



Engineering & Operations Committee

Arc Flash Protection

Item 7-5

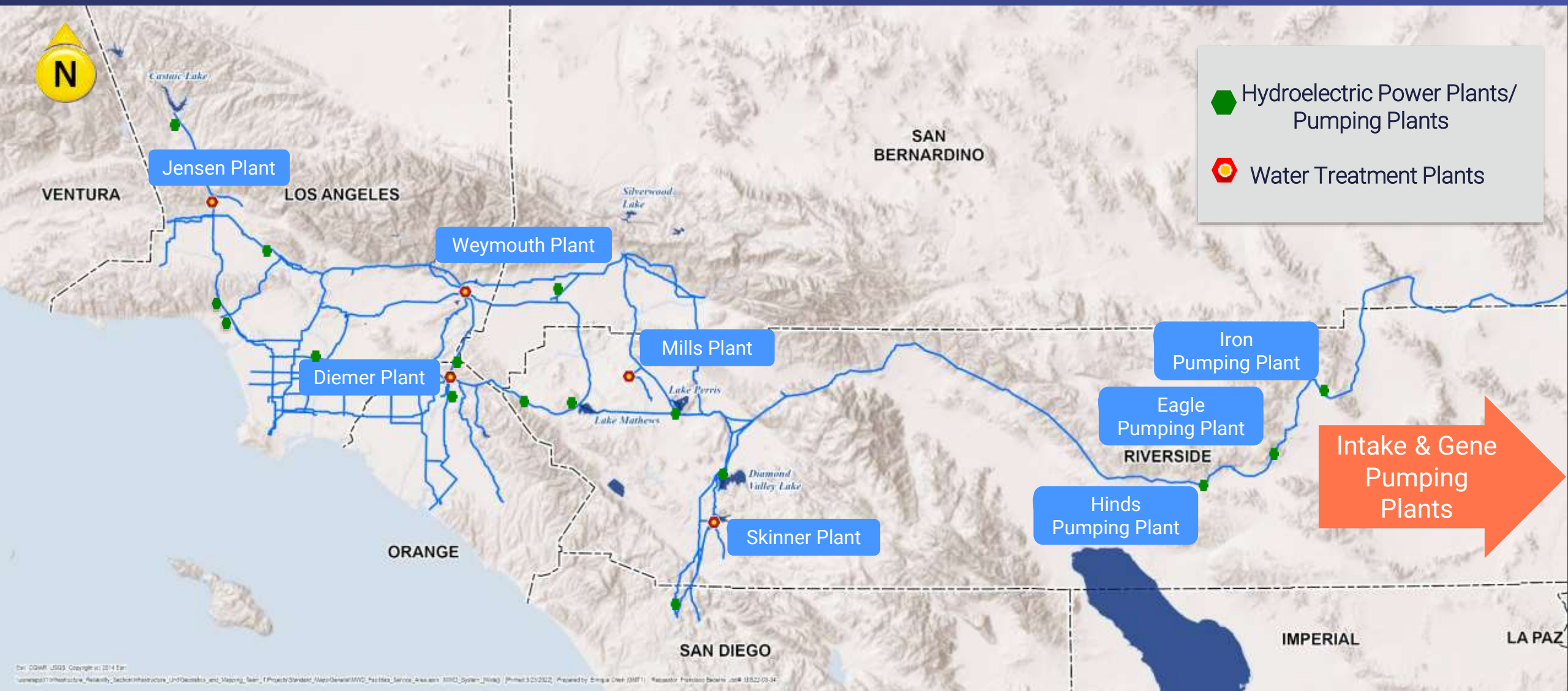
June 13, 2022

Arc Flash Protection

Current Action

- Authorize agreements with four firms in an amount NTE \$750,000 annually for 3 years for specialized technical services to enhance arc flash protection at Metropolitan facilities
 - Power-Tech Engineers, Inc.
 - HDR, Inc.
 - Mangan, Inc.
 - Burns & McDonnell Engineering Company, Inc.

Distribution System



Electrical System Background



Working with Live System

Background Existing System

Metropolitan has electrical infrastructure at 5 treatment plants, 15 hydroelectric plants, 7 pumping plants, and numerous turnouts and pressure control structures

Metropolitan has over 1,000 electrical systems from 480 volts – 230,000 volts

Metropolitan has a strong, established safety culture and program

Arc Flash Protection

Alternatives Considered

- Utilize Metropolitan staff
 - With current workload, electrical engineering staff not immediately available
- Hybrid approach (selected option)
 - Utilize several consulting firms
 - Metropolitan staff provides support

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Applying Labels and Working
with Live System
(Stock image)

Consultant Scope

- Perform site investigations
- Verify electrical single-line diagrams
- Develop computerized models using ETAP software
- Conduct arc flash assessment and analysis
- Recommend improvements, if needed
- Prepare deliverables and submittals

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Arc Flash Agreements

- Pre-qualified consultants via RFQ 1301
- Issue agreements to:
 - Power-Tech Engineers, Inc.
 - HDR, Inc.
 - Mangan, Inc.
 - Burns & McDonnell Engineering Company, Inc.
- For each agreement
 - NTE amount: \$750,000 annually for 3 years
- SBE participation level: 25%

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Staff performing electrical coordination on a 230kV circuit breaker

Metropolitan Scope

- For each facility:
 - Compile record drawings
 - Facilitate data collection and coordinate electrical system shutdowns
 - Perform consultant oversight and review process
 - Support as-built efforts

Allocation of Budgeted Funds

	Arc Flash Model Development
Metropolitan Labor	
Owners Costs (PM & Proj. Controls)	\$ 320,000
Submittal review & record drawings	1,550,000
Operations support	480,000
Materials & Supplies	50,000
Professional Services	
Power-Tech Engineers, Inc.	2,250,000
HDR, Inc.	2,250,000
Mangan, Inc.	2,250,000
Burns & McDonnell Engineering Company, Inc.	2,250,000
Remaining Budget	600,000
Total	\$12,000,000

Project Schedule



Arc Flash Protection



Switching at
Venice (HEP)

Background

Arc Flash Assessment

- Enhance employee safety
- Identify area with highest safety risk
- Ensure compliance with regulatory requirements and industry best practices
- Ensure protective devices are properly configured to work as needed

Board Options

- Option #1
 - Authorize agreements with Power-Tech Engineers, Inc., HDR, Inc., Mangan, Inc., and Burns & McDonnell Engineering Company, Inc., in an amount not-to-exceed total of \$750,000 each per year for a period of three years, to assess and mitigate arc flash risks for Metropolitan's facilities.
- Option #2
 - Do not proceed with these agreements at this time.

Staff Recommendation

- Option #1

