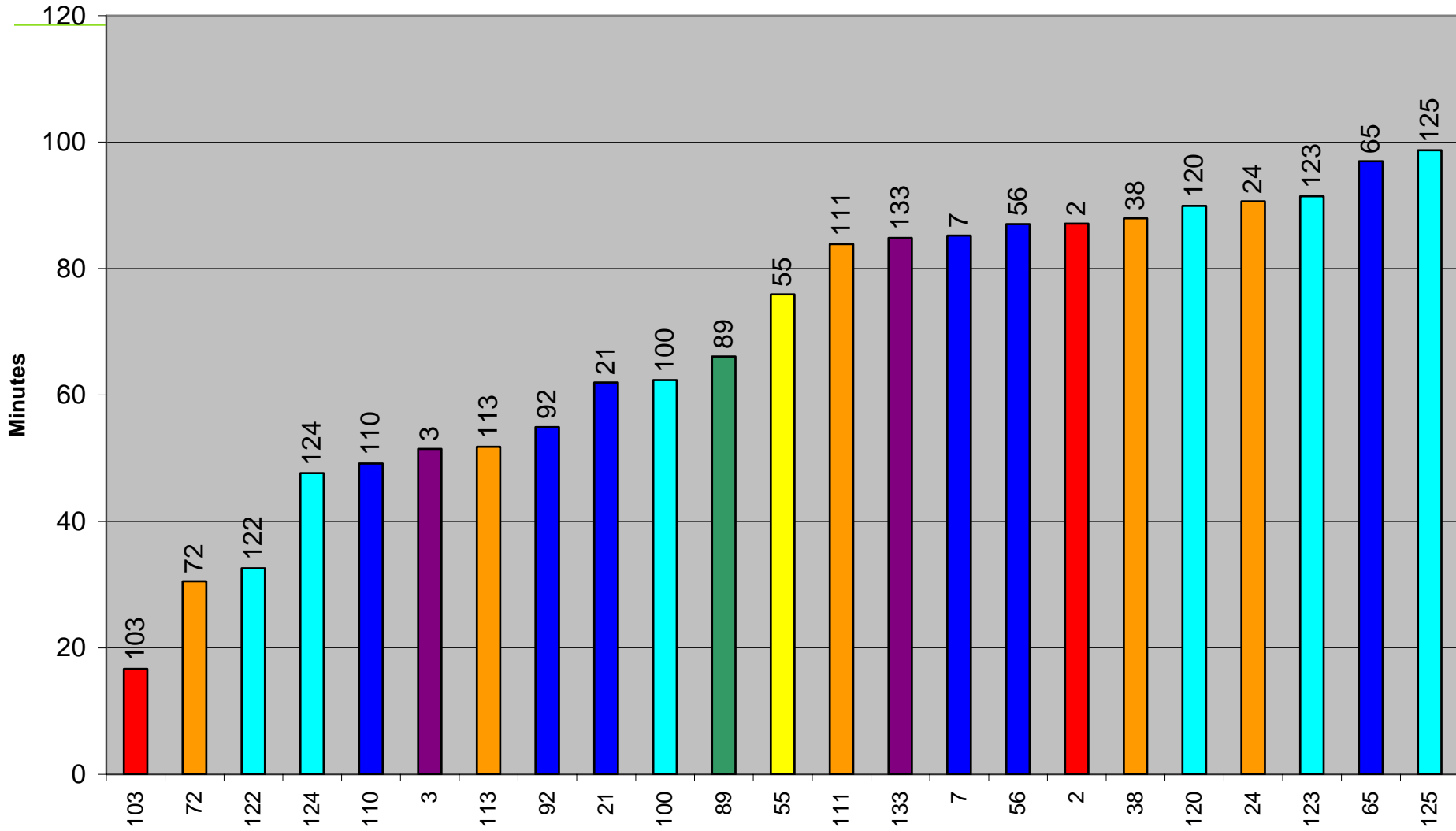
Region	Name	# Co
0	External to NA	1
1	Northeast	14
2	MidAtlantic	22
3	Southeast	4
4	Midwest	12
5	Southwest	13
6	South	9
7	Northwest	13
	2005 Total	88



