



IEEE Benchmarking 2006 Results

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Working Group on Distribution Reliability

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Benchmarking Overview

- ◆ **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**

Performance of Utilities & Quick overview of 2006 Benchmarking Stats

Utility Performance & 2006 Benchmarking Stats

- ◆ **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 153 companies have participated in our benchmarking at sometime.**
- ◆ **95* companies total with 87 companies returning supporting details**
 - ◆ **Customer density, use of step restoration, computerized reporting system, connected model, level of devices recorded**
 - 99% of utilities use step restoration
 - 99% of utilities use a computerized reporting system
 - 87% of utilities had a connected model
 - 72% can record to the customer level
 - 97% can record to the transformer level

*Includes a mix of holding and operating companies

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)**
- ◆ **2006 Survey***
 - ◆ **12 Urban companies**
 - ◆ **41 Suburban companies**
 - ◆ **30 Rural companies**

*Status unknown for 12 companies

Classification of Respondents

- ◆ **71,741,276 customers represented in US & Canada**
- ◆ **Small, Medium, Large**
 - ◆ **Small \leq 100,000 customers**
 - ◆ **Medium $>100,000$ and $<1,000,000$ customers**
 - ◆ **Large \geq 1M customers**
- ◆ **2006 Survey**
 - ◆ **16 Small companies**
 - ◆ **45 Medium companies**
 - ◆ **34 Large companies**

Respondents

- ◆ **2006 Survey**
 - ◆ **95 provided data in 2006**
 - ◆ **74 are same as 2005**

All Respondents 2006*						
Quartile	SAIDI IEEE	SAIDI All	SAIFI IEEE	SAIFI All	CAIDI IEEE	CAIDI All
1	105.37	134.40	1.11	1.33	81.73	100.62
2	146.08	235.91	1.36	1.69	107.50	136.67
3	197.97	439.95	1.70	2.17	130.68	208.33
4	502.13	4326.15	2.98	4.64	214.09	1450.88

* Company 112 was excluded in the quartiles due to some data issues

2004 vs. 2005 vs. 2006

All Respondents 2006						
Quartile	SAIDI IEEE	SAIDI All	SAIFI IEEE	SAIFI All	CAIDI IEEE	CAIDI All
1	105.37	134.40	1.11	1.33	81.73	100.62
2	146.08	235.91	1.36	1.69	107.50	136.67
3	197.97	439.95	1.70	2.17	130.68	208.33
4	502.13	4326.15	2.98	4.64	214.09	1450.88

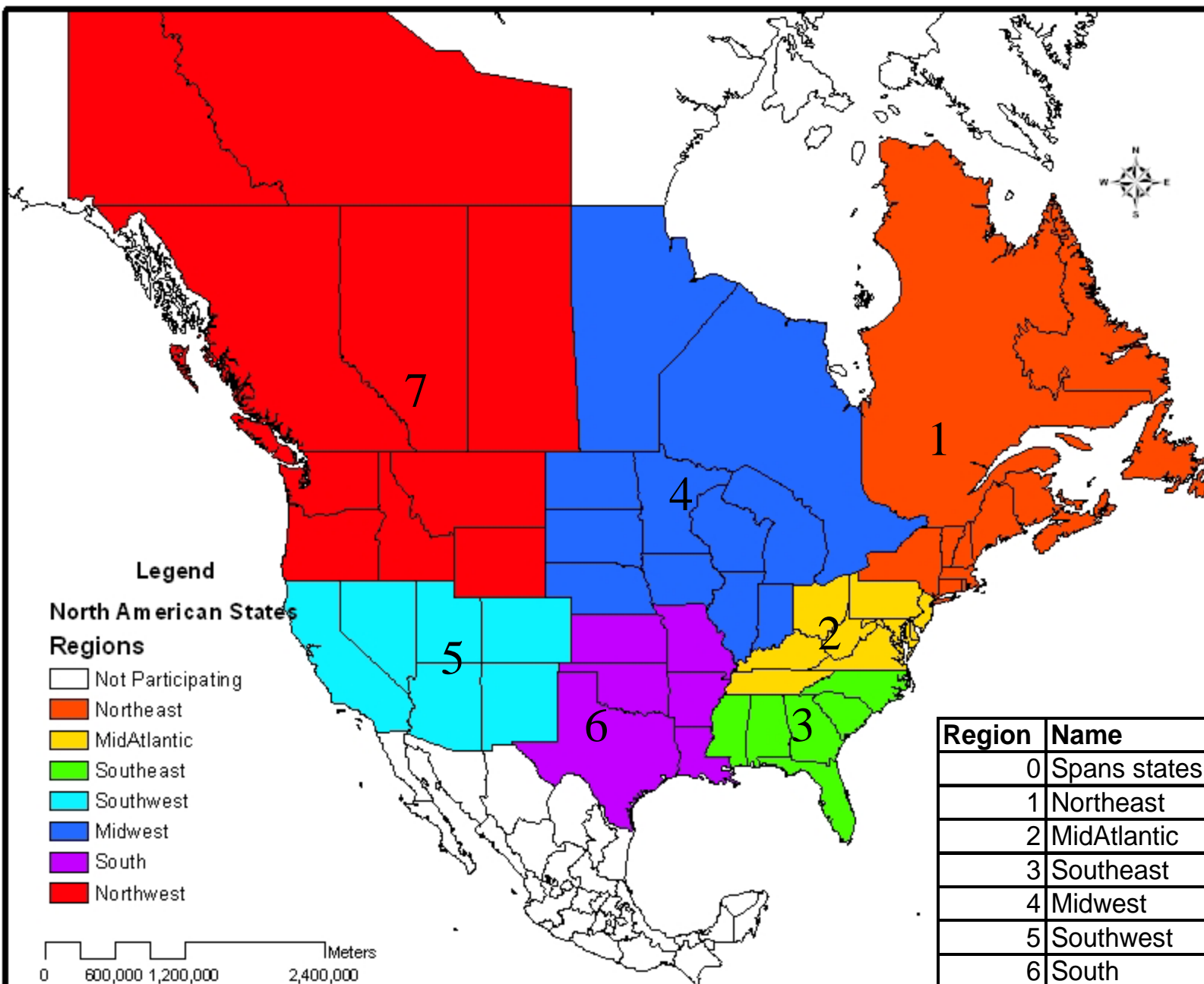
2006

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
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

2005

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



Legend
North American States
Regions
 Not Participating
 Northeast
 MidAtlantic
 Southeast
 Southwest
 Midwest
 South
 Northwest

