



**Ready or Not – Disaster Preparedness and Resiliency
Managing Power Supply Uncertainty**

*BACWA Meeting, May 2026
Mariana Chavez-Vazquez, General Manager*



**San José-
Santa Clara
Regional
Wastewater
Facility**

Overview - San Jose Santa Clara RWF

- **Regional Wastewater Facility** providing wastewater treatment to the cities of **San Jose, Santa Clara, Milpitas, Los Gatos, Monte Sereno, Cupertino Sanitary District and Burbank**, owned by San Jose and Santa Clara and operated by ESD
- ESD is a leader in environmental issues, focusing on exemplary regulatory compliance and the protection of the environment in the Lower South Bay, **removing significant amount of nitrogen since 1998**
- Largest CIP in the history of San Jose while keeping RWF operational and in compliance with all regulations.



**1.5 Million
Residents
17,000
Businesses**



**100 MGD
Wastewater
Treated per
year**



**16 MGD
Recycled
water**



**Partnership
with
Purified
Water**



**All biogas
used for
power
production**



**275 wet TPD
biosolids
beneficially
reused by
2026**

The Discharger shall maintain a Contingency Plan

Contingency Plan for Operation Under Emergency Conditions

NPDES #CA-0037842

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
 SAN FRANCISCO BAY REGION
 1515 Clay Street, Suite 1400, Oakland, California 94612
 waterboards.ca.gov/sanfranciscobay

ORDER R2-2025-0027
 NPDES PERMIT CA0037842

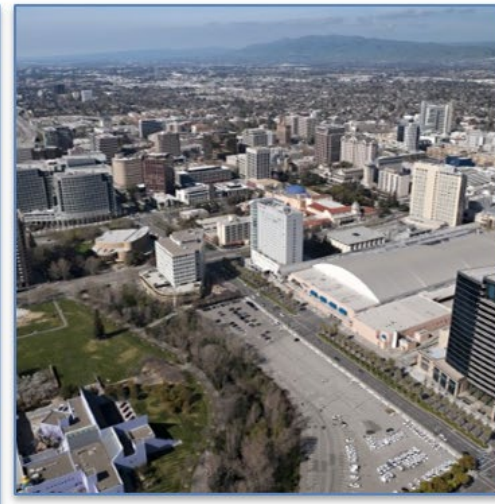
The following Discharger is subject to the waste discharge requirements (WDRs) set forth in this Order:

Discharger: City of San José, City of Santa Clara, and San José/Santa Clara Water Pollution Control Plant, a joint powers authority
 Name of Facility: San José/Santa Clara Water Pollution Control Plant, City of San José sanitary sewer system, City of Santa Clara sanitary sewer system
 Facility Address: 700 Los Esteros Road, San José, CA 95134, Santa Clara County

Table 1. Discharge Location			
Discharge Point	Effluent Description	Discharge Point Latitude (North-South)	Discharge Point Longitude (East-West)
001	Advanced Secondary Treated Municipal Wastewater	37.4398°	-122.9581°
			Receiving Water
			Artesian Slough (Tributary to South San Francisco Bay via Coyote Creek)

This Order was adopted on: December 10, 2025
 This Order shall become effective on: February 1, 2026
 This Order shall expire on: January 31, 2031
 CWQS regulatory measure number: 463823

The Discharger shall file a Report of Waste Discharge as an application for updated WDRs in accordance with title 23, California Code of Regulations, and an application for reassurance of a National Pollutant Discharge Elimination System (NPDES) permit no later than April 30, 2030. The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, San Francisco Bay Region (Regional Water Board) have classified this discharge as "major."



Power Loss Response – Ideal Situation

UNEXPECTED POWER LOSS. PREPARED. RESPOND. PROTECT.

Our mission continues: Protect public health and the environment.



