



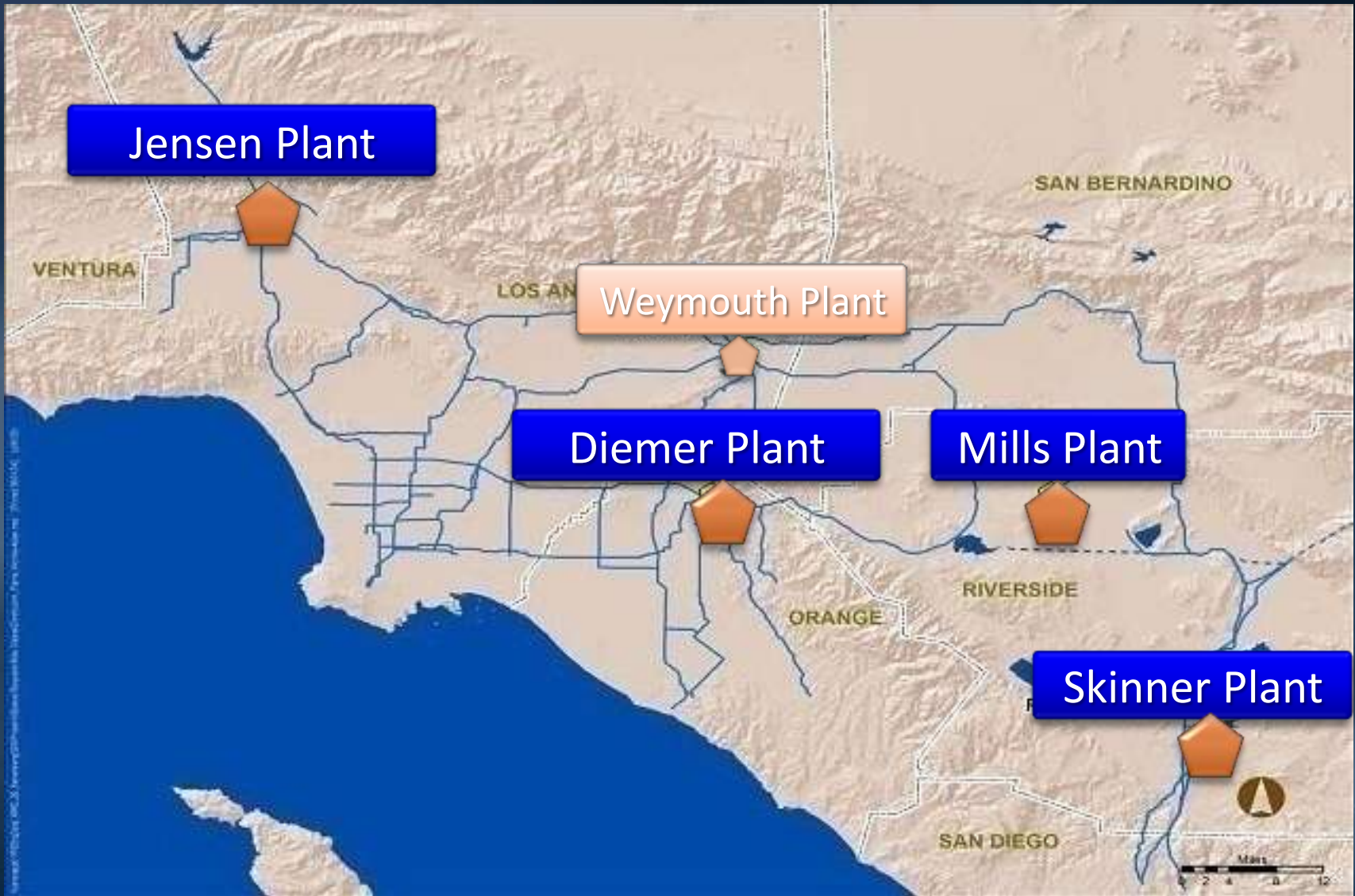
# Diemer, Jensen, Mills Plants: Electrical Improvements Projects Skinner Electrical Building Upgrades

Engineering and Operations Committee  
Item 8-4  
July 12, 2010

# Current Action

- Appropriate \$5.55 M in budgeted funds
- Authorize preliminary design of Jensen & Mills Electrical Improvements
- Authorize final design of Diemer Electrical Improvements
- Award \$419,680 contract to Dalke & Sons Construction, Inc. for Skinner Electrical Building Upgrades

