2006 USL Load Data Study

Presentation to

EB-2012-0383 Unmetered Load Working Group

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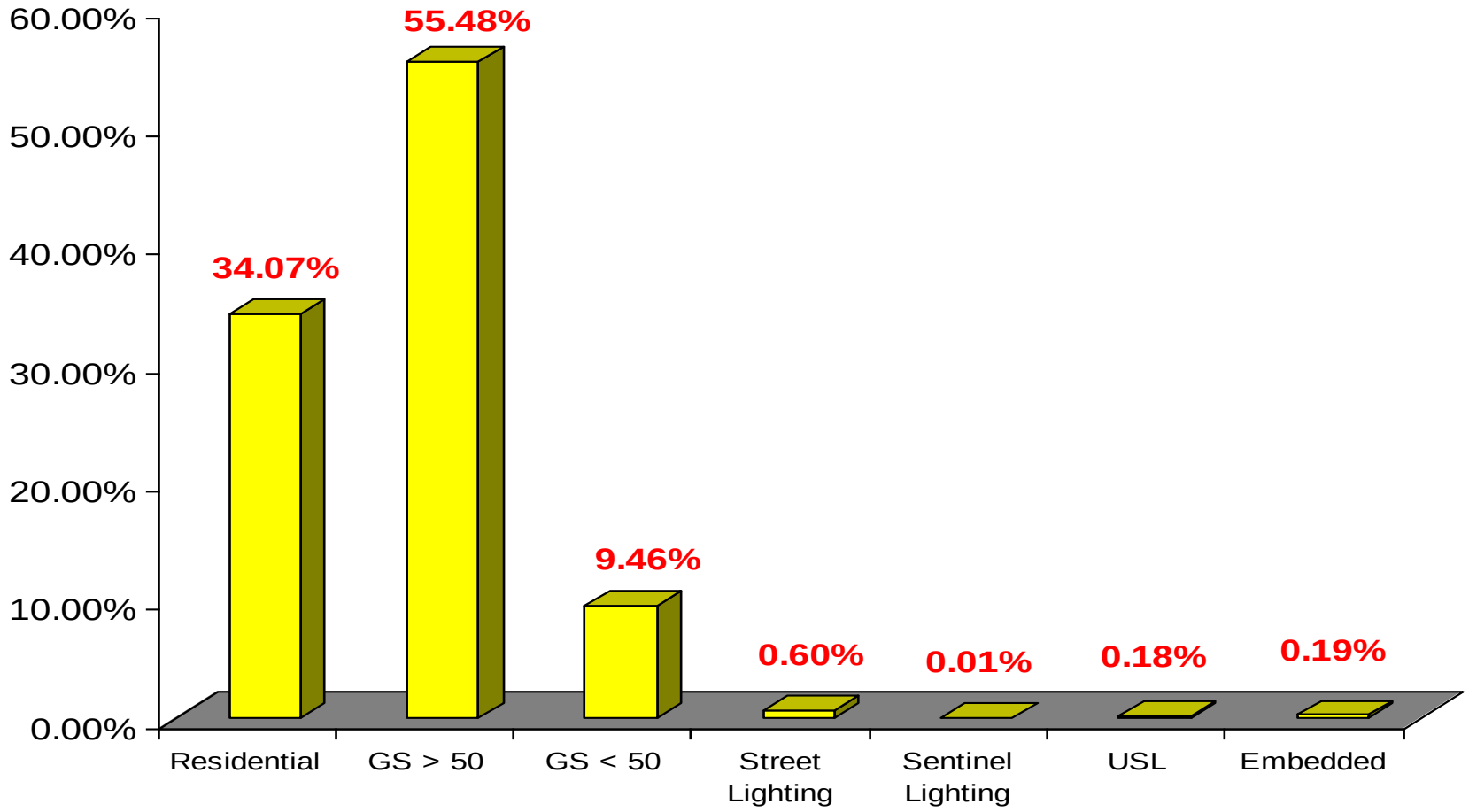
Topics to be covered today

- What was done and not done in the 2006 study
- What methodology was used
- Findings of the 2006 USL study
- Answer any questions

