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CUSTOMERS FIRST

July 6 - 10, 2018  
Heat Storm Response

# July 6-10 Heat Storm

- Sudden Extreme Record Temps
- 750+ Overhead & Underground Outage Incidents
- Response Level 3 – Highest Alert



# Breaking Peak Energy Records

Fri, July 6: 6,256 MW, highest ever July day

Sat July 7: 5,743 MW 2<sup>nd</sup> highest weekend day

Sun, July 8: 5,230 MW, 4<sup>th</sup> highest Sunday of all-time



# Climate Extremes

Driest Year (2016) followed by Wettest Year (2017)

Highest Peak Load in LA History:  
6,502 MW, August 2017

Hottest Day in L.A. History:  
September 27, 2010, 113° in Downtown LA



# Outage Impacts

- 750+ localized outages
- ~114,000 customers affected or 7.5% of all customers
- Metro vs. Valley: ~5:1
- Fri-Sat: 12-24 hrs ETR
- Sat-Sun: 24-48 hrs ETR



# Repairs to Overhead vs. Underground Infrastructure



## Overhead

More common

Repairs are more quick, but many incidents delay restoration









## Underground

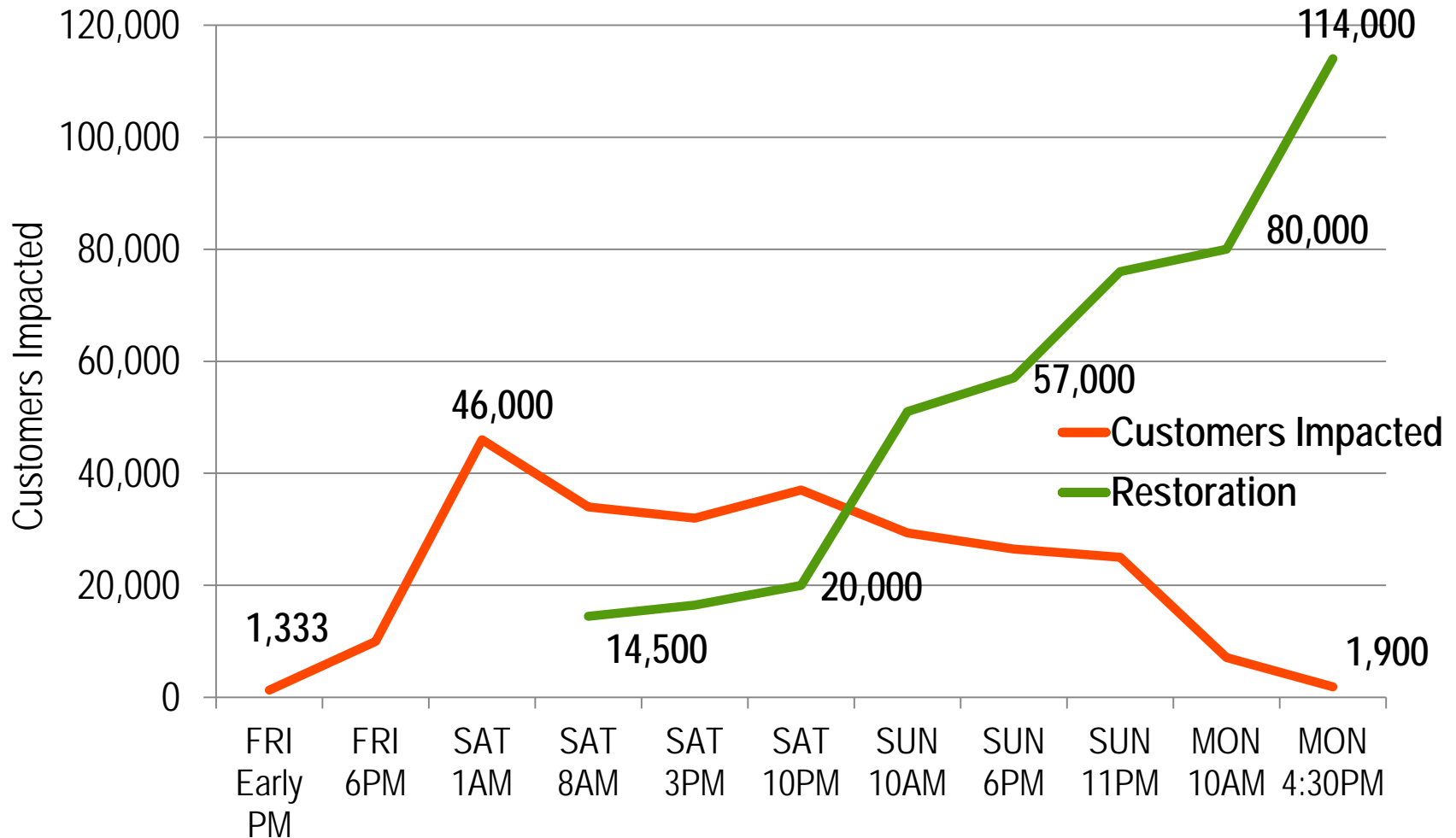
Occur less frequently

Repairs take longer

# Snapshot: Heat Wave Temps & Customer Impacts

July 4 WED 	July 5 THURS 	July 6 FRI 	July 7 SAT 	July 8 SUN 	July 9 MON 
82°/65° DTLA 86°/61° WSFV	88°/65° DTLA 103°/62° WSFV	108°/69° DTLA 117°/73° WSFV	104°/79° DTLA 110°/83° WSFV	98°/75° DTLA 102°/80° WSFV	96°/74° DTLA 103°/76° WSFV
		CUSTOMERS IMPACTED			
		4 PM: 4,000 9 PM: 46,000	1 AM: 46,000 8 AM: 34,000 3 PM: 32,000 10 PM: 37,000	10 AM: 29,350 6 PM: 26,500 11 PM: 25,000	10 AM: 7,100 4:30 PM: 1,900
		CUSTOMERS RESTORED			
			8 AM: 14,500 3 PM: 16,500 10 PM: 20,000	10 AM: 51,000 6 PM: 57,000	9 AM: 76,000 10 AM: 80,000 4 PM: 114,000