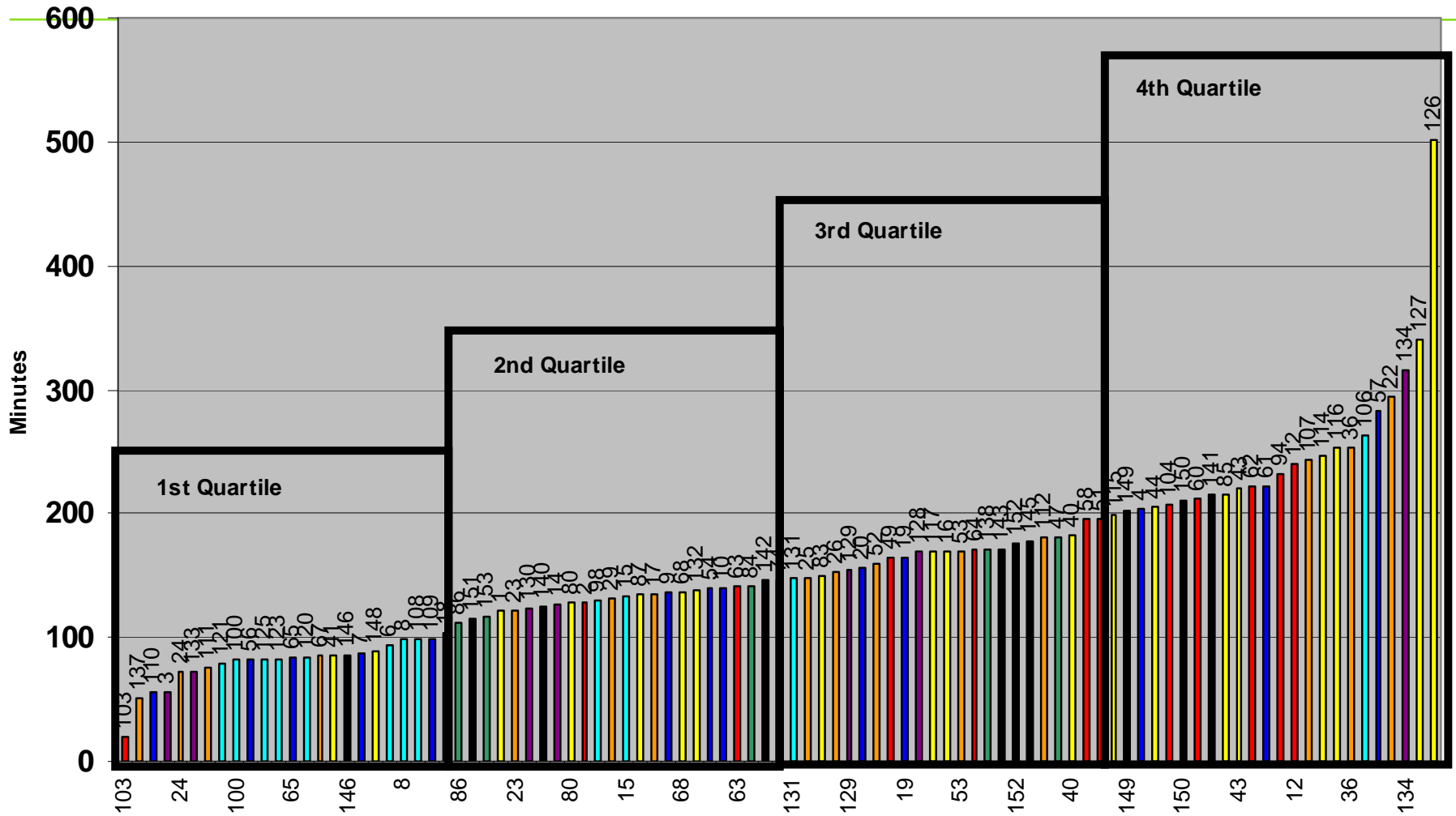
Region	Name	# Co
0	Spans states	2
1	Northeast	21
2	MidAtlantic	20
3	Southeast	5
4	Midwest	12
5	Southwest	15
6	South	7
7	Northwest	13
	2006 Total	95