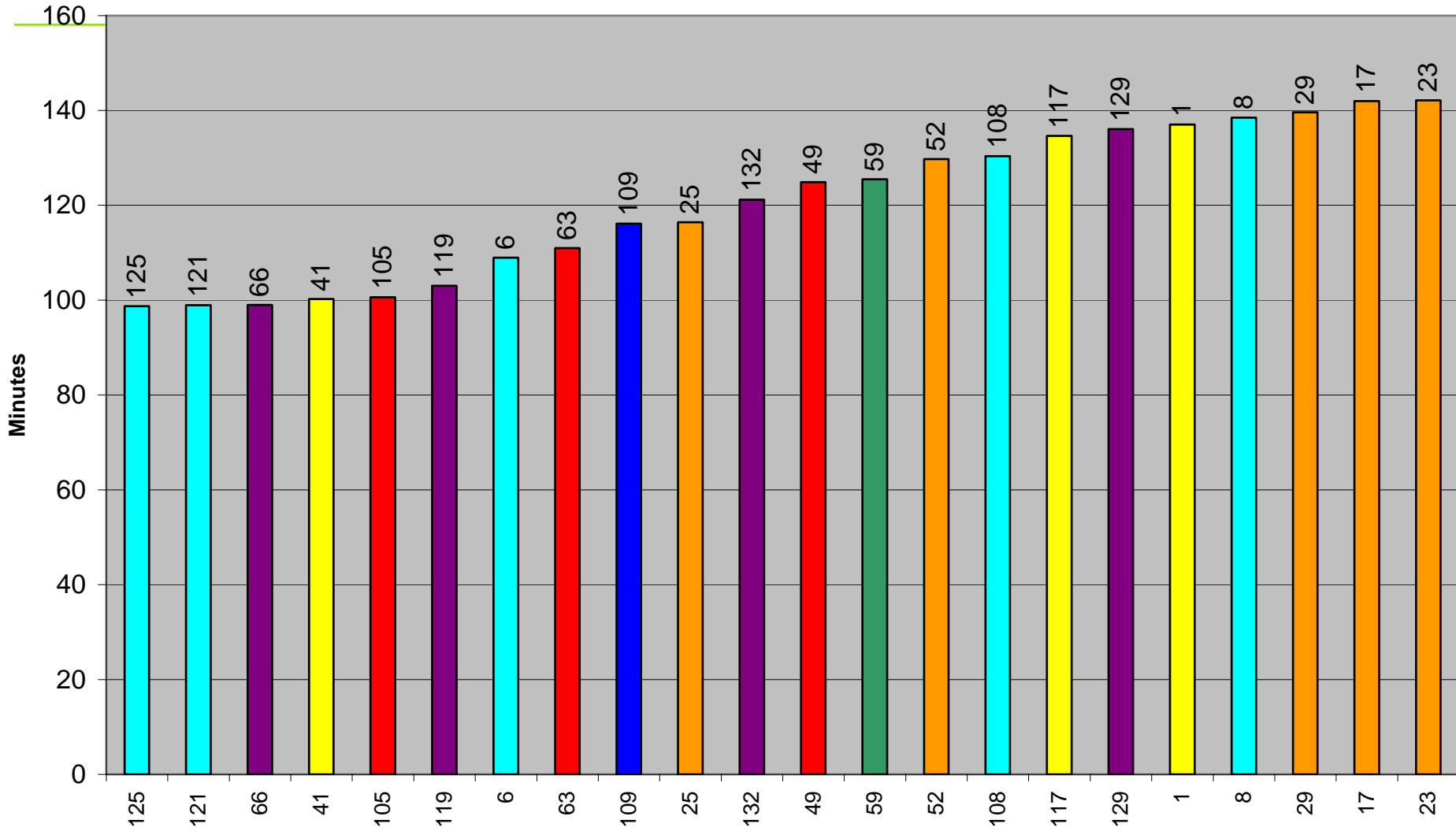
SAIDI IEEE



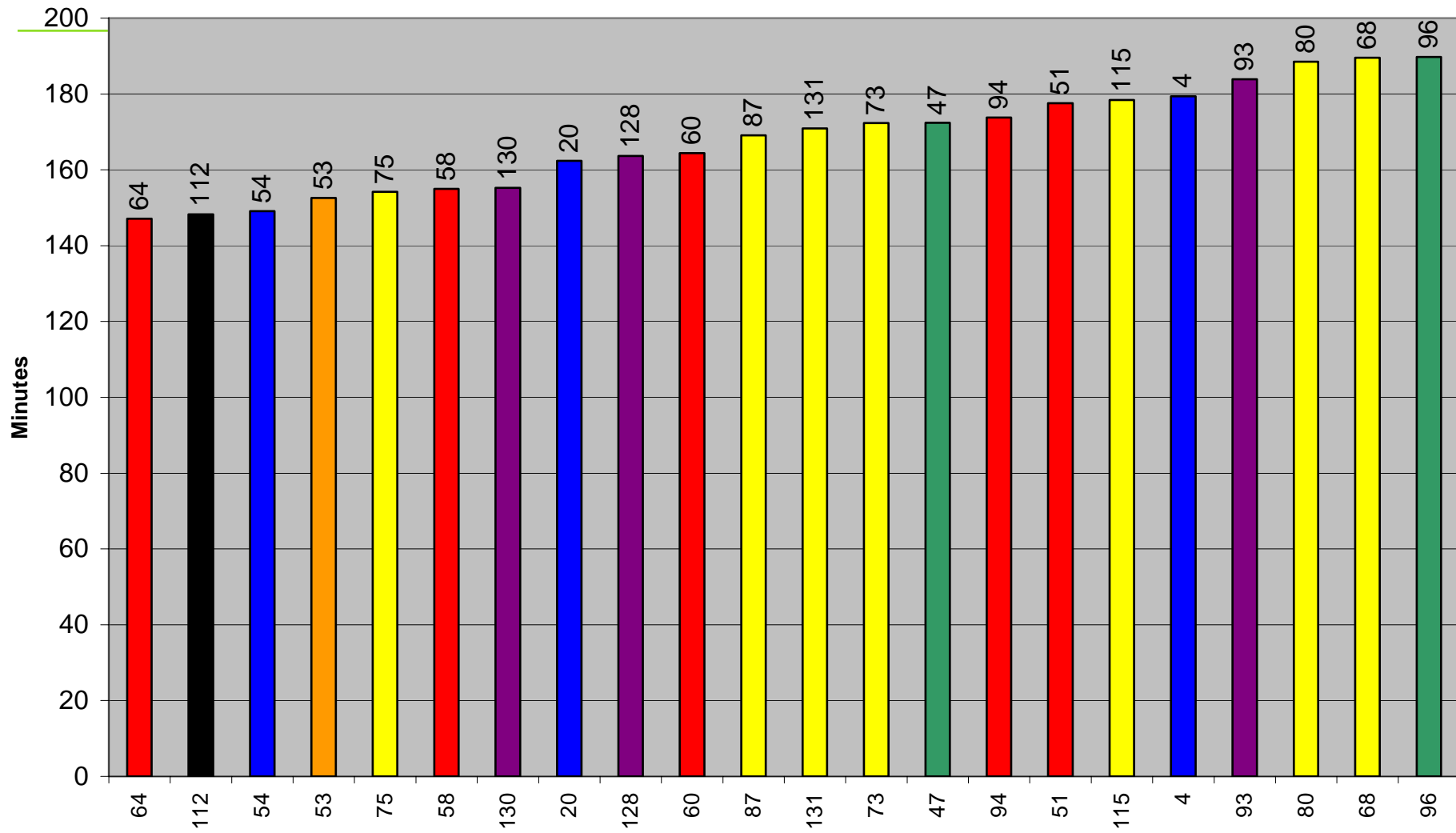
SAIDI IEEE 1st Quartile



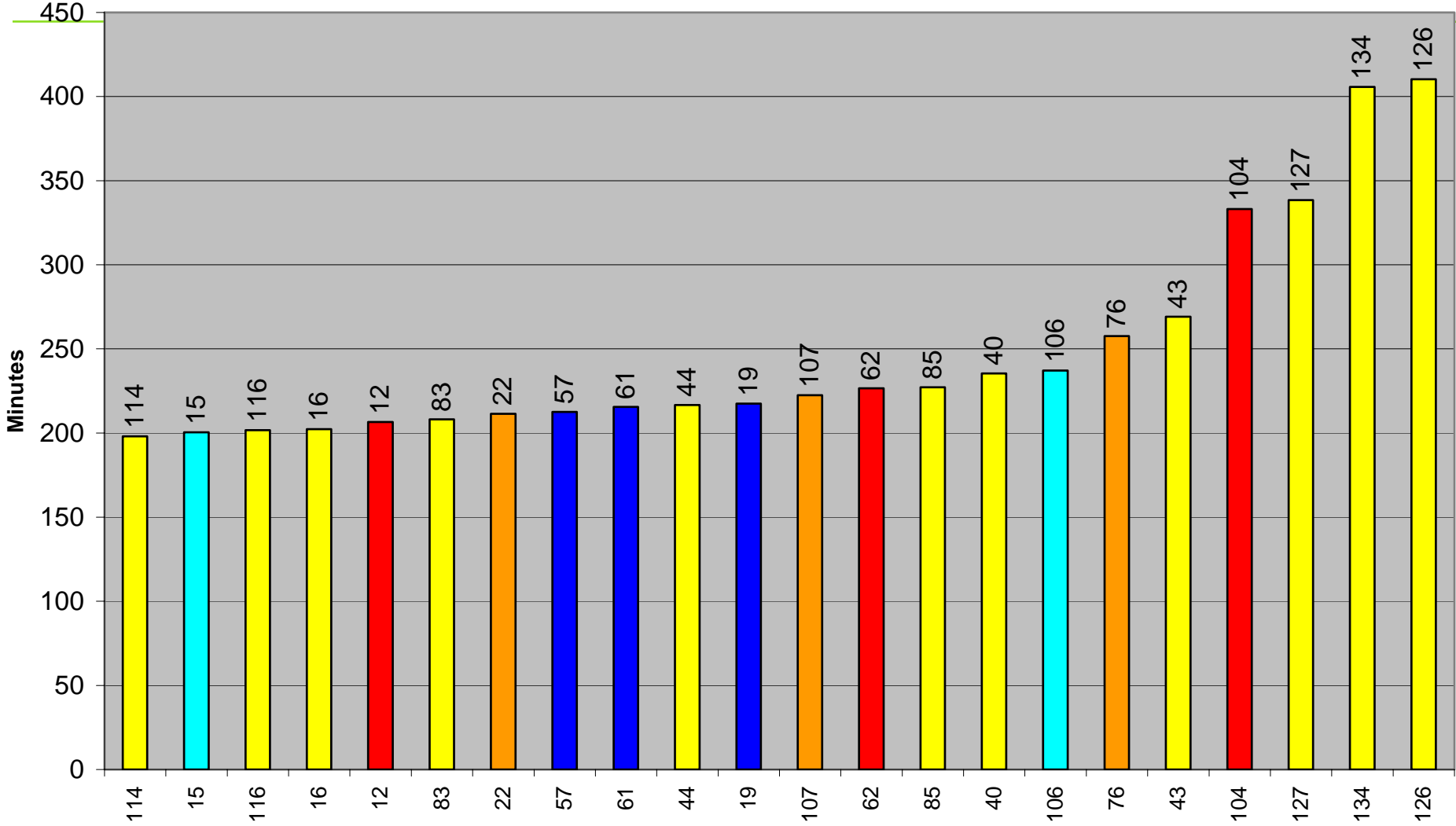
SAIDI IEEE 2nd Quartile



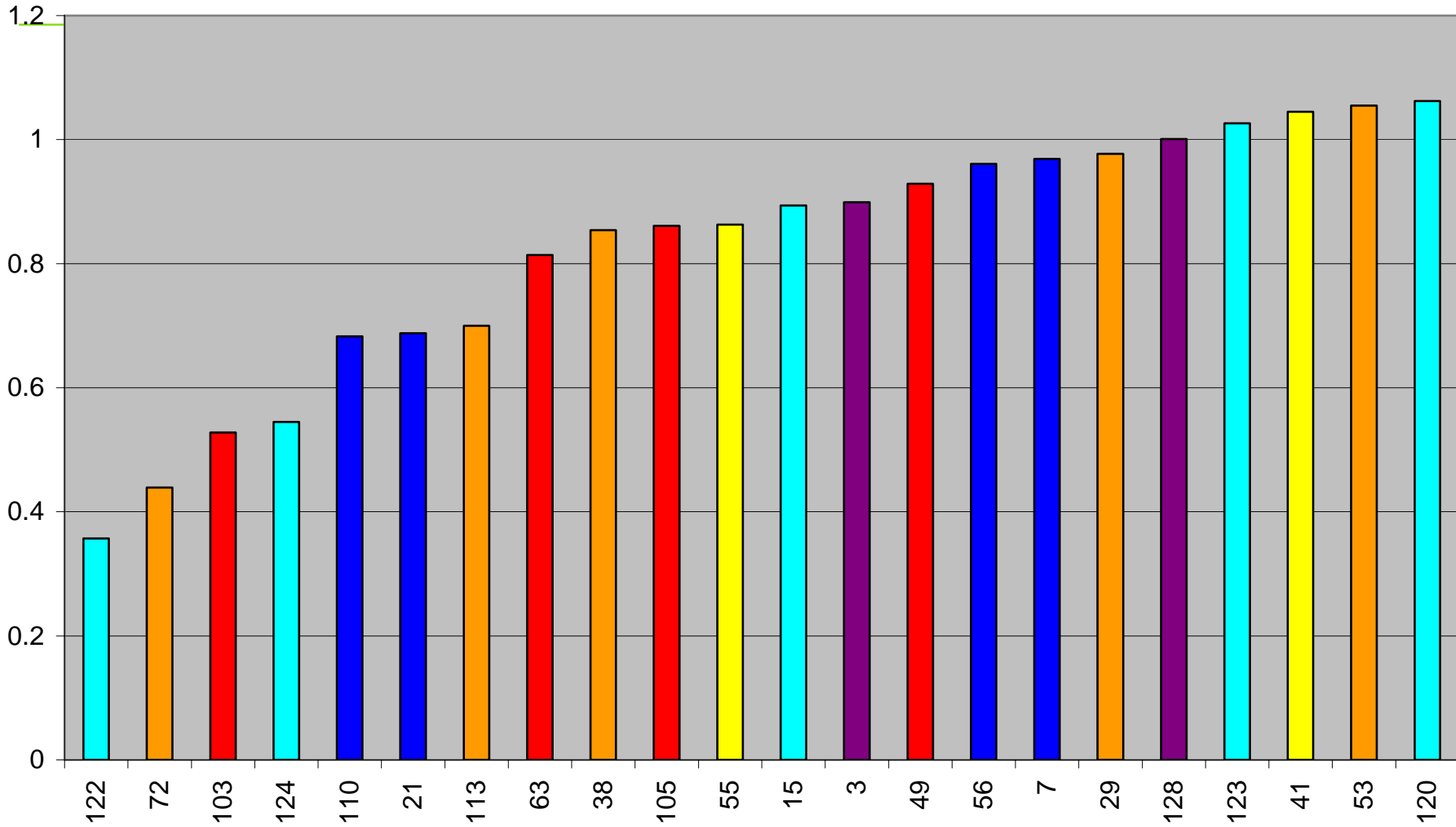
