



& WILDFIRE SAFETY

2021 Wildfire & PSPS Preparations

Public Briefings

August 2, 2021

Safety Drives Everything We Do - Always



“Nothing is more important than the continued safety and well-being of the communities we serve, as well as the preservation of our environment

We are working tirelessly to integrate new, innovative technologies to significantly decrease the PSPS impacts experienced by our customers and reduce utility-related wildfire risk, while also forging a path towards a more sustainable future.”



Caroline Winn, Chief Executive Officer

Governance and Goals

Top-Down Safety Tone

Bottom-Up Feedback and Engagement

Wildfire Safety Preparedness



SDG&E's culture of wildfire safety and focus on continuous improvement is shown in its annual preparation for peak wildfire season



Critical Infrastructure Touchpoints and Assessing Resiliency Plans



Preparedness Outreach and Exercises with Public Safety Partners



Situational Awareness & Grid Enhancements to Reduce PSPS Impacts and Asset Inspections



Annual Webinars and Wildfire Safety Fairs



Improving PSPS Notifications including a Public Safety Partner Secure Portal



EOC Tabletop Exercises, Enhancing EOC Tools and Three 24/7 EOC Contacts for Partners



Annual Outreach Campaign Including Updated Points of Contact



AFN and MBL Outreach and Enhancing Services



Improving Our Risk Models To Increase PSPS Impact Capabilities

Operational Integration of Innovation + Technology



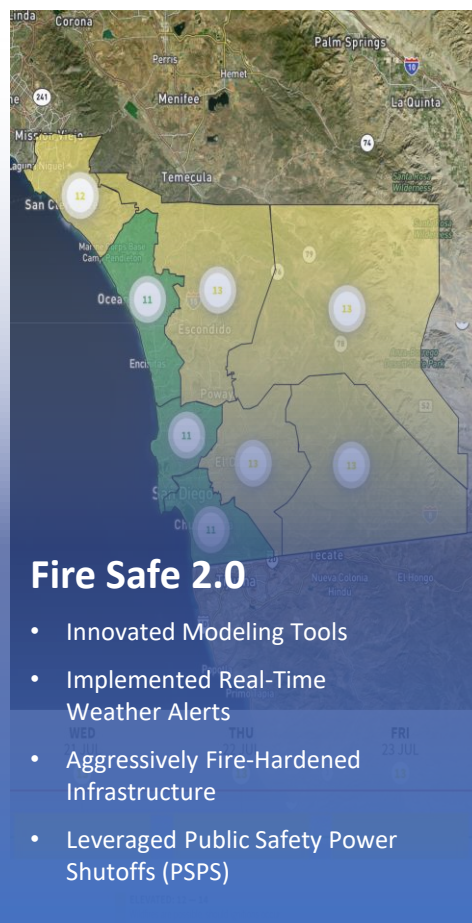
SDG&E continues to innovate and implement the next generation of situational awareness to advance wildfire preparedness and safety



Fire Safe 1.0

- Initiated Weather Network
- Installed Cameras
- Hired Meteorologists
- Added Aerial Support

2008 - 2010



Fire Safe 2.0

- Innovated Modeling Tools
- Implemented Real-Time Weather Alerts
- Aggressively Fire-Hardened Infrastructure
- Leveraged Public Safety Power Shutoffs (PSPS)

2011 - 2015



Fire Safe 3.0

- Fire Science + Innovation Lab Development
- Artificial Intelligence Implementation
- Created Vegetation Risk Index
- Enabled High-Speed Weather Data