0 600,000 1,200,000 2,400,000 Meters
 IEEE Benchmark



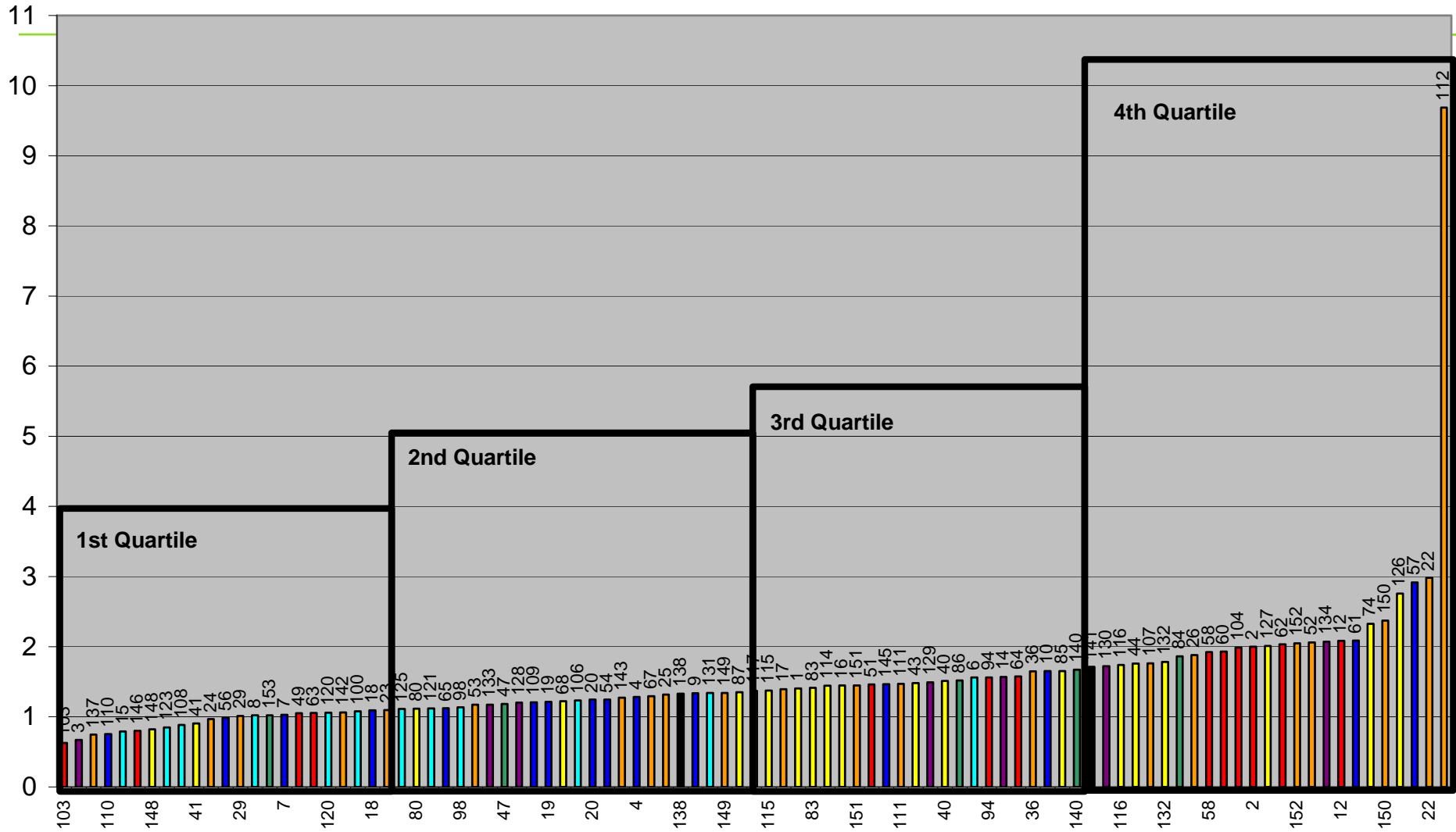
Day to Day Performance – IEEE Indices

SAIDI IEEE 2006 Day to Day Performance

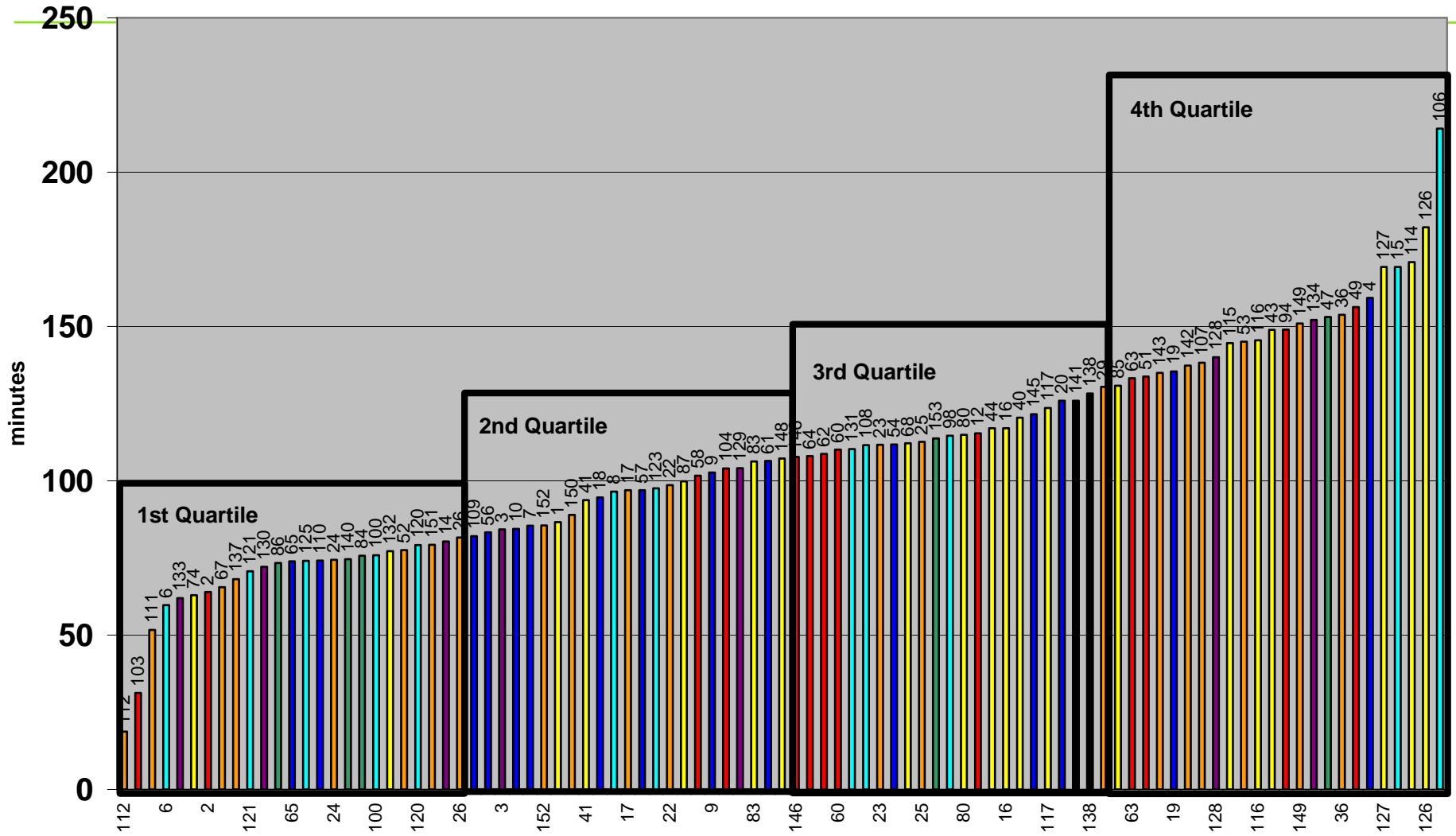


SAIFI IEEE 2006

Day to Day Performance



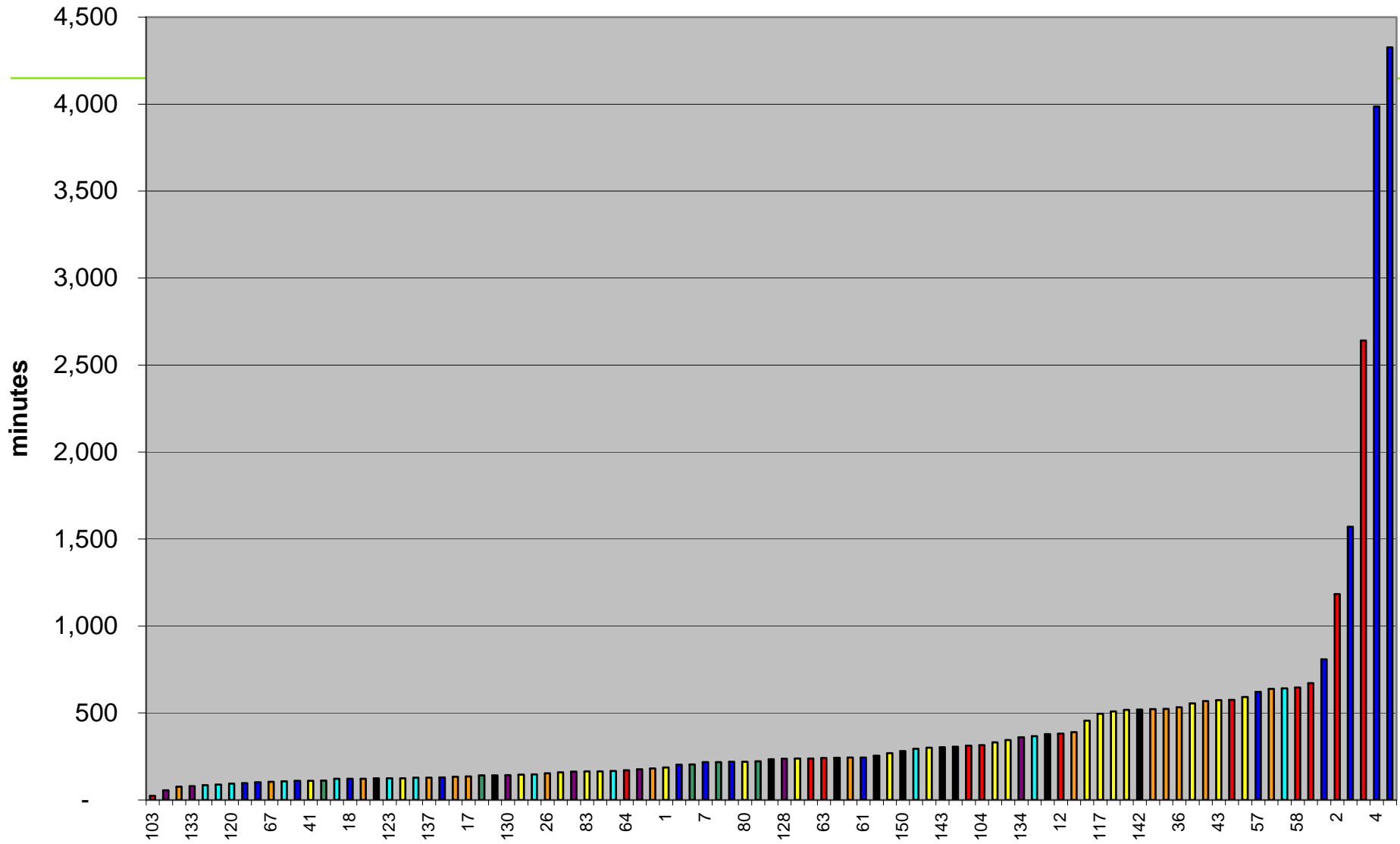
