

SUMMER 2018 UPDATE

Board of Public Utilities
November 26, 2018

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OUTLINE

ELECTRIC

1. Electric update and natural gas operations
2. PV solar and Power Partners
3. Electric System Performance

WATER

1. Water demand and system performance

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ELECTRIC

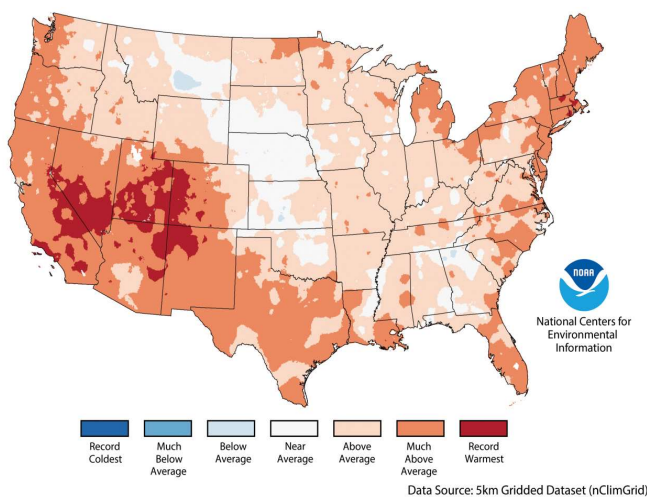
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CLIMATE ASSESSMENT

Mean Temperature Percentiles



- Weather conditions for Summer 2018 were forecasted to be similar to the previous year (above average).
- Above-average summer temperatures were recorded in California and most of the nation.
- Riverside's average peak temperature review in °F:

| | Forecast Average | Actual Average | Peak Day Temp |
|-----------|------------------|----------------|---------------|
| July | 94° | 99° | 113° |
| August | 95° | 95° | 105° |
| September | 91° | 92° | 103° |

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2018 LOAD & RESOURCE FORECASTS

Riverside entered the summer prepared for the following conditions highlighted by the CAISO:

- ✓ 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 SoCal Gas's system
- ✗ 5. ISO forecasted 50% chance of declaring Stage 2 Emergency for at least one hour over summer

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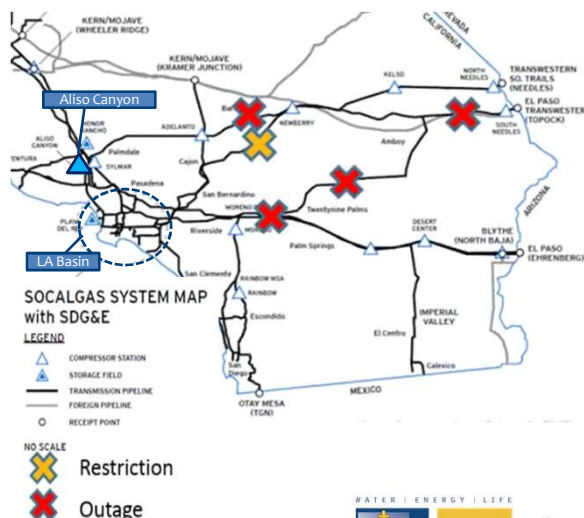


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SOUTHERN CA NATURAL GAS DELIVERY RISK

So Cal Gas System Summer Recap

1. Aliso Canyon Storage withdrawal capability – **“asset of last resort”**
2. Outages on 4 key natural gas pipelines has reduced flowing supply into Southern California
3. SoCalGas and CAISO worked together on daily basis to manage gas constraints
4. July 6th – July 9th & July 19th – July 24th - SoCal Gas had called a System-Wide Curtailment Watch
5. July 25th - SoCal Gas had called a System-Wide Curtailment; Riverside's generation was not impacted

