



Engineering, Operations, & Technology Committee

Update on Colorado River Aqueduct High-Voltage Transformers Replacement Project

Item 9-2

January 13, 2025

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CRA High-Voltage Transformers Replacement Project

Subject

Colorado River Aqueduct High-Voltage Transformers Replacement Project

Purpose

Provide an update on the CRA High-Voltage Transformers Replacement Project, which will enhance reliability of pumping operations in the Desert Region

Next Steps

Continue contract negotiations with Siemens Energy Inc. Board Action planned for Spring 2025 to award a procurement contract for 35 transformers & authorize final engineering design services

CRA High-Voltage Transformers Replacement

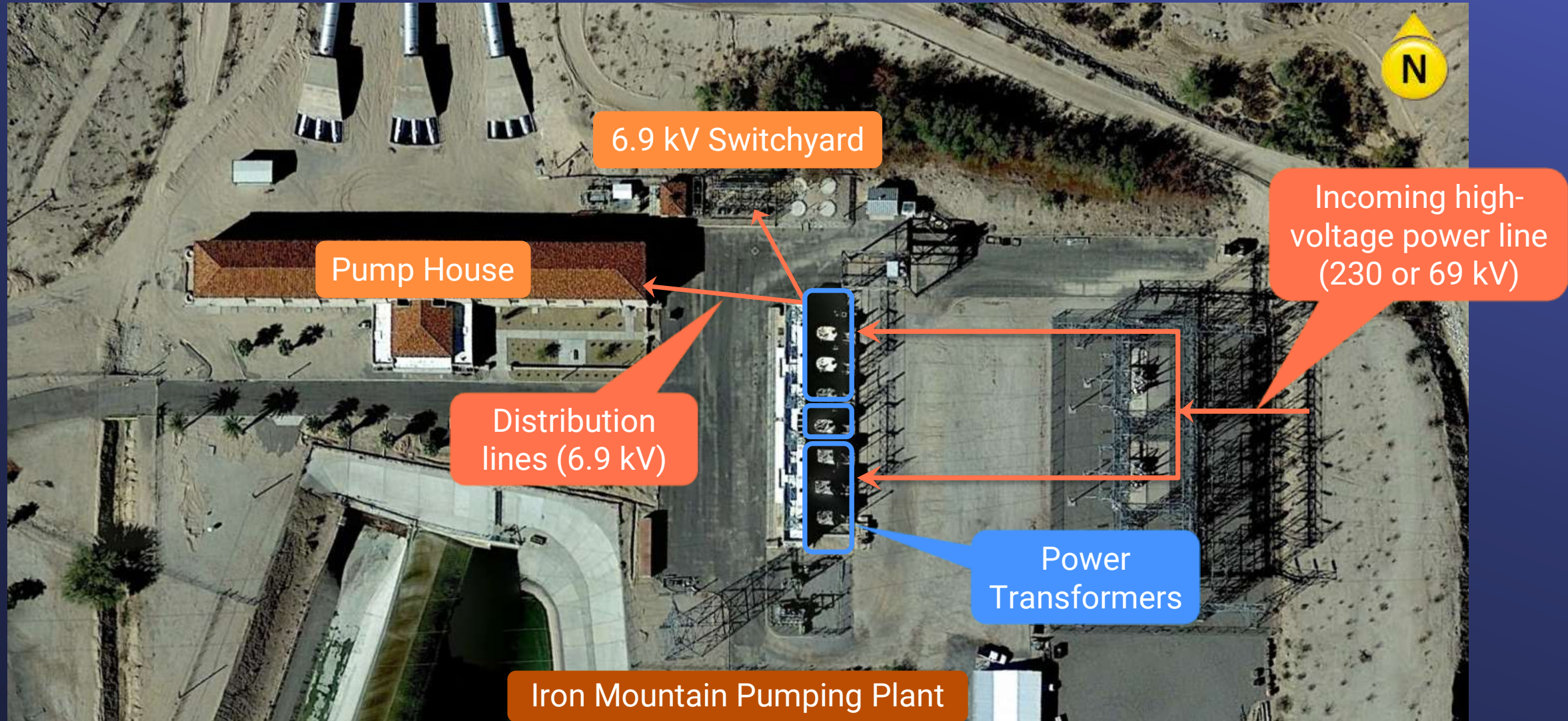
Agenda

- Background
- Planned Improvements
- Installation Methodology
- Procurement Approach
 - Best Value Procurement
- Negotiations Highlights
- Costs
- Schedule
- Next Steps

Project Location



Typical Site Layout



Background

- Facilities initially constructed in 1939
- 35 transformer units
 - 15 in service since 1940
 - 20 in service since late 1950s
- Exceeded typical life expectancy
 - Deteriorating insulation materials
- Potential failure may impact water deliveries



Hinds Pumping Plant

Planned Improvements

- Replace 35 transformers at 5 CRA pumping plants
- Upgrade foundations to meet current seismic standards
- Enhance physical security features
- Construct secondary containment systems



Gene Pumping Plant



Iron Mtn. Pumping Plant

Installation Methodology

- All 35 units will be delivered in advance & stored onsite for installation
- Transformers will be replaced one unit at a time across all plants
 - Provides 8-pump flow flexibility
 - Ensures alignment with water supply needs
- 5 transformers will be replaced per year
 - Coordination required with annual CRA shutdowns to minimize impacts on pumping plant operations



Eagle Mtn. Pumping Plant



Intake Pumping Plant

Procurement Approach

- Apr '21: Initiated preliminary design
- Mar '22: Prequalified 6 transformer manufacturers
 - Conducted extensive vendor outreach
- May '23: Completed preliminary design & advertised transformer procurement package
 - No responsive bids received
 - Limited number of manufacturers met technical requirements
 - Reluctance to provide upfront pricing due to supply chain disruptions & material price volatility
 - Priority given to repeat customers

Best-Value Approach

- Mar '24: Re-advertised solicitation as “best value” procurement to all prequalified manufacturers
 - Administrative Code Section 8150
 - Evaluate factors in addition to capital costs
- Jul '24: Received one responsive proposal from Siemens Energy Inc.
 - GM authorized to enter negotiations
- On-going negotiations with Siemens
 - Terms & Conditions
 - Technical Standards/ Requirements
 - Cost
 - Delivery Schedule

Negotiation Highlights

- Payment Schedule
- Price Adjustment
 - Escalation/ De-escalation
 - Labor, materials, & currency exchange
- Other Price-Related Risks
 - Tariffs
 - Uncertainty of global events
- Limitations on Liability
- Warranty



Eagle Mtn. Pumping Plant

Project Costs

- Procurement costs:
 - All 35 units estimated between \$100 M to \$140 M
 - Each transformer is approx. \$2.5 M to \$3.5 M
 - Includes taxes, delivery & spare parts
- Installation costs:
 - All 5 sites estimated between \$90 M to \$110 M



Iron Mtn. Pumping Plant

Project Schedule



CRA
High-Voltage
Transformers
Replacement

Next Steps

- Complete contract negotiations with Siemens Energy Inc.
- Spring board action planned to award procurement contract & amend consultant agreement for final design services