SAIDI IEEE 3rd Quartile



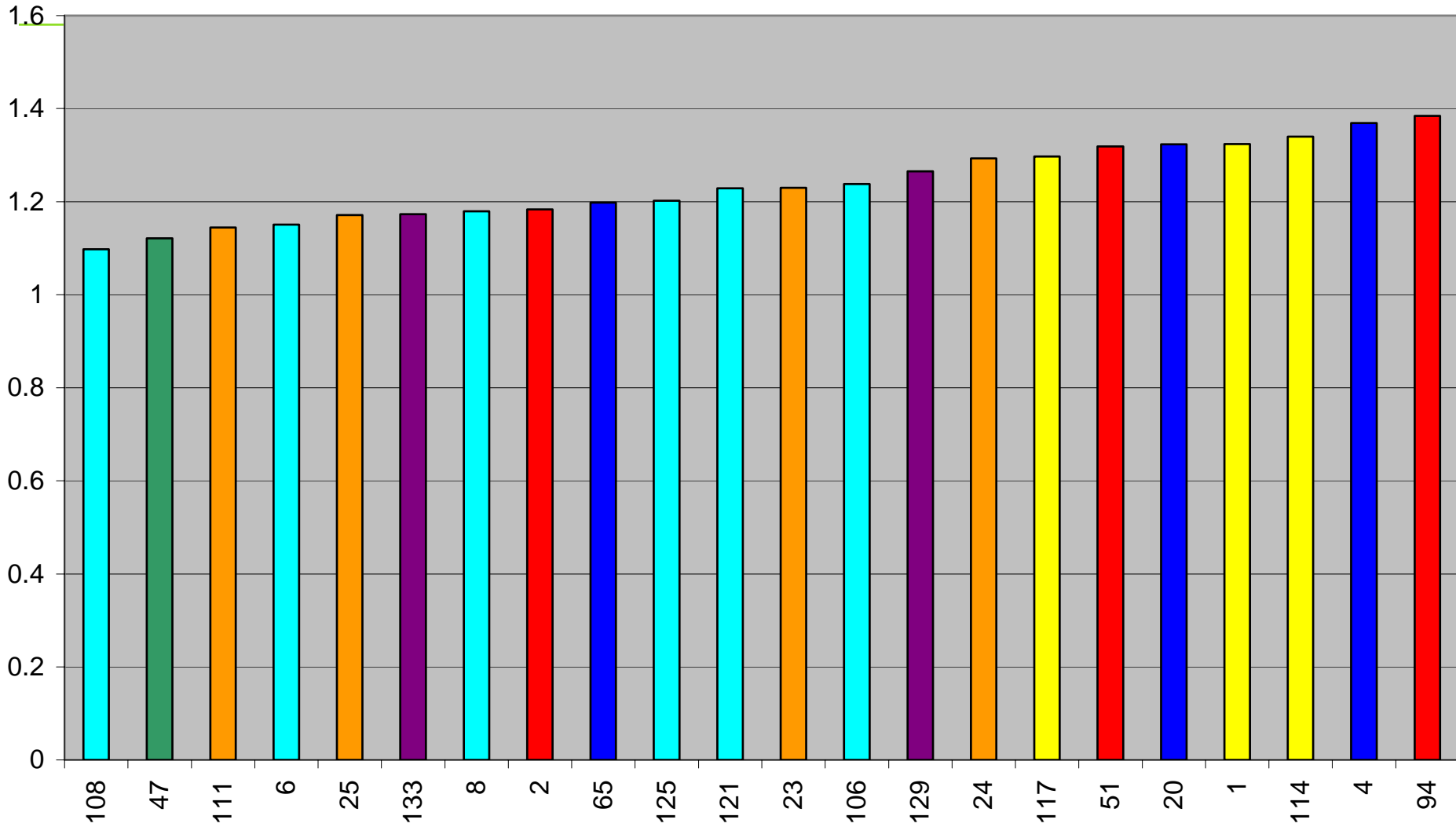
SAIDI IEEE 4th Quartile



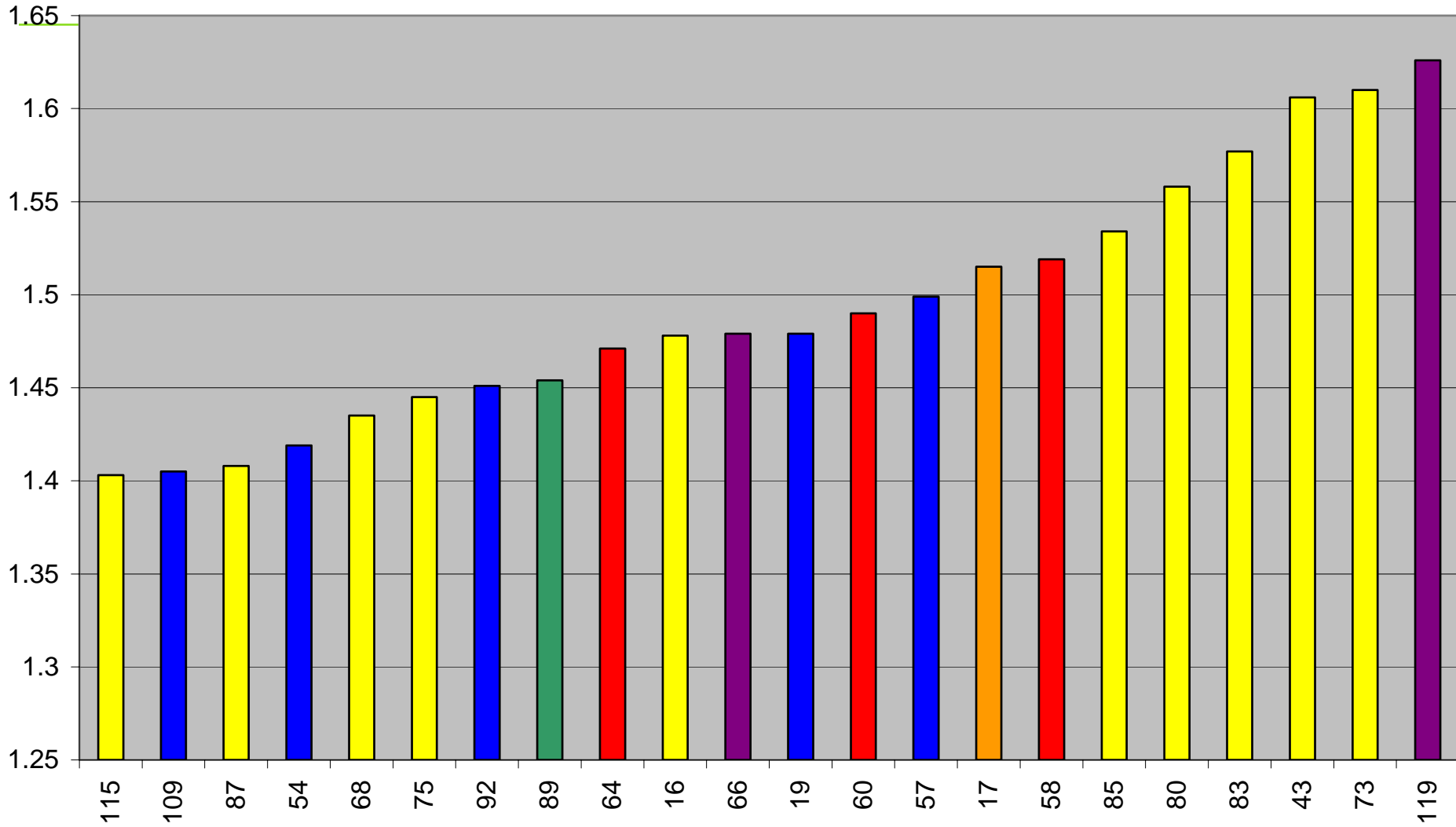
SAIFI 1st Quartile



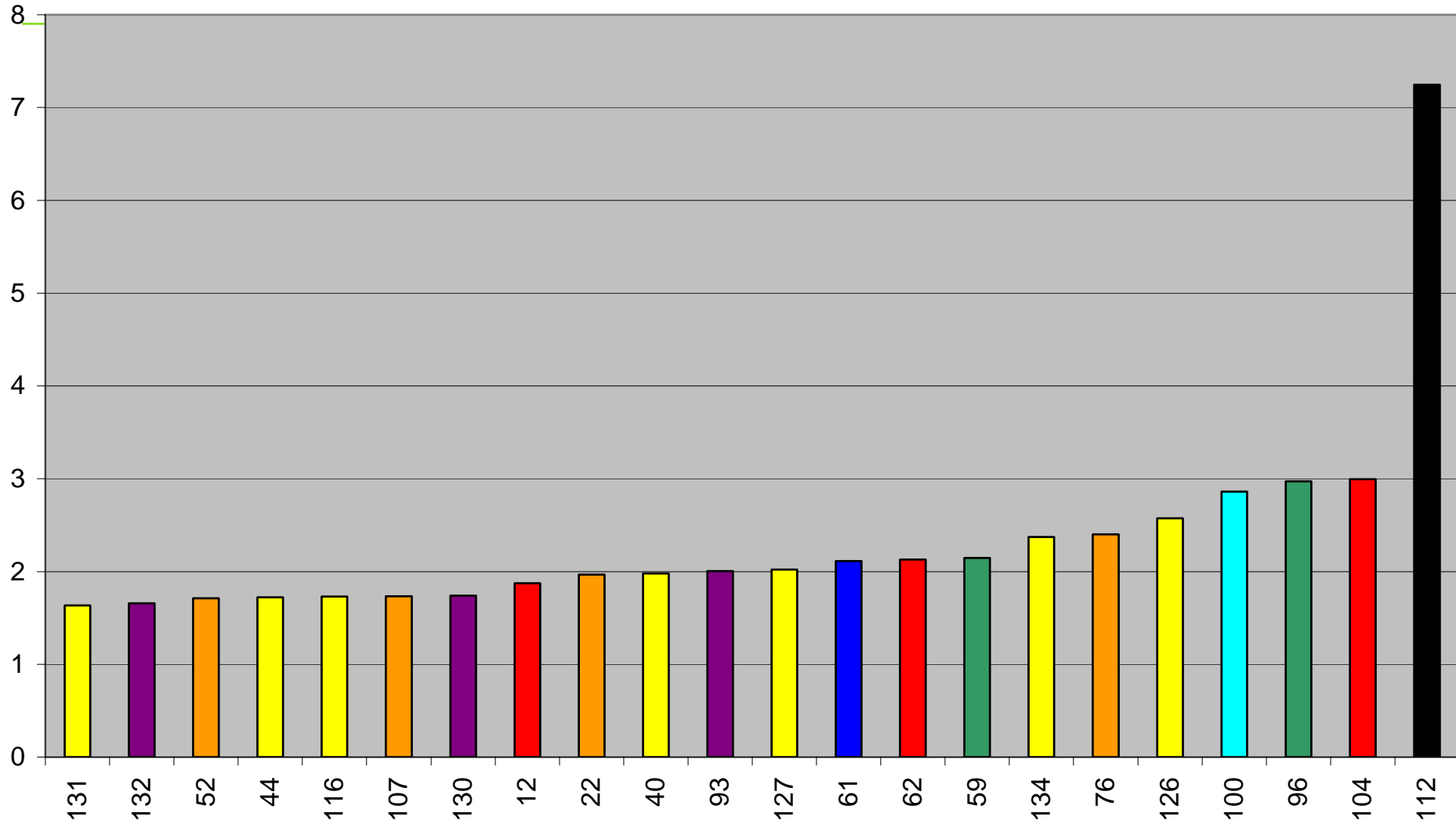
SAIFI 2nd Quartile



