

2019 SUMMER OUTLOOK FOR WATER AND ELECTRIC RESOURCES AND RELIABILITY

Board of Public Utilities
June 24, 2019

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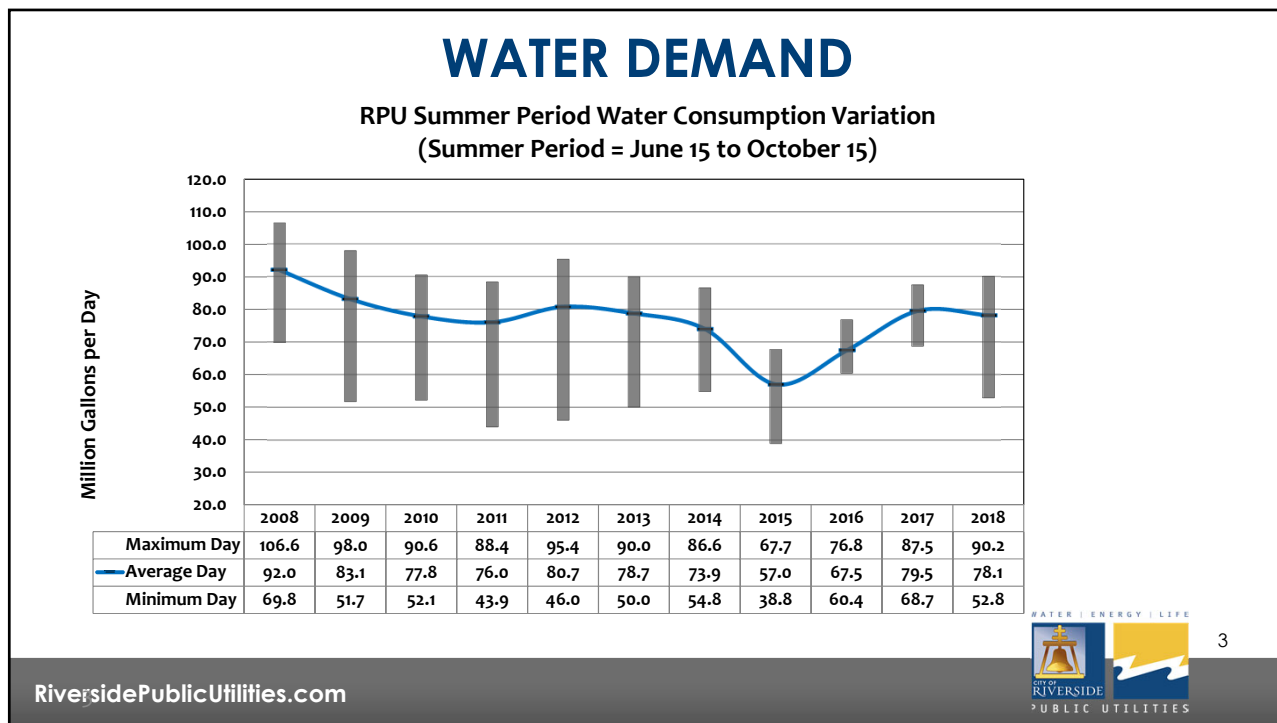
OVERVIEW


1. Water demand and system readiness
2. Electric system readiness
3. Electric projections and natural gas operations
4. Demand response and customer engagement