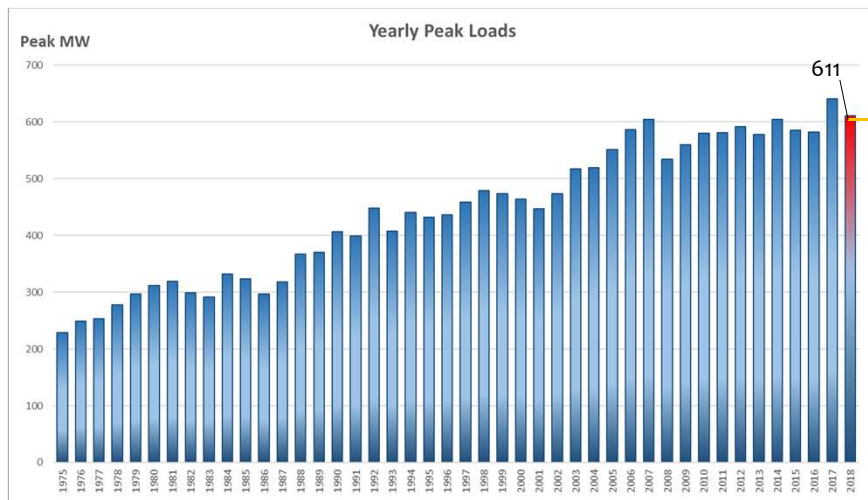


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2018 LOAD & RESOURCE FORECASTS



The ISO issued Flex Alerts on July 24th and July 25th due to high temperatures across the western U.S., high fire risk and tight gas supplies in Southern California

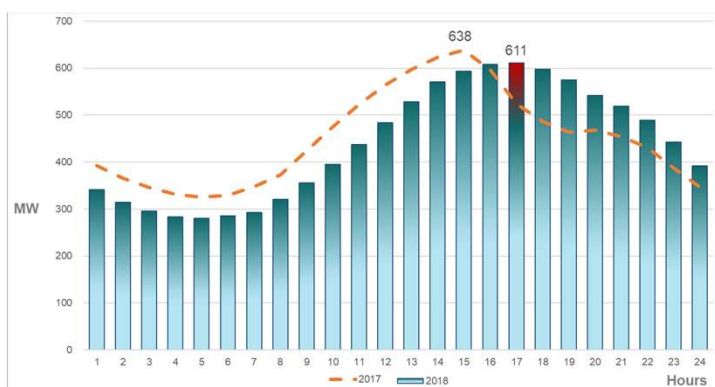
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2018 SUMMER PEAK LOAD

1. Riverside reached its peak energy demand of **611MW** on July 24th, 2018.
2. The 2018 peak arrived earlier in the summer when compared to 2017's peak, which was **638MW** on August 31st, 2017

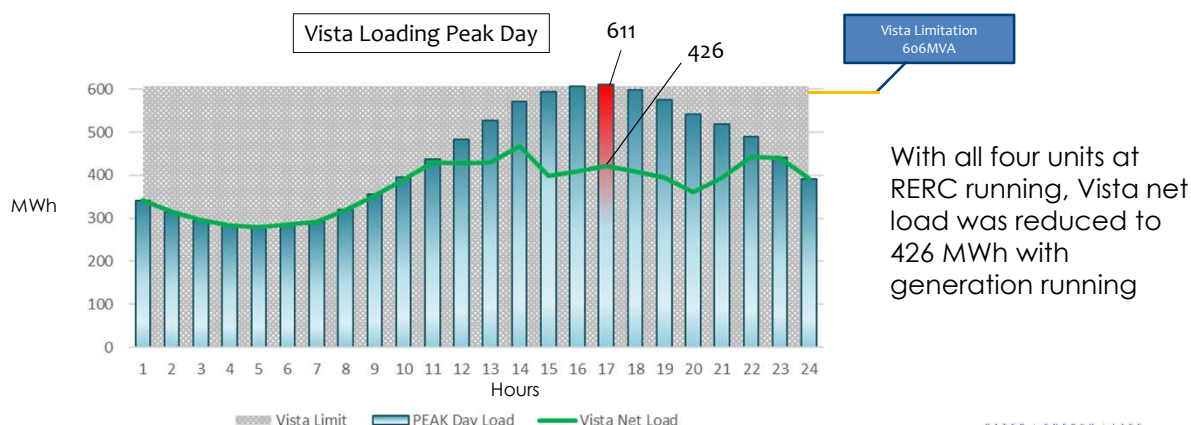


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2018 LOAD & RESOURCE FORECASTS



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RPU SCHEDULING PROTOCOLS AND PROCEDURES

Q3 2017 Actuals

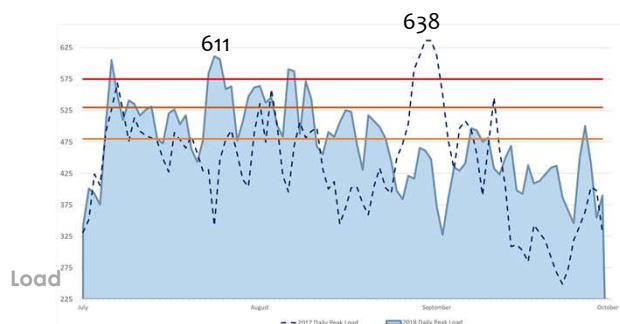
| Peak Load (MWh) | Number of Days | RERC Units Required |
|-----------------|----------------|---------------------|
| 480 - 529 | 20 | 2 |
| 530 - 574 | 5 | 3 |
| 575+ | 5 | 4 |