2016 - 2020

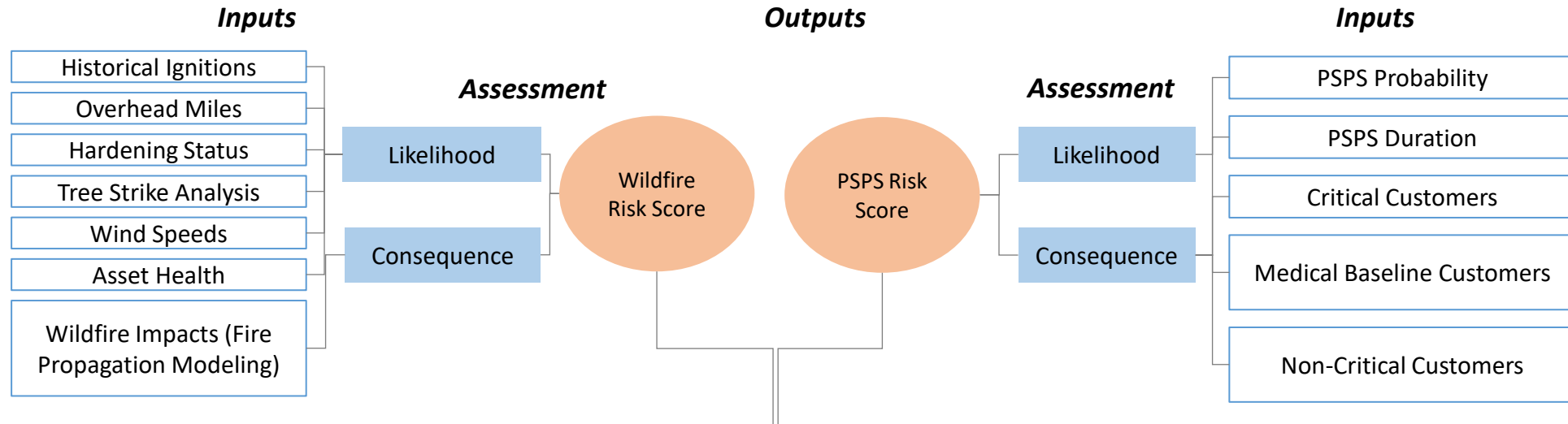


Fire Safe 4.0

- Weather Network Monitoring Real-Time Fuel Moistures
- Develop Coupled Wildfire and Atmospheric Models
- Direct Integration of Weather AI into Operational Systems
- Real-Time Satellite Wildfire Monitoring/Detection
- Modelling Tools Informing Risk and PSPS
- Modeling Global Climate Change Impacts on Wildfire

2021

Wildfire – WiNGS Model Overview



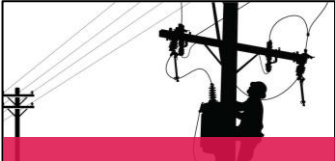

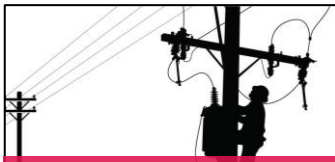


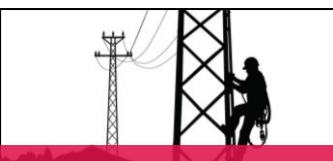


Mitigation Alternatives Analysis on >600 Circuit Segments

Long Term Grid Hardening Plan										
Mitigation	2020-2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Bare Wire	235 miles	Minimal miles								
Covered Conductor	82 miles	833 miles								
Underground	135 miles	880 miles								

