
Secondary Cable Failure Statistics at TXU Electric Delivery Company

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Secondary Cable Failure Statistics

- UG Cable In Service
- Cable Failures – Secondary vs. Primary
- Cost of Cable Failures – Secondary vs. Primary
- Conclusions

TXU Electric Delivery Cable System

- ❑ 18,000 cable miles – MV (Primary) cables
- ❑ 5,300 cable miles – LV (Secondary) cables
- ❑ Beginning in 1990 – Standardized Cables
 - #6 and #4 Al 600 V DPX (Street light)
 - #1/0, #4/0, and 350 kcmil Al 600 V TPX
 - Abuse Resistant (2-layer LD/HDXLPE)
 - All pulled into conduit system

Cable In Service

(as of 12/31/04)

Cable	Cable-Miles	Year Began Installing
Butyl/EPR	41	Early 60s

Cable In Service

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XLPE	1,674	Mid 70s

Cable In Service

(as of 12/31/04)

Cable	Cable-Miles	Year Began Installing
Butyl/EPR	41	Early 60s
HMWPE	389	Mid 60s
XLPE	1,674	Mid 70s
XLPE/AR	3,210	Mid 80s

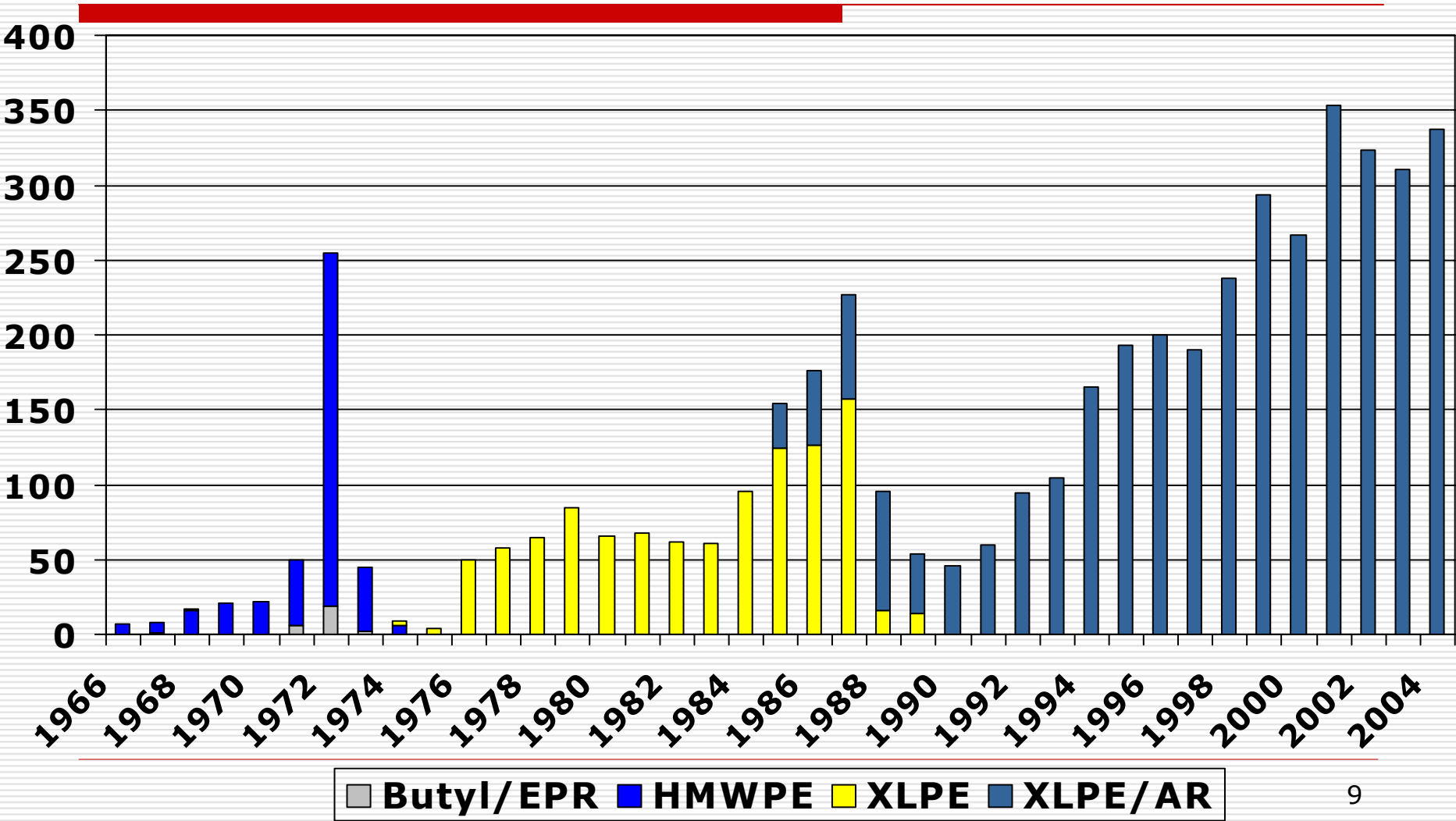
Cable In Service

(as of 12/31/04)