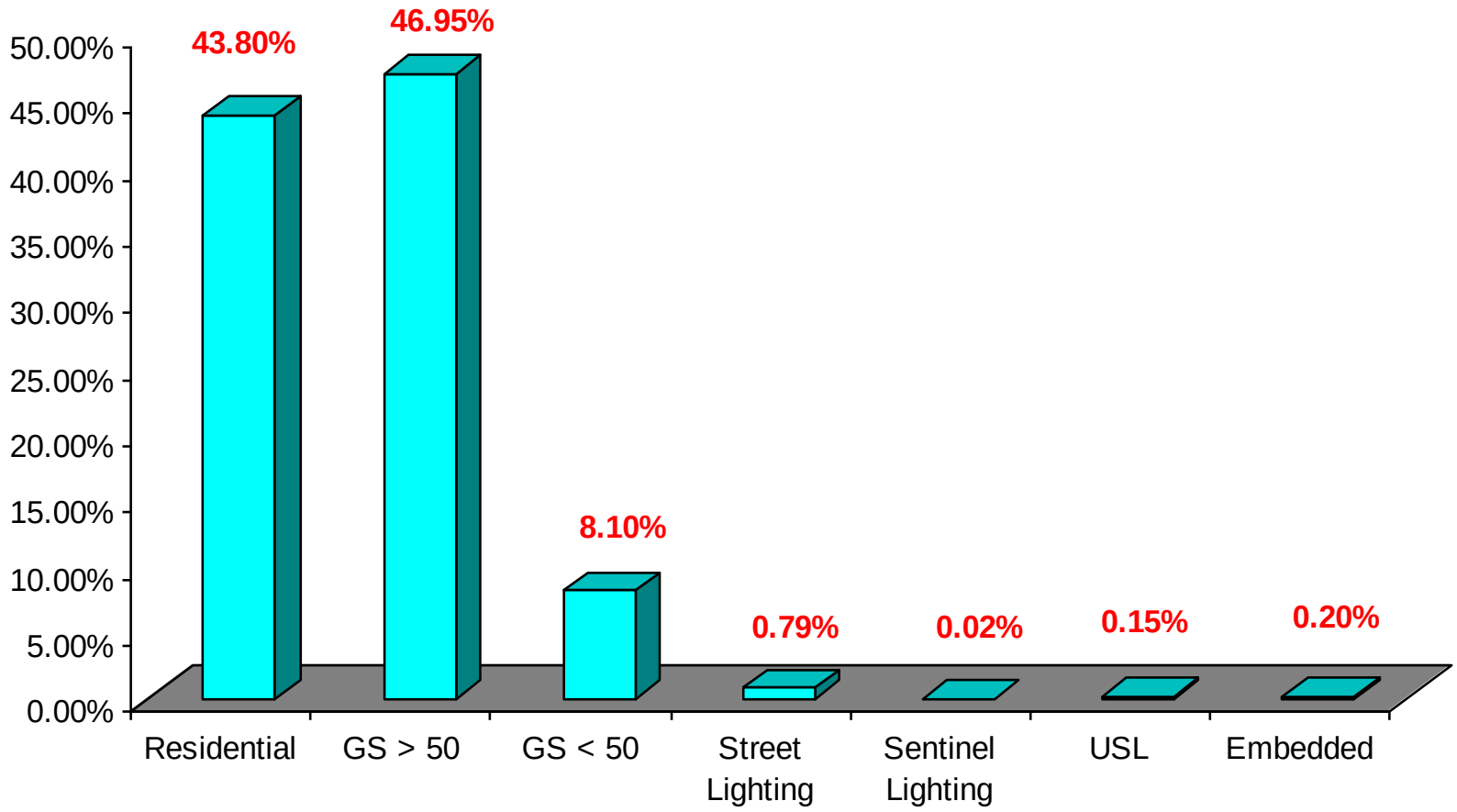
Background about 2006 study

- A USL load data study was done as part of the work required in EB-2005-0317
- The study done in 2006 focused on certain types of unmetered scattered loads (USL)
- For street lighting and sentinel lights, the Board accepted the recommendations from RP-2003-0228 Working Group using a “deemed” load profile

Market Size of Unmetered Load



Share of Coincident Peak by Rate Class



Input to Cost Allocation Model

Feed into OEB Cost Allocation Model sheet "I6 Customer Data", row 56

ID	Total	1 Residential	2 GS>50kW	3 Street Lighting	4 GS<50	5 USL	6 GS 3000-5000 kW	7 Sentinel Lighting
kWh - 30 year weather	487,910,876	256,441,894	152,140,340	4,862,725	69,862,007	1,449,348	2,817,862	336,700

Feed into OEB Cost Allocation Model sheet "I8 Demand Data", row 40, 45, 50, 55, 61 and 67

Customer Classes		Total	1 Residential	2 GS>50kW	3 Street Lighting	4 GS<50	5 USL	6 GS 3000-5000 kW	7 Sentinel Lighting
CO-INCIDENT PEAK (kW)									
1 CP									
Total Sytem CP	DCP1	109,418	71,532	22,148	-	15,573	165	-	-
4 CP									
Total Sytem CP	DCP4	404,493	262,158	84,203	-	52,950	663	4,518	-
12 CP									
Total Sytem CP	DCP12	960,377	556,299	246,187	5,234	144,633	1,981	5,737	306
NON CO_INCIDENT PEAK (kW)									
1 NCP									
NCP from	DNCP1	125,026	74,634	25,629	1,238	19,852	176	3,379	117
4 NCP									
NCP from	DNCP4	450,346	264,049	99,179	4,943	69,785	681	11,273	435
12 NCP									
NCP from	DNCP12	1,045,551	569,501	274,709	14,784	168,025	1,981	15,487	1,062

Types of Unmetered Load

- Street Lighting

- Sentinel Lighting

- Unmetered Scattered Load (USL)

Photo Sensitive

Non-Photo Sensitive

- **Weather Sensitive**
- **Non-Weather Sensitive**

Methodology used in 2006 load profile study

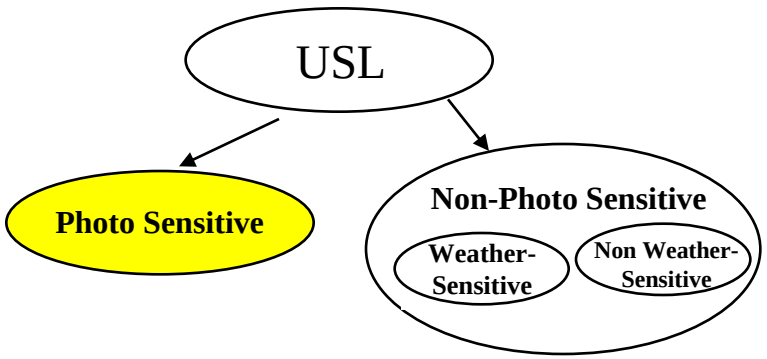
Street Lighting and Sentinel Lights

- The hourly load data is provided by LDC
- Get normalized “Street Lighting” data by dividing each hourly data by the sum of all “Street Lighting” hourly data
- Same for Sentinel lights

