

SUMMER 2018 OUTLOOK

Board of Public Utilities
June 25, 2018

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OUTLINE

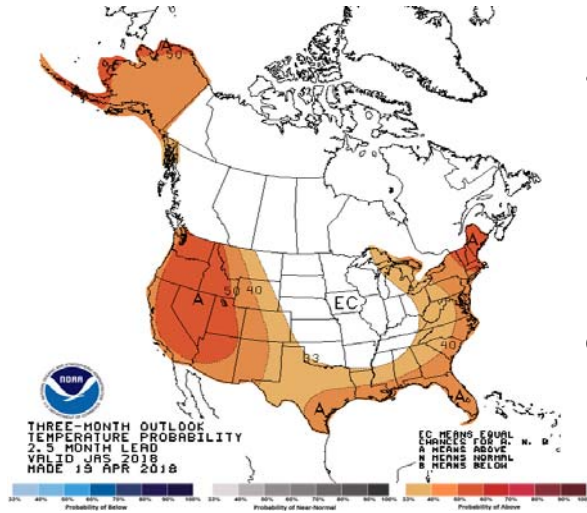
1. Electric projections and natural gas operations
2. Electric system readiness
3. Water demand and system readiness

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NOAA LONG-RANGE WEATHER FORECASTS



- NOAA weather forecast for July, August, September 2018
- 50% probability that temperatures in the Southwest will be above normal
- Riverside Average high in °F:
 - July – 94°
 - August - 95°
 - September - 91°

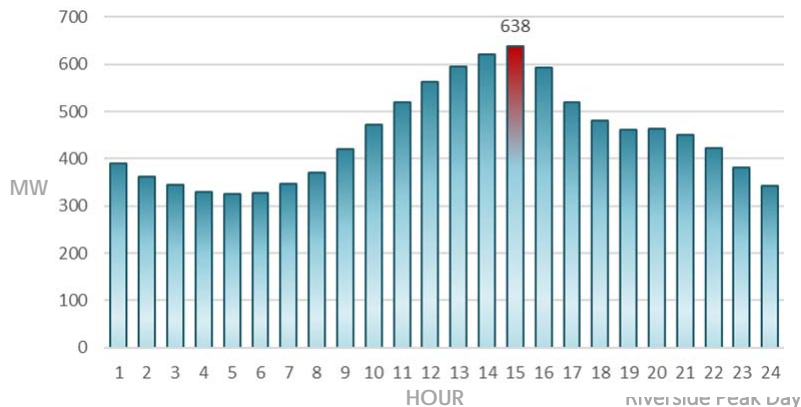
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2018 LOAD & RESOURCE FORECASTS

California 2018 Peak Energy Demand Forecasts are similar to 2017
Riverside set new all time Peak of **638.41MW** on August 31, 2017



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2018 LOAD & RESOURCE FORECASTS

CAISO's Summer Assessment forecasts tight supply conditions

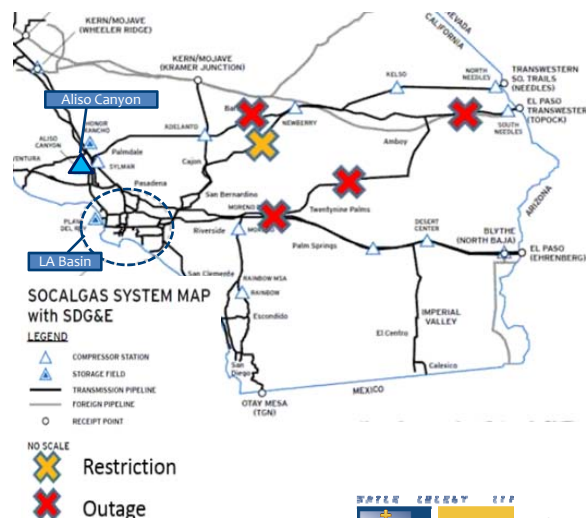
1. Warmer than average temperatures
2. Lower than average hydro conditions
3. Retirement of 800MW of dispatchable natural gas generation
4. Limitations in place on SoCalGas's system
5. ISO reports 50% chance of declaring Stage 2 Emergency for at least one hour this summer

Stage 2 - The ISO has taken all mitigating actions and is no longer able to provide its expected energy requirements. Requires ISO intervention in the market, such as ordering power plants online.