Cable	Cable-Miles	Year Began Installing
Butyl/EPR	41	Early 60s
HMWPE	389	Mid 60s
XLPE	1,674	Mid 70s
XLPE/AR	3,210	Mid 80s
Total	5,314	

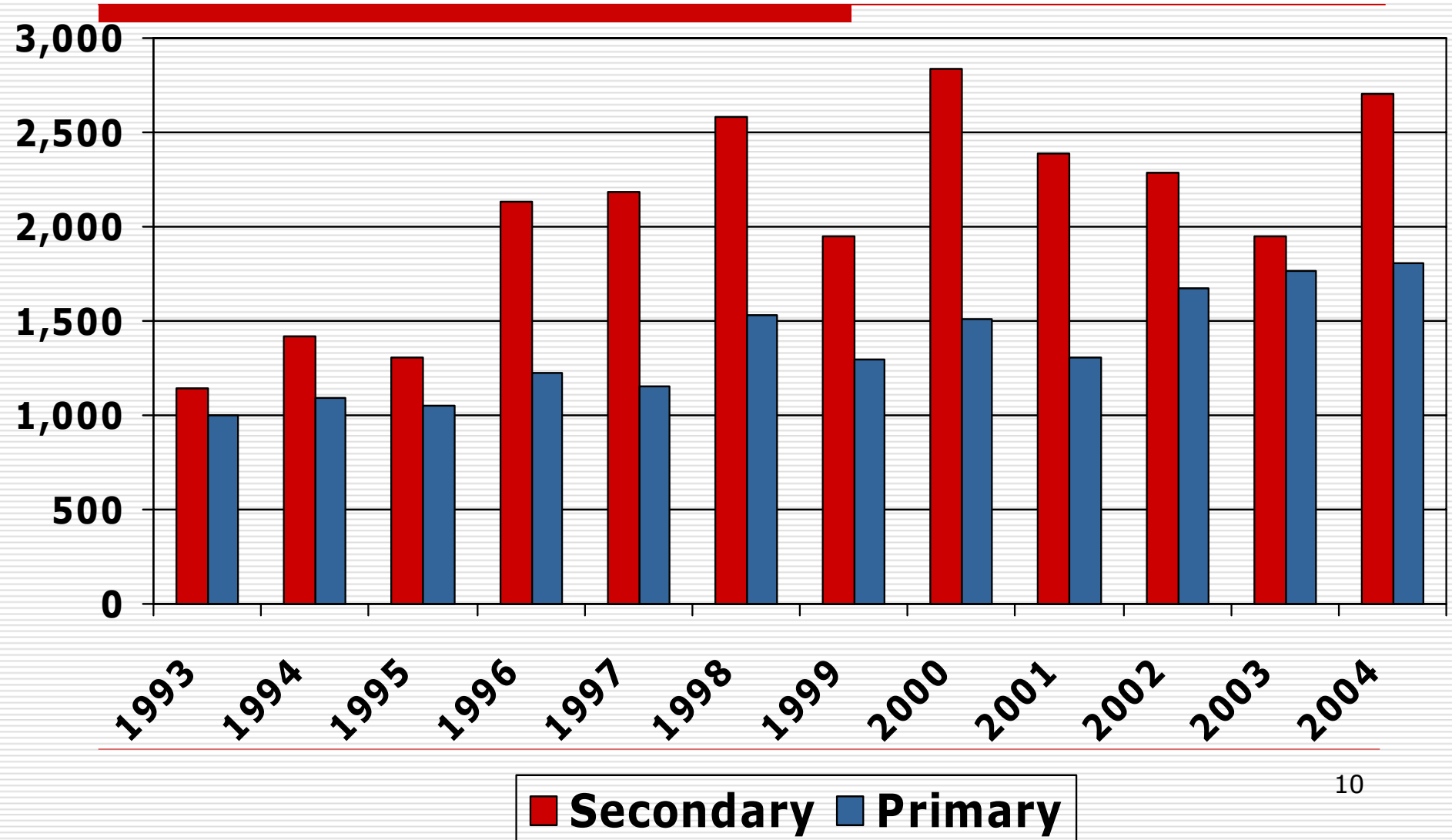
Cable In Service by Insulation Type

(Cable Miles In Service by Each Vintage Year)