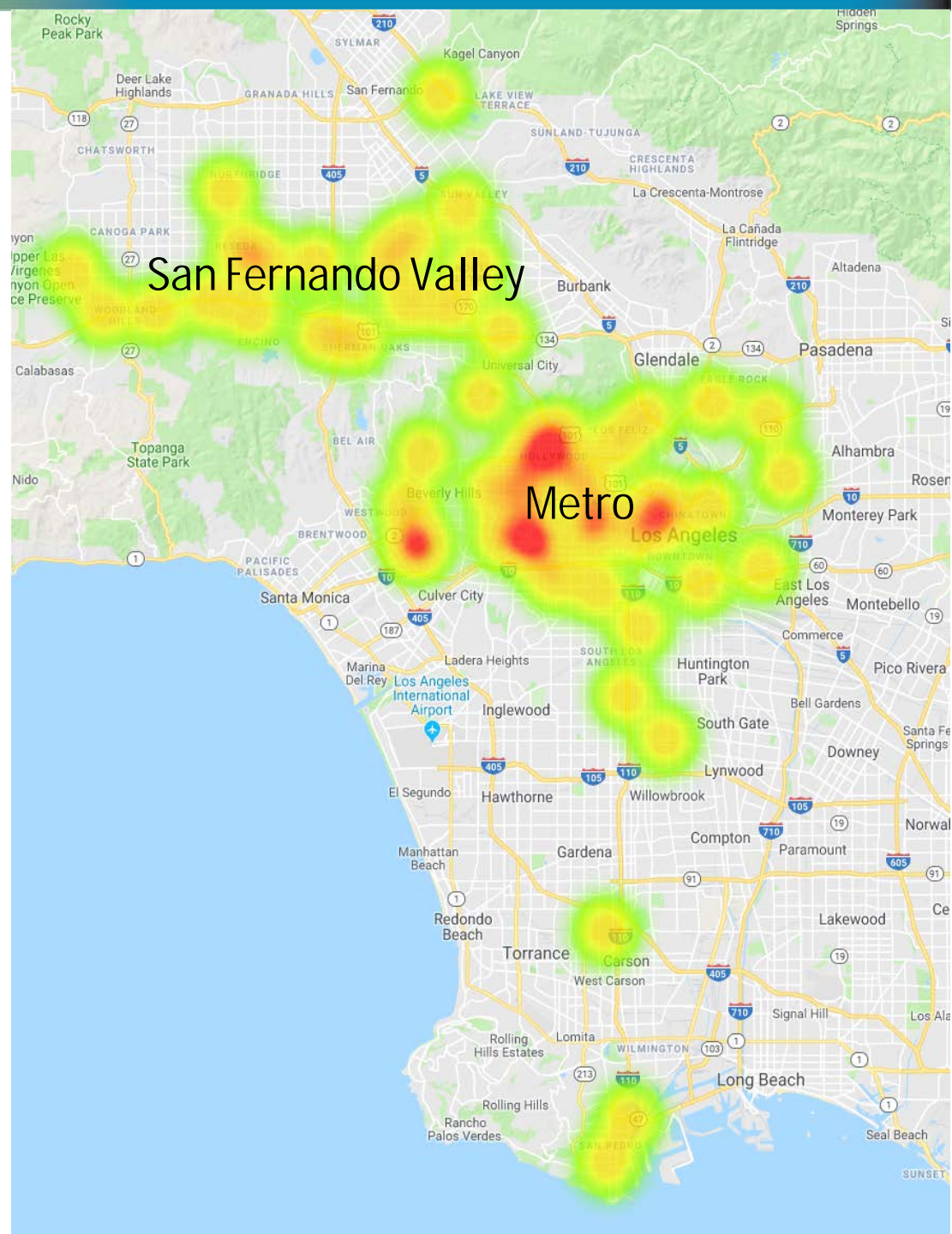
# Customers Impacted and Restored



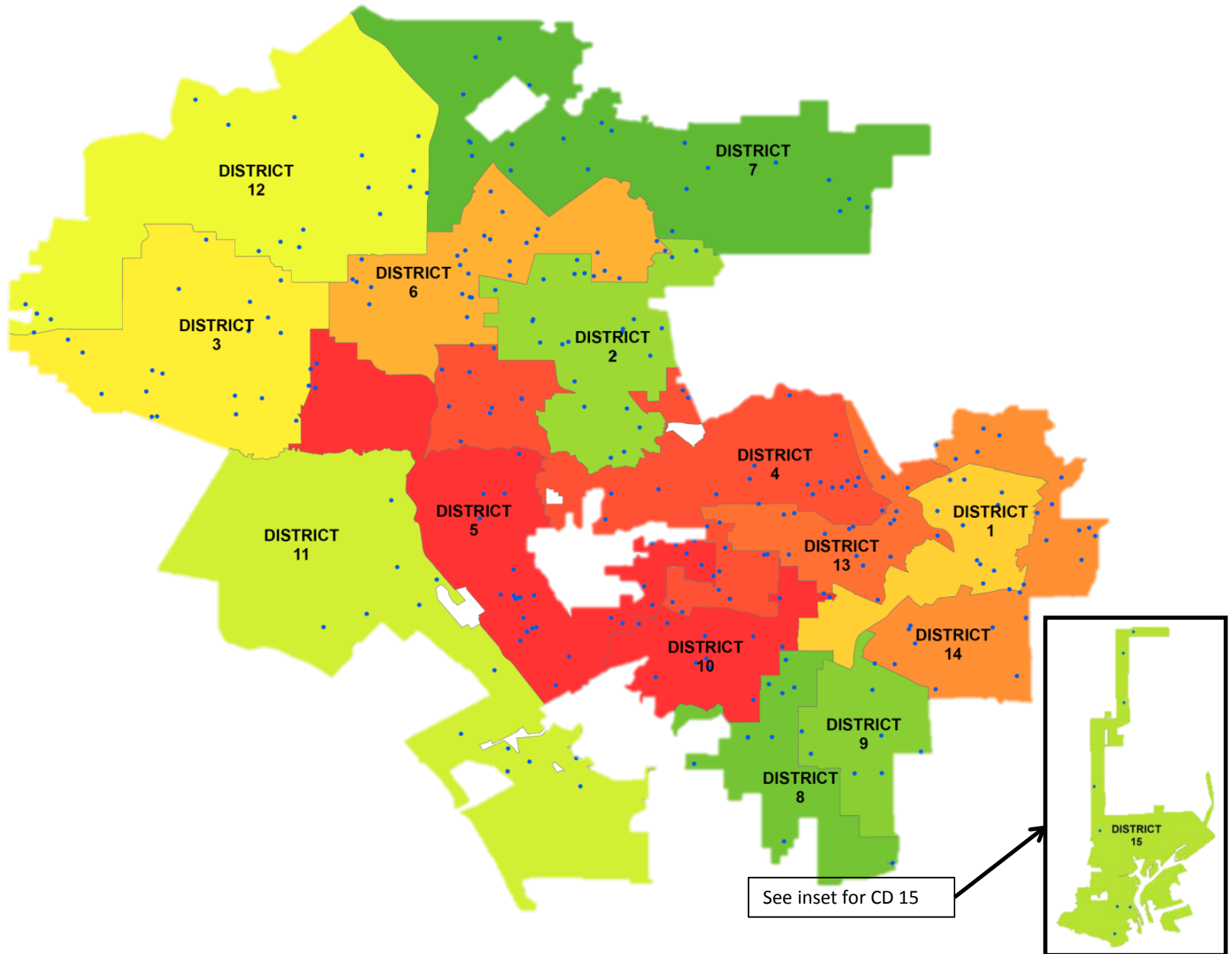


# Communities Most Impacted

Koreatown  
Beverly Glen  
Hollywood Hills  
Windsor Square  
Mid-Wilshire  
Sherman Oaks