Wildfire Risk Reduction & PSPS Impact Mitigation



 <p>Grid Hardening</p>	<p>2021 Completed/Target 70.5 / 155 miles installed</p>	<p>HFTD Hardened 21.8% Since 2014</p>	<p>HFTD Hardened 755 / 3,500 miles installed since 2014</p>	 <p>Situational Awareness</p>	<p>2021 Completed/Target 17 cameras installed</p>	<p>On Target</p>	<p>Total 100+ cameras 220 weather stations</p>
 <p>Expulsion Fuse Replacement</p>	<p>2021 Completed/Target 1176 / 3970 Cal Fire approved fuses installed</p>	<p>Completed 70.5% Fuses in HFTD</p>	<p>Completed 7,825 / 11,097 Cal Fire approved fuses installed</p>	 <p>Generator</p>	<p>2021 Completed/Target 3,663 Generators provided to eligible customers</p>	<p>On Target</p>	<p>Completed since 2020 2,806 Generators provided to eligible customers</p>
 <p>PSPS Sectionalizing Devices</p>	<p>2021 Completed 8 / 10 devices installed</p>	<p>On Target</p>	<p>Total 870 Sectionalizing devices in HFTD</p>	 <p>Distribution Drone Inspections</p>	<p>2021 Completed/Target 1,364 / 22,000 inspections</p>	<p>On Target</p>	<p>Completed since 2019 38,674 inspections</p>
 <p>Enhanced Vegetation Management</p>	<p>2021 Completed/Target 6,944 / 17,000 Trees trimmed to enhanced clearances</p>	<p>Trees trimmed to enhanced clearances 35.5% since 2019</p>	<p>Completed since 2019 28,781/ 81,000 Trees trimmed to enhanced clearances</p>	 <p>Transmission Drone Inspections</p>	<p>2021 Completed/Target 223 / 2,715 inspections</p>	<p>On Target</p>	<p>Completed since 2020 1,677 inspections</p>

2021 PSPS Mitigation Measures & Impact Reduction

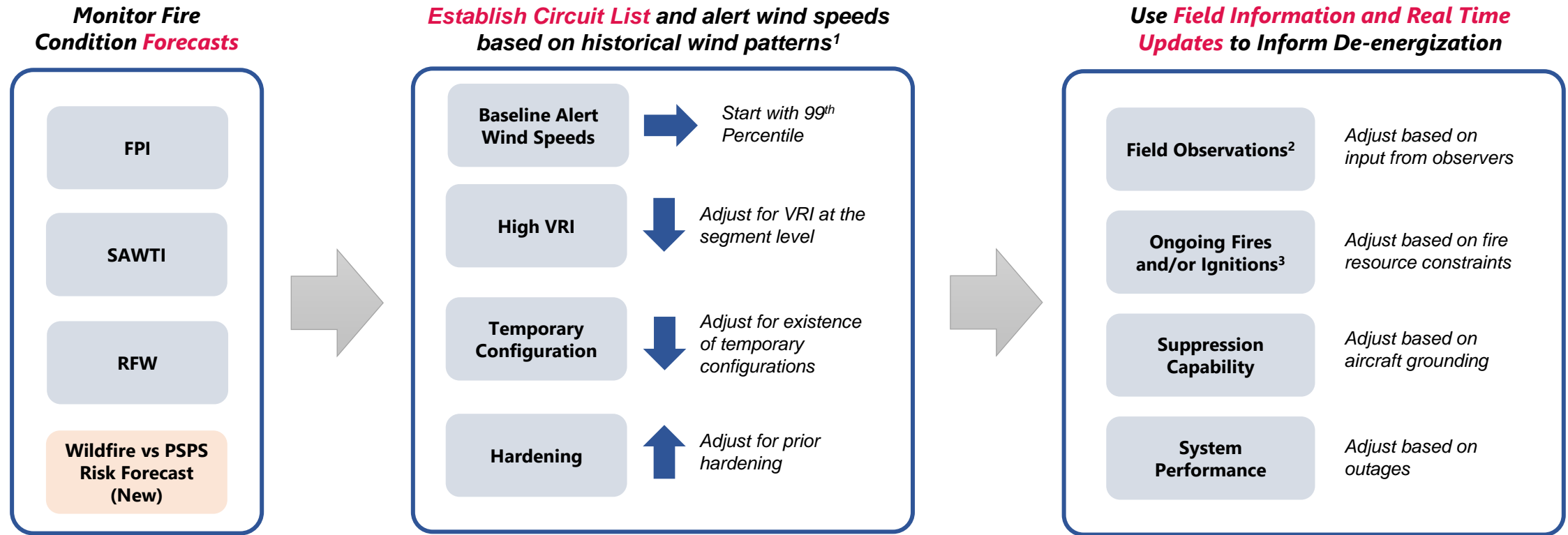


WMP Program	2021 Number of Locations	2021 Customer PSPS Impact Reduction
PSPS Sectionalizing	10	5,000
Fixed Backup Power	413	413
Resiliency Grant Programs	2000	2,000
Resiliency Assistance Programs	1250	1,250
Microgrids	5	1700**
Undergrounding	9	1,127
Total		11,490*