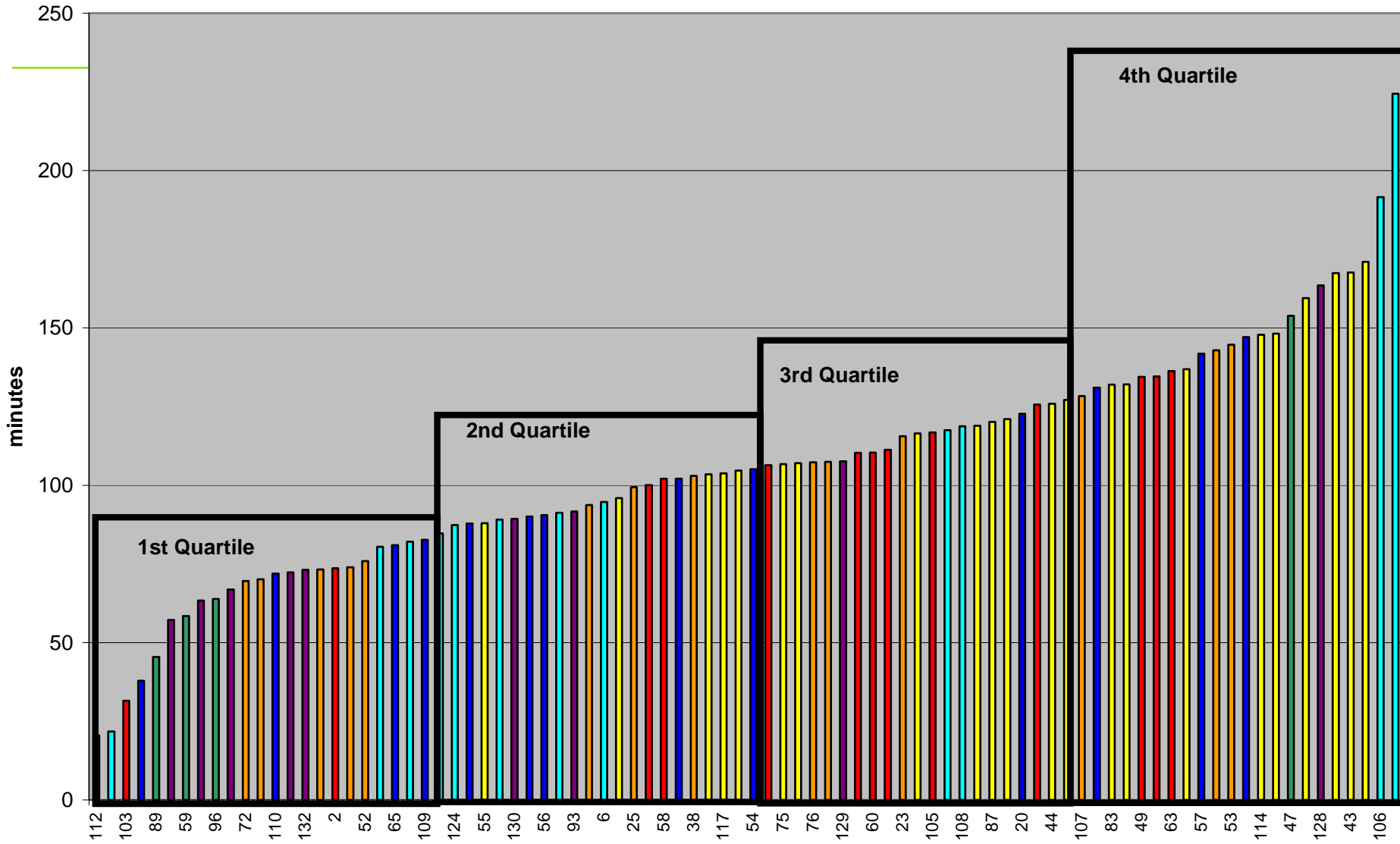
SAIFI 3rd Quartile



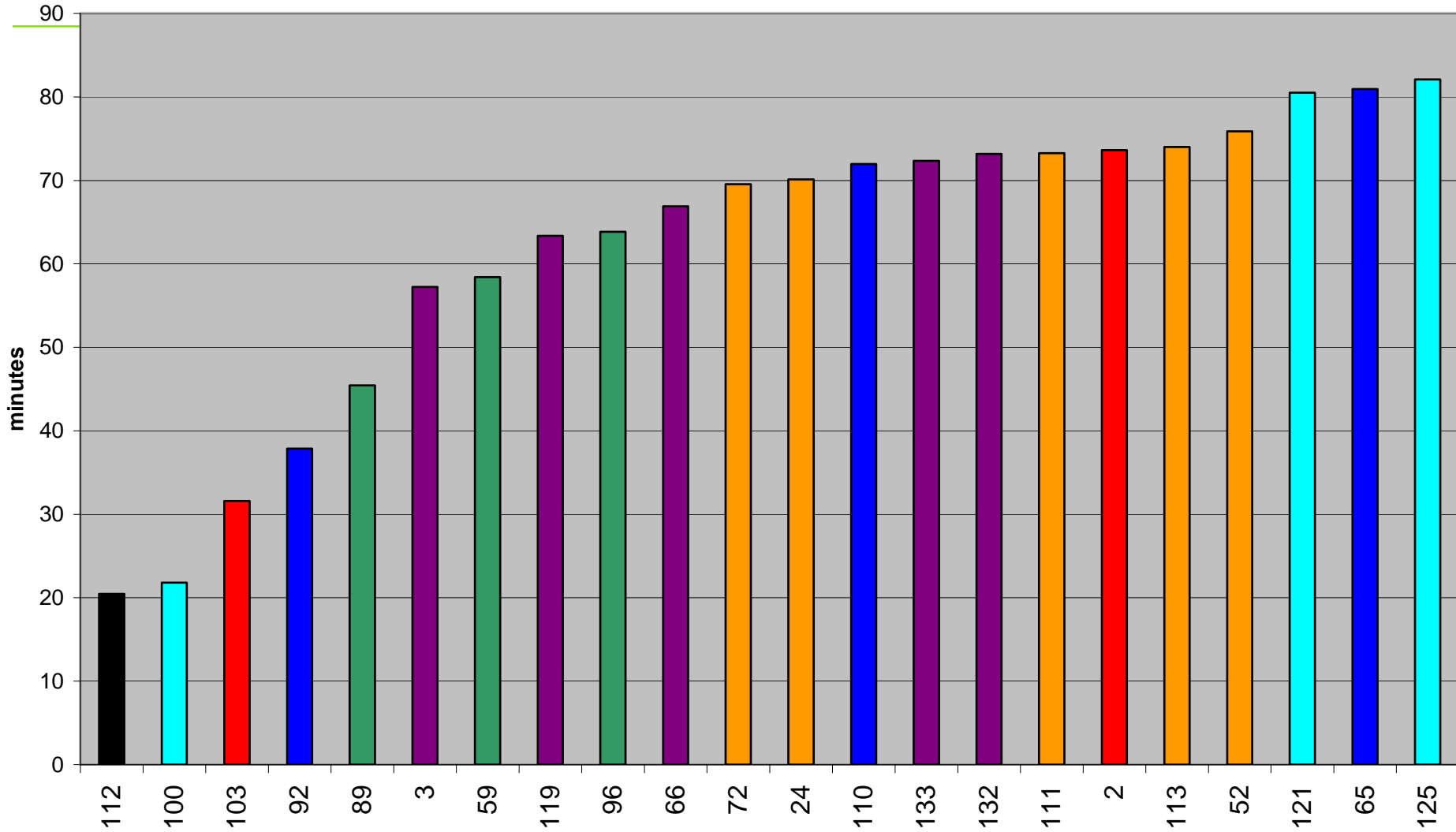
SAIFI 4th Quartile



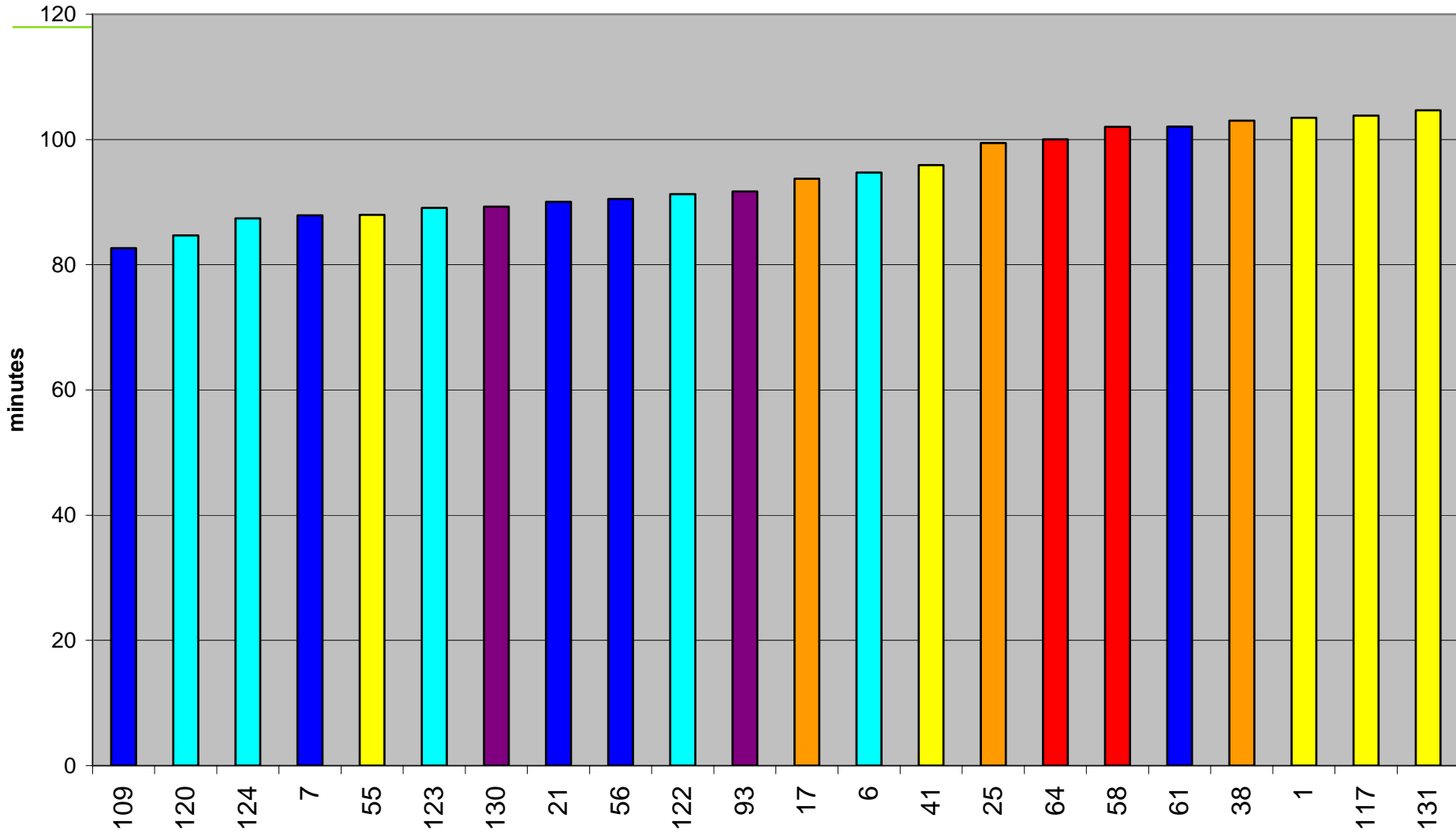
CAIDI IEEE



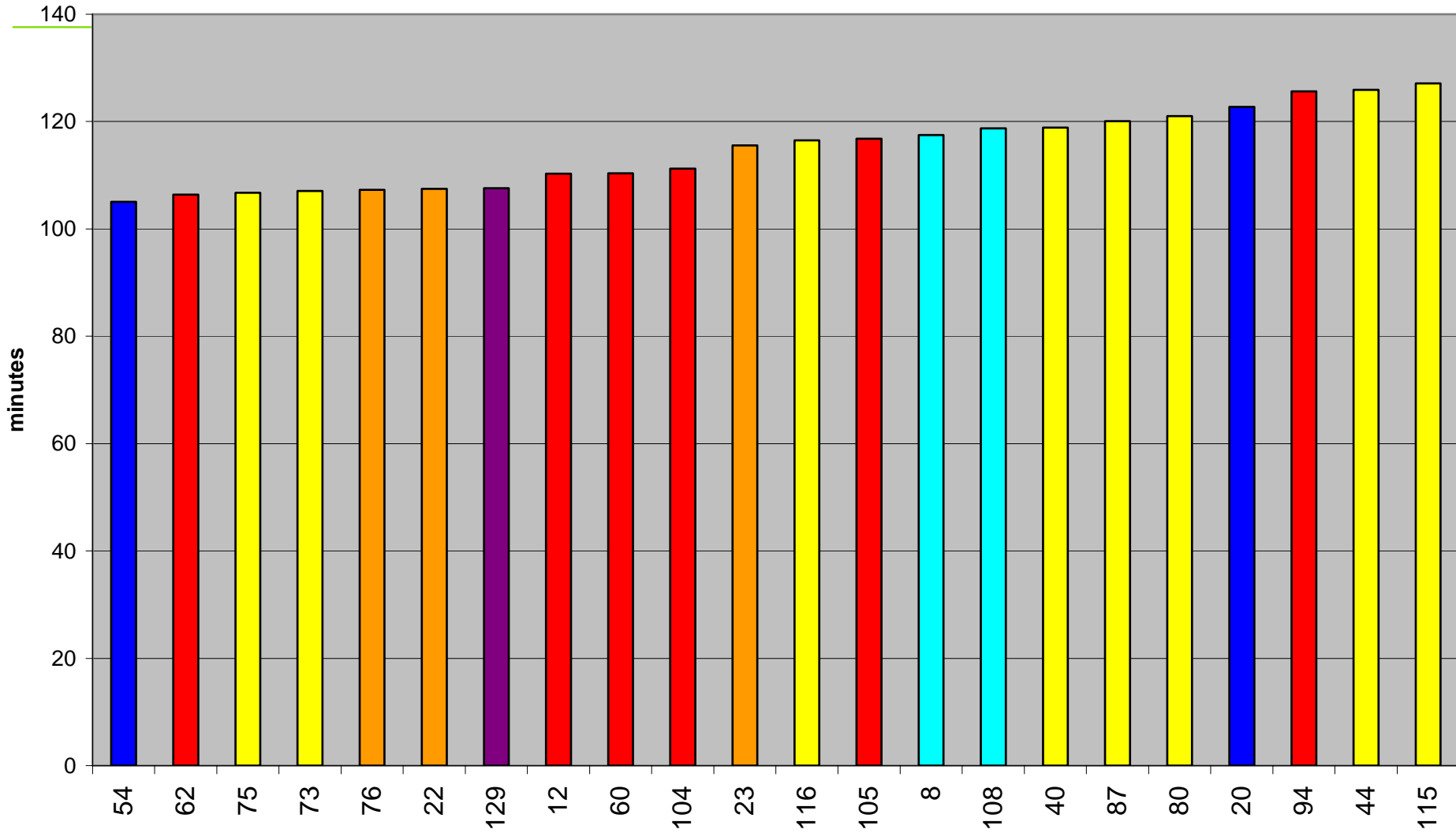