# MOST AFFECTED AREAS













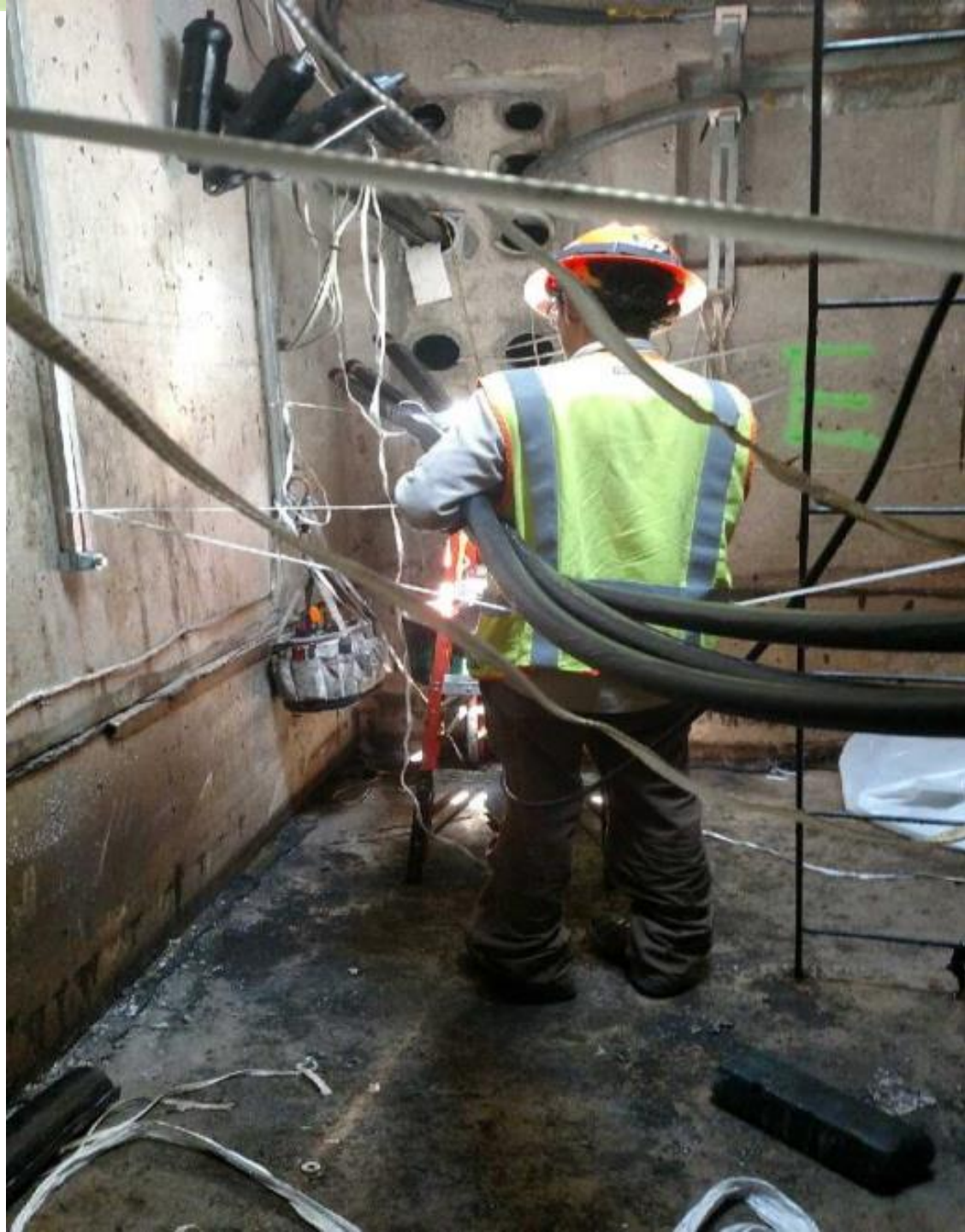
















# Crew Staffing

- 16 hour shifts
- ~480-520 personnel each day
- Crews held over beyond normal shift Friday
- LADWP crews from Lone Pine, Bishop, Mojave & Victorville + contract crews aided in restoration
- Crews worked on permanent repairs through Thursday





# RESTORATION TAKES TIME

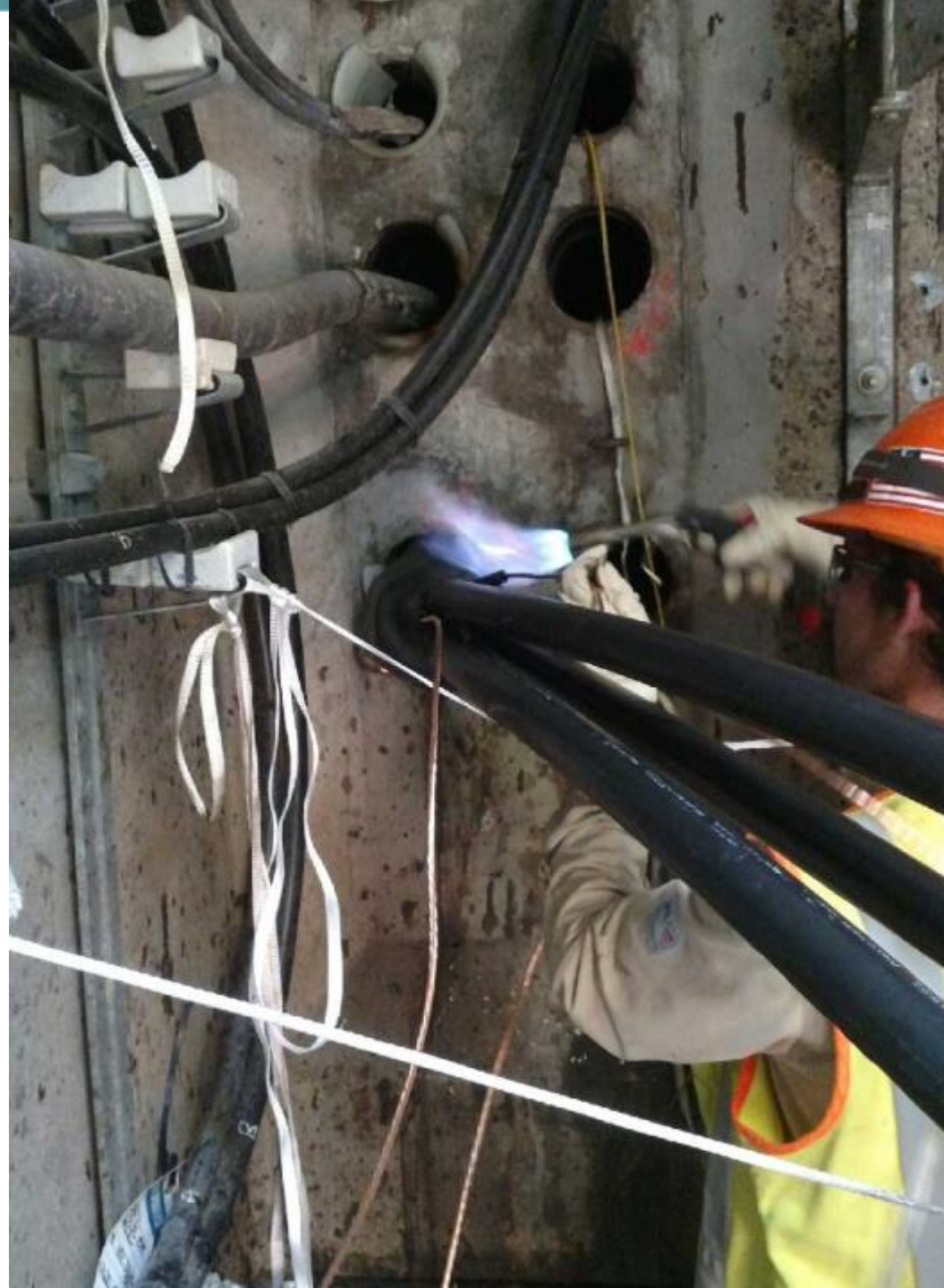
34.5 kv Cable Splicing  
Takes approx. 16 hours per  
splice.

The splice is referred to as a barrier joint because there must be a barrier between the old lead gas pressured cables and the new synthetic cable.



## Cable installation includes:

- ✓ Switching and locking out all sources of energy
- ✓ Installing protective grounds
- ✓ Removing the failed cables
- ✓ Inspecting and cleaning out the conduits between substructures
- ✓ Reconfiguring the substructures to accommodate the supporting hardware required for the synthetic cables
- ✓ Establishing proper phasing
- ✓ Splicing





# Incident Communications

81 Media Inquiries

News Alerts throughout

Web updates & email blasts  
Social media posts &  
engagement

Nextdoor, Facebook, Twitter






# Facebook.com/LADWP

## Hundreds of social media posts and replies to customers

**Los Angeles Department of Water & Power**  
July 8 at 10:43 PM · 🌐

As #LADWP crews work overnight restoring power and addressing recurring outages, we ask your help in conserving energy where and when you can to help #SaveEnergyLA during this #LAHeat. For tips: [bit.ly/2Nw2eF9](http://bit.ly/2Nw2eF9)


👍 16      💬 2 Comments


 Like      💬 Comment      ➦ Share

All Comments ▾




**Yuri Marquez** Thank you for bringing the power back in Boyle Heights! Greatly appreciated 🙏  
Like · Reply · 1w      👍 1

**Esmeralda Interiano** When is the electricity coming back in Koreatown?  
Like · Reply · 1w


**Los Angeles Department of Water & Power**  
July 8 at 12:02 PM · 🌐

UPDATE: #LADWP crews made significant progress overnight and now have restored power to nearly 51,000 customers since the heat storm began Friday. <http://bit.ly/2J6FwjB>





LADWPNEWS.COM  
**LADWP Heat Storm Update – Los Angeles Department of Water and Power**

👍❤️ You, Joe Ramallo and 45 others      💬 16 Comments      ➦ 14 Shares


 Like      💬 Comment      ➦ Share

All Comments ▾



**Michele Emeterio** may I ask, are we entitled for reimbursement for food lost, medication lost, extras we had to purchase due to the outage ??  
Like · Reply · 1w      👍 1

➦ View previous replies

**Los Angeles Department of Water & Power** Hello Michele Emeterio: If you wish you can submit a claim. Here's the link to the form. <http://www.ladwpnews.com/ladwp-claims-information-form/>



# Twitter.com/LADWP

**LADWP** @LADWP · Jul 8

#LADWP line crews continue their restoration work, seen here atop a pole replacing a transformer. #LAHeat



9 4 21

**LADWP** @LADWP · Jul 8

As #LADWP crews work overnight restoring power and addressing recurring outages, we ask your help in conserving energy where and when you can to help #SaveEnergyLA during this #LAHeat. For tips: [bit.ly/2Nw2ef9](https://bit.ly/2Nw2ef9)

7 7 17

**LADWP** @LADWP · Jul 9

Crews will work through the night to restore power to 700 customers remaining without power from the weekend heat storm. 90,000+ restored.

7 4 42

**LADWP** @LADWP · Jul 9

There have been 89,928 customers restored since the heat wave began on Friday, with 993 customers remaining out that had their service interrupted between Friday afternoon and Sunday night.