*Weather events will dictate the actual number of customer impact reductions

** Includes customers in the Campo community near the Cameron Corners microgrid to note reduction of PSPS impacts to customers utilizing services due to microgrid providing power

PSPS Decision-Making Framework



- 1) If fire potential is not extreme, it can also inform adjustments to alert wind speeds
- 2) Field observations do not change alert speeds
- 3) Ongoing fires does not adjust alert speeds but rather adjusts our PSPS decision making when reaching alert speed

PSPS DASHBOARD GUIDE: Overview and New Features

SDGE PPS Dashboard DeEnergized Areas | Critical Facility Details | 30 Second Read | PSPS Guide | EOC Web Resources | Admin

Anemometer	Notification to DeEnergize	Device	Gust	Alert Speed	Alert Speed	95/99 Per	VRI	Forecast	FPI	District	Sub	Projected Meters	MBL Count	Community
Ranchita	✓	211-279R*	17	15	+2	25/32	M	20	13	RA	WR	313	-	Ranchita
Ammo Dump		MN-12KV-231*	5	10	-5	24/30	H	17	13	NE	MN	1933	-	Fallbrook
Hellhole Canyon		1030-987*	5	10	-5	50/63	L	49	13	NE	VC	28	-	Valley Center
Mt Woodson Golf Club		176-26R	8	15	-7	31/40	M	23	13	RA	PO	0	-	Ramona
Rainbow Heights		1233-259R* (RB1-30R)	6	15	-9	24/32	M	21	13	NE	PA	612	-	Fallbrook
Cameron Corners		448-9R*	4	20	-16	29/35	M	26	13	ME	CN	1021	-	Campo
Cuca Ranch		214-1122R*	4	20	-16	34/47	M	22	13	NE	RIN	374	-	Pauma Valley

Alert Wind Speed: ● >= Alert Speed ● Alert Speed - 7 MPH Last Updated Time: 07/10/2021 08:21 Next Update In: 57 seconds Temporary Configuration and/or Compliance Poles = *

Device

Gust - Alert Speed

VRI

FPI

Links to view

Row Sorting

Notification to DeEnergize

95/99 Percentile

Forecast

Next Update In

Projected Meters

Data Yellow / Interactions Blue / Other Green

Mitigating Vegetation Threats



Tree Inspections

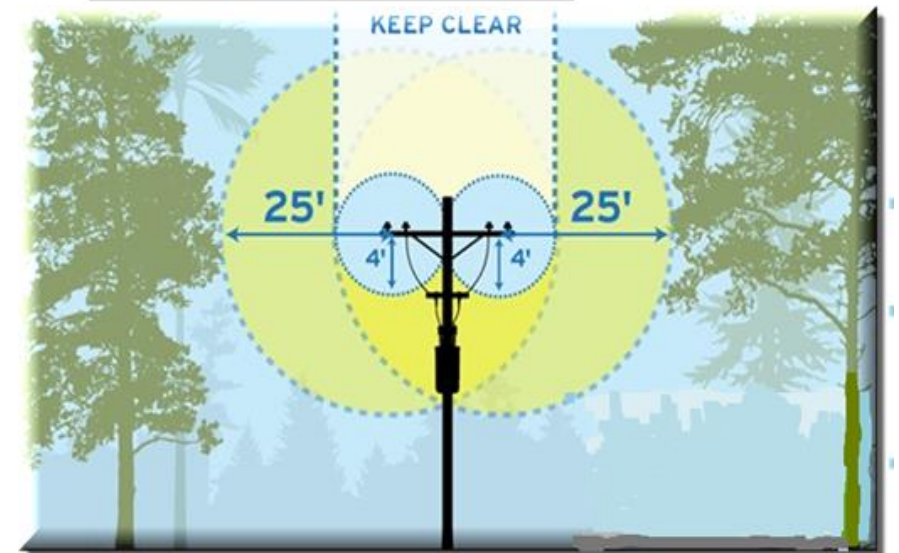
- Robust database tracking nearly 460K trees
- Twice-annual inspection of all trees located within the HFTD