CAIDI IEEE 1st Quartile



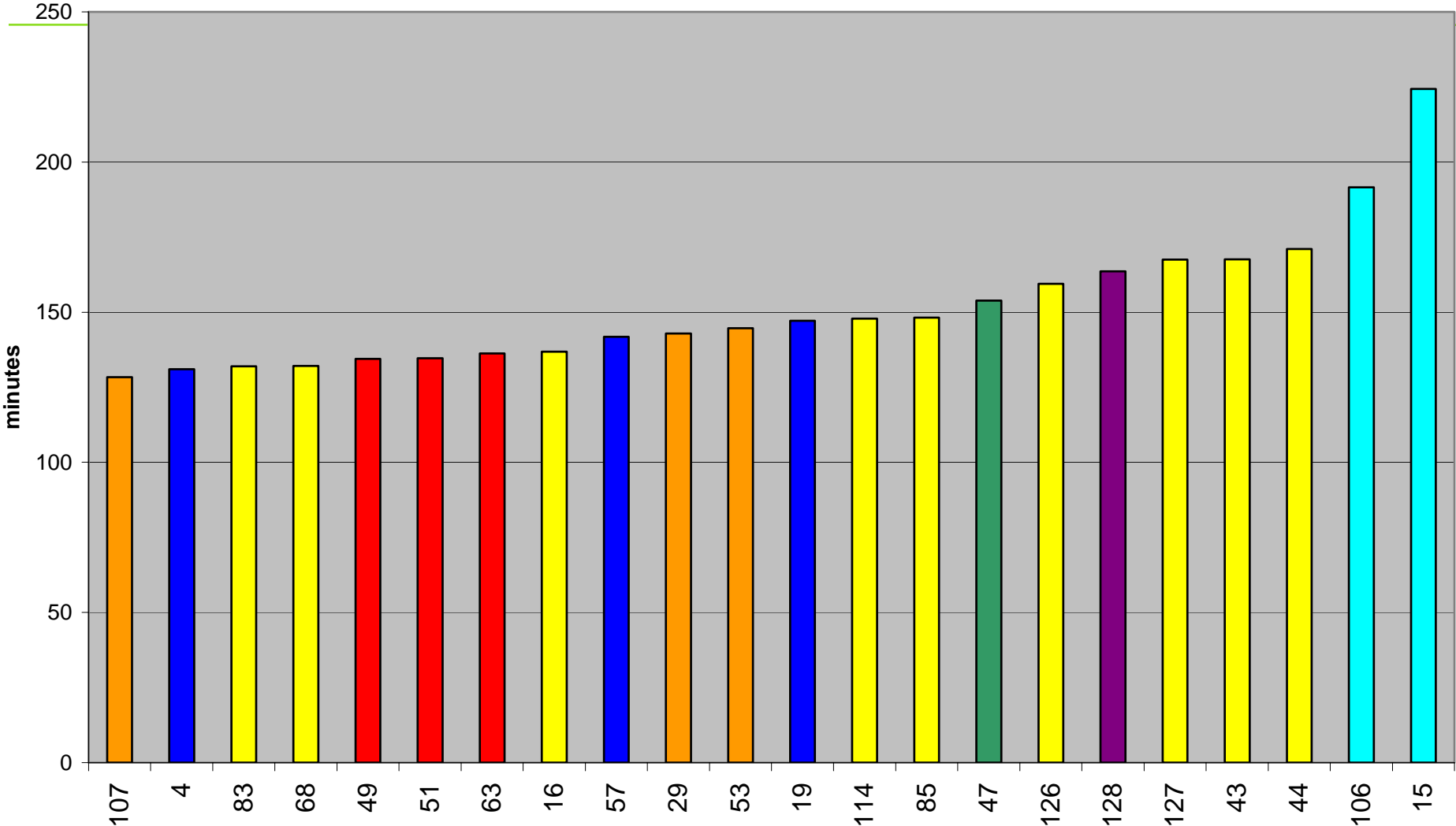
CAIDI IEEE 2nd Quartile



CAIDI IEEE 3rd Quartile



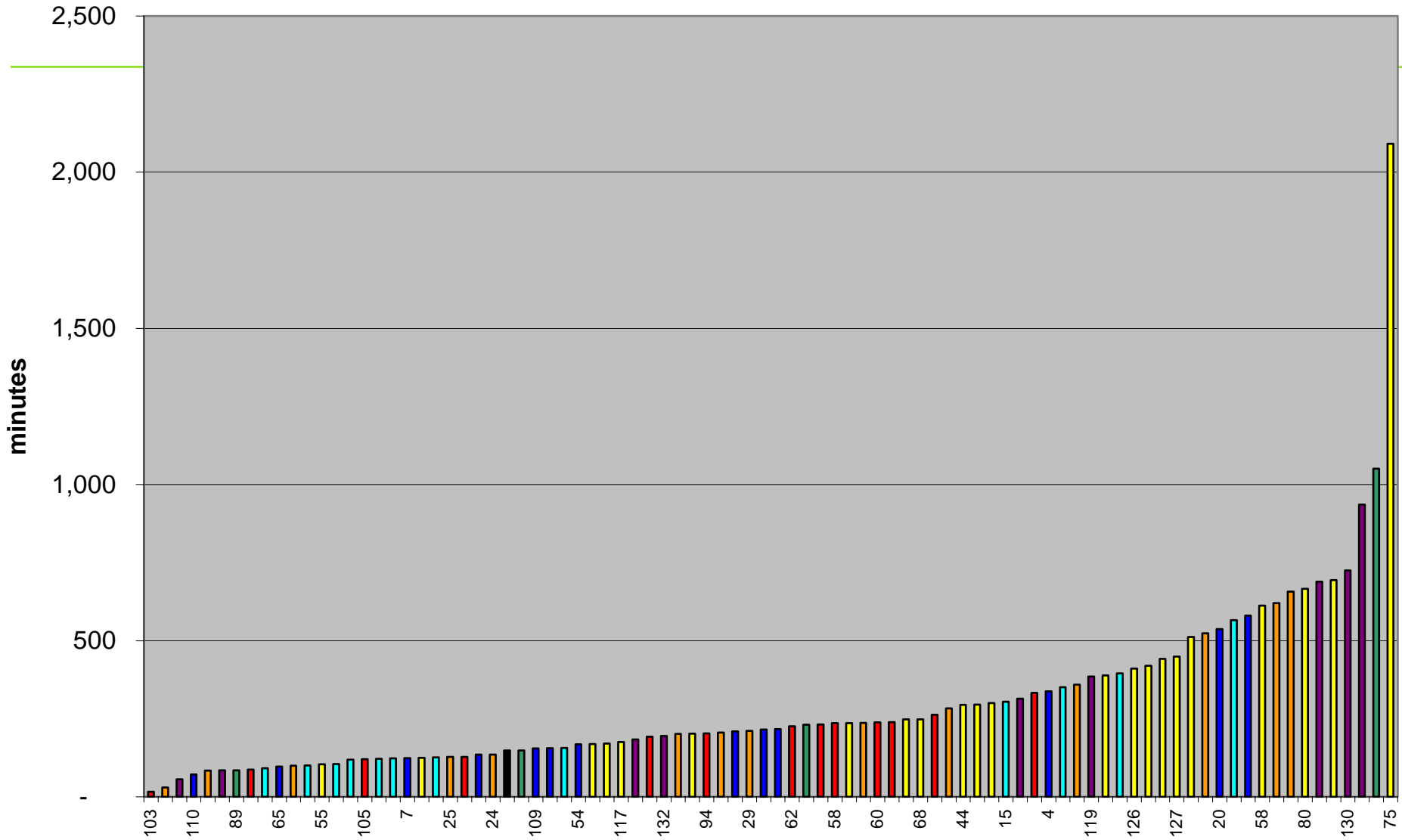
CAIDI IEEE 4th Quartile



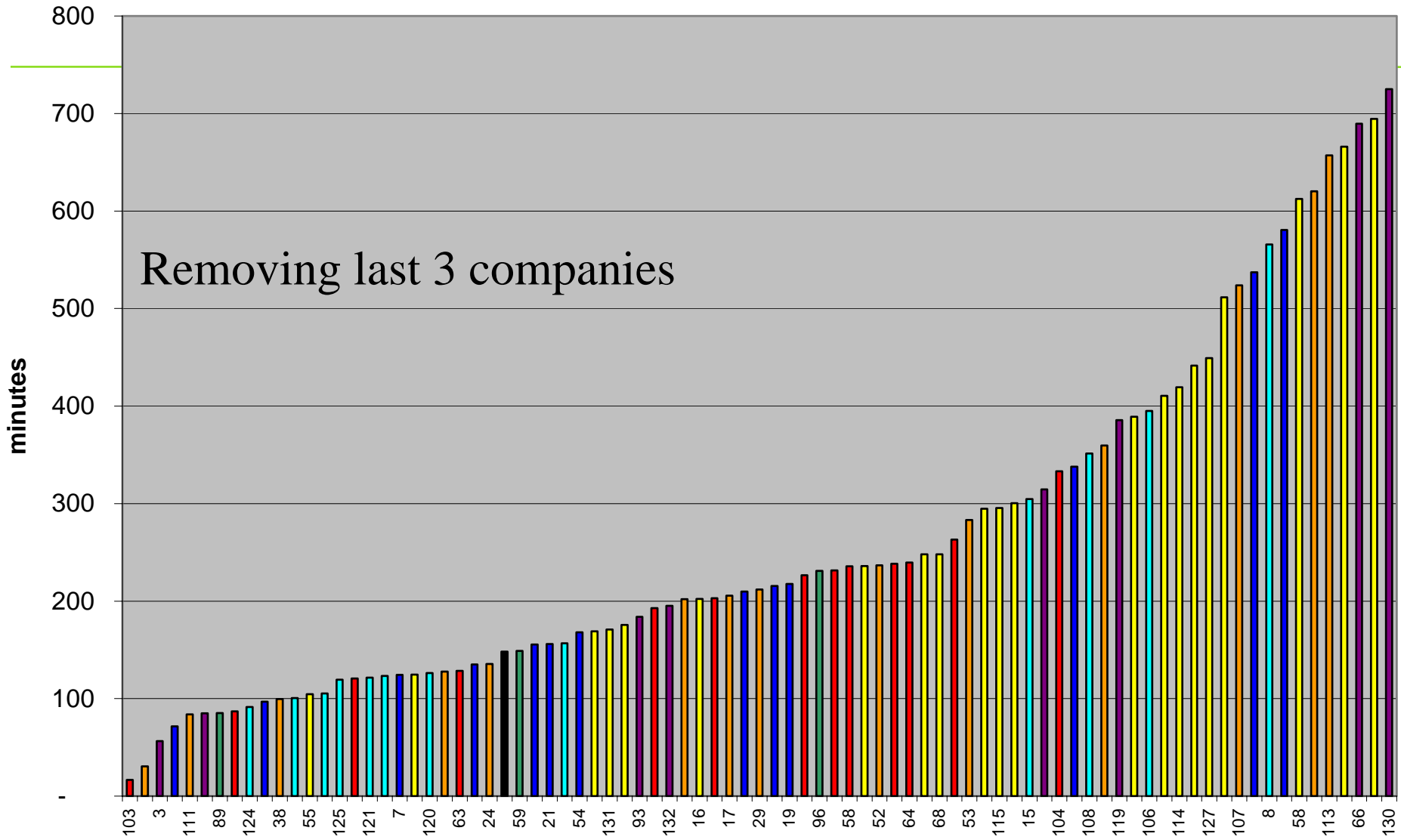
Data Review

- ◆ **Reviewing “All” data, that is the data that includes everything customers experienced can lead to conclusions about how companies handle major events.**
- ◆ **The following slides show data without segmentation.**