**POWER LOSS
DETECTED**
14:32



ALERTS ACTIVATED
Operators notified
across the plant



SYSTEMS ASSESSED
Critical processes
evaluated



**BACKUP POWER
INITIATED**
Onsite generators
online



RESPONSE IN ACTION
Teams deployed
Protocols followed



**CONTINUITY
MAINTAINED**
Treatment continues.
Community protected.



CRITICAL PROCESSES STATUS

✓ INFLUENT PUMP STATIONS	ONLINE
✓ PRIMARY TREATMENT	ONLINE
✓ AERATION BASINS	ONLINE
✓ SECONDARY CLARIFIERS	ONLINE
✓ DISINFECTION	ONLINE
✓ SLUDGE PROCESSING	ONLINE
GENERATORS ONLINE	LOAD: 72%

RESPONSE PLAN

- Assess
- Communicate
- Stabilize
- Monitor
- Document
- Recover

WE ARE PREPARED



TRAINED PEOPLE
Cross-trained teams
ready to respond



RELIABLE EQUIPMENT
Generators tested
and maintained



PROVEN PLANS
Emergency plans
reviewed and practiced



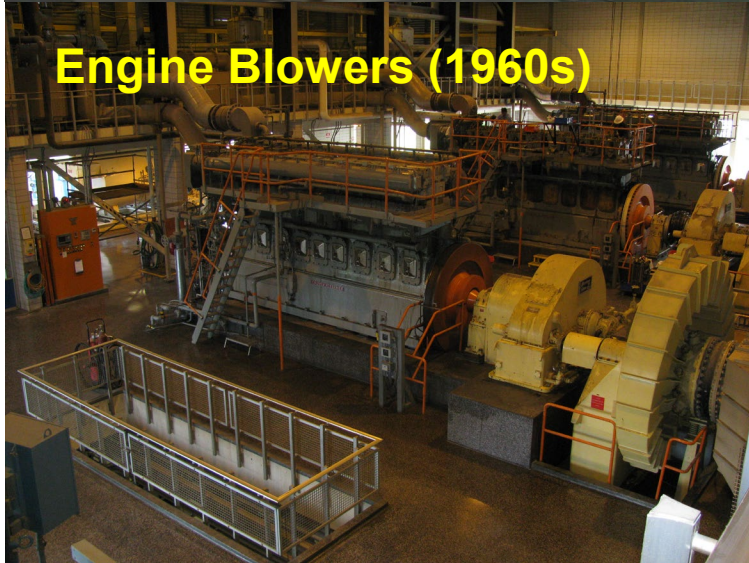
STRONG COMMUNICATION
Redundant systems keep
us connected



COMMITTED TO OUR COMMUNITY
We adapt. We respond.
We protect.

Prepared for the unexpected.
Focused on what matters most.

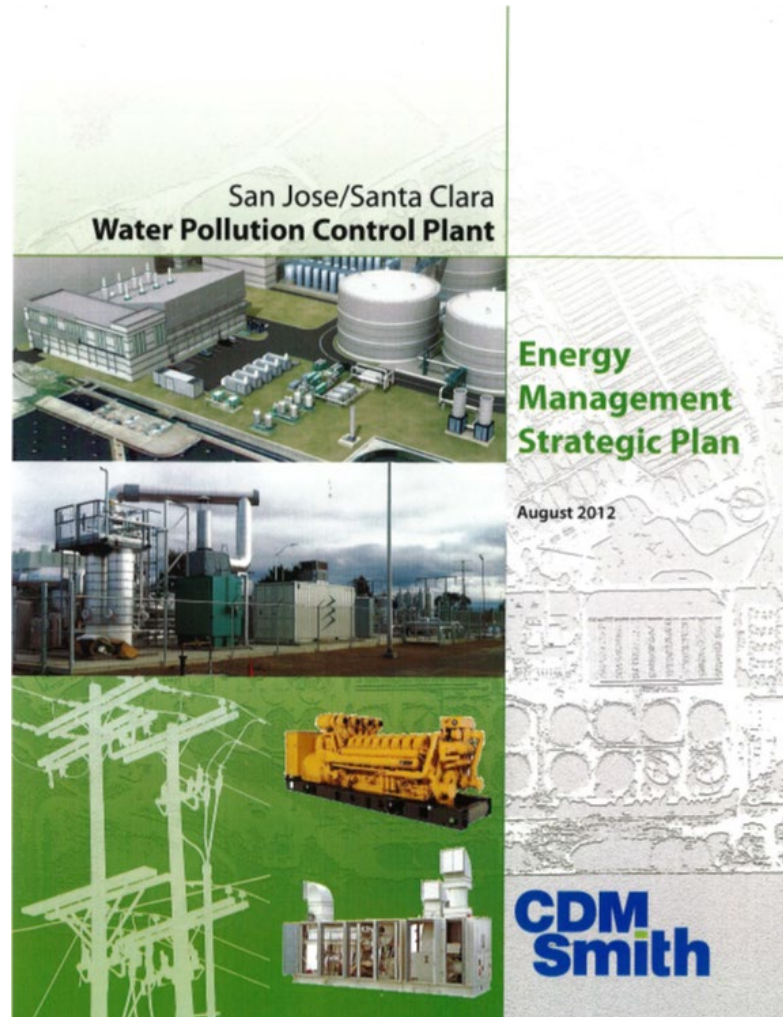
Where were we in our preparedness journey in 2012?