Methodology used in 2006 load profile study

Photo Sensitive USL

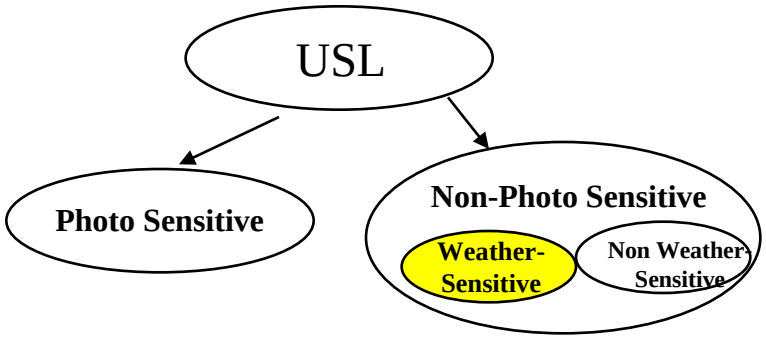
For photo-sensitive loads, street lighting's load shape was used as the base. The load shape was scaled such that total usage of each month would add up to monthly GWh provided by each LDC



Methodology used in 2006 load profile study

Non-Photo Sensitive USL (weather sensitive)

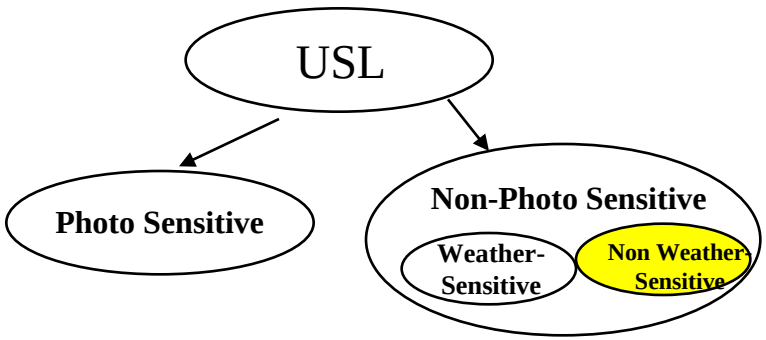
A generic weather-normalized load shape was developed by using data provided by Rogers. The usage per battery matt, number of battery matts, temperature and seasonal patterns were taken into consideration



Methodology used in 2006 load profile study

Non-Photo Sensitive USL (non-weather sensitive)

A flat load profile was used



USL Load Data Study in 2006

- **Participation:** 10 LDCs provided data

→ 55 cable TV power supplies

→ 2 telephone booths

→ 4 pipeline cathodic protection devices

→ 3 billboards

- **Data collection:** duration of data ranged from one day to 3 months

- **Information from Rogers:** detailed information on usage and battery heater mats

USL Load Data Study Findings in 2006

Cable TV power supplies

- The cable loads were very flat
- Energy consumption for cable TV equipment varied substantially
- Nameplate information varied by equipment and the information was difficult to obtain

USL Load Data Study Findings in 2006

Battery Heater Mats

- Data provided by Rogers showed significant correlation with hourly weather
- Weather normalized load shape was generated
- Sample used for analysis was limited to selected areas