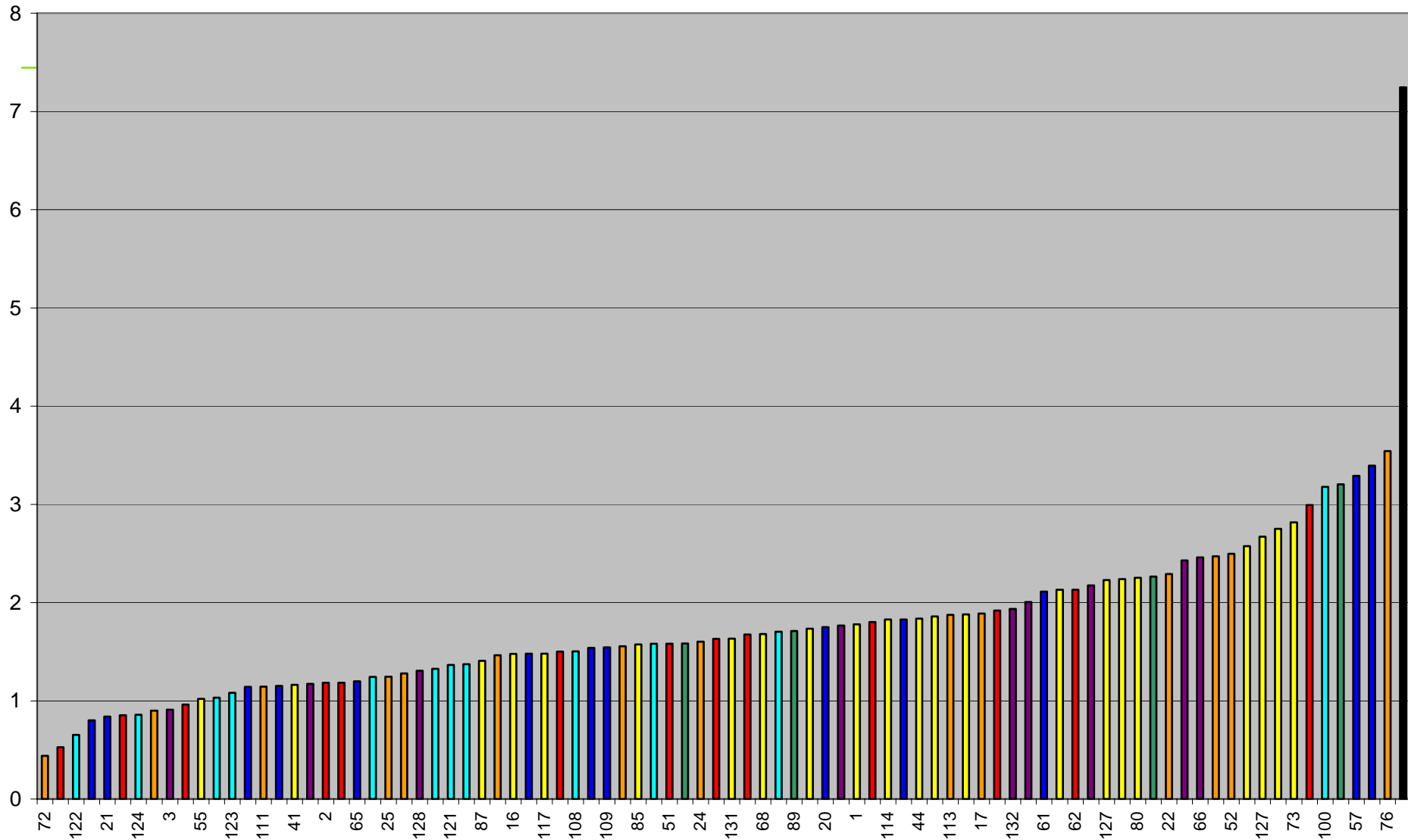
SAIDI All Data



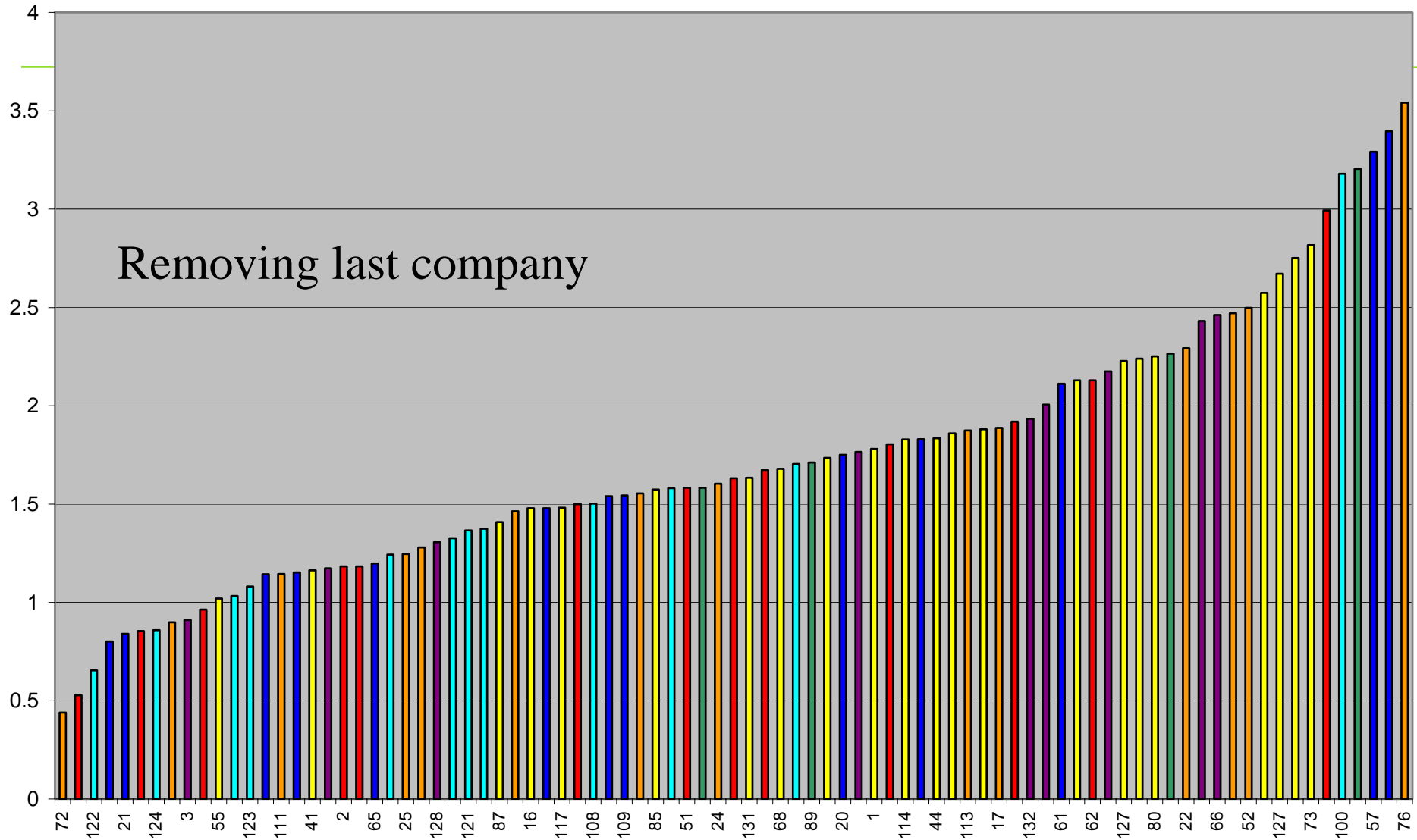
SAIDI All Data



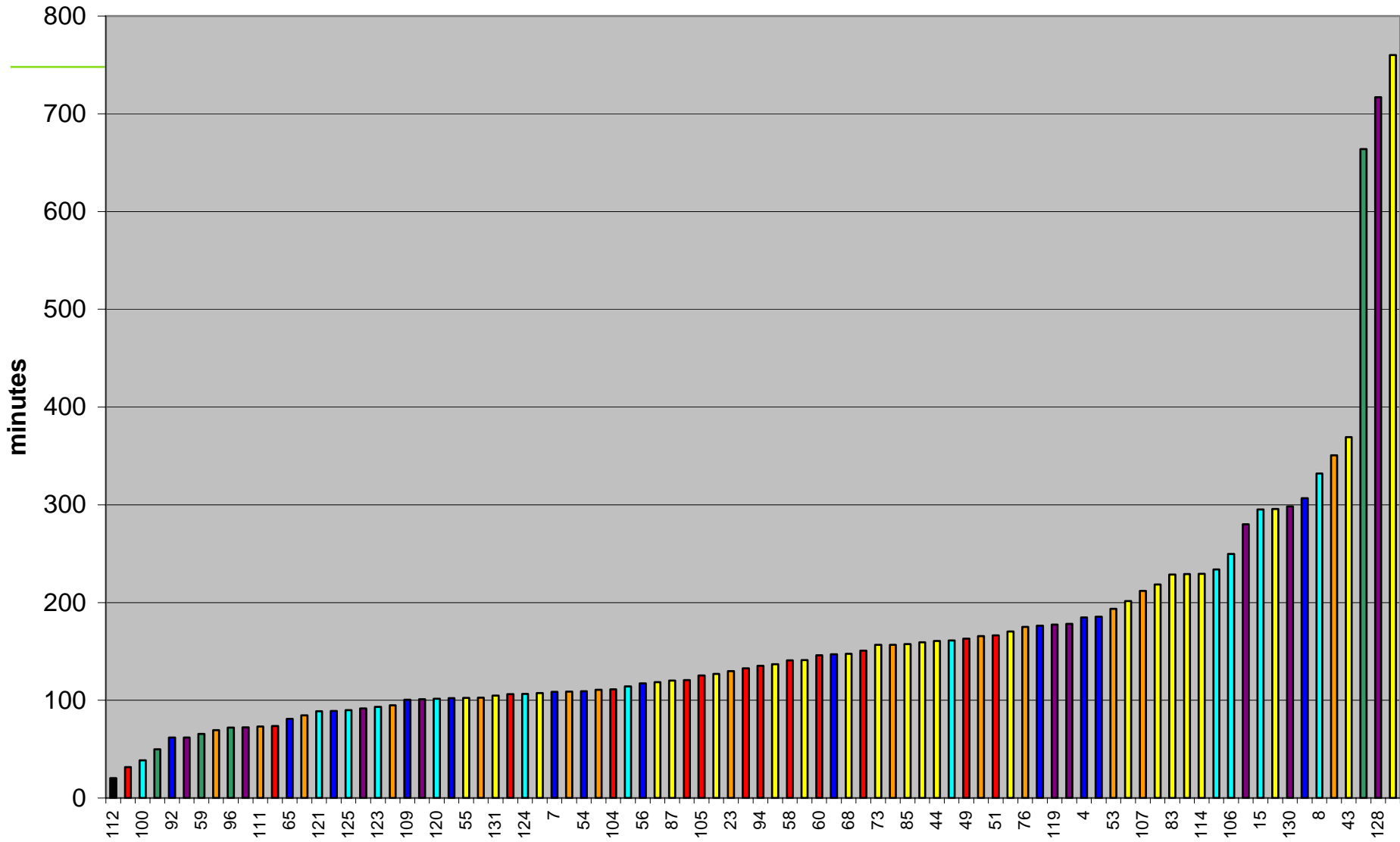
SAIFI All Data



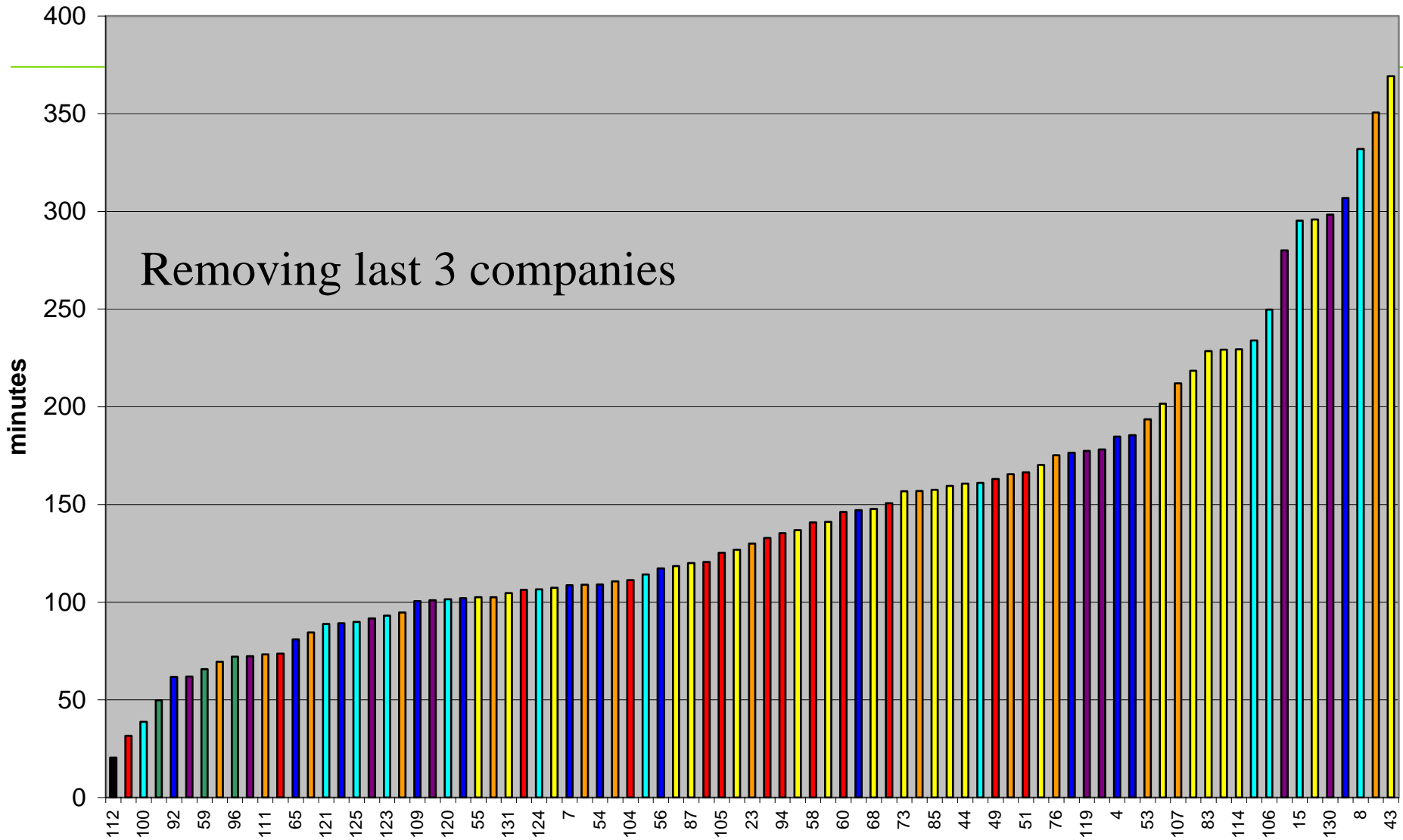
SAIFI All Data



CAIDI All Data



CAIDI All Data



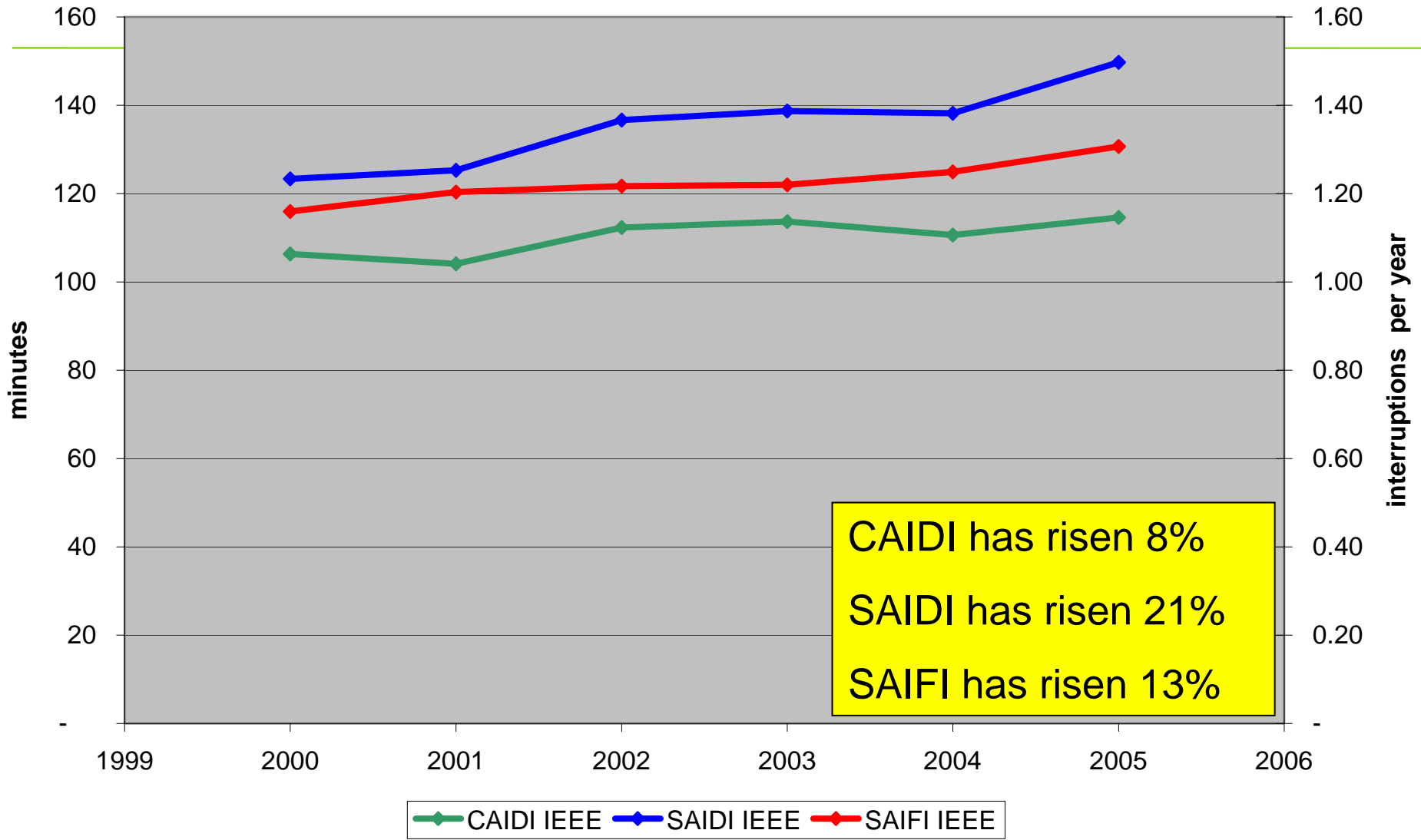
Trending National Information

- ◆ **The following slides show data using information provided in 2005.**
- ◆ **The information has been calculated using the raw data, not the summation values.**
- ◆ **Classification**
 - ◆ **9 Small, 22 Medium, and 23 Large**
 - ◆ **6 Urban, 21 Suburban, and 27 Rural**
 - ◆ **53,207,918 customers represented**

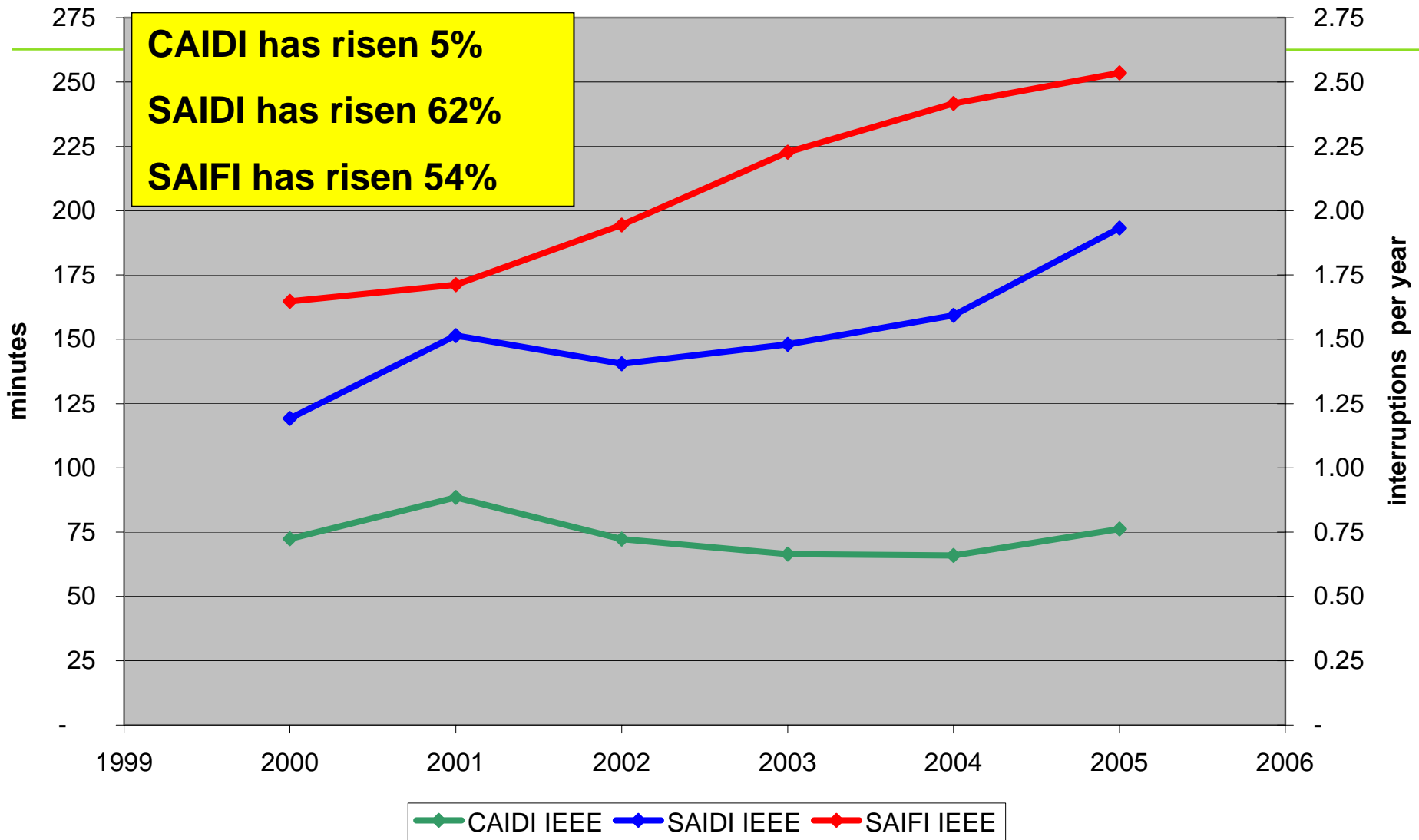