10 15 34

**LADWP** @LADWP · Jul 9

As of 7pm, 1290 customers from the weekend heat storm remained without power in City of LA #LAHeat

12 9 17

**LADWP** @LADWP · Jul 9

We're down to approx 1,900 customers remaining affected by weekend outages as restoration work continues.

3 3 9

**LADWP** @LADWP · Jul 9

UPDATE: Crews nearing full restoration of customer outages remaining from weekend heat storm. Click here for the full update: [bit.ly/2L2Cizq](https://bit.ly/2L2Cizq)

3 3 8





462,571 Impressions  
573 Thanks  
203 Replies

Community Affairs Jason Stinnett, Los Angeles Department of Water and Power

### LADWP Heat Storm Update: July 9, 2018, 9:00 a.m.

With the current heat storm, Los Angeles Department of Water and Power (LADWP) power system field crews have made significant progress overnight. As of 9:00 a.m. today, LADWP has restored power to 76,000 customers since the heat storm that began Friday; currently, 7,800 customers are without power. Koreatown is currently most impacted with 2,200 customers without electricity. LADWP crews have been working through the night and continue today to repair power equipment servicing the area. Restoration of power to most of the Koreatown customers is expected by noon, the remainder later in the afternoon today.

Lower temperatures are expected to help prevent overloading of circuits and will allow crews to make headway as they work tirelessly to replace damaged equipment. Some customers in affected areas have experienced continued or recurring outages due to strain on the neighborhood distribution equipment. Outages requiring complex repairs may take longer than 48 hours.

Customers are encouraged to continue conserving while remaining safe. Reduce electricity use in the afternoon and evening hours, especially from 2:00 – 9:00 p.m. by setting air conditioner thermostats to 78 degrees and not using appliances like clothes washers and dryers until after 9:00 p.m.

We appreciate our customers' patience as our crews get power restored to those affected. Click here for more information on this record heat storm and how to conserve. If you need to cool off, the City of LA offers cooling centers where you can beat the heat. To report a power outage, customers should call 1-800-DIAL-DWP. To check the status of an outage, visit our outage maps at <http://www.ladwp.com>.

Community Affairs Michael Ventre, Los Angeles Department of Water and Power

### LADWP Heat Storm Update 2

LADWP crews continue to work at repairing damaged electrical equipment and restoring power to affected customers as record-setting high temperatures and unprecedented peak electricity demand persist in the City of Los Angeles.

<https://bit.ly/2ziN96g>

LADWP Heat Storm Update – Los Angeles Department of Water and Power  
[LADWPNEWS.COM](http://LADWPNEWS.COM)

7 Jul · Subscribers of Los Angeles Department of Water and Power

Thank Reply 164 133 · 106570 Impressions

Community Affairs Michael Ventre, Los Angeles Department of Water and Power

### LADWP Heat Storm Update: July 8, 2018, 6 P.M.

Update: Continued Conservation Urged as LADWP Crews Work to Restore Localized Power Outages Affecting 26,500 Customers. [bit.ly/2zrWZUm](http://bit.ly/2zrWZUm)

8 Jul · Subscribers of Los Angeles Department of Water and Power

Thank Reply 64 76 · 86332 Impressions

Community Affairs Dawn Cotterell, Los Angeles Department of Water and Power

### LADWP Heat Storm Update: July 9, 2018 as of 4:30 p.m.

UPDATE: Crews nearing full restoration of customer outages remaining from weekend heat storm. Click here for the full update: <https://bit.ly/2L2Cizq>

LADWP Heat Storm Update: July 9, 2018, 4:30 p.m. – Los Angeles Department of Water and Power  
[LADWPNEWS.COM](http://LADWPNEWS.COM)

6d ago · Subscribers of Los Angeles Department of Water and Power

Thank Reply 37 · 62726 Impressions

Discussion closed 6d ago. Learn more »



# Call Center Response

197 Customer Service Reps

Weekend Total: 28,734 Calls

Typical Weekend: 10,000

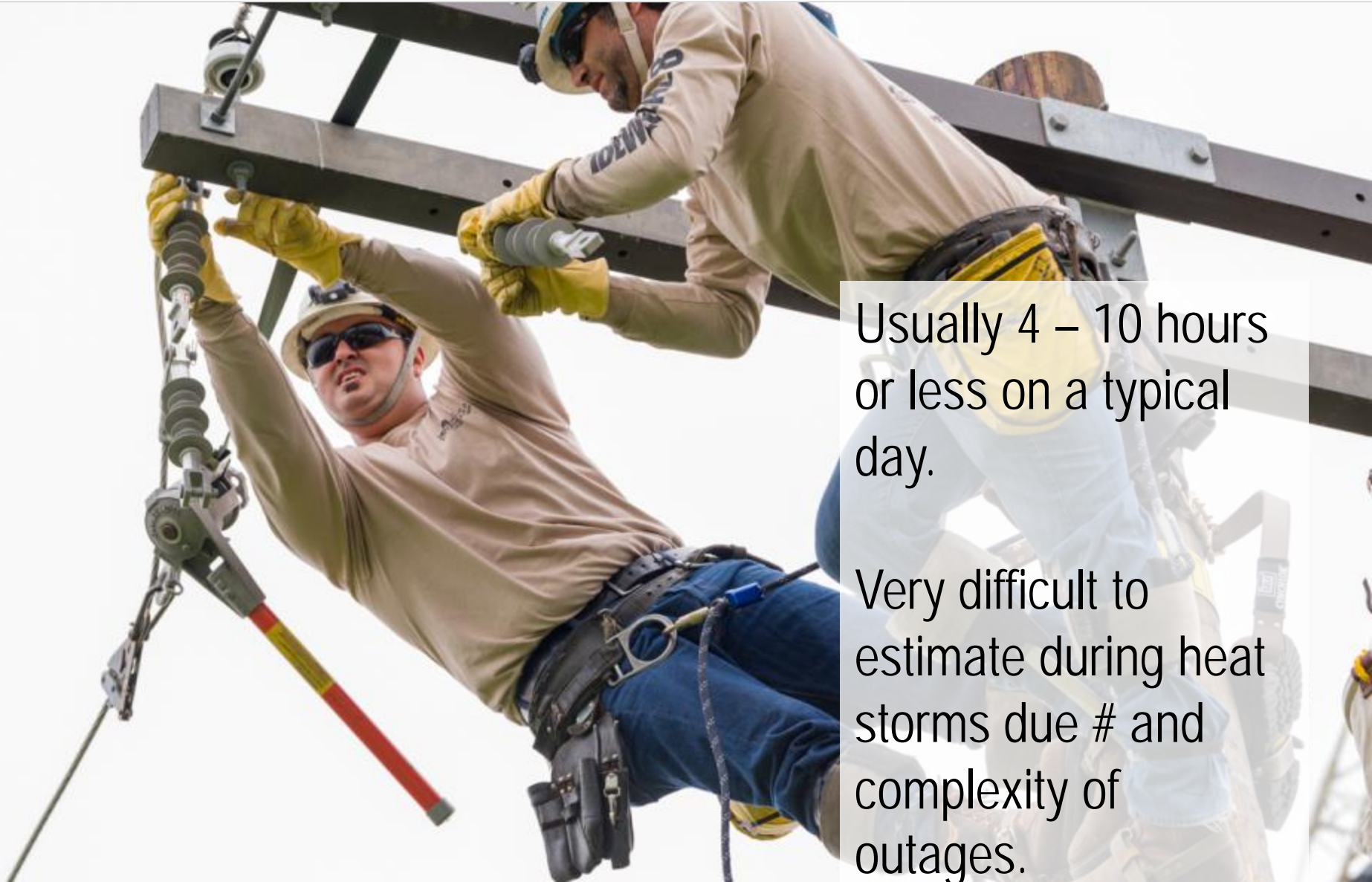
7/7 (Sat) Peak: 11,727 calls

Typical Sat: 2,000

Average wait times:  
8 mins, 3 secs.