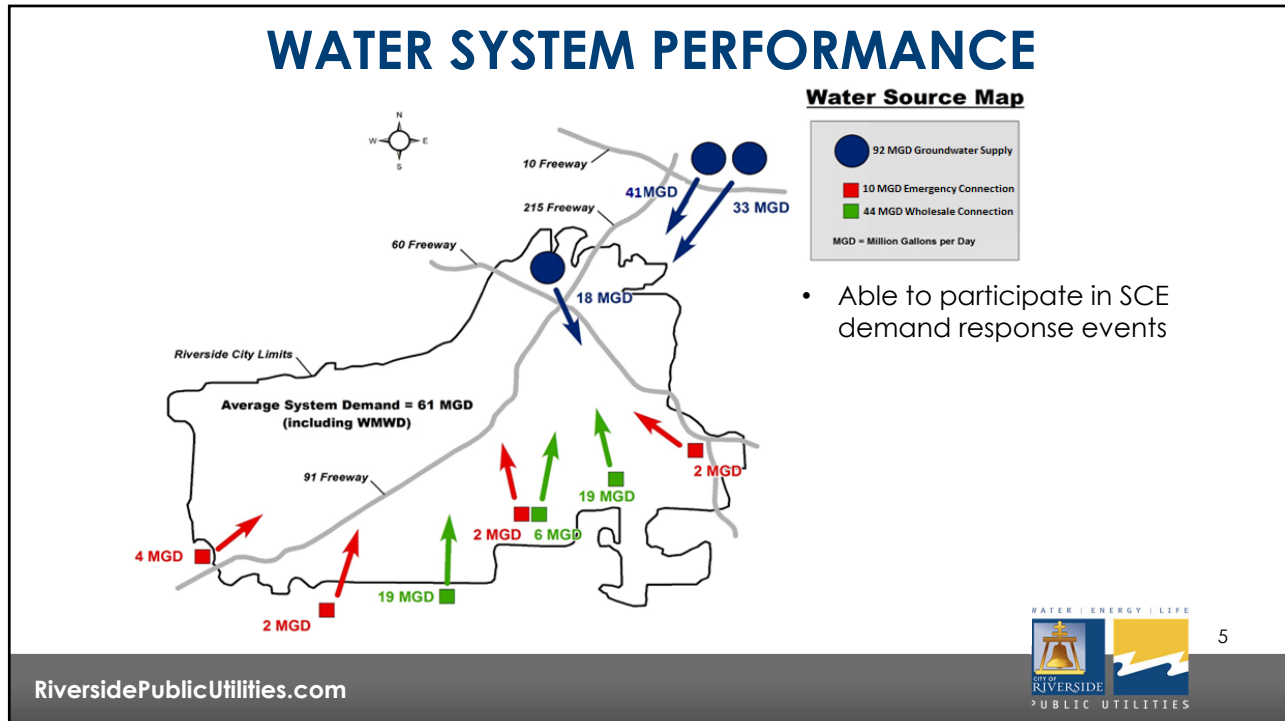
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- ## WATER DEMAND (con't)
1. Total water use is rebounding since 2016 after a downward trend from 2012 to 2015; currently remains below 2013 baseline.
 2. Per capita water use increased in summer 2018 by 1 GPCD due to warmer overall summer temperatures, no precipitation and the rescinding of the Drought Emergency Regulation.
 3. Anticipated peak demand is 90 Million Gallons per Day.
 4. Lower demand and excess water rights facilitate wholesale deliveries to Western Municipal Water District up to 2,000 to 3,000 AF in calendar year 2019.
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WATER SYSTEM PREPARATIONS

1. Well rehabilitations to restore production capacity
 - a. Stiles
 - b. Garner 5
 - c. Cooley J
 - d. Scheuer
 - e. Raub 7
 - f. Van Buren 2
 - g. Garner 7
 - h. Garner D
 - i. Brunton



Stiles Well
(Before)



Stiles Well
(After)

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WATER SYSTEM PREPARATIONS (con't)

- 2. Boosters and Pipelines
 - a. Pump and motor preventative maintenance
 - b. Techite pipe transmission main replacement
 - c. Iowa Ave. supply main replacement



Garner 5 Well – New Column Pipe and Pump

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PREPARATIONS FOR ELECTRIC SYSTEM READINESS -- EMERGENCY RESPONSE



Mobile Substations



Mobile Switchgear



Upgraded Response Fleet

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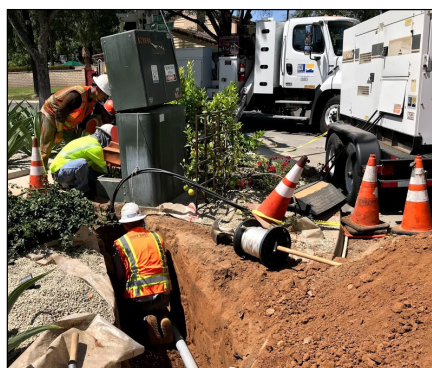
PREPARATIONS FOR FIELD CREWS

1. Actions on days forecast over 100F
 - a. No scheduled interruptions to customers
 - b. Crews working in the evening
2. Stand-by electric crews on weekends from Memorial Day to Labor Day
3. Contract crews available through expanded Contractors' Panel

