



1 [Emergency Declaration - Repair of the Moccasin Powerhouse Unit 2 Generator Step-up  
2 Transformer - Total Estimated Cost Not to Exceed \$400,000]

3 **Resolution approving an emergency declaration of the San Francisco Public Utilities**  
4 **Commission (SFPUC) pursuant to San Francisco Administrative Code, Section 6.60, to**  
5 **repair the buswork and bushings on the Moccasin Powerhouse Unit 2 generator step-**  
6 **up transformer, with a total estimated cost not to exceed \$400,000.**

7  
8 WHEREAS, Moccasin Powerhouse Unit 1 and Unit 2 located in Tuolumne County are  
9 critical assets for providing continuous delivery of water to the 2.7 million water customers of  
10 the San Francisco Public Utilities Commission (SFPUC) in the Bay Area. Any inability to use  
11 these assets poses a threat to water deliveries, a basic service affecting the lives, property  
12 and welfare of the SFPUC water customers in San Francisco, San Mateo, Santa Clara and  
13 Alameda Counties; and

14 WHEREAS, On July 31, 2017, the main transformer in Moccasin Powerhouse Unit 1  
15 failed, resulting in Moccasin Powerhouse Unit 2 also failing and a complete power outage in  
16 Moccasin Camp; this caused a cease of water flow through the Moccasin Powerhouse, which  
17 reduced the amount of water able to enter the SFPUC Regional Water System from 285 to  
18 140 million gallons per day; and

19 WHEREAS, The complete power outage at Moccasin Camp necessitated the  
20 installation and commissioning of a rented station service transformer to restore Moccasin  
21 Powerhouse Unit 1 and increase water deliveries to the SFPUC Regional Water System back  
22 to the scheduled rate of 285 million gallons per day; and

23 WHEREAS, Moccasin Powerhouse Unit 2 is still offline and needs to be repaired; and

24 WHEREAS, Due to Unit 2 still being offline, a failure of Moccasin Powerhouse Unit 1  
25 would again result in restricted water deliveries to the SFPUC Regional Water System, posing

1 a risk to the water supply for the 2.7 million water customers relying on the water deliveries;  
2 and

3 WHEREAS, Analysis of the July 31, 2017, failure of Moccasin Powerhouse Unit 1 and  
4 Moccasin Powerhouse Unit 2 found that a phase to phase fault on the Unit 2 generator step-  
5 up transformer caused Unit 2 to fail, which requires repair of the buswork and the bushings on  
6 the step-up transformer to bring Unit 2 back into service; and

7 WHEREAS, Any delay to repairing the buswork and the bushings on the step-up  
8 transformer serving Unit 2 poses a risk to the water supply for the 2.7 million water customers  
9 relying on the water deliveries; and

10 WHEREAS, Administrative Code, Chapter 6, Article IV, Section 6.60, authorizes  
11 department heads to declare an emergency and award a public work contract, exempt from  
12 the competitive bidding process, in the event of an actual emergency, which is defined to  
13 include, " ... [t]he breakdown or imminent breakdown of any plant, equipment, structure, street  
14 or public work necessitating immediate emergency repair or reconditioning to safeguard the  
15 lives or property of the citizens, or the property of the City and County, or to maintain the  
16 public health and welfare ..."; and

17 WHEREAS, On August 28, 2017, the SFPUC General Manager declared an  
18 emergency, approved by the President of the San Francisco Public Utilities Commission, to  
19 repair the buswork and bushings on the Moccasin Powerhouse Unit 2 generator step-up  
20 transformer in order to bring Unit 2 back into service; and

21 WHEREAS, Administrative Code, Section 6.60(d), requires the SFPUC General  
22 Manager to seek the Board of Supervisors' approval in all cases where the cost of the  
23 emergency work exceeds \$250,000; and

1           WHEREAS, The SFPUC General Manager estimates that repairing the buswork and  
2 bushings on the Moccasin Powerhouse Unit 2 generator step-up transformer will not exceed  
3 \$400,000; and