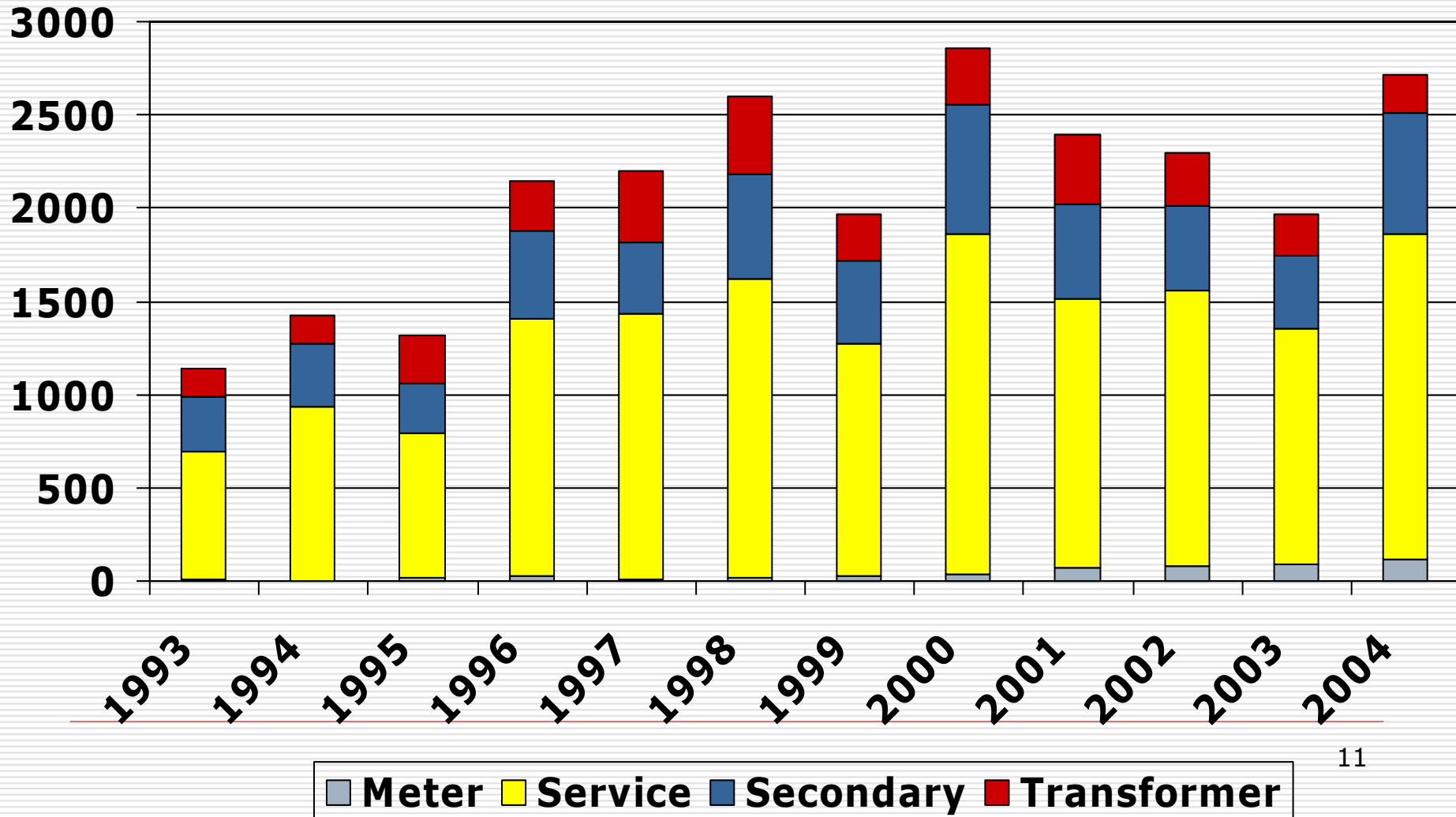


Number of Failures by Year

(Secondary vs. Primary)