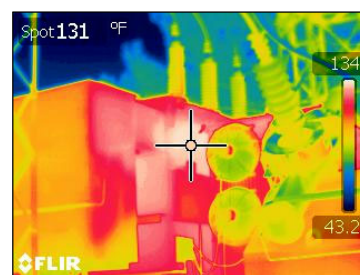
PREPARATIONS FOR ELECTRIC SYSTEM READINESS – RELIABILITY UPGRADES



Substation Equipment Upgrades



Cable Replacement



Infrared Scanning of Equipment Conditions

PREPARATIONS FOR ELECTRIC SYSTEM READINESS – RELIABILITY UPGRADES (con't)

1. Substations (2018/19)
 - a. Replaced six 40+ years old 69kV circuit breakers with new gas circuit breaker
 - b. Replaced two 40+ years old substation transformers
 - c. Upgraded and reconditioned 11 substation transformers
 - d. Replaced eight substation capacitor banks
 - e. Upgraded automation system in 3 substations
 - f. Replaced 128 electromechanical relays with 32 digital relays



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PREPARATIONS FOR ELECTRIC SYSTEM READINESS – RELIABILITY UPGRADES (con't)

2. Cable Replacement Program (2018/19):
 - a. 4.48 miles of cable replaced
 - b. 1.65 miles of cable replacement currently in construction
 - c. 3.4 miles of cable to be tested and evaluated as candidates for cable rejuvenation
3. 4 to 12kV Conversions (2018/19):
 - a. Two 4kV circuits replaced/retired
 - b. Three additional projects issued to construction, including two circuit conversions and a new 12kV backbone



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PREPARATIONS FOR ELECTRIC SYSTEM READINESS – RELIABILITY UPGRADES (con't)

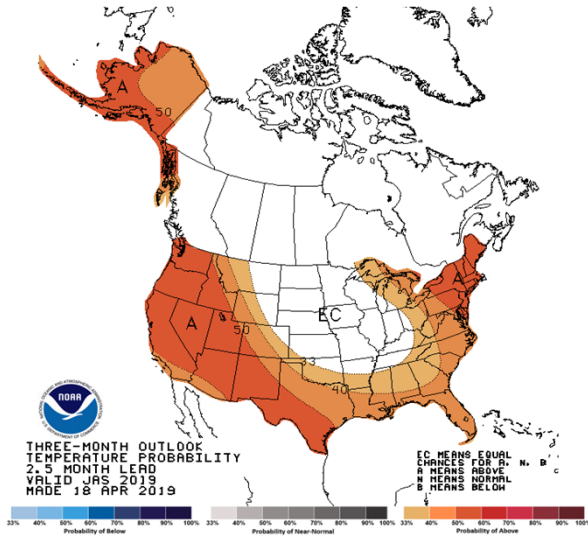
4. Wood Pole Replacements (2018/19):
 - a. 187 poles replaced
 - b. 60 additional poles scheduled for replacement this FY
 - c. 250 poles contracted for replacement next FY

PREPARATIONS FOR ELECTRIC SYSTEM READINESS – SYSTEM OPTIMIZATION FOR SUMMER

Ensure that Electric Grid is in most robust configuration to endure the extra stresses of summer loading:

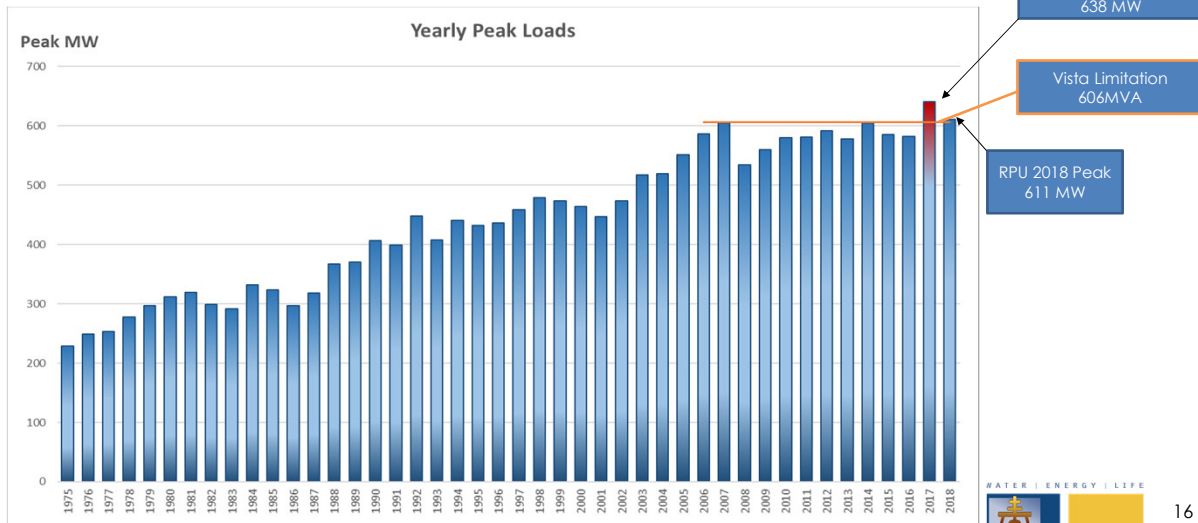
1. Wrap up large projects that have an impact on system reliability
2. Perform switching to configure 69kV transmission system into optimal state
3. Defer routine maintenance on 69kV system until fall (“No Touch Rule”)