Where were we in our preparedness journey in 2012?

- The RWF had a “branch” distribution system that would have large breakers trip, requiring them to be reclosed under stressful conditions
- This process was very complicated, took a great deal of time, only to provide a small amount of total energy needed, and subjected the responding team members to major challenges when trying to restore service
- Off-hour events required calling in electricians, instrumentation, and others, taking more time

Strategic Plan 2012 – What was needed?



- Built upon PMP
- Evaluated energy system and future projects needed
- Developed an Energy Management Plan to meet future energy goals
- Identified need for a new cogeneration facility, EDG and numerous ancillary improvements

Gas Holder Project - \$2.85M, completed in 2015



Technical Advancements

- ✓ Larger Capacity
- ✓ Enhanced control for blending system – DG and NG
- ✓ Gas Holder Level controls blending ratio

Gas Compressor Facility - \$13M, completed 2016



Technical Advancements

- ✓ Replaced outdated technology
- ✓ 2 gas compressors, each @ 2000 scfm, 60 psi
- ✓ Enhanced gas cleaning system

Emergency Diesel Generators - \$15M, Completed 2017



Technical Advancements

- ✓ 4 @ 3 MW each (12 MW total), space for future unit
- ✓ Each generator has 650-gallon diesel day tank and 1000-gallon diesel exhaust fluid tank
- ✓ 2 @ 25,000-gallon diesel fuel storage tanks.
- ✓ Outdoor switchgear with control enclosure and network communication system.
- ✓ Modification of the existing synchronizing system for the M3 & M4 switchgears
- ✓ Meet EPA Interim Tier 4i emissions standards

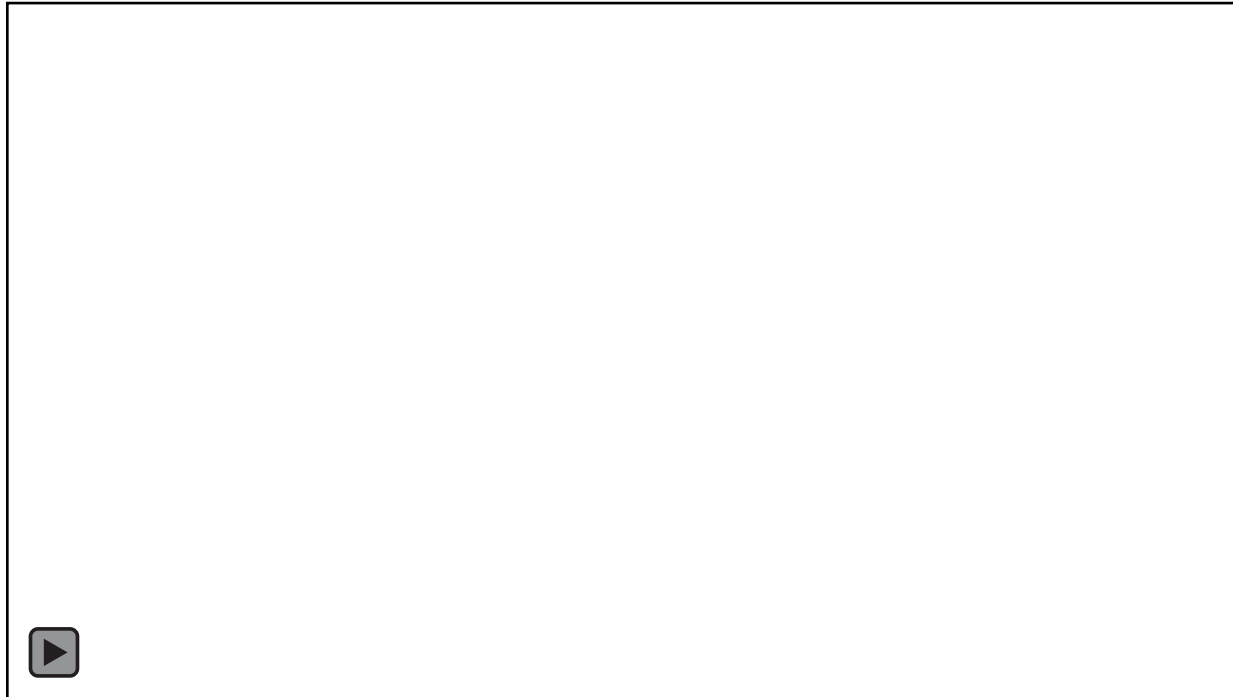
Cogeneration Facility (CHP) - \$92M, completed 2020