CAIDI IEEE 2006 Day to Day Performance



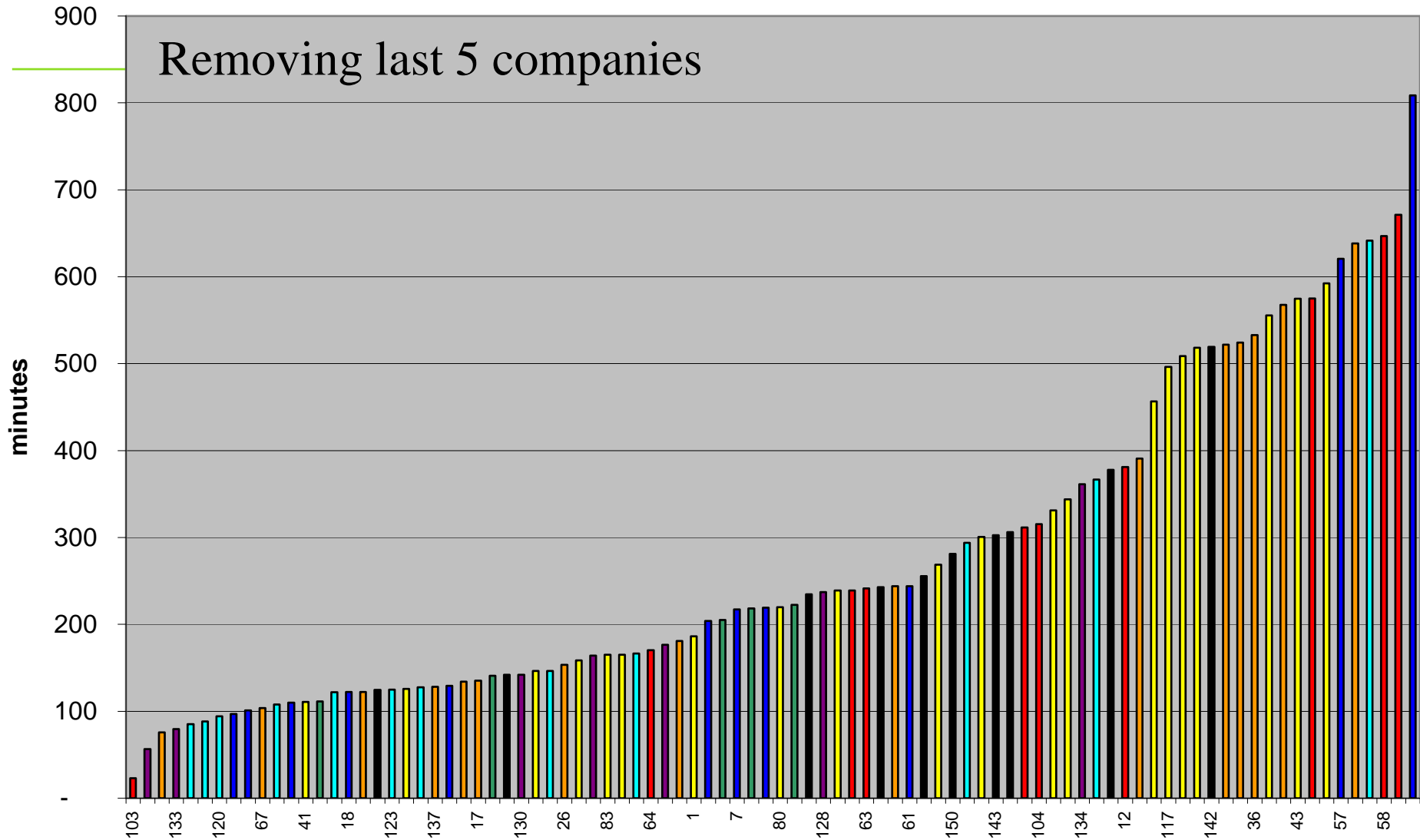
Data Review

- ◆ **“All” data review**
 - ◆ **Data which includes everything that customers had experienced – Useful to determine how companies handle major events**
- ◆ **The following slides show data without segmentation**