# Metropolitan Treatment Plants



# Electrical Improvements

Jensen & Mills - Preliminary Design  
Diemer - Final Design

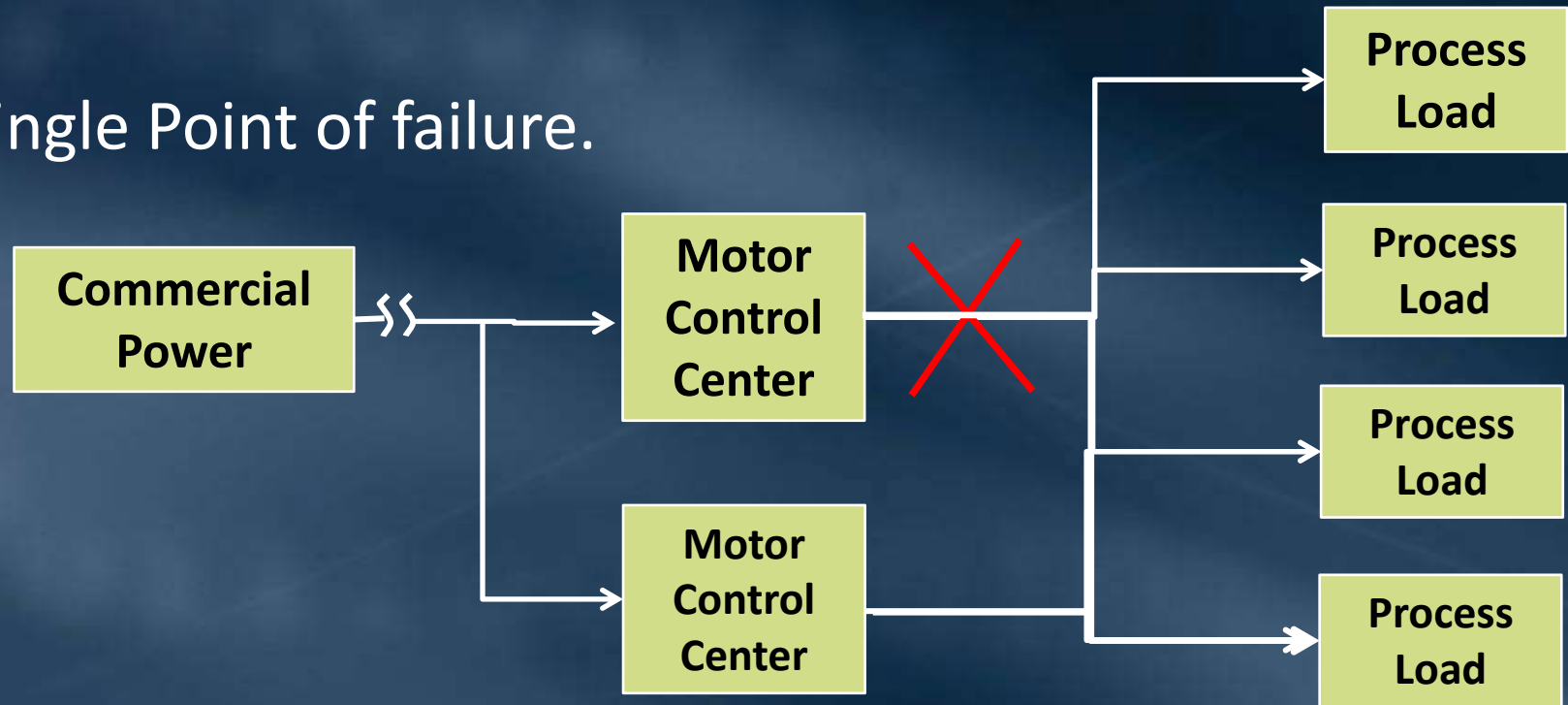
# Background

- Aged electrical equipment not reliable, difficult & costly to maintain & repair
- Configuration vulnerable to shutdown caused by single point of failure
- Backbone electrical systems not upgraded with plant expansions
- Some protective equipment underrated for short circuit protection at Diemer & Jensen



# Single Point of Failure - - Example

- Single Point of failure.