Performance of 55 Utilities with Consistent Data

55 Respondents with consistent data 00-05 - Results 2005						
Quartile	SAIDI IEEE	SAIDI AII	SAIFI IEEE	SAIFI AII	CAIDI IEEE	CAIDI AII
1	109.46		1.10		92.20	
2	150.42		1.39		107.37	
3	197.75		1.55		130.36	
4	333.08		7.24		224.36	

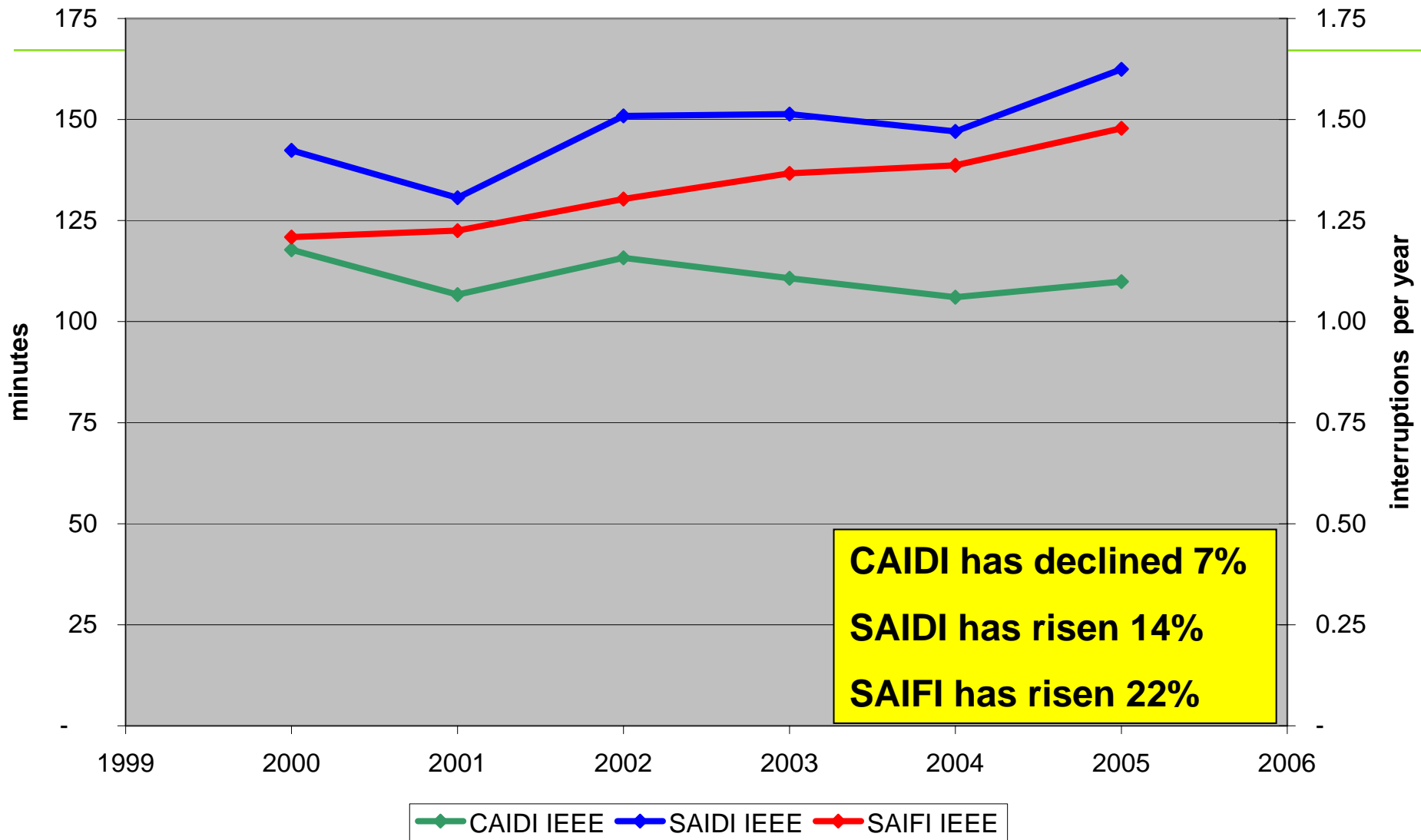
Trends for utilities providing data between 2000-2005 (55 Utilities)



Trends for small utilities providing data between 2000-2005 (Of 55 Utilities, 9 are Small)



Trends for medium utilities providing data between 2000-2005 (Of 55 Utilities, 22 are medium sized)



Trends for large utilities providing data between 2000-2005 (Of 55 Utilities, 23 are large)