Technical Advancements

- ✓ 4 Engines @ 3.5 MW each
- ✓ Space for future engine
- ✓ DG Treatment for siloxane and H₂S
- ✓ Back-up DG Boilers
- ✓ Full communication with EMGs.
- ✓ Enhanced Exhaust Control
- ✓ Potential Landfill Gas Use

Gas collection upgrades – Part of Anaerobic Digestion Project, completed 2022



Technical Advancements

- ✓ Increased reliability for gas collection system
- ✓ Piping designed for future gas productions including peaking factors
- ✓ All flammables out of the tunnels (DG, NG, Diesel)
- ✓ New Flare system

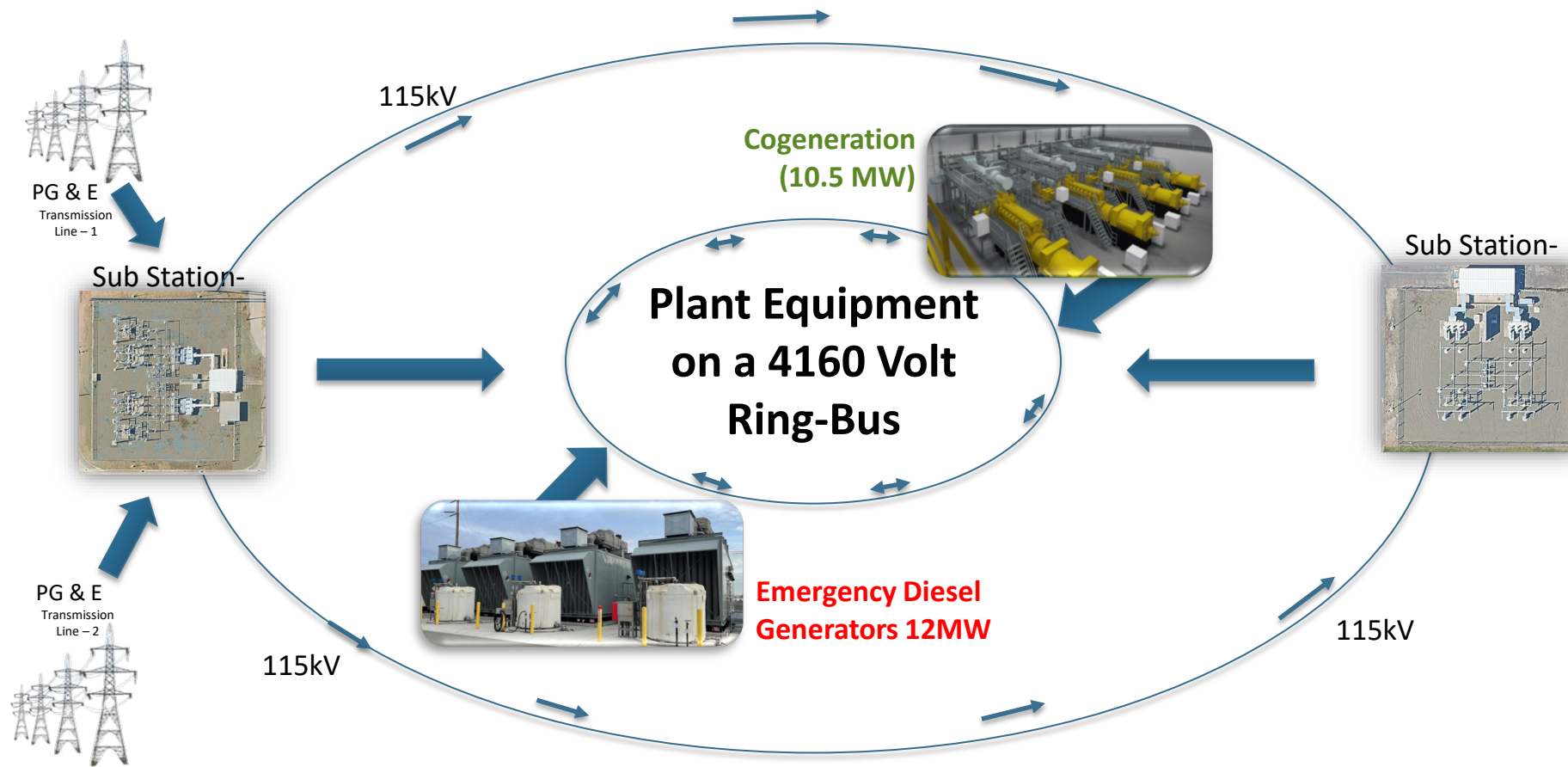
Blower Improvements Project - \$33M, completed 2024