# Electrical Improvements

- Scope
  - Common to all three plants
    - Replace obsolete/underrated Unit Power Centers, Motor Control Centers & circuit breakers
    - Provide critical systems with dual power sources
  - Jensen
    - Modify 4 kV main switchgear & construct alternate feeder
  - Mills
    - Install secondary 12 kV service
    - Add new feeder
  - Diemer
    - Upgrade grounding system
    - Improve Liquefied Propane Gas system for emergency generators
- Design by Metropolitan staff

# Requested Funds

	Jensen Prelim Design	Mills Prelim Design	Diemer Final Design
<b>Owner Costs</b>	<b>\$120,000</b>	<b>\$115,000</b>	<b>\$416,000</b>
<b>Preliminary Design</b>	<b>\$488,000</b>	<b>\$410,000</b>	
<b>Final Design</b>			<b>\$2,672,000</b>
<b>Incidental expenses</b>	<b>\$10,000</b>	<b>\$5,000</b>	<b>\$17,000</b>
<b>Professional Services</b>	<b>\$50,000</b>	<b>\$50,000</b>	<b>\$50,000</b>
<b>Remaining budget</b>	<b>\$32,000</b>	<b>\$30,000</b>	<b>\$315,000</b>
<b>Total</b>	<b>\$700,000</b>	<b>\$610,000</b>	<b>\$3,470,000</b>



# Electrical Improvements

## Skinner – Electrical Bldg. Upgrades

# Skinner Electrical Building Upgrades



## ● Background

- Dec. 2009 Board Action to upgrade electrical eqpt.
- Bldg. Interior temp up to 120°F in summer
- Does not meet seismic requirements



## ● Scope

- Add HVAC & bldg insulation
- Seismically upgrade 2 of the 3 UPC bldgs.



# Skinner Plant – Locations of Projects

- MCC Building Location
- UPC Building Location



# Bid Results

## Specifications No. 1607

(for Skinner Electrical Building Upgrades work)

<b>Bids Received:</b>	<b>5/19/2010</b>
<b>No. of bidders:</b>	<b>2</b>
<b>Lowest bidder:</b>	<b>Dalke &amp; Sons Construction</b>
<b>Lowest bid:</b>	<b>\$419,680</b>
<b>Second bid:</b>	<b>\$517,711</b>
<b>Engineer's estimate:</b>	<b>\$514,000</b>
<b>*SBE Participation:</b>	<b>20%</b>

\*SBE (Small Business Enterprise) participation goal = 20%



# Requested Funds

## Skinner Electrical Building Upgrades

<b>Owner costs</b>	<b>\$ 64,000</b>
<b>Submittals review</b>	<b>24,000</b>
<b>Construction &amp; Inspection support</b>	<b>80,000</b>
<b>Metropolitan force construction</b>	<b>96,000</b>
<b>Materials &amp; Supplies</b>	<b>10,000</b>
<b>Incidental expenses</b>	<b>5,000</b>
<b>Equipment use</b>	<b>5,000</b>
<b>Contract</b>	<b>419,680</b>
<b>Remaining budget</b>	<b>66,320</b>
<b>Total</b>	<b>\$ 770,000</b>

# Project Schedules



Board Action



Complete Construction



Preliminary Design



Final Design



Construction



# Board Options

- Option # 1
  - Adopt the CEQA determinations
  - Appropriate \$5.55 M
  - Authorize final design of Diemer Electrical Improvements
  - Authorize preliminary design of Jensen & Mills Electrical Improvements
  - Award \$419,680 contract to Dalke & Sons Construction, Inc. for Skinner Electrical Building Upgrades

# Board Options

- Option # 2
  - Adopt the CEQA determinations
  - Appropriate \$4.78 M
  - Authorize final design of Diemer Electrical Improvements
  - Authorize preliminary design of Jensen & Mills Electrical Improvements
  - Do not award contract for Skinner Electrical Building Upgrades, & re-advertise

# Board Options

- **Option #3**

- Do not authorize Diemer, Jensen & Mills Electrical Improvement projects at this time
- Do not proceed with Skinner Electrical Building Upgrades project at this time