4           WHEREAS, The SFPUC reached out to two vendors with the appropriate C10  
5 electrical contractor licenses to perform the needed repair work, and determined that only one  
6 of the vendors, Big Valley Electric, is a certified Local Business Enterprise; and

7           WHEREAS, Big Valley Electric also holds class A general engineering contractor's and  
8 class B general building contractor's licenses, and the SFPUC is authorizing Big Valley  
9 Electric to serve as the prime contractor, with two specialty subcontractors, Electrical Builders,  
10 Inc. (EBI) and Western Utilities Transformer Service, to complete the repair work on the  
11 Moccasin Powerhouse Unit 2 generator for an amount not to exceed \$400,000; and

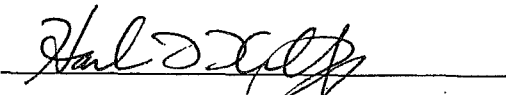
12           WHEREAS, The Controller has certified that funds are available for this emergency  
13 work and contract; now, therefore, be it

14           RESOLVED, That the Board of Supervisors approves, under Administrative Code,  
15 Section 6.60, the SFPUC General Manager's emergency determination dated August 28,  
16 2017, to repair the buswork and bushings on the Moccasin Powerhouse Unit 2 generator  
17 step-up transformer in order to bring Unit 2 back into service; and, be it

18           FURTHER RESOLVED, That the Board of Supervisors ratifies actions taken to date by  
19 the San Francisco Public Utilities Commission to address such emergency work and resolve  
20 the emergency condition.

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RECOMMENDED:



HARLAN L. KELLY, JR.  
General Manager of the SFPUC

FUNDS AVAILABLE:



BEN ROSENFELD  
Controller

<p><b>Item 2</b> <b>File 17-1038</b></p>	<p><b>Department:</b> Public Utilities Commission (PUC)</p>
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**EXECUTIVE SUMMARY**

**Legislative Objectives**

- The proposed resolution approves an emergency declaration by the San Francisco Public Utilities Commission (SFPUC) to repair the buswork and bushings on the Moccasin Powerhouse Unit 2 generator step-up transformer, with a total estimated cost of \$400,000 pursuant to San Francisco Administrative Code, Section 6.60.

**Key Points**

- The Hetch Hetchy Water and Power system provides both water and electric energy to the City and County of San Francisco and other customers. Water deliveries to SFPUC customers flow through Moccasin Powerhouse generating hydroelectric power. On July 31, 2017, Powerhouse Unit 2 failed at its main transformer, causing Powerhouse Unit 1 to fail as well. The failure of both units resulted in a full power outage at the Moccasin Camp and reduced the total water deliveries from 285 to 140 million gallons per day, to match the flow capacity of the single available MPH generator bypass.
- On August 2, 2017, SFPUC installed a rented transformer to restore Powerhouse Unit 1 back to service and water deliveries of 285 million gallons per day. However, Powerhouse Unit 2 is still out of service, and a failure of Powerhouse Unit 1 would risk result in limited water deliveries and pose a risk to water supply for the 2.7 million Regional Water System customers.
- On August 28, 2017, the SFPUC General Manager declared an emergency, which was approved by the SFPUC Commission President. SFPUC has selected Big Valley Electric as the general contractor, with Electrical Builders, Inc. and Western Utilities Transformer Service as specialty subcontractors, to repair MPH Unit 2's buswork and bushings on the step-up transformer to restore service. The project is scheduled to be completed by January 15, 2018.

**Fiscal Impact**

- The total cost to repair the buswork and bushings on Powerhouse Unit 2 generator step-up transformer is not to exceed \$400,000. There is sufficient funding available in the Hetch Hetchy Power Enterprise Facilities Maintenance Funds, which originate from power revenue.

**Recommendation**

- Approve the proposed resolution.

**MANDATE STATEMENT**

Administrative Code Section 6.60(D) states that contracts entered into for emergency work that are more than \$250,000 are subject to Board of Supervisors approval. Prior to the commencement of emergency work above the \$250,000 threshold, the Department must also secure approval in writing from the Mayor and the president of the commission.