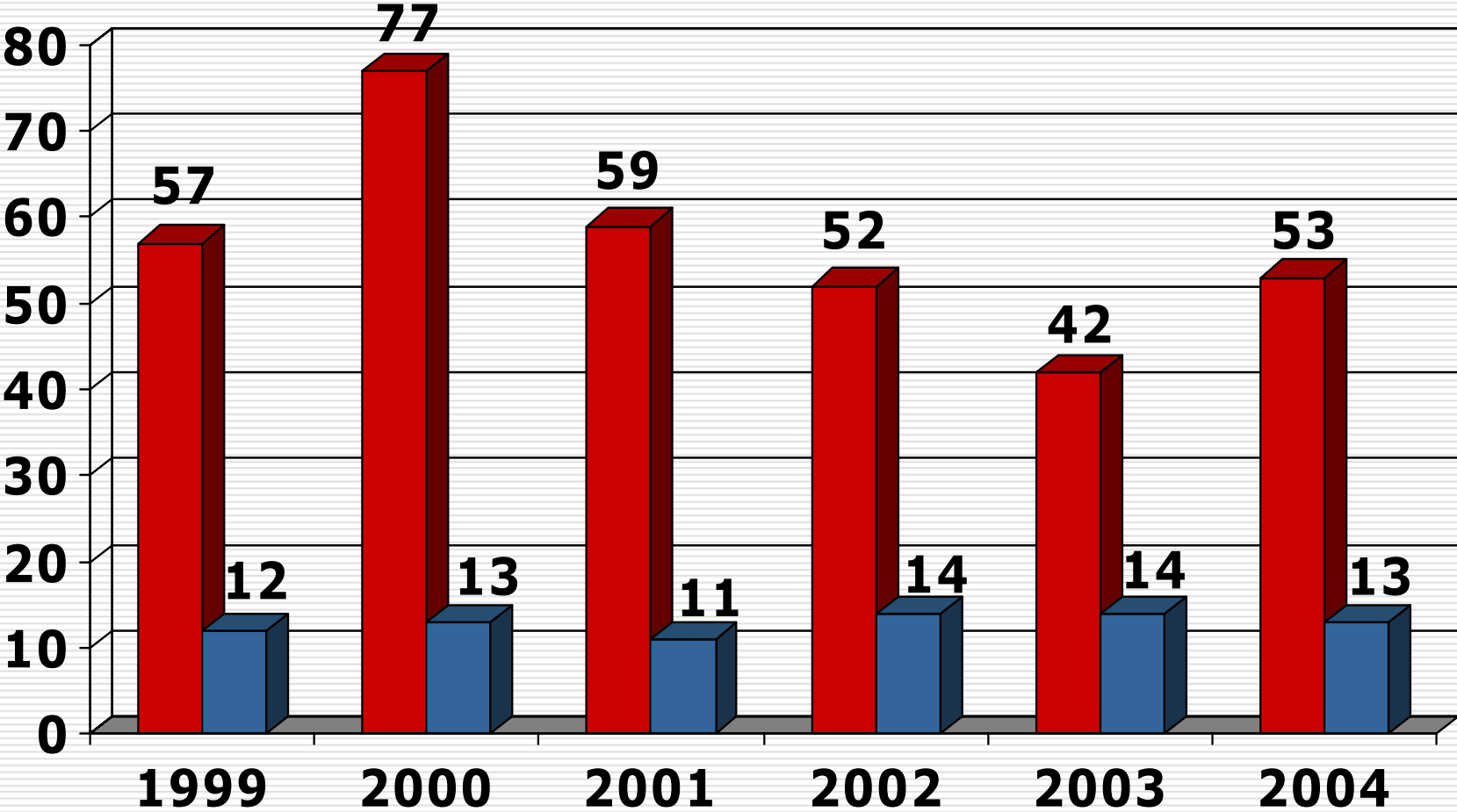


Summary – Failures by Year and Location of Failure



Failures per 100 Miles

(Secondary vs. Primary)



■ Secondary ■ Primary

Effect of Cable Failures

- Service Failure
 - 1 customer affected
 - Simple locate and repair
- Secondary Failure
 - 2 – 6 customers affected
 - Simple locate and repair
- Primary Cable Failure (URD)
 - Many customers affected – up to 150 on loop
 - Costly locate and repair

Cost of Cable Failure Repairs

Cable/Installation	Estimated Cost for Each Repair	
	Direct Buried (Splice)	In Conduit
Secondary	\$500	
Primary		

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Cost of Cable Failure Repairs