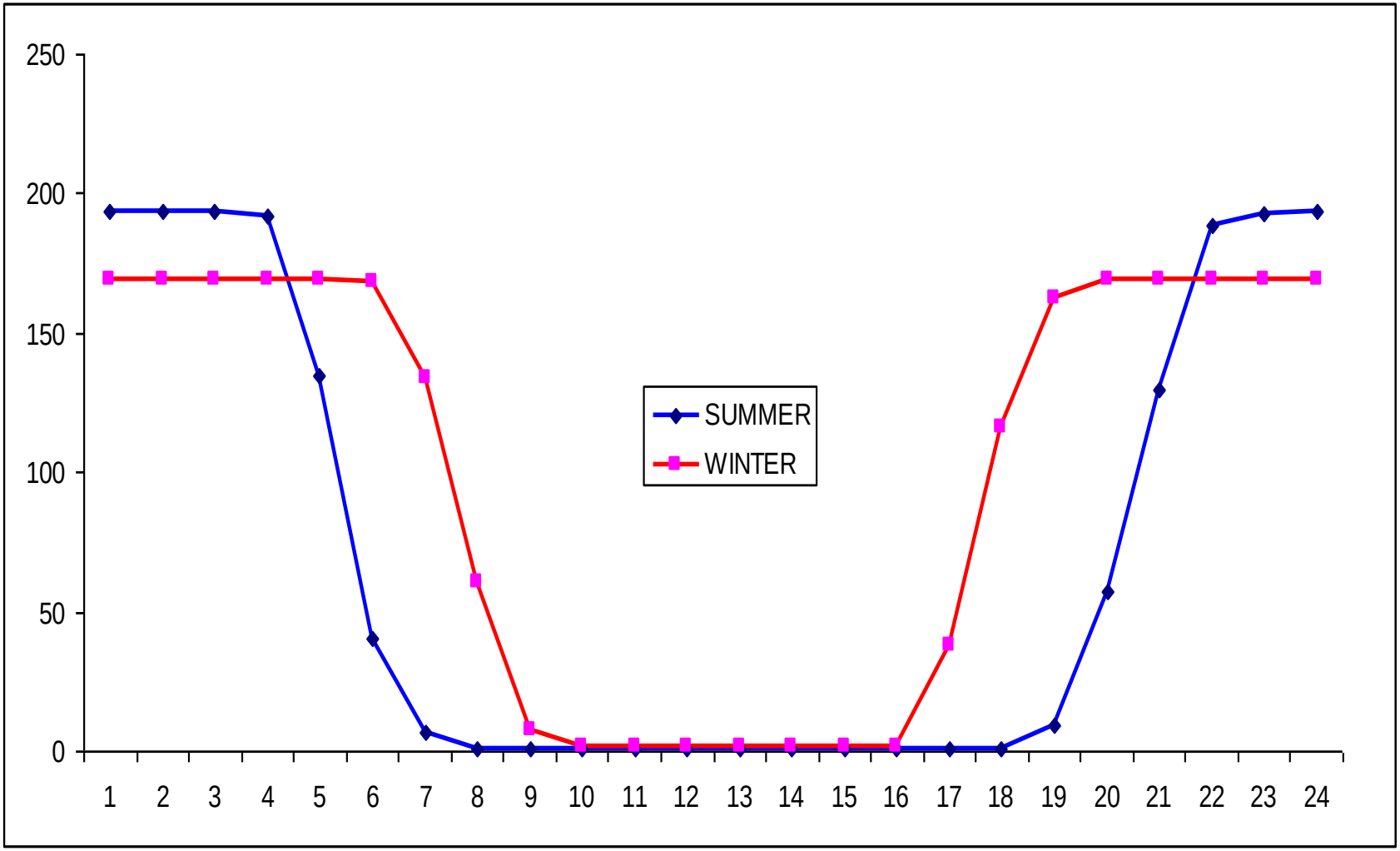
USL Load Data Study Findings in 2006

Other USL Loads

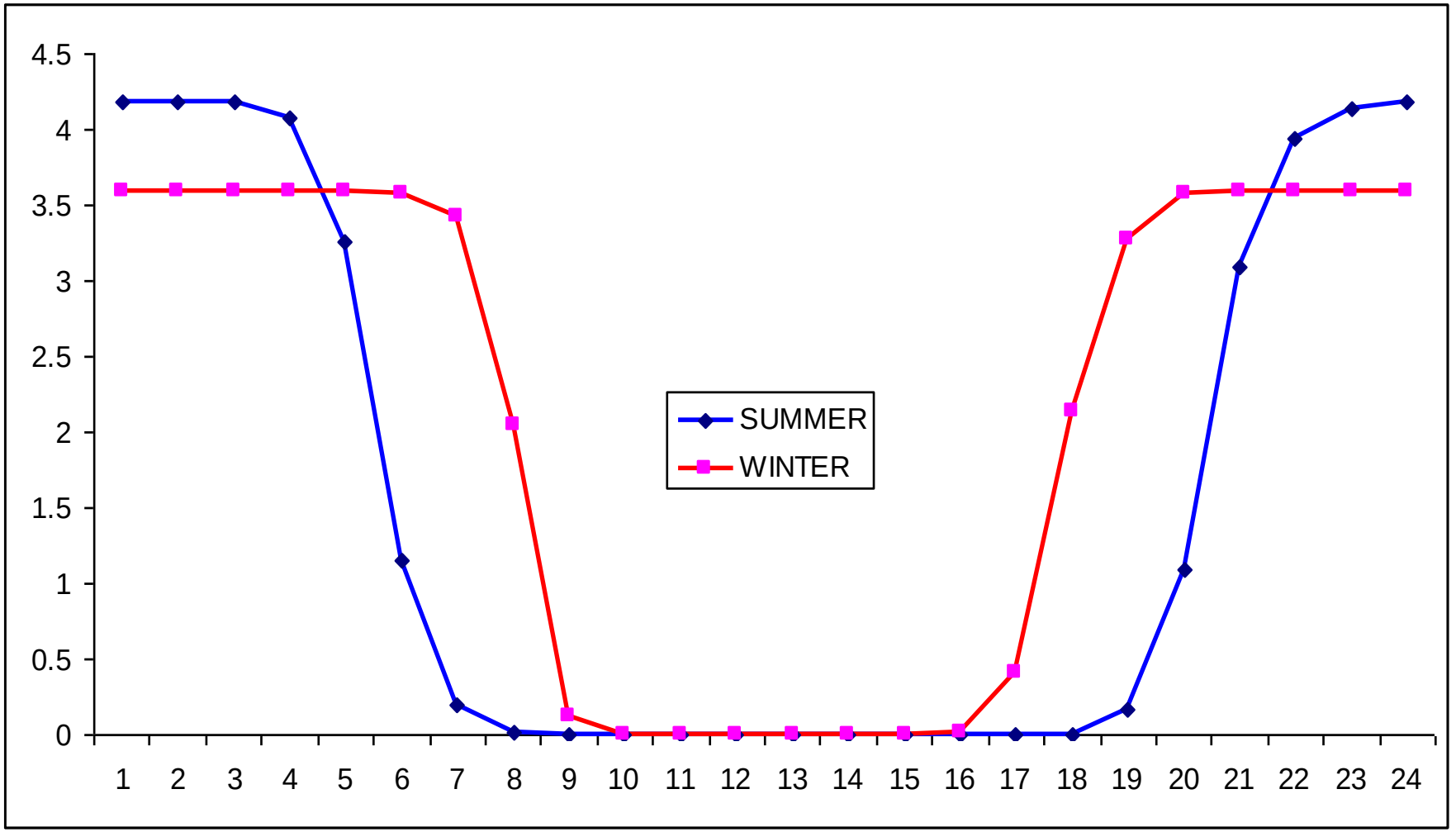
- The loads were relatively flat
- Findings may not be statistically significant due to the limited sample size