If the emergency work must be conducted prior to obtaining Board of Supervisors approval, the department must submit a resolution approving the emergency declaration to the Board of Supervisors within 60 days of the emergency declaration. The San Francisco Public Utilities Commission (SFPUC) General Manager submitted a memorandum declaring an emergency to the president of the SFPUC on August 28, 2017. The SFPUC submitted the resolution to the Board of Supervisors on October 3, 2017, or 36 days after the emergency declaration.

**BACKGROUND**

The Hetch Hetchy Water and Power System provide both water and electricity to the City and County of San Francisco and other customers. Water deliveries from the Hetch Hetchy System to SFPUC customers flow through Moccasin Powerhouse (Powerhouse), generating hydroelectric power. Moccasin Powerhouse is located near the intersection of Highway 49 and Highway 120 in Tuolumne County. On July 31, 2017, Powerhouse Unit 2 failed at its main transformer and tripped offline. According to Ms. Cheryl Sperry, SFPUC Principal Administrative Analyst, the transformer is used to change the voltage of the energy produced by the generator to a voltage that can be transmitted to the electricity grid. The failure of Powerhouse Unit 2 caused Powerhouse Unit 1 to fail as well, which had been dependent on Powerhouse Unit 2 being in service. This resulted in a full power outage at the Moccasin Camp and stopped all water flow through the Moccasin Powerhouse. The total water flow of the Hetch Hetchy system reduced from 285 to 140 million gallons per day, with water flow only available through one bypass valve. On August 2, 2017, SFPUC crews installed a rented transformer to restore Powerhouse Unit 1 into service and water flows to 285 million gallons per day. However, Unit 2 is still out of service, and SFPUC analysis shows that repair of the buswork and bushings on the step-up transformer are needed to bring Unit 2 back into service. The buswork consists of electrical copper bar conductor that interconnects the generator with the transformer, and the bushings are insulated devices attached to the transformer allowing electrical conductors to pass safely through. With Unit 2 out of service, a failure of Unit 1 would result in limited water deliveries to the Hetch Hetchy system, posing a risk to the 2.7 million customers relying on water deliveries from the Hetch Hetchy System. On August 28, 2017, SFPUC General Manager Harlan Kelly declared an emergency, approved by SFPUC Commission President Anson Moran.

**DETAILS OF PROPOSED LEGISLATION**

The proposed resolution approves an emergency declaration of the SFPUC to repair the buswork and bushings on the Powerhouse Unit 2 generator step-up transformer, with a total estimated cost of \$400,000.

SFPUC contacted two vendors with appropriate C10 electrical contractor licenses, but determined that only one, Big Valley Electric, is a certified Local Business Enterprise. Big Valley Electric, which holds Class A general engineering and Class B general building contractor’s licenses, will serve as the prime contractor. Electrical Builders, Inc. and Western Utilities Transformer Service will work on the project as specialty subcontractors. The lead time for ordering the bushings had been previously estimated at 24 weeks, but is now estimated at 8-12 weeks. According to Ms. Sperry, SFPUC issued a notice to proceed on September 15, 2017, and the bushings have been ordered. The scheduled completion date of the project is January 15, 2018. The total cost to complete the repair work is not to exceed \$400,000.

Administrative Code Section 6.60 allows department heads to declare an emergency and award public contract work exempt from the competitive bidding process. An “actual emergency” is defined to include “The breakdown or imminent breakdown of any plant, equipment, structure, street or Public Work necessitating immediate emergency repair or reconditioning to safeguard the lives or property of the citizens; or the property of the City; or to maintain the public health or welfare.”