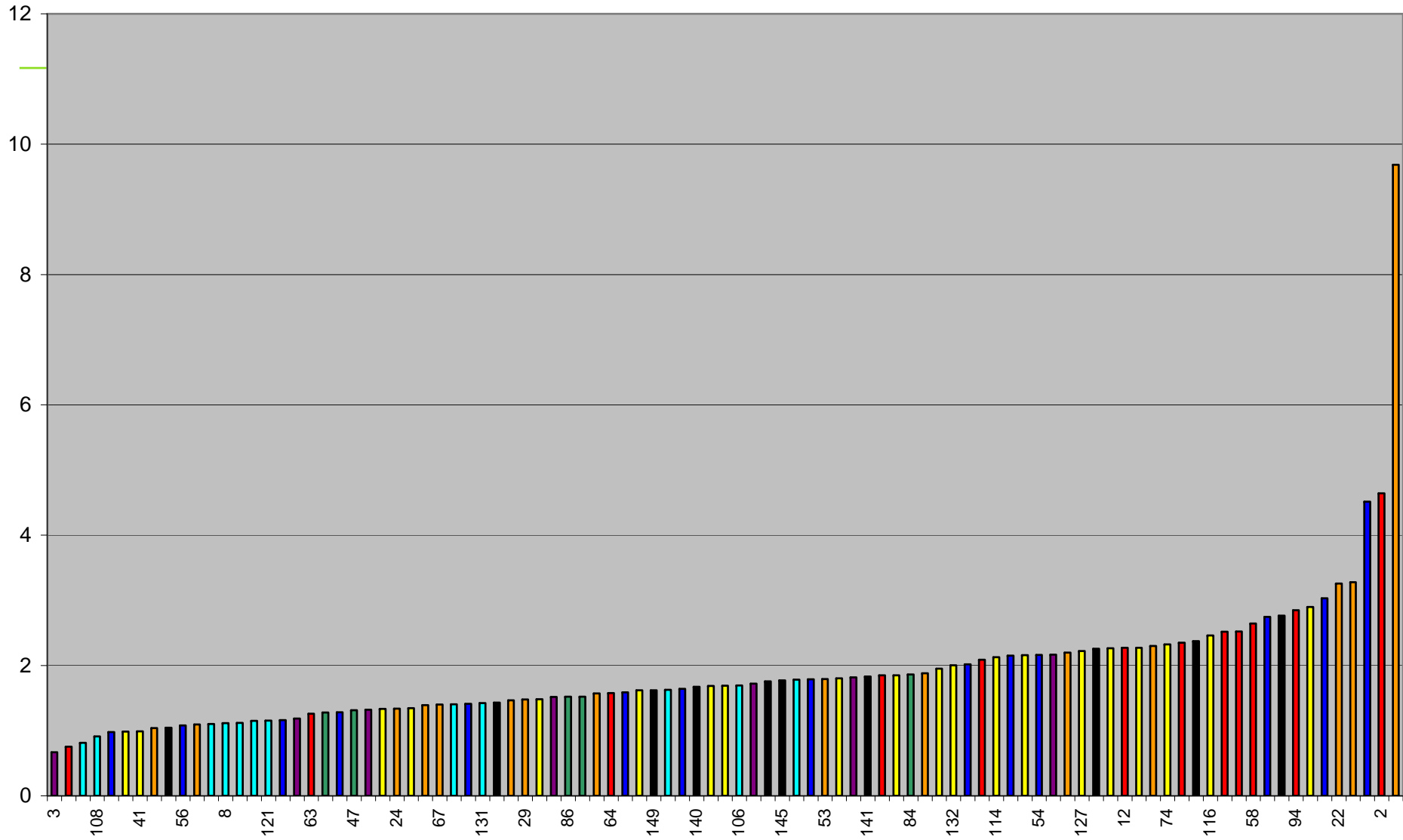
SAIDI All Data



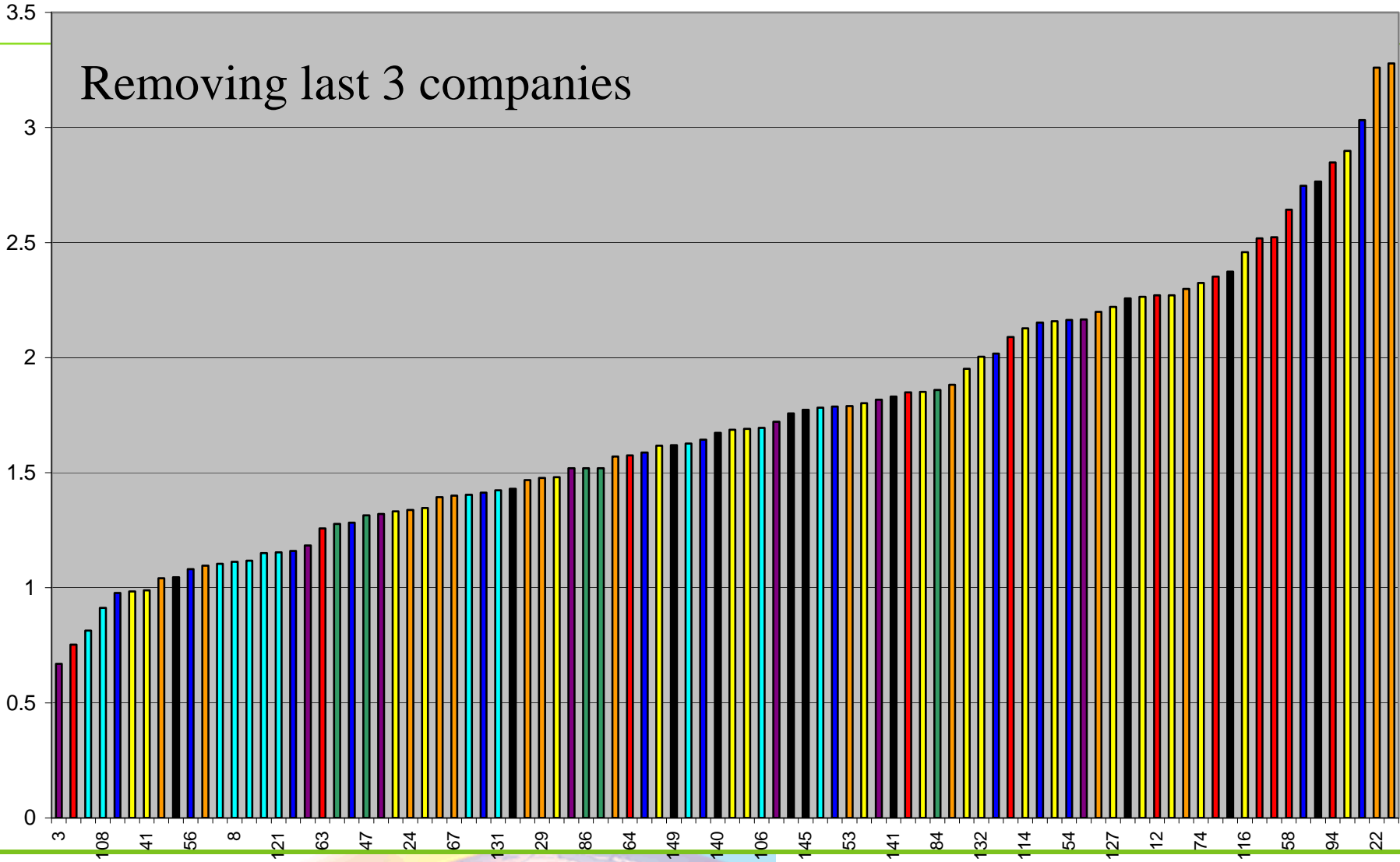
SAIDI All Data



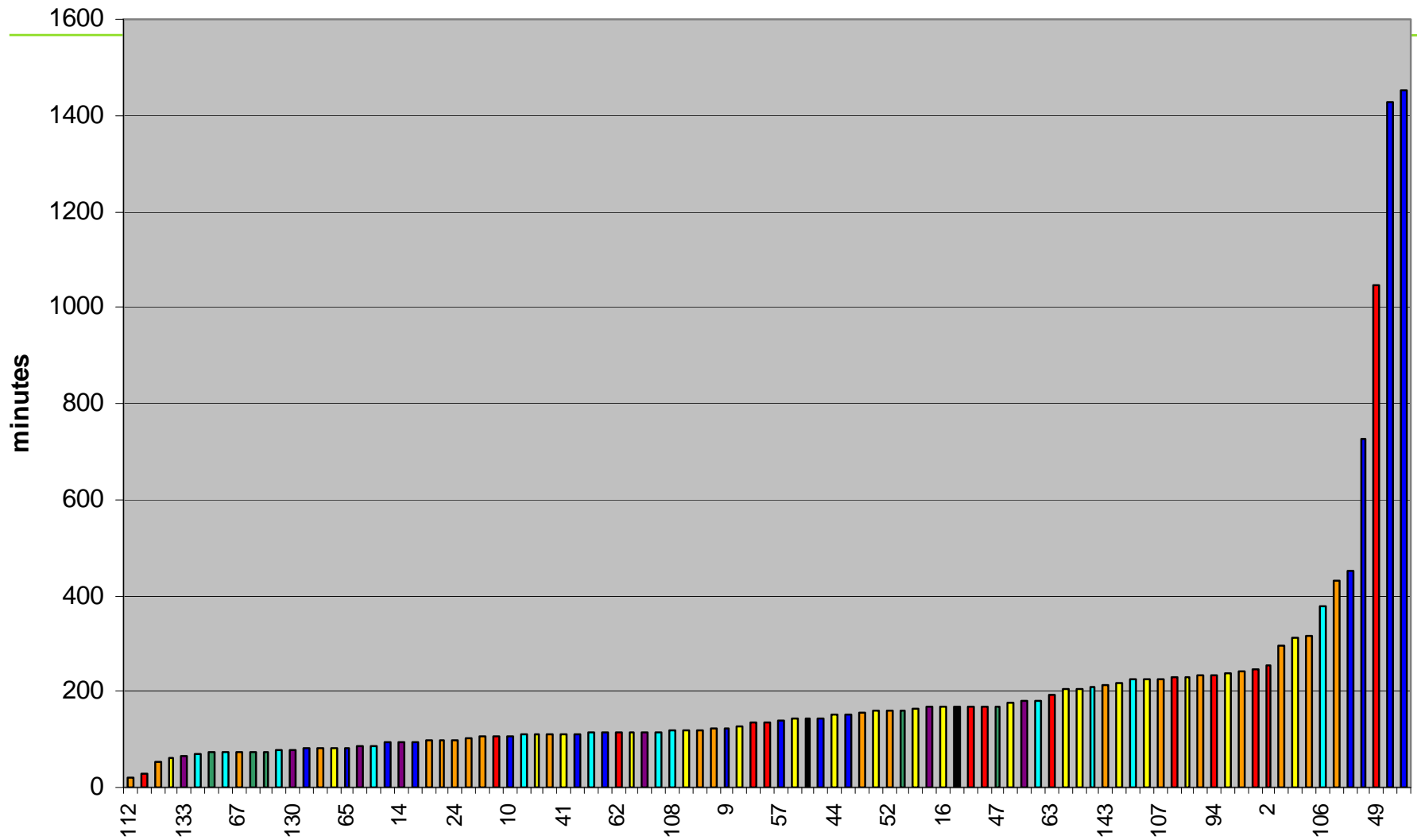
SAIFI All Data



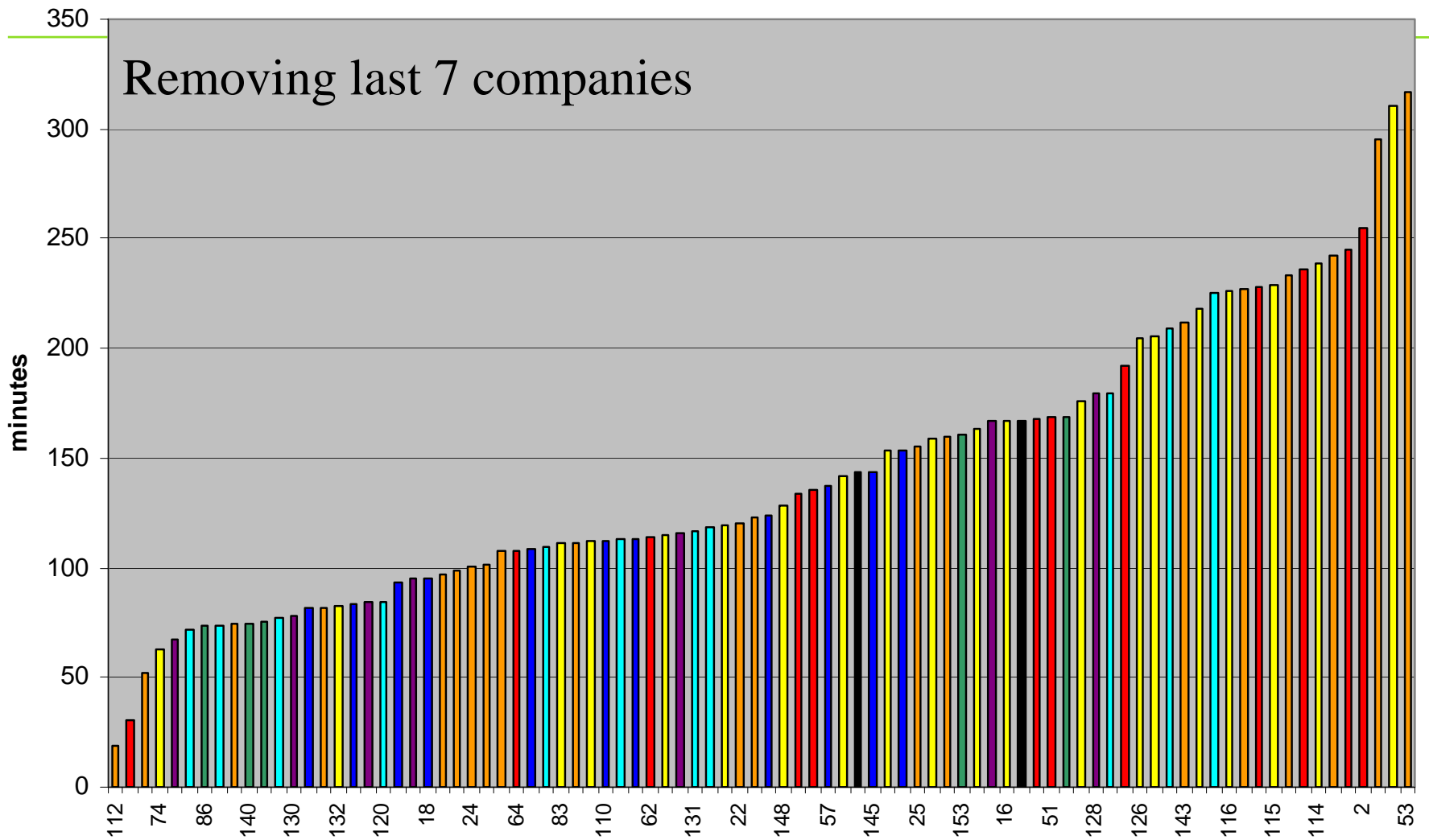
SAIFI All Data



CAIDI All Data



CAIDI All Data



Trending National Information

- ◆ **The following slides show data using information provided in 2006**
- ◆ **The information has been calculated using the raw data, not the summation values.**
- ◆ **Classification**
 - ◆ **14 Small, 41 Medium, and 30 Large**
 - ◆ **12 Urban, 36 Suburban, and 29 Rural***
 - ◆ **70,226,843 customers represented**