Technical Advancements

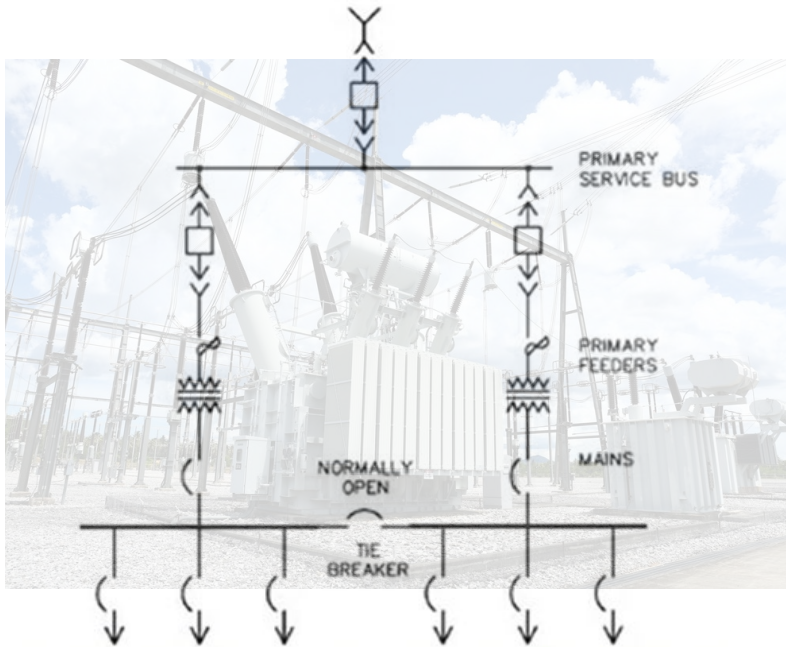
- ✓ Replaced old engine blowers with electrical blowers
- ✓ 3 @ 4000 HP, 90K SCFM Each and 5 @ 2250 HP, 50K SCFM
- ✓ Compressing Air is the most expensive part of all the RWFs treatment Processes

Reliable RWF Electrical Distribution 2026 – Simplified (\$180M investment)