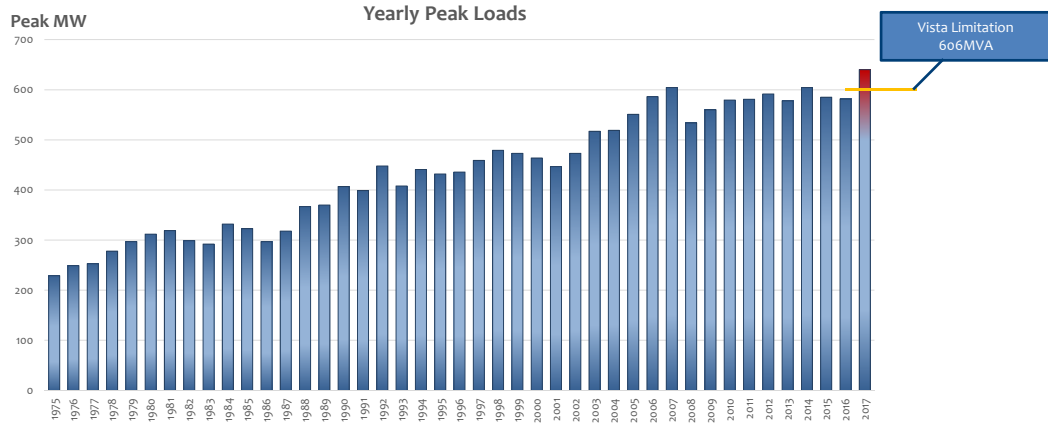
SOUTHERN CA NATURAL GAS DELIVERY RISK

So Cal Gas System Update

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



2018 LOAD & RESOURCE FORECASTS



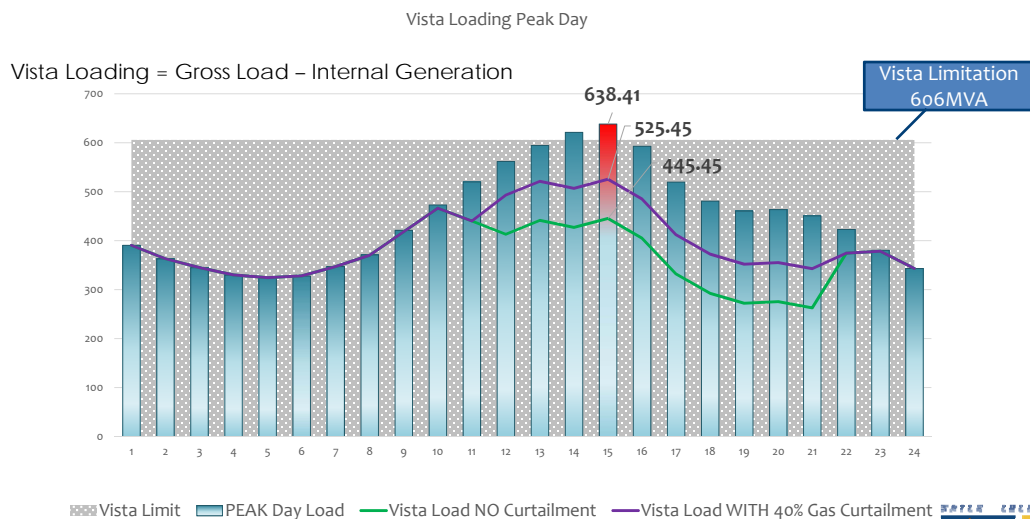
With Aliso Canyon restrictions & current outages, the risk of a natural gas curtailment to Riverside's electric generation is greater this summer than in 2017

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2018 LOAD & RESOURCE FORECASTS



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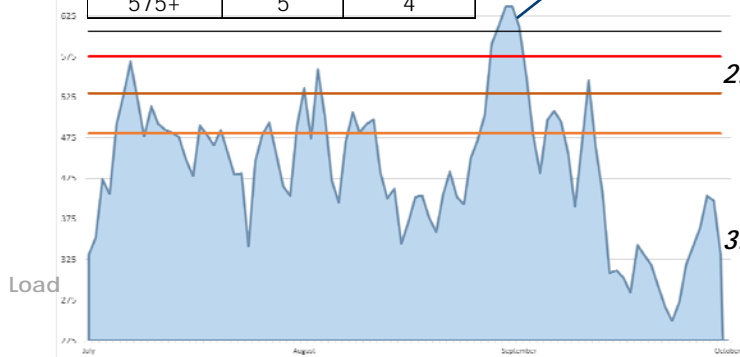


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RPU SCHEDULING PROTOCOLS AND PROCEDURES

Q3 2017

Peak Load (MWh)	Number of Days	RERC Units Required
480 - 529	20	2
530 - 574	5	3
575+	5	4



