



*Arts & Innovation*

## Substation Switchgear Upgrade Project

Board of Public Utilities

July 25, 2016

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## Electric Substation Switchgear

- Houses protection system (relays and breakers), automation system, and controls for electric distribution circuits

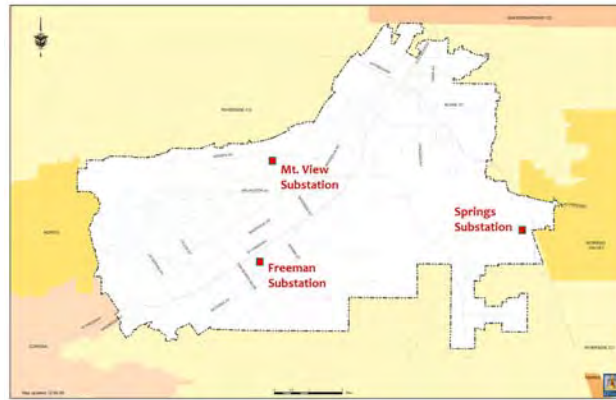


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## Project Locations



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## Existing Switchgear Conditions

- Outdated equipment
- Obsolete replacement parts
- High maintenance and operational cost
- Frequent maintenance cycle
- Operational and safety concerns
- Poor integration with modern automation equipment

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## Technology Upgrades 1950's → 2016



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## Scope of Work

<u>Substation</u>	<u>Switchgear Name</u>	<u>Relay Replacement</u>	<u>Complete Rehabilitation</u>
Freeman	SWGR 1	X	
Freeman	SWGR 3	X	X
Freeman	SWGR 4	X	X
Freeman	SWGR 5	X	
Freeman	SWGR 6	X	
Mountain View	SWGR 3	X	X
Mountain View	SWGR 4	X	X
Mountain View	SWGR 6	X	
Springs	SWGR 1	X	
Springs	SWGR 2	X	

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## Scope of Work

- Replace protective relays in 10 switchgear units
  - Replacing 303 electromechanical relays with 80 microprocessor relays
- Rehabilitation of 4 of these switchgear units
  - Replacing 26 air circuit breaker with Vacuum circuit breakers
  - Replacing 26 switches
  - Replacing bus insulation

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## Protective Relay Equipment



Old Electromechanical Relays



New Microprocessor Relays

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## Circuit Breaker Equipment



Old Air Circuit Breaker



New Vacuum Circuit Breaker

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## Benefits and Purposes

- Improve personnel safety
- Improve regulatory compliance
- Improve system reliability
- Reduce operational and maintenance cost
- Integrate with Substation and Distribution Automation

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## Work Order Summary

Work Order Breakdown	Sub-total	Percent of Total
RPU Engineering, Construction Management	\$620,000	11%
RPU Operations Labor	\$560,260	10%
Schneider Electric Agreement	\$4,349,740	79%
Work Order Total	\$5,530,000	100%

Schneider Electric USA was selected from 5 proposals based on price and qualifications

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## Recommendations

- Recommend that the Board of Public Utilities:
  - Approve a Professional Services Agreement in the amount of \$4,349,740 to Schneider Electric USA, Inc. of San Diego, California, for the Substation Switchgear Upgrade Project; and
  - Approve Work Order No. 1601400 in the amount of \$5,530,000.

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