# Estimated Time of Restoration



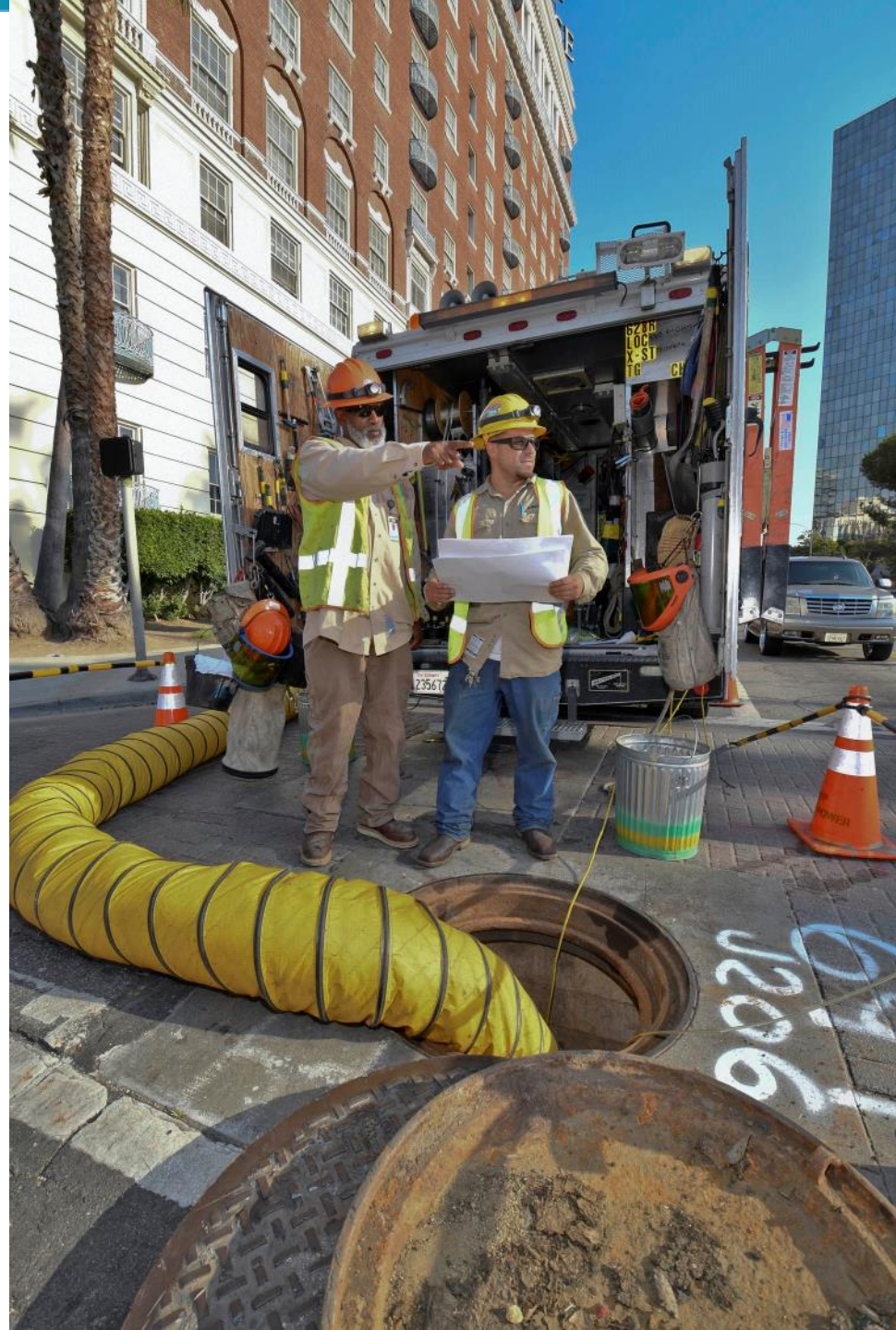
Usually 4 – 10 hours or less on a typical day.

Very difficult to estimate during heat storms due # and complexity of outages.

# Next Steps

LADWP Power System needs to make permanent repairs to temporary work implemented during the heat storm.

Work is ongoing.





# Next Steps

Review and  
reprioritize circuits  
that need  
replacements and  
upgrades





# Priority 4.8kV Feeder Upgrades

Operational District	Neighborhood	Number of Circuits
Palms	Windsor Place, East Hollywood, Arleta	4
Lincoln Heights	Elysian Valley, Montecito Heights, Lincoln Heights, Mount Washington, Los Feliz, Lincoln Heights, East Hollywood, University Park	12
Central	Downtown, Echo Park, Silver Lake, Sherman Oaks, Boyle Heights, Northridge, Mid-City	7
Northridge	Pacoima, Reseda, Woodland Hills, East Hollywood	5
Van Nuys	Sylmar, Lake View Terrace, Arleta, Boyle Heights, Panorama City, Valley Glen, Lake Balboa, North Hills, Mission Hills	19
West LA	Bel Air, Westwood, Westlake	5

# Priority 4.8kV & 34.5kV Cable Replacements

Operational District	Neighborhood	Number of Circuits
Central	Elysian Valley, Westlake, Wilshire Center	4
Lincoln Heights	Silver Lake	1
Northridge	Northridge, West Hills, Reseda, Granada Hills, Tarzana, Encino	7
Palms	Carthay, Hollywood Hills, Mid-Wilshire, Hancock Park, Hollywood, Baldwin Hills/Crenshaw, Windsor Square, Mid-City, Westlake, Arlington Heights, Hancock Park	11
Van Nuys	Panorama City, Beverly Crest	2
West LA	Westwood, Bel-air, Beverly Crest	6
Wilmington	San Pedro	1

# Priority 34.5kV Circuit Upgrades

Operational District	Neighborhood	Number of Circuits
Van Nuys	Sylmar, Pacoima, Lake View Terrace, Arleta, Sunland, Tujunga, Shadow Hills	9
Central	Downtown, Boyle Heights, Central Alameda, Chinatown	5
Lincoln Heights	Chinatown, Downtown	2
Northridge	Granada Hills, Sylmar	2
West LA	Brentwood, Sawtelle, Pacific Palisades, Westchester, Playa Vista, Del Rey	7





# Next Steps

LADWP will need to implement longer planned outages to complete critical upgrades to power infrastructure.

# Next Steps

Continued hiring efforts for several LADWP positions including dispatchers & line workers





# Next Steps: Change Traffic Restrictions Ordinance

Policy must change to allow LADWP to work in the street to complete customer reliability upgrades.



L.A.M.C. SEC.62.61.

"Peak Traffic Hours" is defined as Monday through Friday, 6:00 am to 9:00 am and 3:30 pm to 7:00 pm.

**Prohibition on Work or Obstructions During Peak Traffic Hours.** Notwithstanding any other provision of this code, no person or entity shall effect a "Traffic Lane Closure," perform work within or on any public street or right-of-way or in any manner obstruct a public street or right-of-way on those "Street Classifications Subject to Work Hour Restrictions" during "Peak Traffic Hours," all as defined above.

**Administrative Penalties** up to \$1,000 / day

**Criminal Prosecution** for Multiple Violations by LA City Atty

# Next Steps

Enhanced incident command and public information

Appointment of an Incident Commander

Media Representative at Electric Trouble

Closer coordination with Electric Trouble Customer Service Liaison

Direct Customers to:

[ladwp.com/outages](http://ladwp.com/outages)