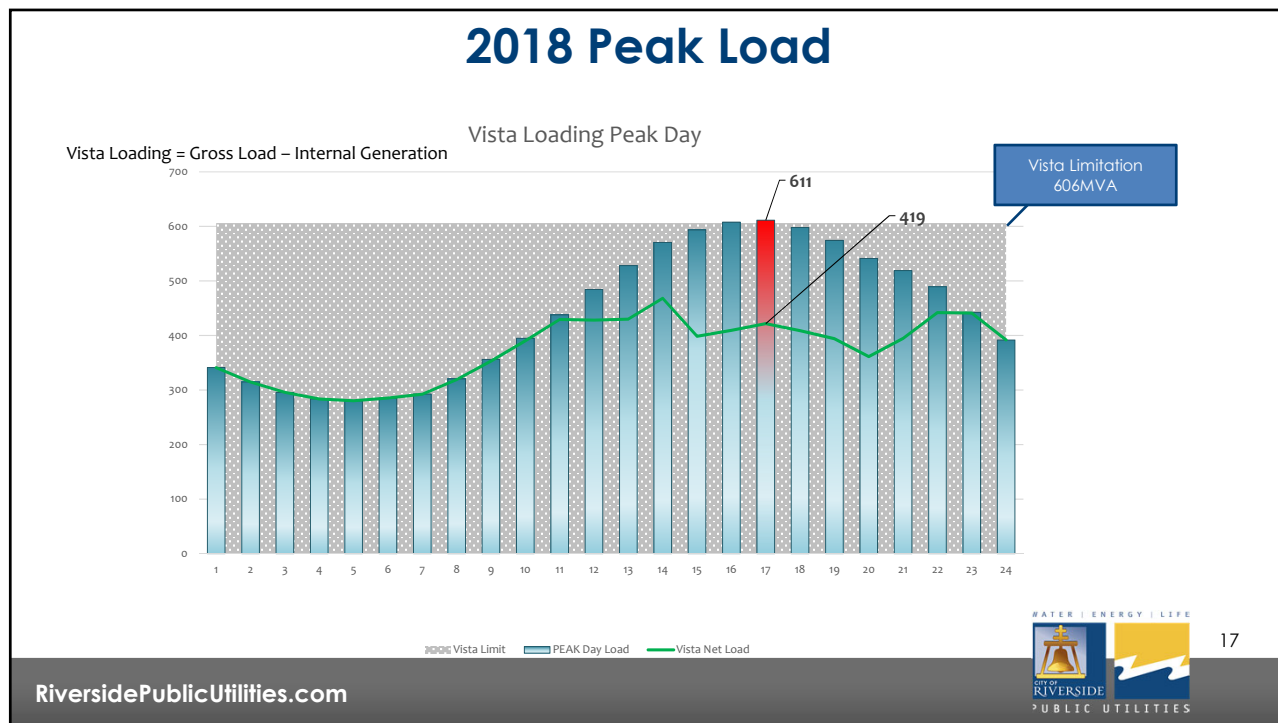
NOAA Long-Range Weather Forecasts



1. NOAA weather forecast for July, August, September 2019
2. 50% probability that temperatures in the Southwest will be above normal
3. Riverside Average high in °F:
 - a. July – 94°
 - b. August - 94°
 - c. September - 91°
4. Riverside 2019 peak energy demand forecast is similar to 2018