* Status unknown for 8 companies

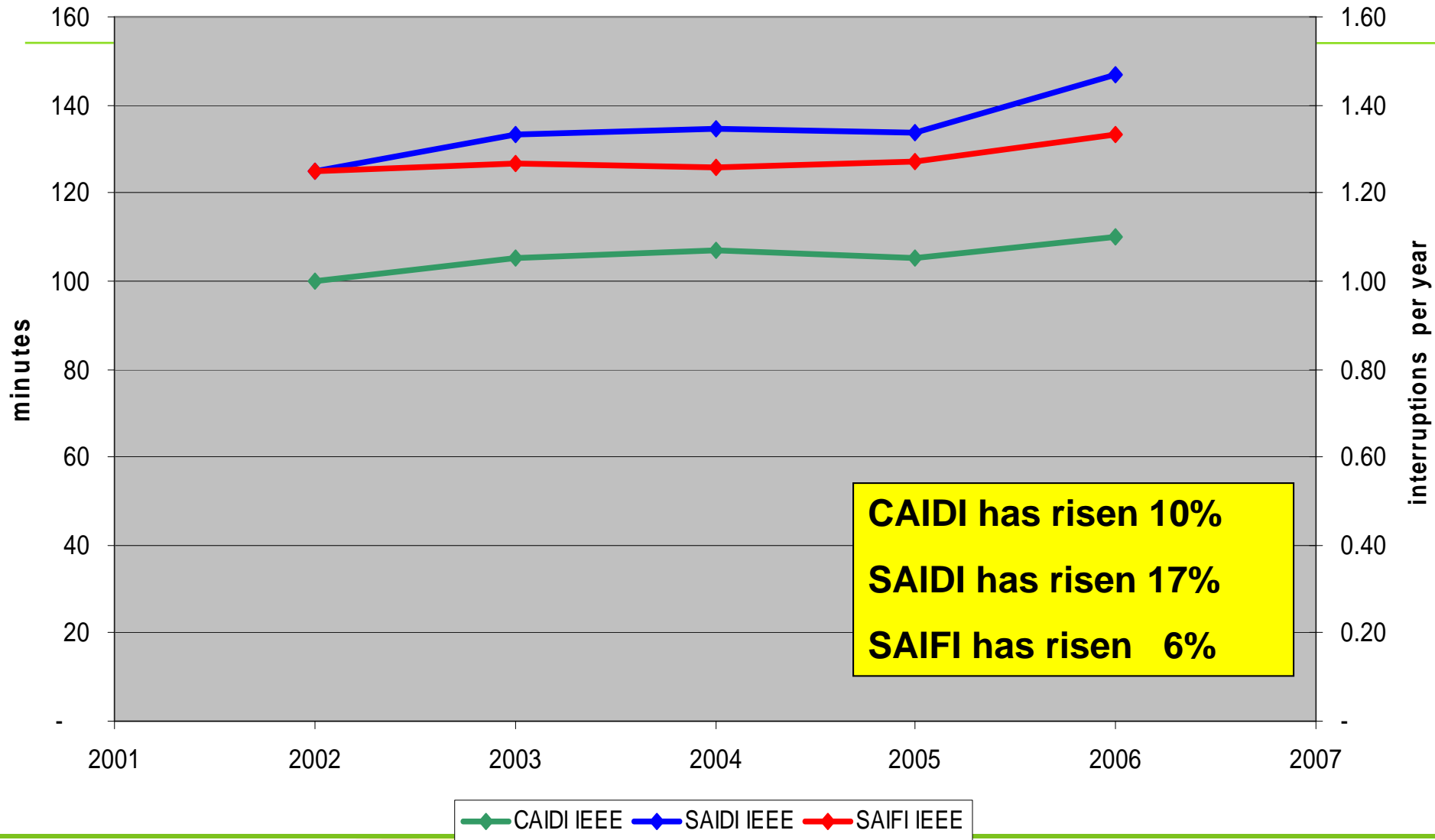
Performance of 85 Utilities with Consistent Data

85 Respondents with consistent data from 2002 to 2006

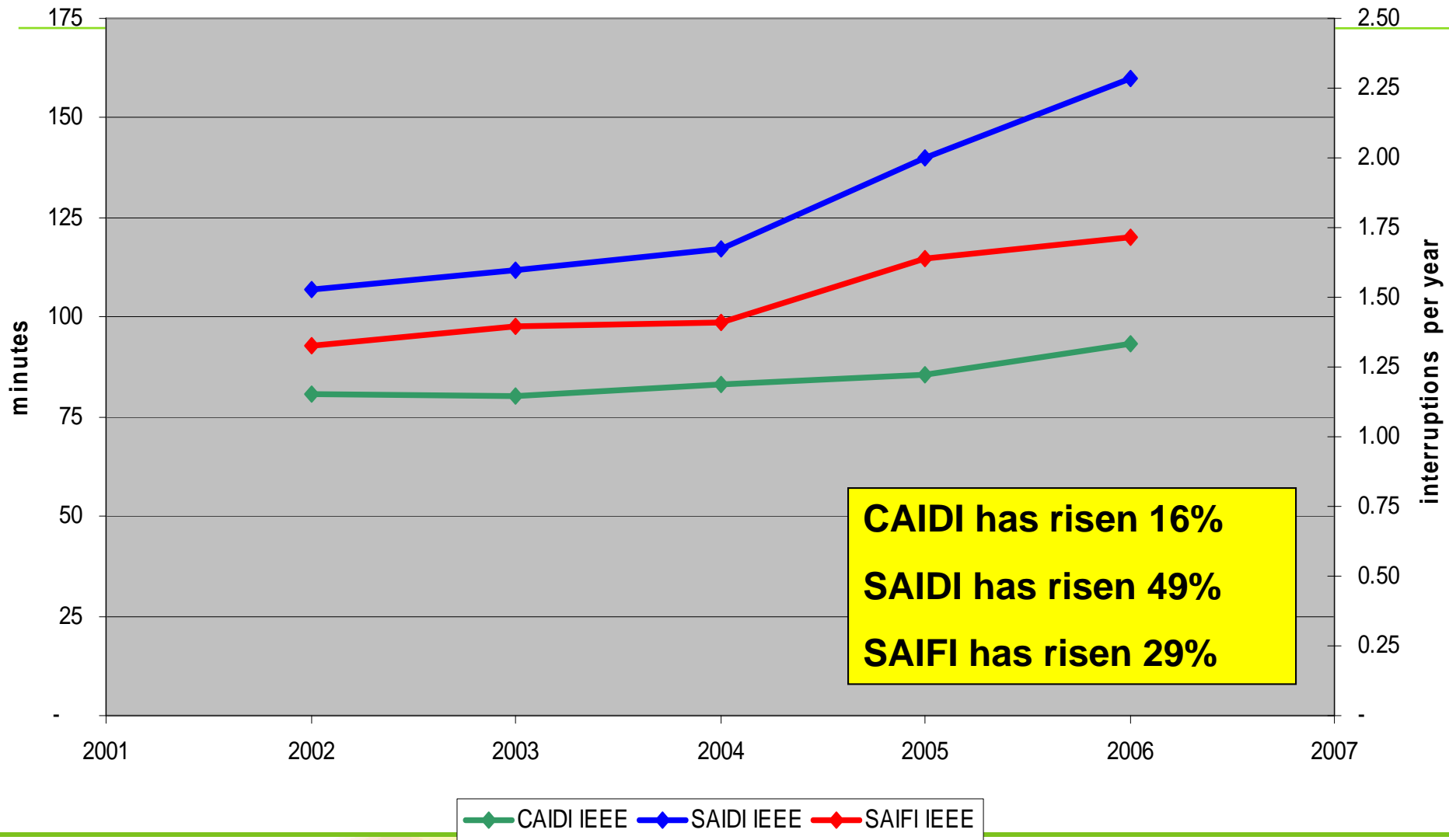
2006 Performance Results*			
Quartile	SAIDI IEEE	SAIFI IEEE	CAIDI IEEE
1	120.35	1.13	83.70
2	148.06	1.38	107.87
3	202.99	1.75	131.37
4	502.13	2.98	214.09

* Company 112 excluded in quartiles due to data issues

Trends for utilities providing data between 2002-2006 (85 Utilities)

