



# ***COST MANAGEMENT: SUBSTATION & TRANSMISSION TRANSMISSION LINE BREAKER TESTING***

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*Informational Only*

# COST MANAGEMENT

## TRANSMISSION BREAKERS



345kV Breaker  
Number of Breakers: 80  
Purchase Price/Breaker: \$210K



138kV Breaker  
Number of Breakers: 561  
Purchase Price/Breaker: \$78K

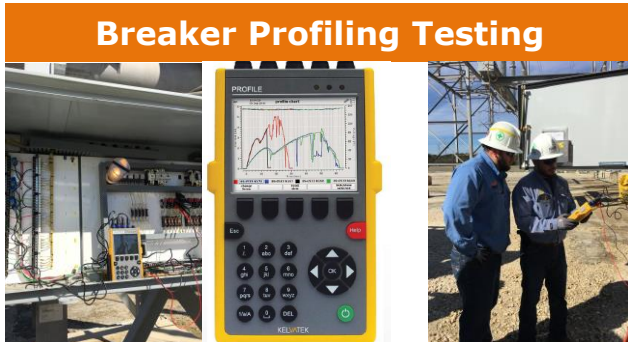
# COST MANAGEMENT

## TESTING METHODS

High voltage transmission breakers are tested using 2 methods:

- ❑ Conventional
- OR**
- ❑ Breaker profiling

Comparison of Breaker Testing Methods Conventional VS Breaker Profiling		
Attributes	Conventional	Breaker Profiling
Maintenance Program	Time-based testing process	Condition-based testing process
Components Tested	Insulation, contact resistance, & timing	Detailed electrical performance data
Testing Period	~2 days – breaker removed from service	~2 hours – breaker remains in service
Performance Testing	No	Yes



Install portable meter

Analyze reads

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## BENEFITS



Detailed diagnostic testing of more breakers allows for targeted, proactive maintenance, and improved reliability.

- Breaker profiling benefits:
  - ✓ Establishes a standard profile for breaker operating performance
  - ✓ Most effective test for accessing condition of breaker performance
  - ✓ Focuses maintenance on the breakers that need it most
  - ✓ Savings will be used to offset other critical testing & expenses
  - ✓ **Breaker profiling man hours and cost savings:**

Conventional VS Breaker Profiling Cost Comparison (Annual Expenses)		
	Conventional	Breaker Profiling (New)
# of Breakers	128	214
Man Hours	2,564	428
Total Average Cost	\$156,000	\$26,000

Annual Cost Savings  
Results:

2,136 Hours

\$130,000



***Thank You***