Yearly Peak Loads





2019 CAISO Summer Assessment

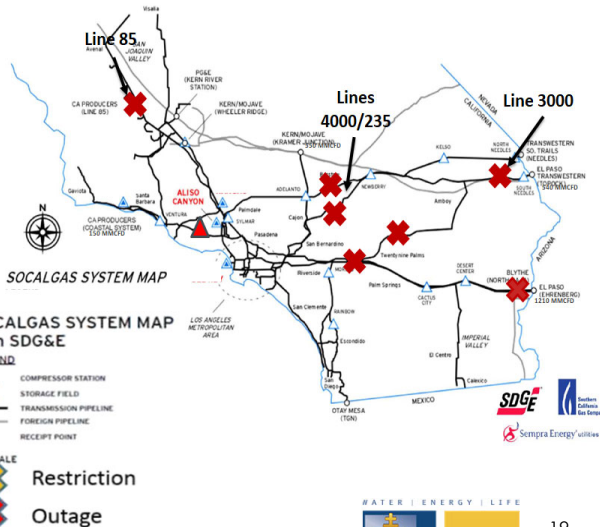
CAISO's Summer Assessment supply and demand conditions

1. Warmer than average temperatures
2. Hydro conditions at 162% of normal statewide
3. Potential of operating risks during late afternoon when solar generation output decreases and system demand is still high
4. Significant retirement of dispatchable generation
5. Limitations in place on SoCalGas's system

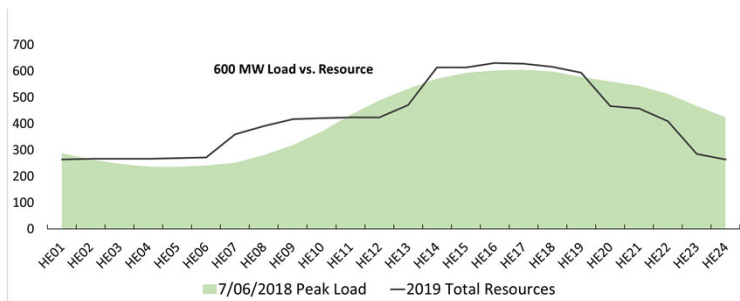
SOUTHERN CA NATURAL GAS DELIVERY RISK

So Cal Gas System Update

1. Aliso Canyon Storage withdrawal capability same as last summer – **“asset of last resort”**
2. Outages on key natural gas pipelines has reduced flowing supply into Southern California
3. SoCalGas and CAISO continue to work to improve Gas-Electric coordination
4. **Possibility of gas curtailments remain in summer 2019**



2019 Resources to Load Position



Purchases for Q3 2019	
Heavy Load	100 MW's
Light Load	25 MW's
Natural Gas	10,000 mmBtu/day
Natural Gas Daily Call Option	5,000 mmBtu/day

1. Summer 2019 hedges include Heavy Load Energy, Light Load Energy, daily Natural Gas, and a daily Natural Gas Call Option
2. On High Load days, RPU's load may still be exposed during later hours, this exposure can be mitigated daily by optimizing internal generation or additional power purchases
3. RPU uses an average of 10,000mmBtu per day of natural gas in Q3, upwards of 20,000 mmBtu per day during heatwaves

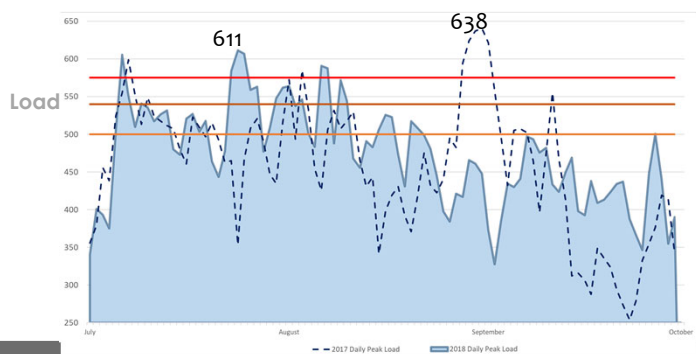
RPU SCHEDULING PROTOCOLS AND PROCEDURES

Q3 2017 Actuals

Peak Load (MWh)	Number of Days	RERC Units Required
500 - 539	24	1
540 - 574	10	2
575+	7	4

Q3 2018 Actuals

Peak Load (MWh)	Number of Days	RERC Units Required
500 - 539	20	1
540 - 574	9	2
575+	6	4