Questions

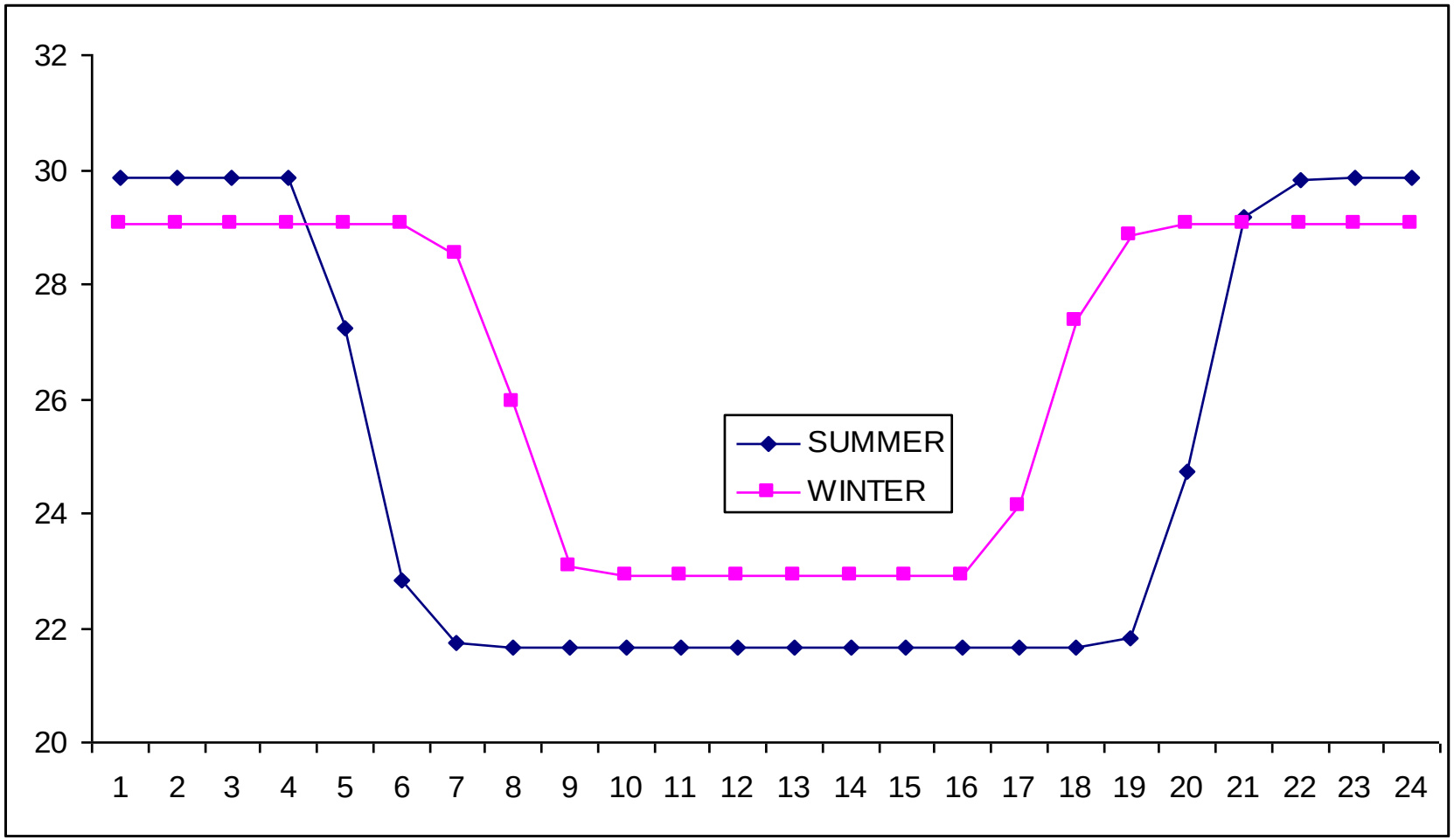
Street Lighting Load Profile by Season



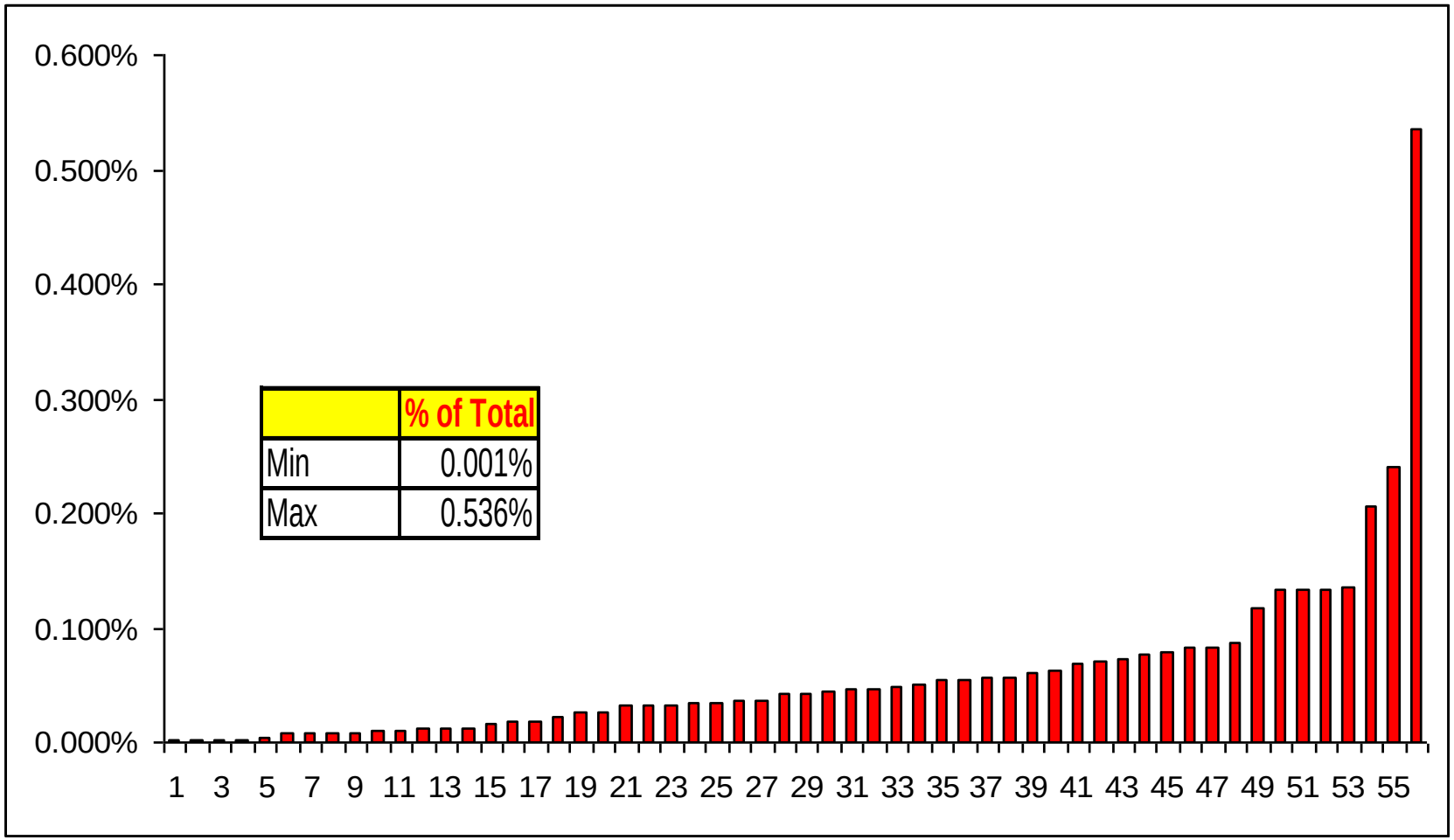
Sentinel Lighting Load Profile by Season