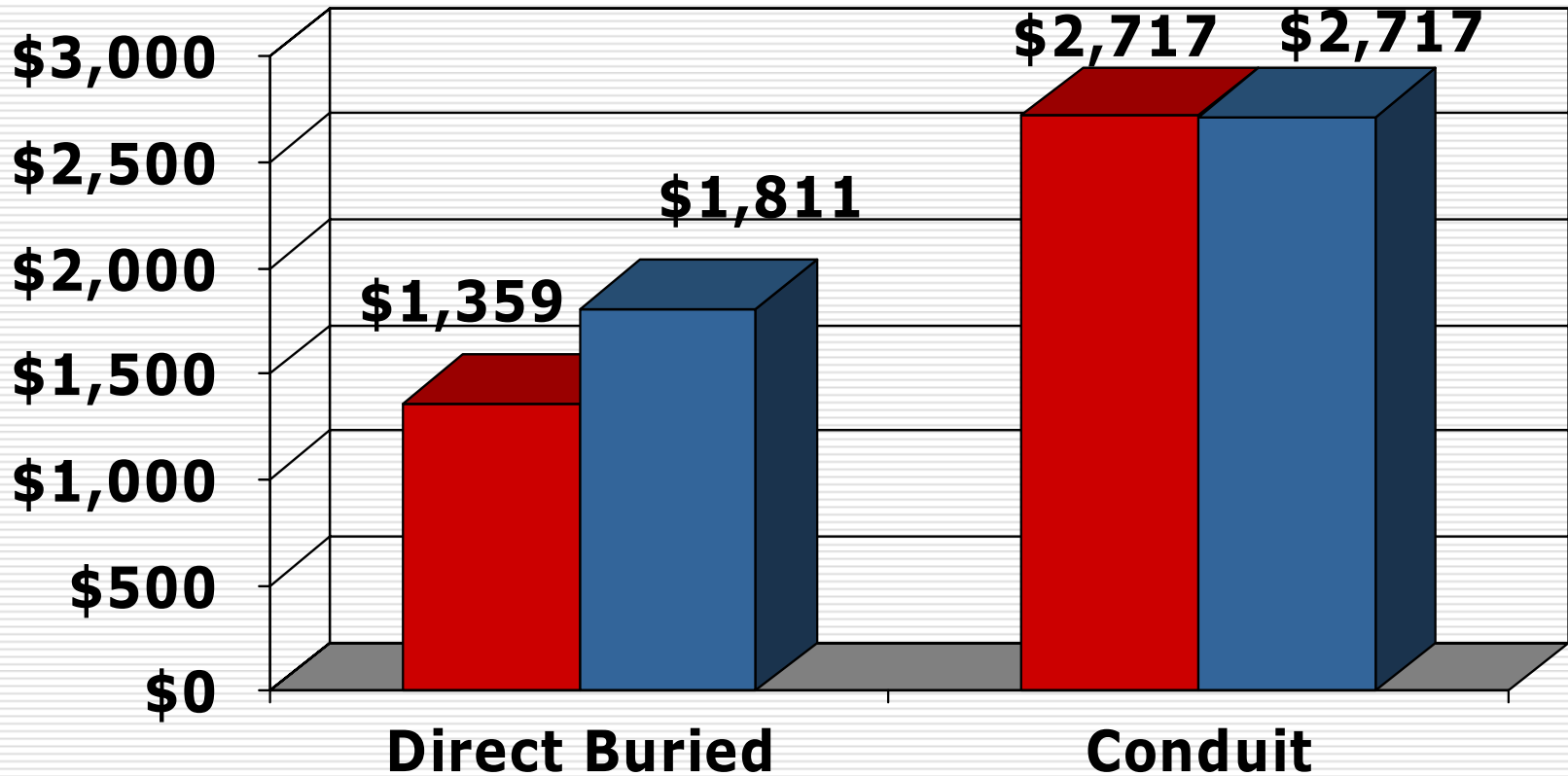
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Secondary	\$500	\$1,000 (150')
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Cost of Cable Failure Repairs

Cable/Installation	Estimated Cost for Each Repair	
	Direct Buried (Splice)	In Conduit
Secondary	\$500	\$1,000 (150')
Primary	\$1,000	\$1,500 (450')

Estimated Annual Cost of Failures (Secondary vs. Primary)

Thousands



■ Secondary ■ Primary

Conclusions

- ❑ Secondary cable – 23% of the total underground cable system.
- ❑ Number of secondary cable failures – 60% of all underground cable failures.
- ❑ In a conduit system the annual cost of secondary cable failure repairs equals that of primary cable failure repairs.
- ❑ For direct buried it is 75% of the cost.
- ❑ Total cost of secondary failures is not insignificant.