**FISCAL IMPACT**

The total cost to repair the buswork and bushings on Powerhouse Unit 2 is not to exceed \$400,000. The total includes a contingency of \$35,000 for possible oil reconditioning. According to Mr. Curtis McMillan, SFPUC Electrical Engineer, the transformers are filled with oil and will need to be partially drained when the bushings are replaced. During the draining, the oil comes into contact with air, which may contaminate the oil. The oil can be tested for levels of contamination, and if the contamination level is too high, it will need to be reconditioned before returning the transformer to service. According to Ms. Sperry, sufficient funding for the project is available in Hetch Hetchy Power Enterprise Facility Maintenance Funds, originating from power revenue, for this emergency work. The costs are broken down in Table 1 below.

**Table 1: Cost Breakdown of Moccasin Powerhouse Repair Project**

<b>Contractor</b>	<b>Component</b>	<b>Cost</b>
Big Valley Electric	Project Management	\$45,000
Electric Builders, Inc.	Buswork Repairs	160,000
Western Utilities	Bushings	36,000
To Be Determined	Contingency- Oil Reconditioning	35,000
<i>Contractor Subtotal</i>		<i>\$276,000</i>
SFPUC Labor/Soft Costs		124,000
<b>Total</b>		<b>\$400,000</b>

**RECOMMENDATION**

Approve the proposed resolution.





August 28, 2017

**MEMORANDUM**

**TO:** Anson Moran  
 President

**FROM:** Harlan L. Kelly Jr. *HK*  
 General Manager

**SUBJECT:** Declaration of Emergency – Repair of HHP facilities:  
 Failure of the Moccasin Powerhouse GSU Transformer and  
 Ancillary Buswork

In accordance with Chapter 6, Article IV, Section 6.60(D) of the Administrative Code of the City and County of San Francisco, I am declaring an emergency on behalf of the Public Utilities Commission.

At approximately 4 PM on July 31, 2017 Moccasin Powerhouse (MPH) Unit 2 tripped off-line due to a failure at its main transformer. This forced MPH Unit 1 to be shut down due to a previously failed station service transformer (MPH Unit 1 was dependent on MPH Unit 2 being in-service). This resulted in a complete power outage in Moccasin Camp and a cease of water flow through MPH. Due to the loss of both units at MPH, water flow through the powerhouse was then limited to the one available MPH bypass valve. The second bypass valve has a limited functionality due to a damaged actuator (expedited repairs are scheduled for April 2018). The rate of Hetch Hetchy supply to the Regional Water System was reduced to match the flow capacity of the single MPH bypass, from 285 to 140 million gallons per day.

On August 2, 2017 Hetch Hetchy crews were able to complete the installation and commissioning of a rented station service transformer and restore MPH Unit 1 to service. The restoration of MPH Unit 1 allowed Hetch Hetchy Water and Power to increase water deliveries to the scheduled rate of 285 MGD.

Both generator units at Moccasin have far exceeded their predicted life, and a project to rewind the units and upgrade the powerhouse auxiliary equipment has been delayed indefinitely. The preliminary report of the July 31<sup>st</sup> incident suggests a phase to phase fault on the MPH Unit 2 generator step-up transformer was the cause of MPH Unit 2 tripping off-line. Repair of the buswork and bushings on the step-up transformer is needed to restore MPH Unit 2 to service.

A failure of MPH Unit 1 would again result in restricted water deliveries from Hetch Hetchy for an unknown period of time. This reduction in delivery rate impacts the Regional Water System's operations and results in ramping up of water treatment facilities, notifying customers of changes in operations, and poses risk to water supply for the 2.7 million Regional Water System customers. The reliable delivery of water is an essential public service.

- Edwin M. Lee  
Mayor
- Anson Moran  
President
- Ike Kwon  
Vice President
- Ann Moller Coen  
Commissioner
- Francesca Viator  
Commissioner
- Vince Courtney  
Commissioner
- Harlan L. Kelly, Jr.  
General Manager

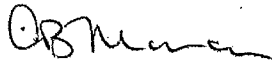


According to Chapter 6.60 of the Administrative Code, an "actual emergency" means a sudden, unforeseeable and unexpected occurrence involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of or damage to, life, health property or essential public services. An "actual emergency" shall also mean the discovery of any condition involving a clear and imminent danger to public health or safety, demanding immediate action."