USL Load Profile by Season

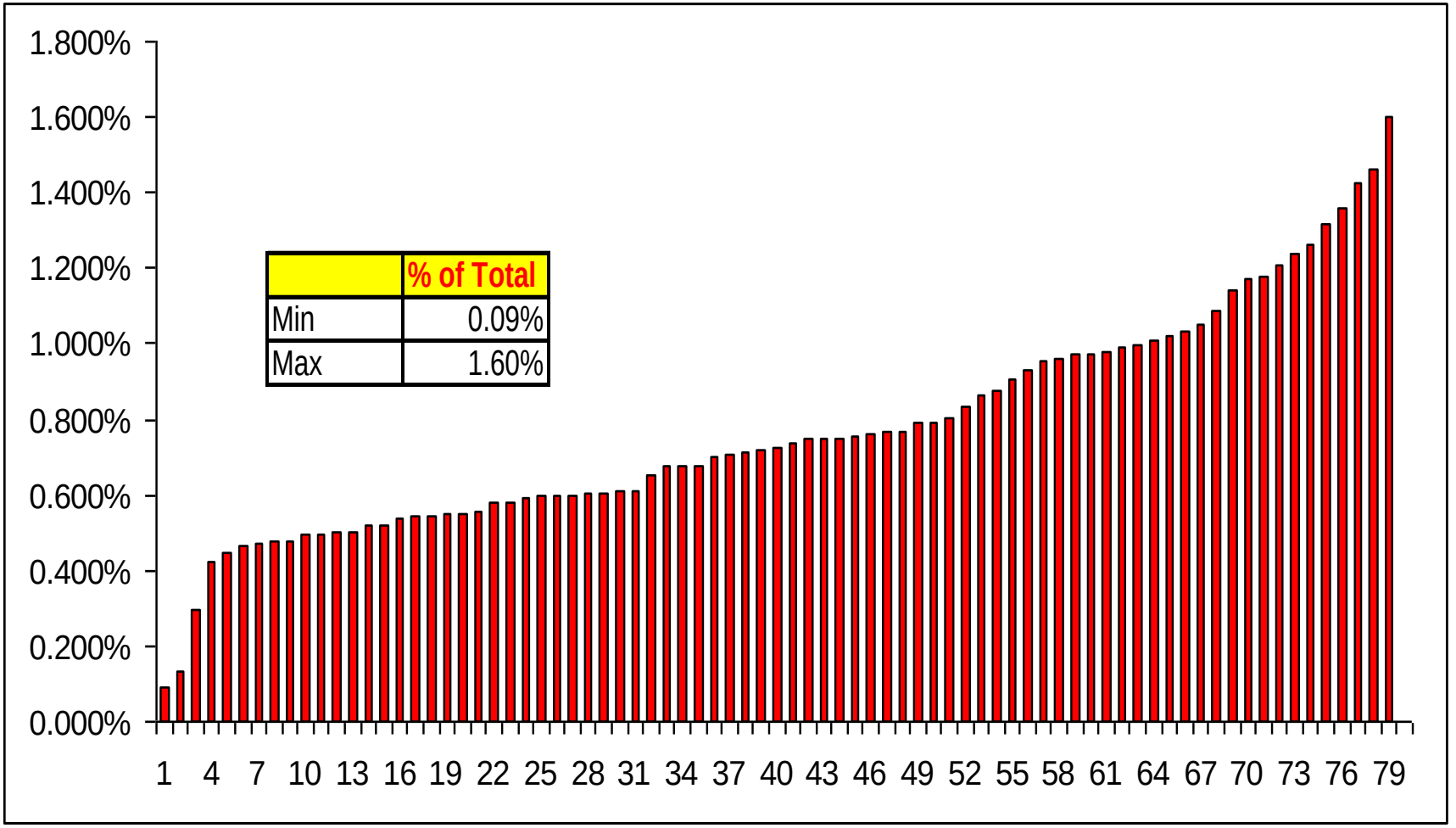


Energy Consumption Share of Sentinel Lights by LDC

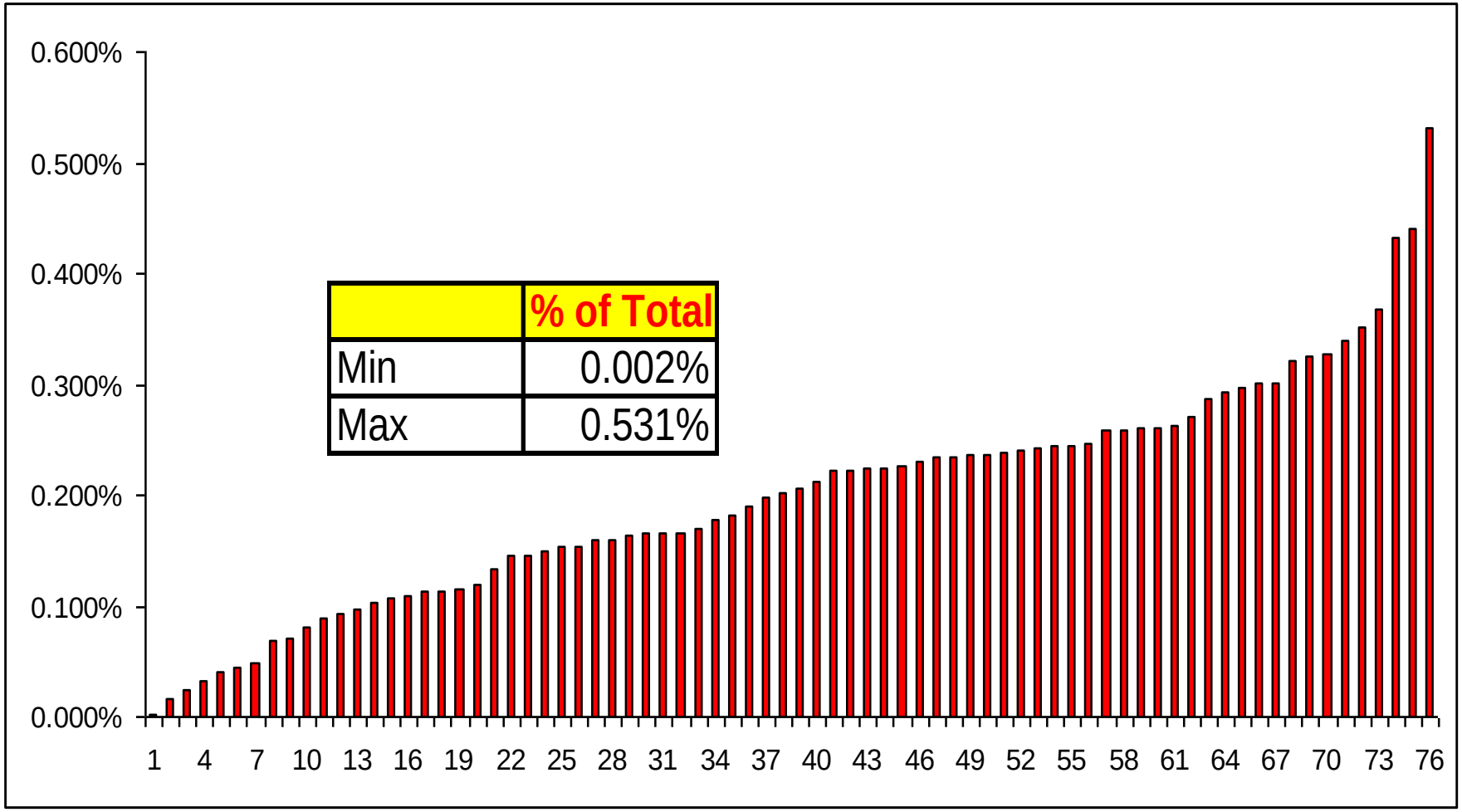


	% of Total
Min	0.001%
Max	0.536%

Energy Consumption Share of Street Lighting by LDC