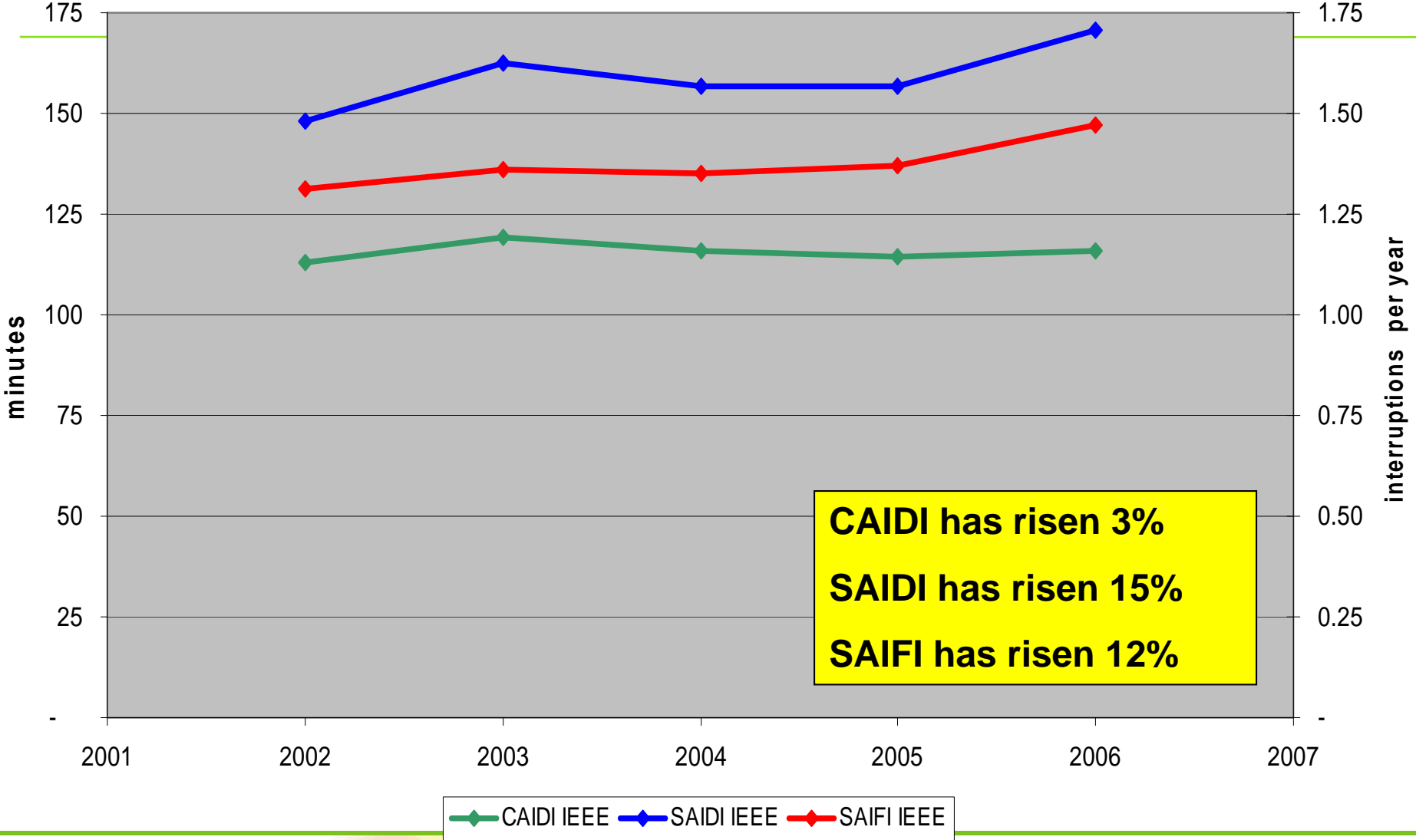


Trends for small utilities providing data between 2002-2006 (Out of 85 Utilities, 14 are Small)

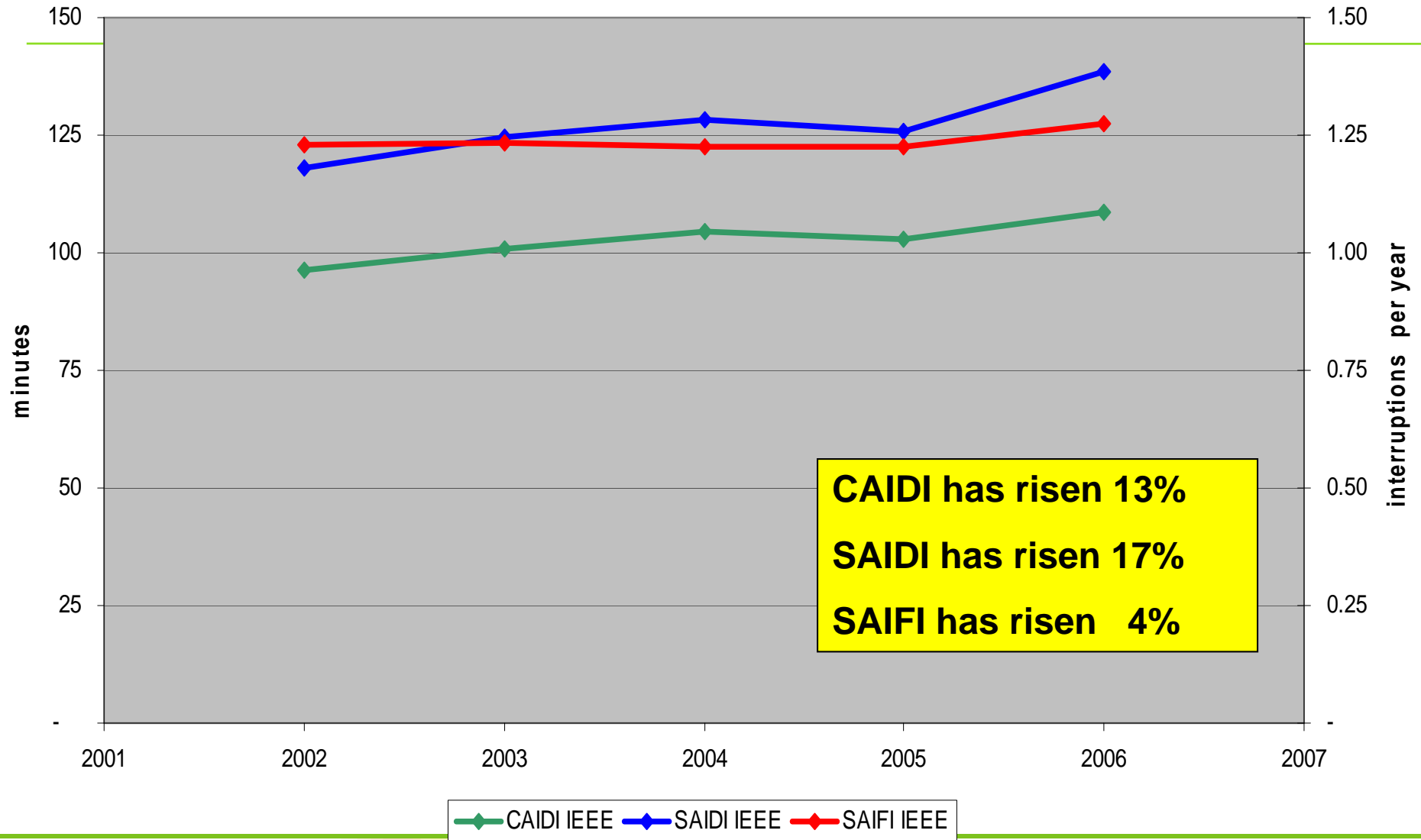


Trends for medium utilities providing data between 2002-2006

(Of 85 Utilities, 41 are medium sized)



Trends for large utilities providing data between 2002-2006 (Of 85 Utilities, 30 are large)



Next Steps

- ◆ **Get anonymous results to the utilities**
- ◆ **Complete an IEEE paper based on 2006 Benchmark Results**
- ◆ **More analysis....**

Thank You!

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