Twitter: @LADWP

NextDoor App & Website







## Pet Safety during Power Outages

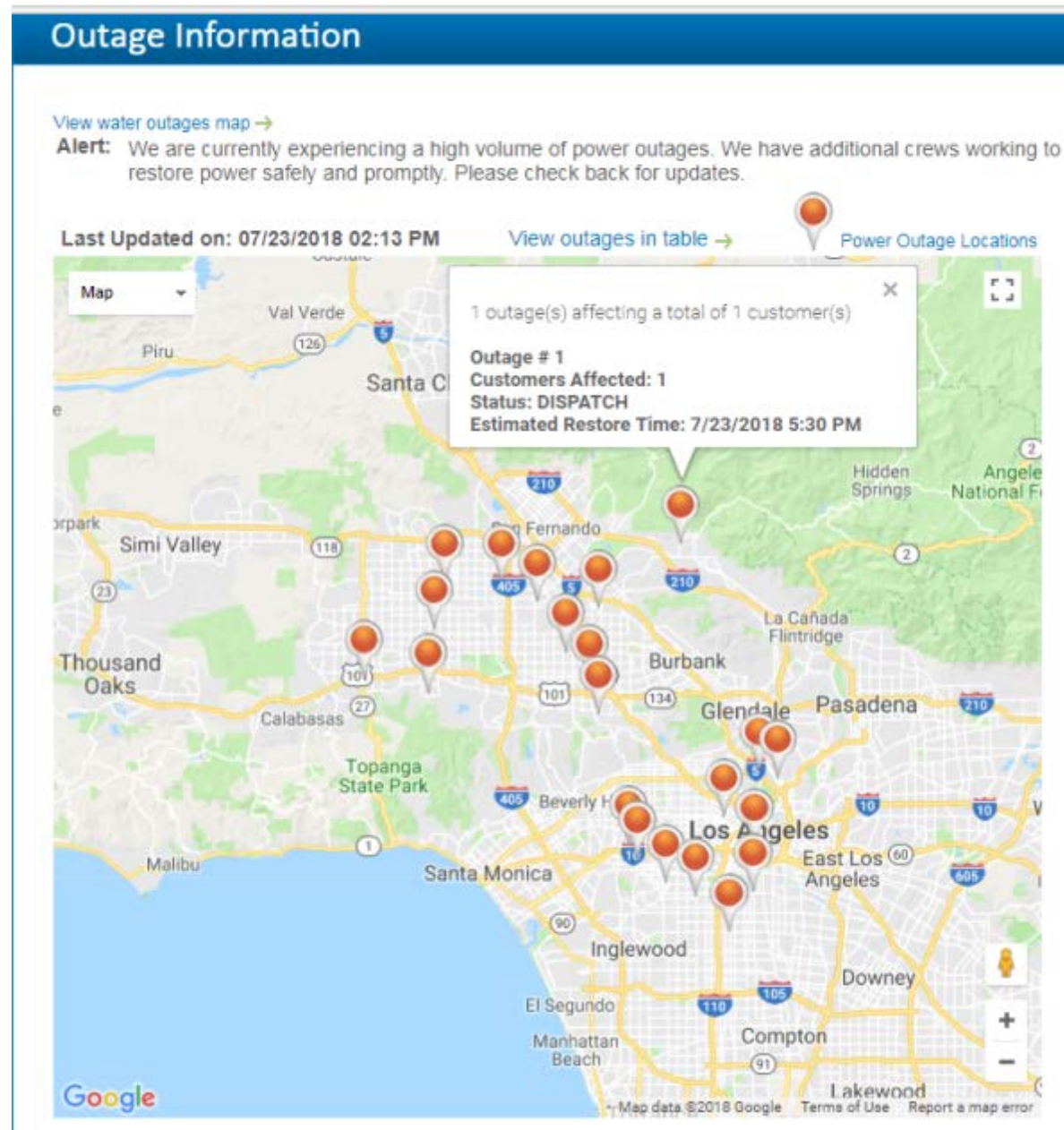
Before a summer storm takes out the power in your home, create a disaster plan to keep your pets safe from heat stroke and other temperature-related trouble.

- Humane Society

# Next Steps

Outage  
management  
system upgrades  
are underway

[www.LADWP.com/  
outages](http://www.LADWP.com/outages)





# Power System enhancements based on post-incident review

Enhancement	Lead
Crews working 12-hr shifts to make permanent repairs to damaged circuits and equipment	Power System
Hire additional dispatchers to fill current vacancies (11) to improve info in Outage Management System (OMS)	Power System, HR
Review Priority Circuits in need of replacement based on July 6-10 outages	Power System
Take longer planned outages to make proactive PSRP upgrades & repairs	Power System
Continue advocating for rush hour work exemption	GM, COO, Power System, LIGR
Improve timeliness of info entered into OMS	Power System
Review Staffing Support level for OMS & Recommend enhancements	Power System

# Customer Service & Communications enhancements based on post-incident review

Enhancement	Lead
Review heat wave staffing plans at Customer Contact Center & recommend improvements	CSD
Station Media & Community Relations staff at Electric Trouble during Response Level 2 or 3	CMCA
Increase proactive conservation ads and paid social media messaging before heat wave	MED
Increase proactive social media posts during storm events	CMCA
Improve quality of info on status of lengthy outages in public updates	CMCA
Improve coordination of info between CSD, Electric Trouble & CMCA staff	CSD, CMCA

# Customer Service & Communications enhancements based on post-incident review

Enhancement	Lead
Replace Integrated Voice Response System to improve customer care & routing	CSD, IT
Update outage management to allow customers to report power outages via web and mobile web.	Power System, CSD, Web Team, MED
Develop outbound texting functionality to alert customers when power is out or restored	
Complete Digital Transformation RFQ Review for digital design and digital customer experience services to better communicate directly with customers when outages occur	CMCA, CSD, MED
Educational Outreach program to customers / NCs and HOA's re Outage Restoration Process & Power Reliability Program	CMCA, Power System, MED
OMS Upgrade Underway – Mobile status reporting by all crews	Power System
Distribution Automation RFP in 60 days to improve communication	IT, Power System



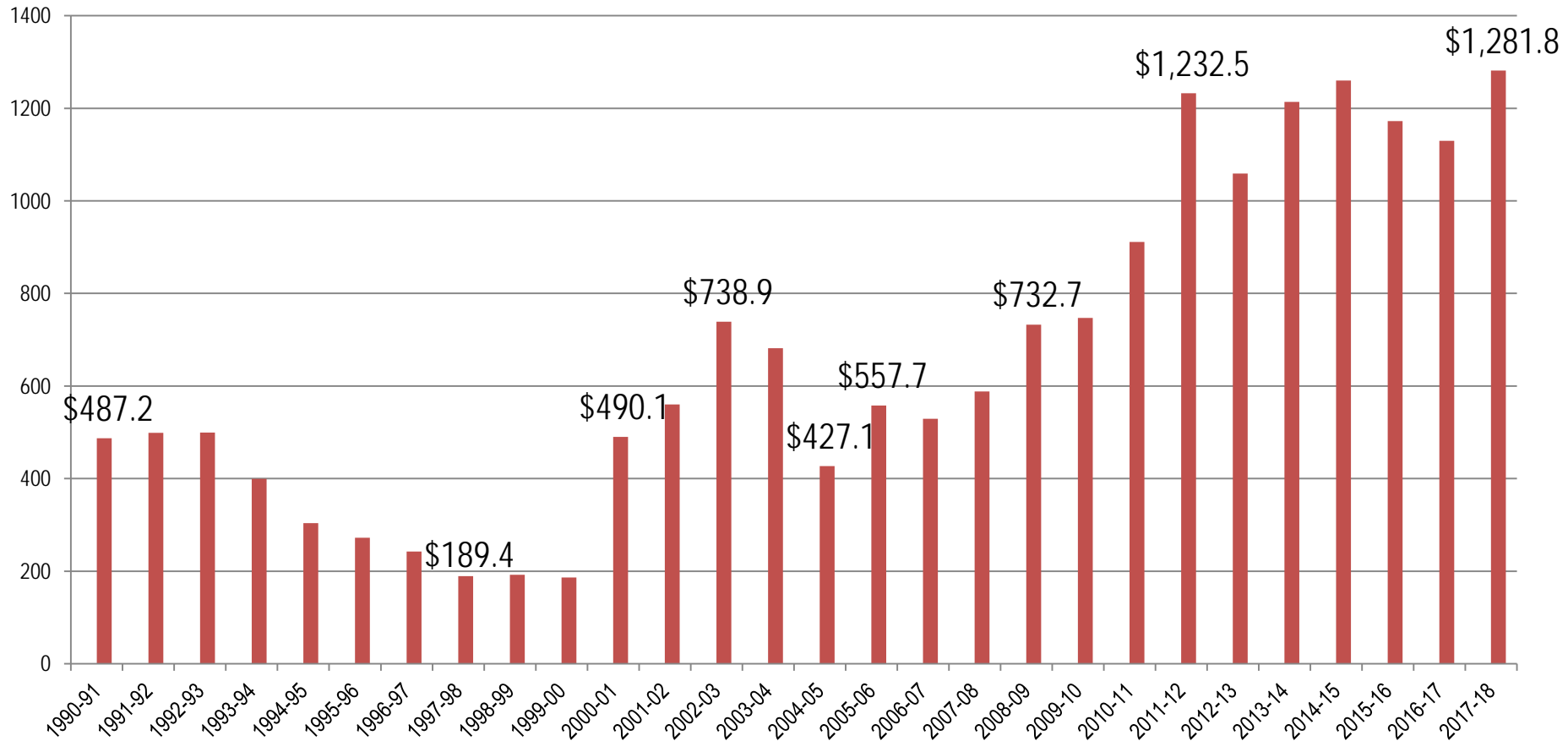
# Investments in Reliability

Power System Reliability  
Plan: \$2.3B invested over  
the last three years for  
rebuilding infrastructure  
and proactive maintenance