Internal RPU Coordination

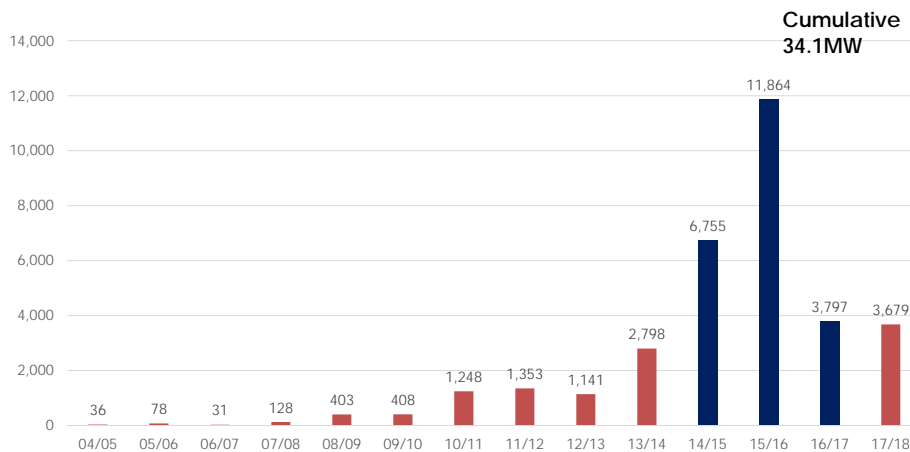
- 1. Internal Reliability Procedures:** Coordination with CAISO to mitigate RPU's unique risk and gas-electric needs.
- 2. Natural Gas Curtailment Procedure:** Coordination focused on effective communication between RPU departments to minimize impact of potential natural gas curtailment
- 3. Power Partners:**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

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PV SOLAR IN RIVERSIDE



Note: FY 17/18 data through April 2018



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. May 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

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CUSTOMER COMMUNICATIONS CONT

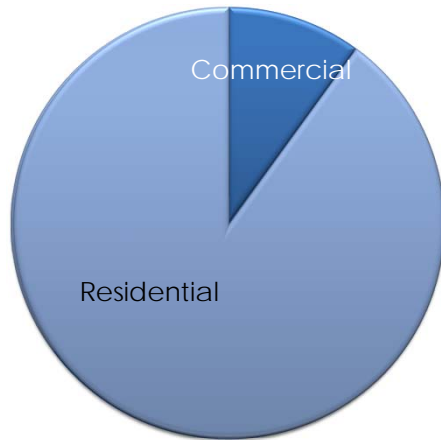
5. Explore Riverside Magazine Summer issue
6. Ads – Billboards, Chamber Communicator
7. Social Media (Facebook, Twitter and Instagram)
8. Outreach events throughout the summer
9. Digital media via City of Riverside portals – freeway signage, RiversideCA.gov and E-mail signature

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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

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 curtail load for regional power supply issues

POWER PARTNERS PROGRAM

1. Modify Program in response to Aliso Canyon
2. Events would include gas curtailments that threaten RPU's internal generation
3. Customers would agree to curtail a maximum number of times during June-October
4. Curtailments anticipated for fixed durations
5. Evaluate incentives for participation

PREVIOUS POWER PARTNER PARTICIPANTS

- | | |
|--|-----------------|
| 1. RUSD | 7. GAR Labs |
| 2. United Technologies
Aerostructures | 8. Stater Bros. |
| 3. Superform | 9. Manheim |
| 4. County of Riverside | 10. Toro |
| 5. MBM | 11. Bourns Inc. |
| 6. Flexsteel Industries | 12. UCR |

22 Megawatts of Voluntary Demand Response

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

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PREPARATIONS FOR ELECTRIC SYSTEM READINESS -- EMERGENCY RESPONSE



Mobile Substation #3 (2017)



Mobile Substation #2 (1985)



Mobile Switchgear (2015)



Mobile Substation #1 (1961)

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PREPARATIONS FOR ELECTRIC SYSTEM READINESS -- RELIABILITY UPGRADES



Switchgear
Upgrade Project



RERC GSU 1&2
Reconditioning



Line Relay Replacement
Project

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PREPARATIONS FOR ELECTRIC SYSTEM READINESS -- RELIABILITY UPGRADES

During the Last 12 months:

1. Replaced 128 Electromechanical Relays with 40 Digital Relays
2. Replaced Thirteen (13) 40+ year old 12kV Air Circuit Breakers with New 12kV Vacuum Circuit Breakers
3. Replaced One (1) 40+ year old 69kV Oil Circuit Breaker with New Gas Circuit Breaker