# Staff Recommendation

- **Option # 1**





# Jensen Water Treatment Plant





# Mills Water Treatment Plant





# Diemer Electrical Improvement Project Location

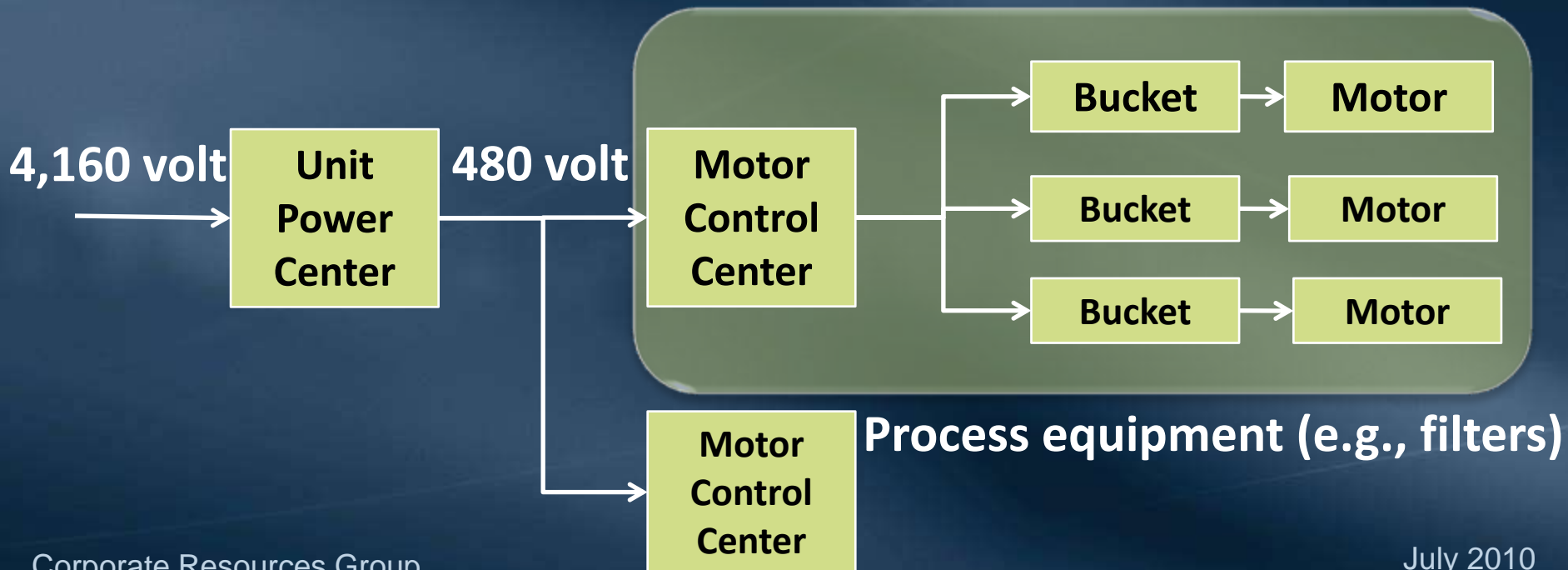


# Current Condition @ Skinner Plant

- Older electrical equipment supports most of Skinner plant capacity (520 of 630 mgd)
- Aging infrastructure at increased risk of failure
- Lacking temperature control inside 12 bldgs

# Phase 1: Skinner Electrical Bldg Upgrades

- Replace aged & deteriorated electrical components in 12 bldgs.
- Metropolitan force construction authorized in Dec. 2009
- This action: Award procurement contract
- No add'l funding requested





# Bid Results

## Purchase Requisition No. 217537 (for Skinner Phase 1 Metropolitan force work)

<b>Bids Received:</b>	<b>5/26/2010</b>
<b>No. of bidders:</b>	<b>1</b>
<b>Lowest bidder:</b>	<b>One Source Distributors</b>
<b>Lowest bid:</b>	<b>\$934,500</b>
<b>Bid range:</b>	<b>others non-responsive</b>
<b>Engineer's estimate:</b>	<b>\$ 1,422,200</b>