# Power System Infrastructure Investment

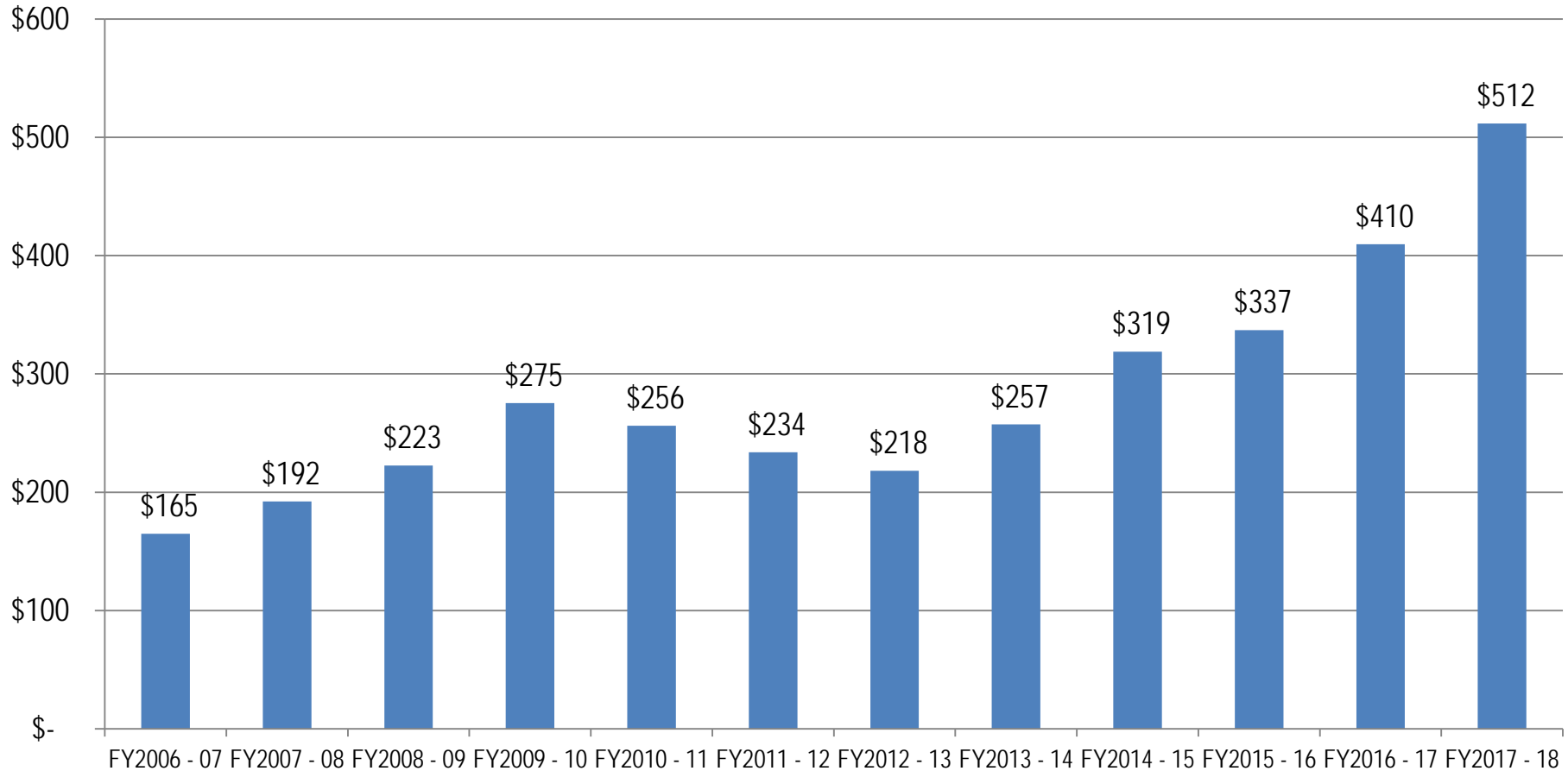
## 1990-2018 (in millions)



Power System Capital Fund Actual Expenditures

# Power Reliability Investments

## 2006-2018 (in millions)







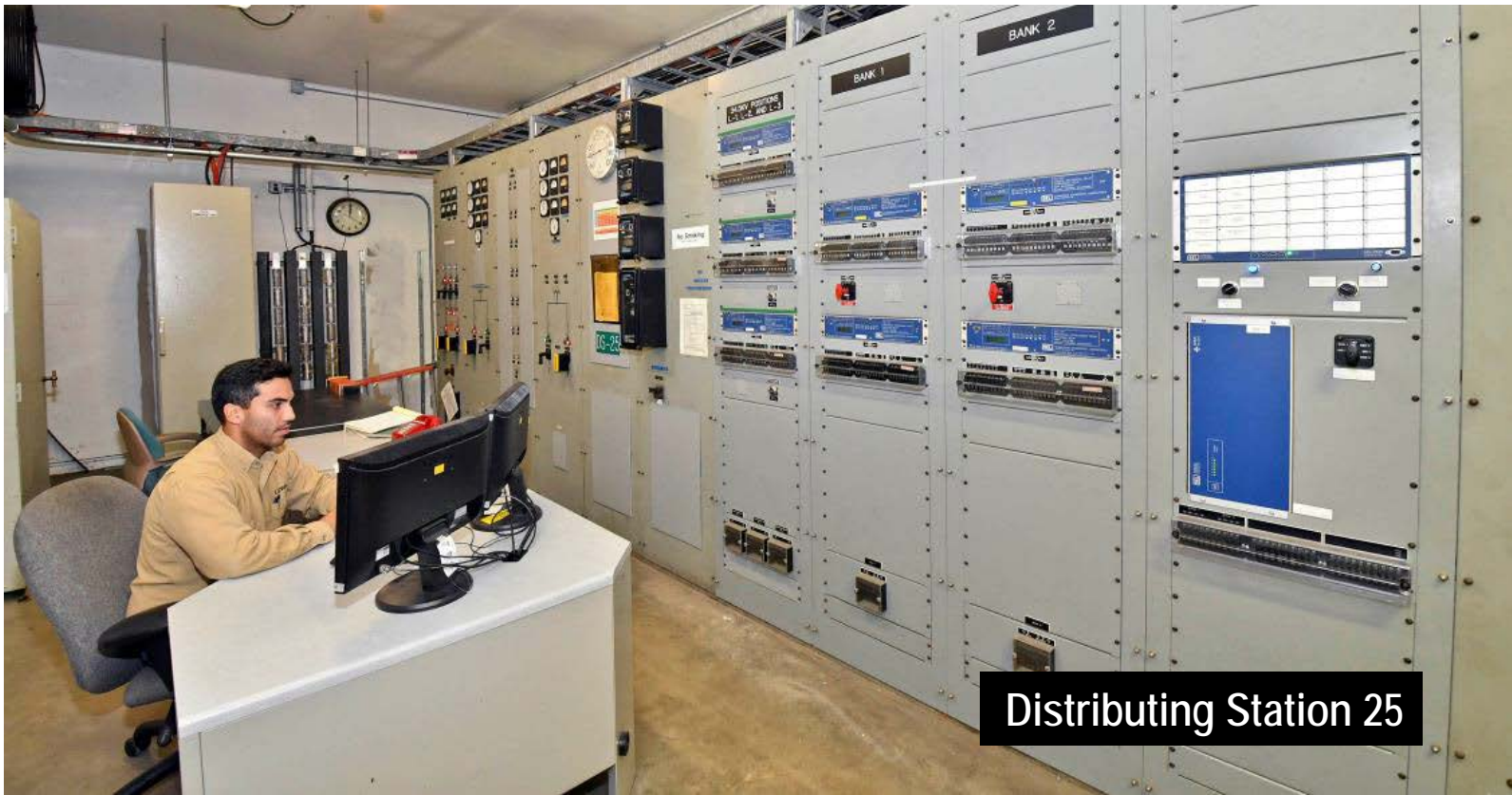
# FY 2017-2018

- ✓ 3,018 poles
- ✓ 950 transformers
- ✓ 51.4 miles of underground cable

All Exceed Annual Goals

# FY 2017-2018 Priority Work Completed

- ✓ Replaced 2 sub-transmission level load bank transformers
- ✓ Replaced 13 distribution level load bank transformers
- ✓ Replaced 5 RS & 11 DS sub-transmission level circuit breakers
- ✓ Replaced 28 distribution level circuit breakers