Q3 2018 Actuals

| Peak Load (MWh) | Number of Days | RERC Units Required |
|-----------------|----------------|---------------------|
| 480 - 529 | 26 | 2 |
| 530 - 574 | 13 | 3 |
| 575+ | 6 | 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

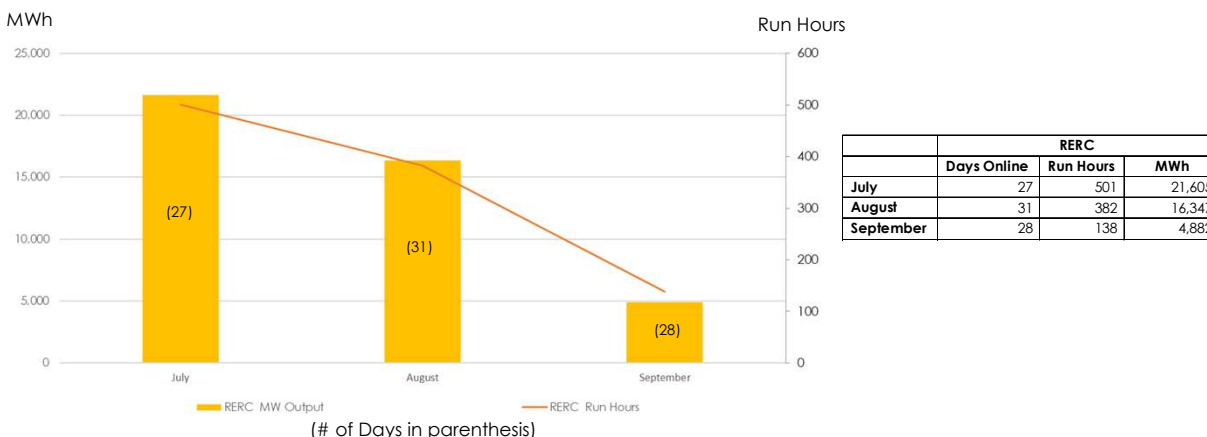


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Q3 RERC Generation Summary

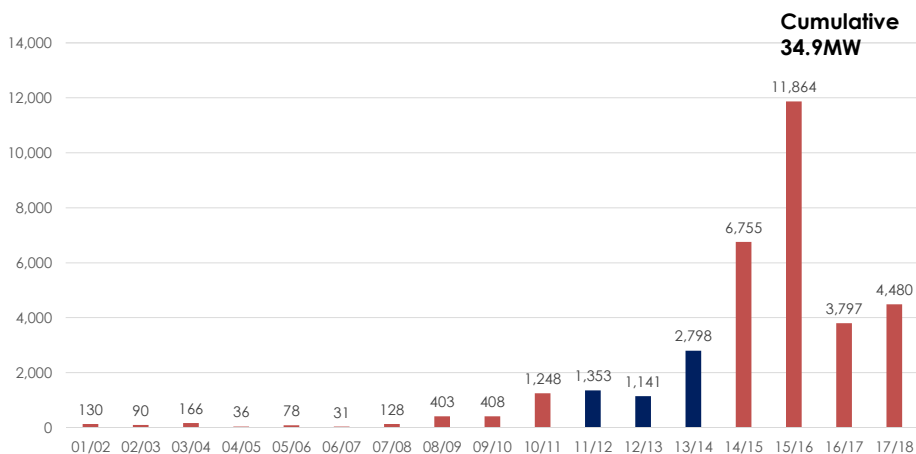


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PV SOLAR IN RIVERSIDE



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

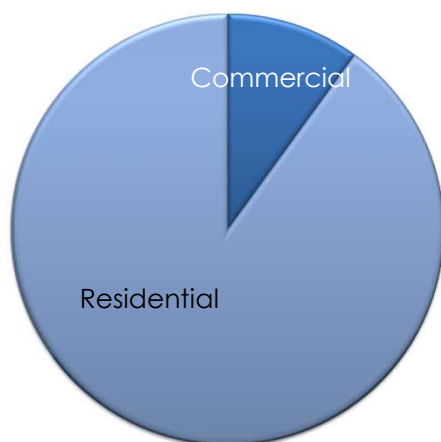
6. Explore Riverside Magazine Summer issue
7. Ads – Billboards, Chamber Communicator
8. Social Media (Facebook, Twitter and Instagram)
9. Outreach events throughout the summer
10. Digital media via City of Riverside portals – freeway signage, RiversideCA.gov and E-mail signature