# Skinner Electrical Bldg. Upgrades



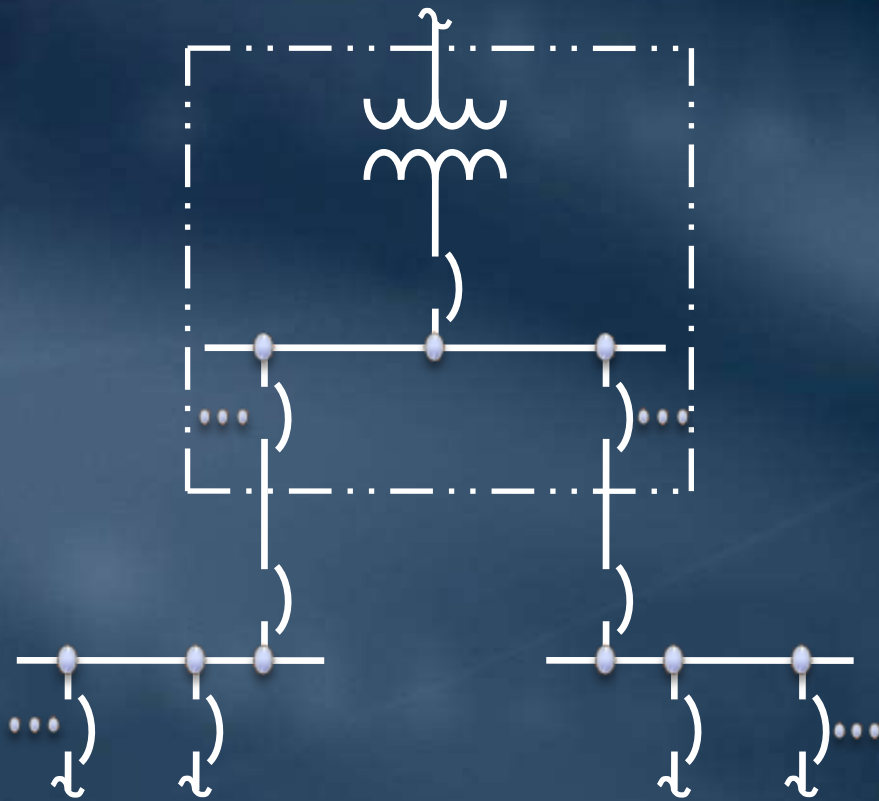
**Typical UPC Building**



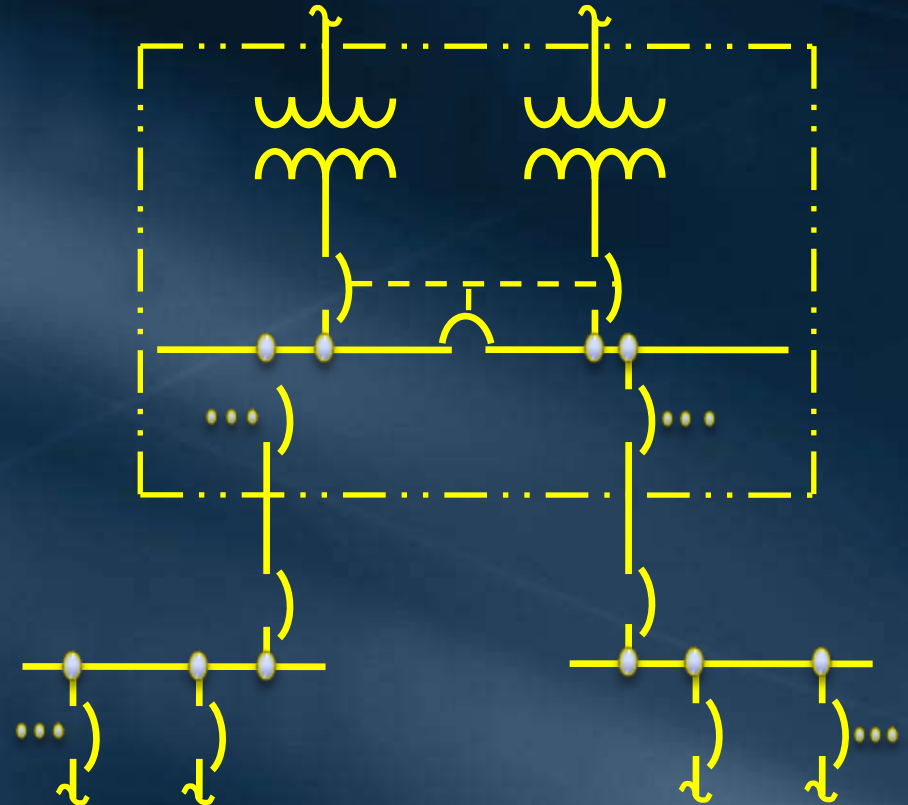
**Typical MCC Building**



# Electrical Improvements



**Existing  
(Radial)**



**New with Improved Reliability  
(Dual Sources)**

# Electrical Improvements



# Skinner Electrical Bldg. Upgrades





# Electrical Refurbishment Example



Obsolete components

**Old Motor Controller**



**Upgraded Motor Controller**