This request for emergency declaration is for contract resources to repair the buswork and bushings on the MPH Unit 2 generator step-up transformer which will restore it to service. The lead time for new bushings is approximately 24 weeks. The work needs to occur as soon as possible and is beyond the capabilities of City forces. The cost is not anticipated to exceed \$0.4 million.

I am therefore declaring the existence of an emergency. I trust that this meets with your concurrence and approval.

CONCUR AND APPROVE:



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Anson Moran – President,  
San Francisco Public Utilities Commission

cc:

I. Kwon  
V. Courtney  
Mocc File

A. Moller Caen  
S. Ritchie

F. Vietor  
M. Hannaford



September 22, 2017

The Honorable Ben Rosenfield  
 Controller  
 City and County of San Francisco  
 1 Dr. Carlton B. Goodlett Place, Room 316  
 San Francisco, CA 94102

**Subject: Emergency Declaration – Repair the Moccasin – Total Estimated Cost Not to Exceed \$400,000**

Dear Controller Rosenfield:

Attached please find an original resolution that requires your signature. The resolution approves a Declaration of Emergency for a contract of an amount not-to-exceed \$400,000 to repair the buswork and bushings on the Moccasin Powerhouse Unit 2 generator step-up transformer.

The resolution requires your signature to certify funds are available for this contract. Funds are available for this contract under:

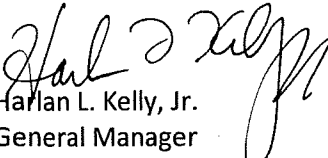
- Fund – 24980
- Department – 298646
- Authority – 15812
- Project – 10016956/ Hetchy Water - Facilities Maintenance
- Activity – 001

In this packet you will find:

- Original Board of Supervisors resolution requiring your signature; and
- A copy of a letter signed by the President of our Commission ratifying the Emergency Declaration

When you have signed this resolution, please contact John Scarpulla at (415) 934-5782 so that he can pick up the resolution and submit it for introduction to the Board of Supervisors.

Sincerely,

  
 Harlan L. Kelly, Jr.  
 General Manager

Edwin M. Lee  
 Mayor

Anson Moran  
 President

Ike Kwon  
 Vice President

Ann Moller Caen  
 Commissioner

Francesca Vietor  
 Commissioner

Vince Courtney  
 Commissioner

Harlan L. Kelly, Jr.  
 General Manager





**San Francisco**  
**Water Power Sewer**  
 Services of the San Francisco Public Utilities Commission

525 Golden Gate Avenue, 13th Floor  
 San Francisco, CA 94102  
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 BOARD OF SUPERVISORS  
 SAN FRANCISCO

2017 SEP 25 AM 9:56

**TO:** Angela Calvillo, Clerk of the Board *AC*

**FROM:** John Scarpulla, Policy and Government Affairs

**DATE:** September 25, 2017

**SUBJECT:** Emergency Declaration – Repair the Moccasin Powerhouse Unit 2 Generator Step-up Transformer- Total Estimated Cost Not to Exceed \$400,000

Attached please find an original and one copy of a proposed resolution approving an emergency declaration of the San Francisco Public Utilities Commission (SFPUC) pursuant to San Francisco Administrative Code, Section 6.60, to repair the buswork and bushings on the Moccasin Powerhouse Unit 2 generator step-up transformer, with a total estimated cost not to exceed \$400,000.

The following is a list of accompanying documents (2 sets):

1. Board of Supervisors Resolution
2. Letter from the PUC Commission President Ratifying Declaration
3. Form SFEC-126

Please contact John Scarpulla at (415) 934-5782 if you need additional information on these items.

Edwin M. Lee  
 Mayor

Francesca Vietor  
 President

Anson Moran  
 Vice President

Ann Moller Caen  
 Commissioner

Vince Courtney  
 Commissioner

Ike Kwon  
 Commissioner

Harlan L. Kelly, Jr.  
 General Manager