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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

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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

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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

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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

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ELECTRIC 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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MAJOR EMERGENCY RESPONSE: EQUIPMENT WAS READY, BUT NOT NECESSARY



Mobile Substation #3 (2017)



Mobile Substation #2 (1985)



Mobile Switchgear (2015)



Mobile Substation #1 (1961)

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PLACED LARGE PROJECTS “ON HOLD”



**Switchgear
Upgrade Project**



**Substation Relay and
Equipment Replacements**

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SYSTEM OPTIMIZATION FOR SUMMER

Placed Electric Grid in the most robust configuration to endure extra stresses of summer loading:

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

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SUMMER OUTAGES

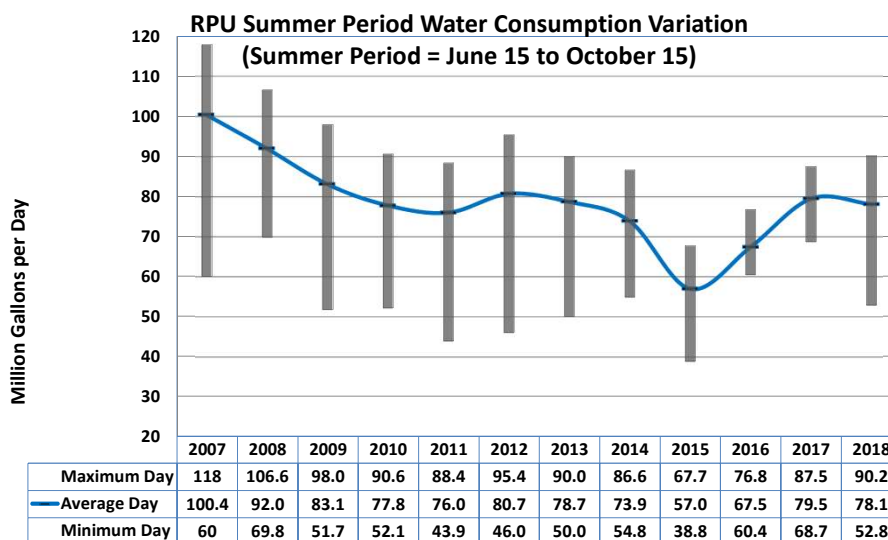
Memorial Day (5/28) thru Labor Day (9/3):

1. 99 days of “unofficial summer”
2. 55 circuit trips
3. 38 partial circuit outages

Instituted an internal conference call to improve coordination between sections on days with extreme weather considerations.

WATER

WATER DEMAND



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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 remained mostly constant during the Summer 2018 compared to 2017 at an average of 240 GPCD
3. Actual peak demand was 90 Million Gallons per Day
4. Current demand and excess water rights facilitate wholesale deliveries to Western Municipal Water District up to 6,400 AF for 2018

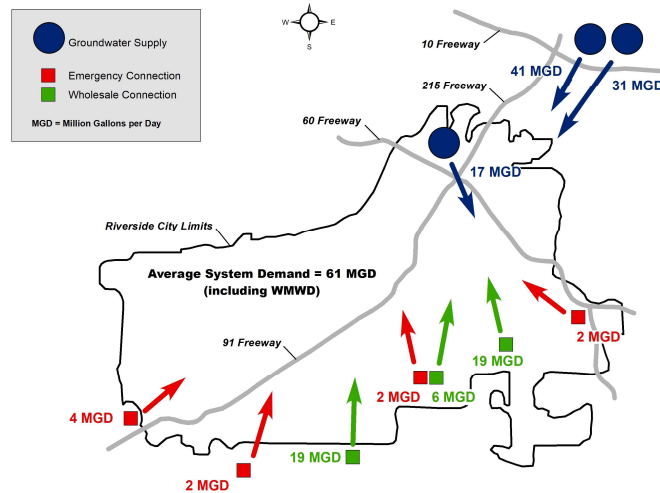
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WATER SYSTEM PERFORMANCE

Water Source Map



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WATER SYSTEM PERFORMANCE

1. Operational capacity is about 89 MGD
2. Able to participate in SCE demand response events

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RECOMMENDATION

That the Board of Public Utilities receive and file the Summer 2018 Water and Electric Resources and Reliability Update.