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PREPARATIONS FOR ELECTRIC SYSTEM READINESS -- RELIABILITY UPGRADES

During the Last 12 months:

1. Wood Pole Replacements:
 - a. 186 Poles in 2017
 - b. 32 Poles in Q1 of 2018
 - c. 77-Pole Replacement Contract currently in construction
2. Replaced/Retired Seven (7) 4kV Circuits with 12kV Conversions

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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")

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WATER

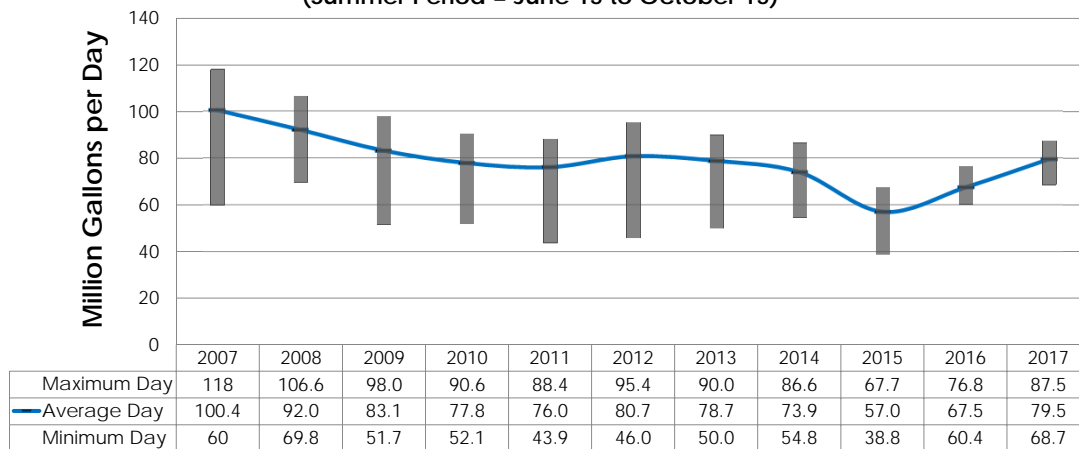


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WATER DEMAND

RPU Summer Period Water Consumption Variation
(Summer Period = June 15 to October 15)



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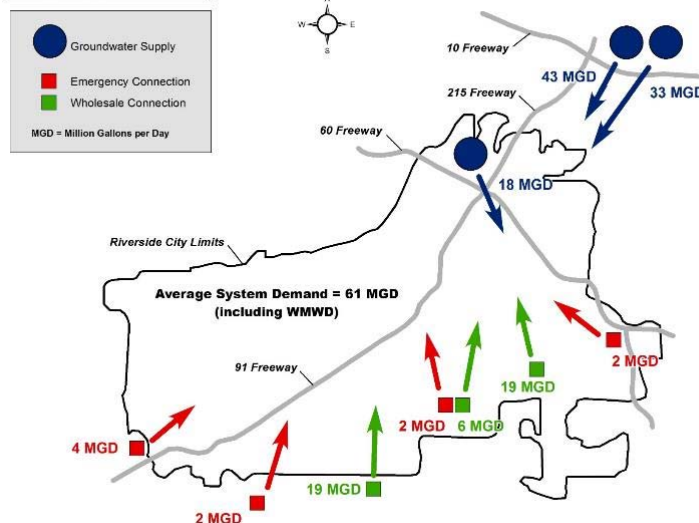
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WATER DEMAND

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 2017 by 10 GPCD due to warmer overall summer temperatures, no precipitation and the rescinding of the Drought Emergency Regulation.
3. Anticipated peak demand is 87 Million Gallons per Day
4. Lower demand and excess water rights facilitate wholesale deliveries to Western Municipal Water District up to 6,200 AF.

WATER SYSTEM PERFORMANCE

Water Source Map



WATER SYSTEM PERFORMANCE

1. Operational capacity is about 94 MGD
2. Able to participate in SCE demand response events

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WATER SYSTEM PREPARATIONS

1. Well Rehabilitations to restore production capacity
 - a. Warren 1 Well
 - b. Raub 6 Well
 - c. Gage 66-1 Well
 - d. Garner C Well
 - e. Gage 51-1 Well
 - f. Gage 92-1 Well
 - g. Gage 92-2 Well
 - h. Gage 92-3 Well



Warren 1 Well

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WATER SYSTEM PREPARATIONS (CONTINUED)

2. Booster pump preventative maintenance



Raub 6 Well – New Column Pipe and Pump

RECOMMENDATION

That the Board of Public Utilities receive this presentation on utility operations outlook for the summer of 2018.