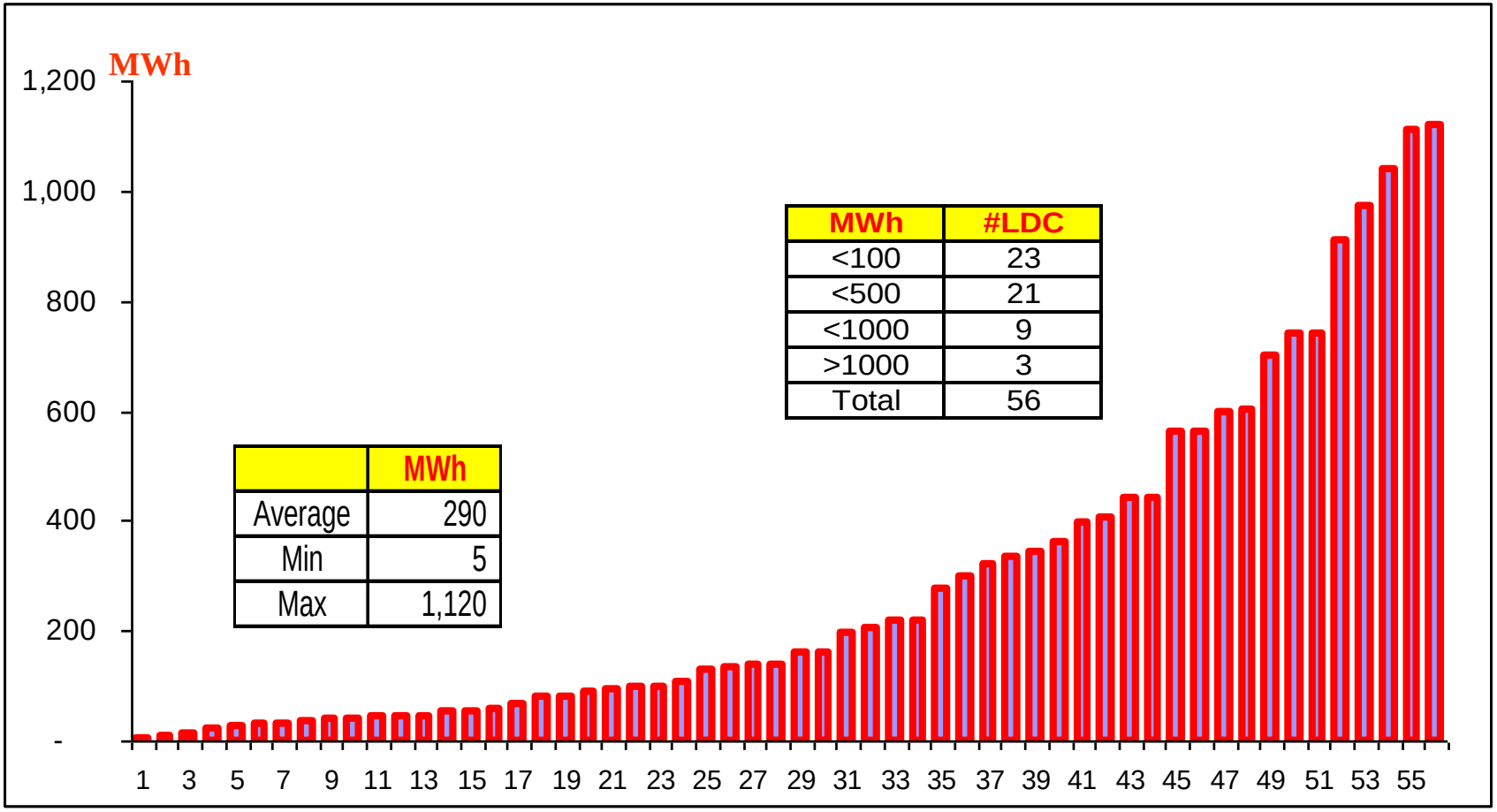


Energy Consumption Share of USL by LDC



	% of Total
Min	0.002%
Max	0.531%

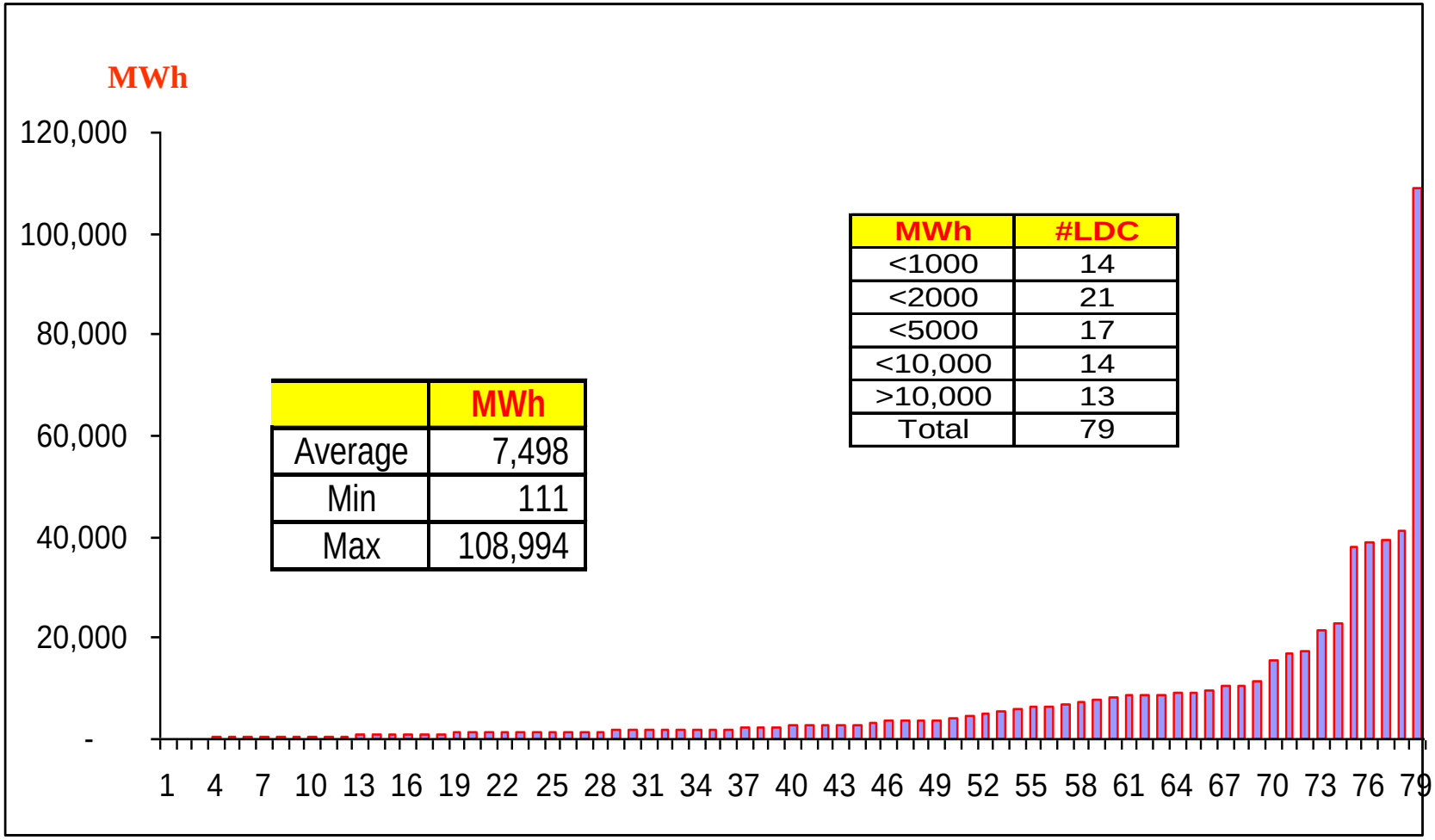
Sentinel Lighting
Annual Energy Consumption



	MWh
Average	290
Min	5
Max	1,120

MWh	#LDC
<100	23
<500	21
<1000	9
>1000	3
Total	56

Street Lighting
Annual Energy Consumption



	MWh
Average	7,498
Min	111
Max	108,994

MWh	#LDC
<1000	14
<2000	21
<5000	17
<10,000	14
>10,000	13
Total	79

USL Annual Energy Consumption