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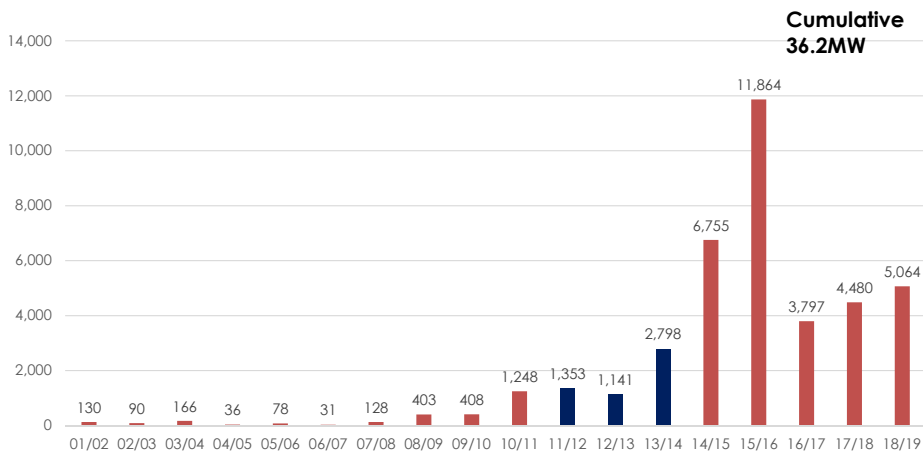
Internal RPU Coordination

- Internal Reliability Procedures:** Coordination with CAISO to mitigate RPU's unique risk and gas-electric needs
- Natural Gas Curtailment Procedure:** Coordination focused on effective communication between RPU departments to minimize impact of potential natural gas curtailment
- Power Partners:** Voluntary Demand Response Program



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PV SOLAR IN RIVERSIDE



Note: FY 18/19 data through April 2019



Tequesquite 7.5 MW
Online 9/20/2015



Approx. 7MW Online
12/11/2014



1 MW Online
11/20/2015



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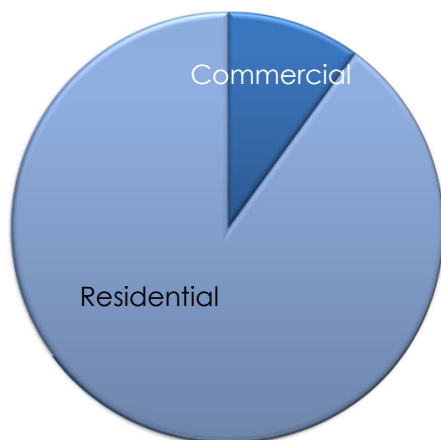
CUSTOMER COMMUNICATIONS

1. July Back-of-Bill
2. Key Accounts
3. Good Morning Riverside – July sponsorship
4. RiversidePublicUtilities.com – Power Partner sign-up
5. GreenRiverside.com and BlueRiverside.com

CUSTOMER COMMUNICATIONS (con't)

6. Explore Riverside Magazine Summer issue
7. Ads – Chamber Communicator
8. Social Media (Facebook, Twitter, and Instagram)
9. Outreach events throughout the summer
10. Digital media via City of Riverside portals – freeway signage, RiversideCA.gov and E-mail signature

POWER PARTNERS PROGRAM



10% of RPU's customer base is Commercial or Industrial

65% of RPU's electric load comes from the 10% of Commercial or Industrial customers

POWER PARTNERS PROGRAM (con't)

1. Voluntary load shed/shift program targeting RPU's large industrial customers
2. Implemented in 2012 in response to San Onofre Nuclear (SONGS) closure
3. Customers agree to voluntarily curtail load for regional power supply issues

POWER PARTNERS PROGRAM (con't)

1. Modified Program in response to Aliso Canyon
2. Events would include gas curtailments that threaten RPU's internal generation
3. Customers would agree to voluntarily curtail a maximum number of times during June-October
4. Load shedding anticipated for fixed durations during a power supply event

POWER PARTNERS POSSIBLE MODIFICATIONS

1. Change from a voluntary program to an incentivized program
2. Provide incentives based on actual load curtailed in an emergency along with penalties for not meeting load shed commitments
3. Develop an interruptible rate for electric similar to interruptible water rates

PREVIOUS POWER PARTNER PARTICIPANTS

1. RUSD
2. Collins Aerospace
3. Superform
4. County of Riverside
5. MBM
6. GAR Labs
7. Stater Bros.
8. Manheim
9. Toro
10. Bourns Inc.
11. UCR

21 Megawatts of Potential Voluntary Load Shedding

RECOMMENDATION

That the Board of Public Utilities receive this presentation on the 2019 Summer Outlook for water and electric resources and reliability.