Distributing Station 25



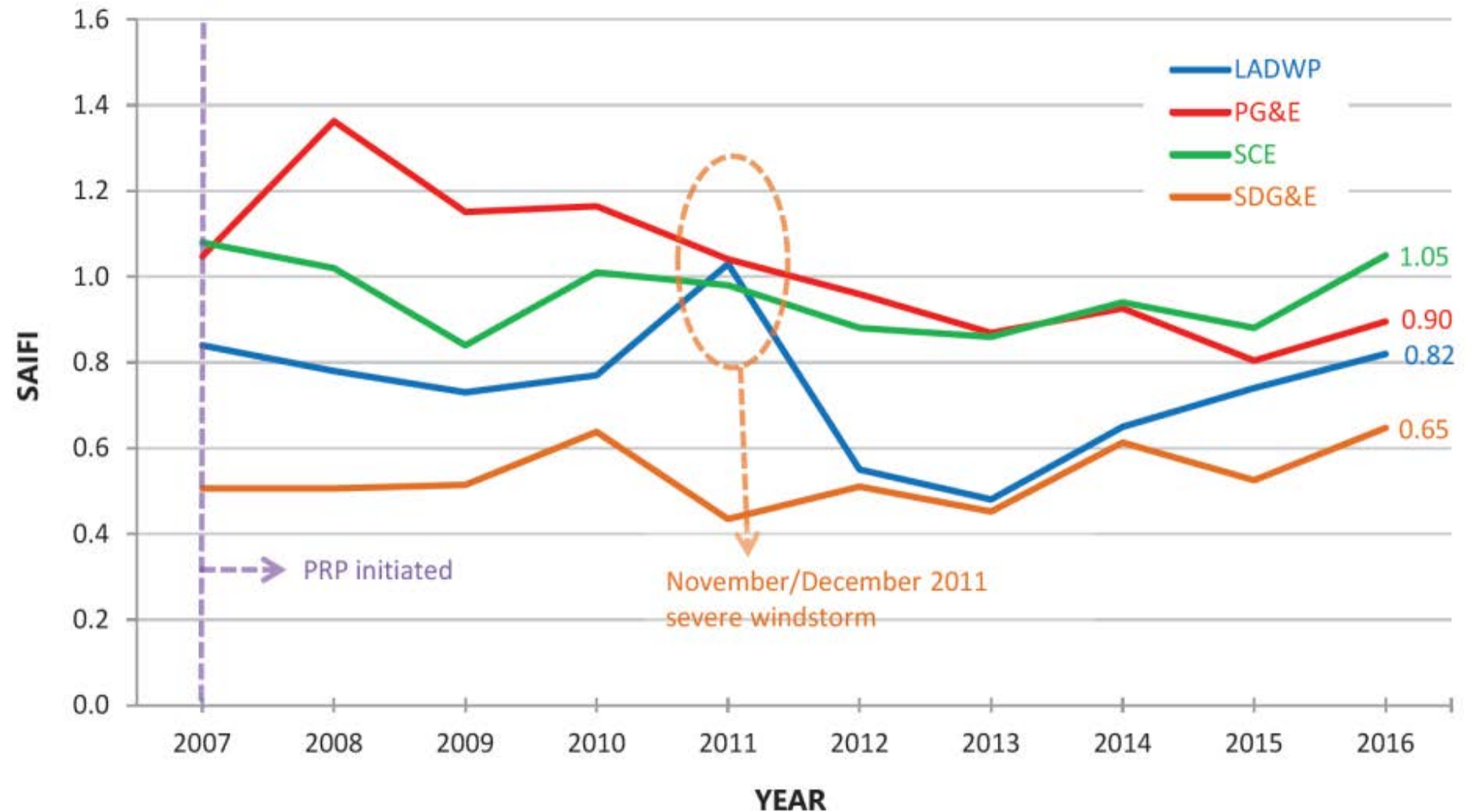
Mayor Garcetti visits DS-17  
where last of 11 DS banks  
was replaced in  
FY 2017-2018.





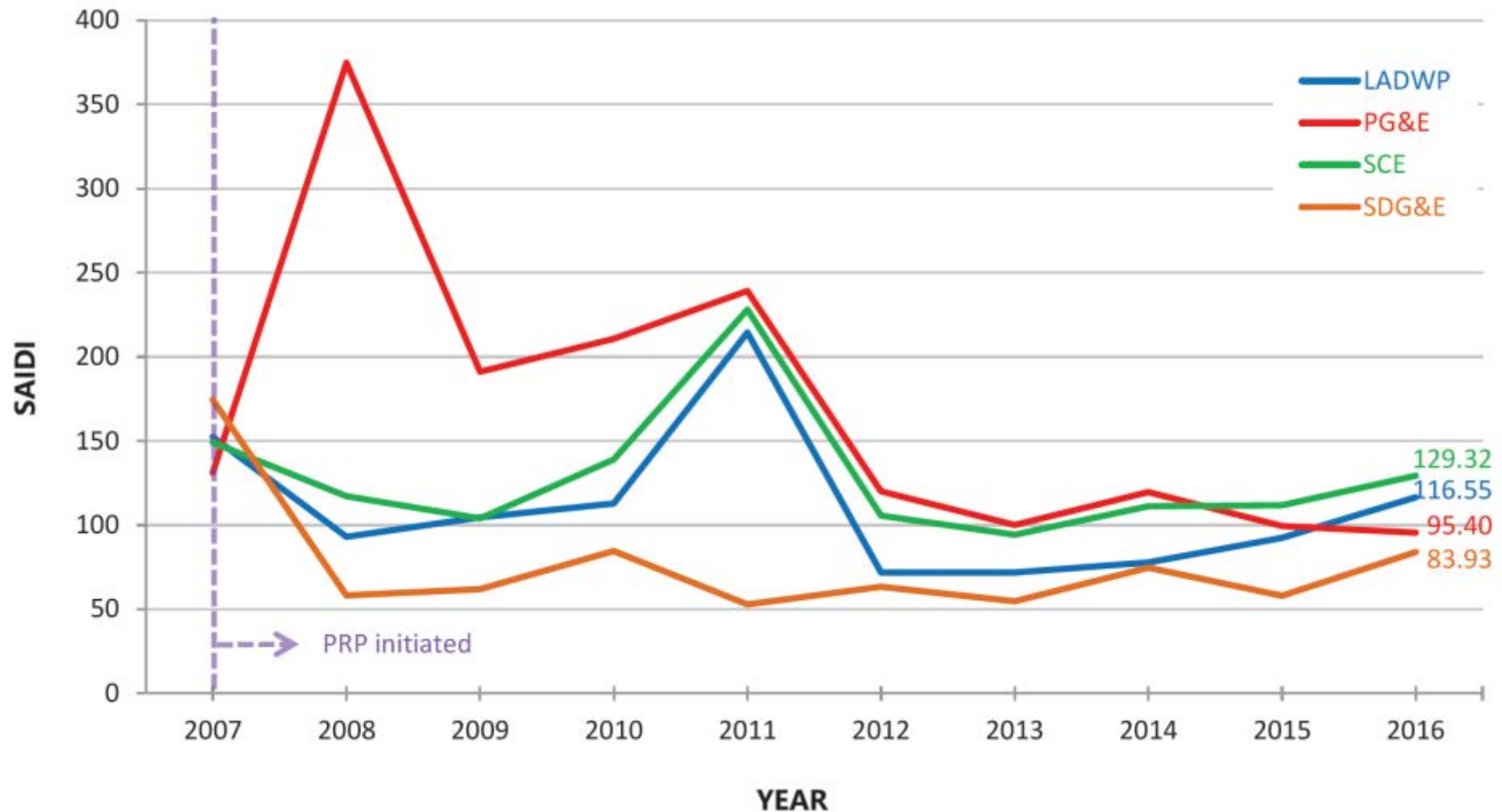
# Outage Frequency – 2017

Each LADWP customer may experience less than one outage per year.



# Outage Duration - 2017

If a customer experiences an outage, it usually lasts less than 2 hours.





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CUSTOMERS FIRST