Power Loss Events - Today

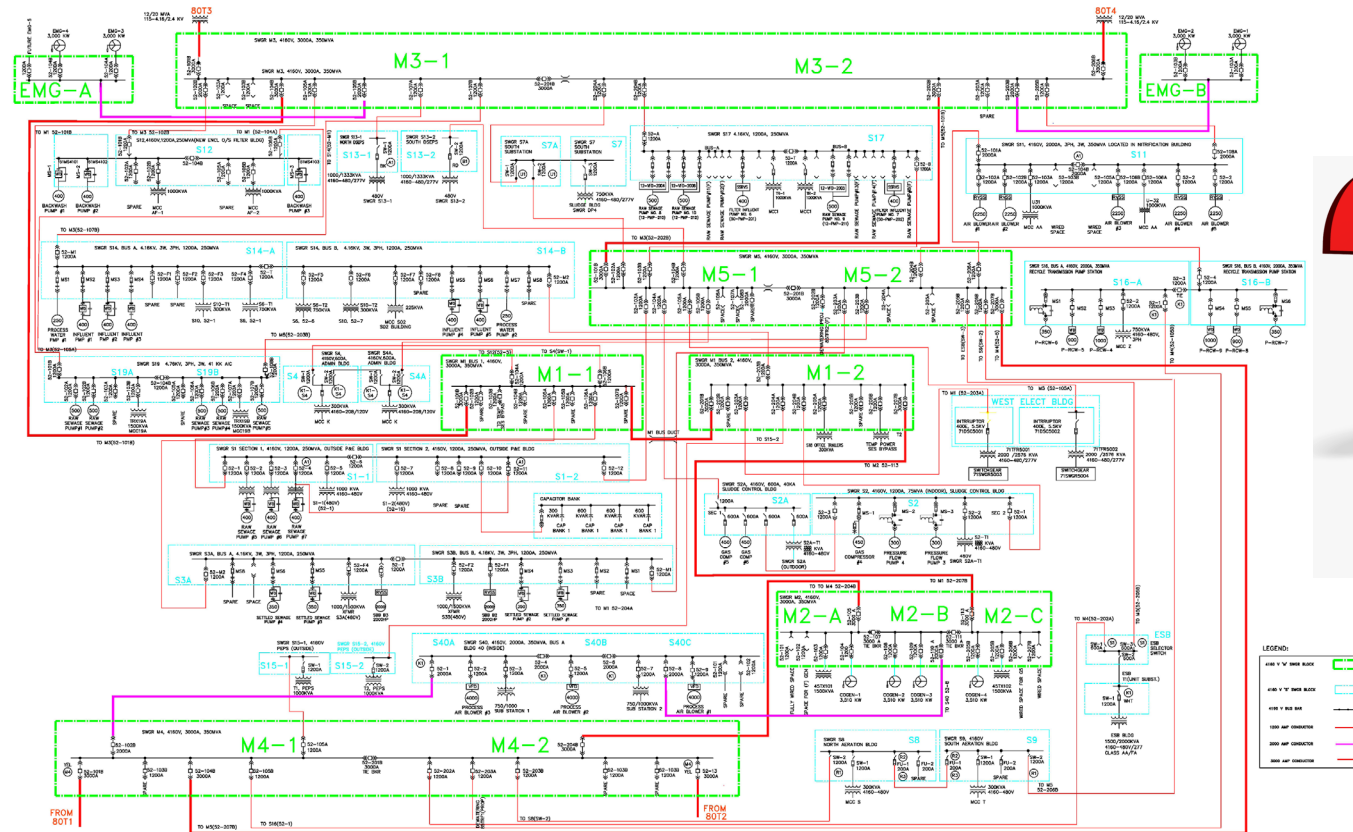
5.1.5 Secondary-Selective Circuit Arrangement (Double-Ended Substation with Single Tie)



- The RWF has redundant transmission lines from PG&E, North and South 115kV supplies that can be switched if a major transmission line is lost.
- The RWF has two Sub-Stations to receive PG&E transmission-level line voltage.
- The RWF has two 115KV pathways to feed each Sub-Station
- An earlier project created a redundant medium voltage ring-bus that can be fed from either substation, nearly eliminating all single points of failure for electrical supply to major MCCs
- Dual feed MCCs with tie breakers are installed to ensure equipment can remain online while preventative and corrective maintenance takes place

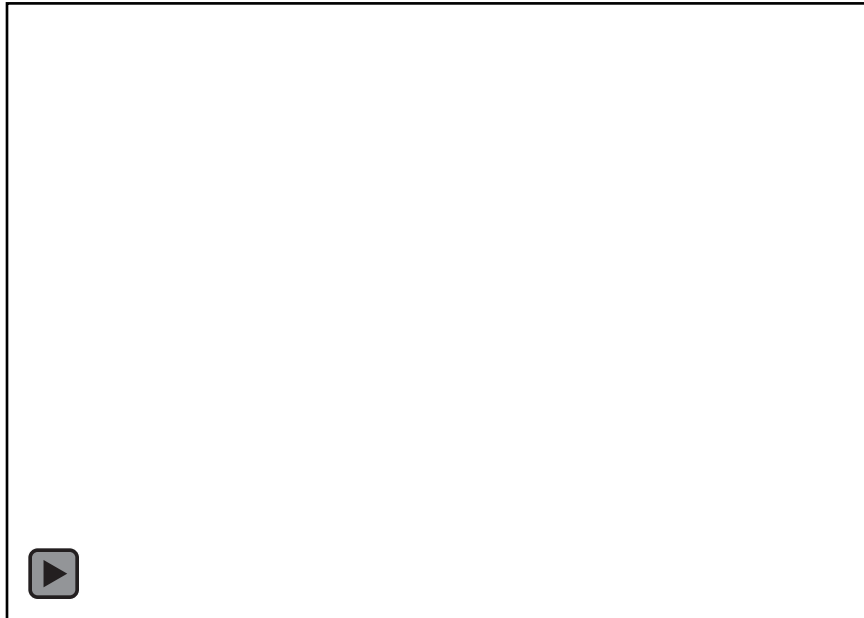
RWF Electrical Distribution - Actual

RWF ELECTRICAL 4.16KV SINGLE LINE BLOCK DIAGRAM



BALDEV

Power Loss – Reality Check



- Even with the massive increase in reliability and redundant systems, things do not go as planned
- Everyone is OK
- The check on the plant and processes post-event is SUPER CRITICAL
- OPEN transitions are the most uncertain and often result in major and/or minor system failures that may go unfound until... see vid
- Buy the best UPSs that you can, service and test them regularly.

Emergency Diesel Engine Generators (12MW)



- **The Benefits**
- Dedicated Back-up Power Supply
- Starts when a power loss is detected and is online in ~15 seconds
- 3 Megawatts each for a total of 12MW
- Most, if not all, of the power needed to run the RWF can be supplied by the Emergency Generators – for now!
- **The Challenge**
- Limited diesel fuel storage (48 hours, MAX)
- Requires emergency fuel refilling contracts
- Re-starting equipment requires careful coordination

Cogeneration used to fall offline during a power loss... Now...



The RWF has worked hard to be able to run in island mode... We now can run both our cogeneration plant and our emergency generators in a combination that keeps the power systems stable and uses the available fuels most efficiently. This is a great accomplishment by our Power and Air team.

Power Loss – Reality Check – How well do you know your plan?

HOW MANY OF US HAVE READ OUR CAR'S OWNER'S MANUAL?

SURVEY SAYS... ONLY 16% OF DRIVERS HAVE READ THEIR OWNER'S MANUAL FROM COVER TO COVER.*

*Source: Harris Poll

OWNER'S MANUAL

It's in there for a reason.
Important safety info, features, maintenance tips and more.

Know your car. Drive safer.
Understanding your vehicle helps protect you and others.

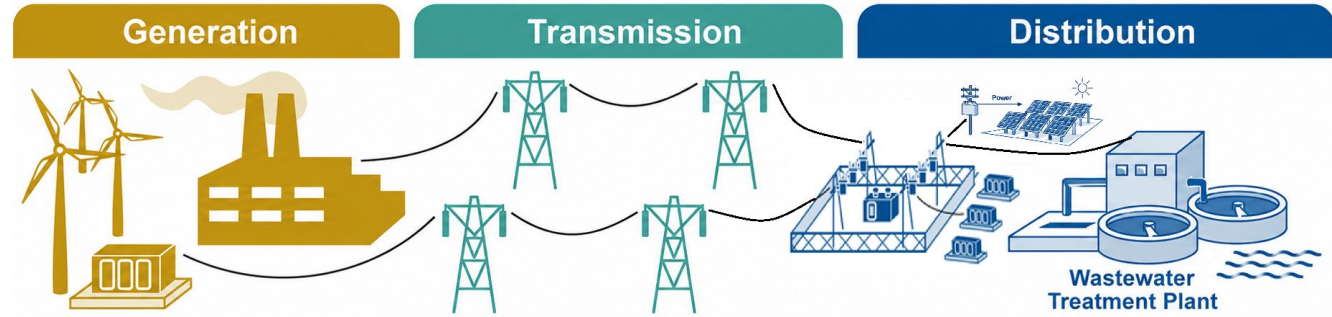
Save time. Save money.
Avoid costly mistakes and unnecessary repairs.

Get the most out of your car.
Features and technology work best when you know how to use them.

TAKE 20 MINUTES THAT COULD SAVE YOU THOUSANDS.
OPEN IT. READ IT. DRIVE SMART.

- Written plans must be reviewed, discussed, and tested with post-test discussions and updates
- Written plans are often out of date
- Written plans may not reflect a situation or cover a response for an event
- Actual events are too infrequent for active memory
- Nuances between events can change the response
- Root cause analysis may not be completed, resulting in improper assessments
- If a utility has escaped serious impacts from past events, the drive to assess, design, and construct robust backup power systems may hamper efforts

RWF Electrical Distribution Resilience – The Future





San José-Santa Clara
Regional Wastewater Facility

Questions?