Trimming Operations

- Removal of all tree branches overhanging primary wire
- Maximize post-trim clearances
- Prune trees with over-strike potential in HFTD

Vegetation Risk Index

- Merging Meteorology and tree outage data
- Engaging UCSD Supercomputing team to develop risk analysis and predictive modeling



Focusing on Customers



Public Education & Outreach

Diverse Communications

- Public Education Campaign (year-round) - 128 million + impressions forecasted
- Customized Tribal and AFN communications
- More than 20+ communication platforms
- Wildfire safety events: 6 online; 5 in person
- Partner with 200+ community-based organizations
- Communicate in 21 prevalent languages in service territory and American Sign Language
- Dedicated Spanish Communications Manager



Improvements to Notifications

Enhanced Accessibility

- Available in 21 prevalent languages
- DeafLink technology enables notifications in ASL, audio & text
- Address level for non-account holders

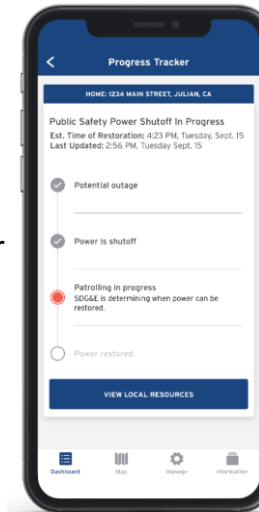


Refined Process

- Increased system capacity for faster notifications

Comprehensive Multi-Channel Approach

- Social Media & NewsCenter
- Broadcast media
- In-community road signs
- Community partners
- More detailed maps



Community Resource Centers (CRC)

Locations

- 11 Locations in total across the HFTD + 3 mobile resources
- Resources provided:
 - Bottled water
 - Light snacks
 - Cell phone charging
 - Seating
 - Restrooms
 - Ice
 - Water trucks (for large animals)
 - Up-to-date outage event information



- Access & Functional Needs improvements



Public Safety Partners



Secure Portal

Developed with
Safety Partner
feedback

Launch Sept. 1

Telecom

Annual outreach
campaign and
webinars

Regular
touchpoints

Tribes

Briefings,
collaboration,
resiliency fairs,
enhanced
support models



Supporting Customers with Access & Functional Needs



SDG&E partners with 2-1-1 San Diego and Orange County, Indian Health Councils, regional and statewide organizations to identify and support customers with access and functional needs during PSPS events

Available Services



Readiness Support



Battery Back-up Programs



Accessible Transportation



Hotel Stays



Food Support



Resiliency Items



Enhanced Notifications (ASL)



Welfare Checks

1

Enhance Identification & Understanding of AFN Community

Mapped "AFN" customers across database
Identified ~30% customers as "AFN"
Conducted AFN customer research

2

Enable customers to "self-identify"

Broadened ability to "self-identify" as having an AFN
Enhanced messaging and communication materials

3

Collaborate with Community Experts to Identify & Reach

AFN Statewide Council & Regional Working Groups
AFN Support Partners (2-1-1 SD, 2-1-1 OC)
Partnerships with State Orgs (IHSS)
Increased AFN CBOs & focus on PSPS support

Public Safety Partner Feedback 2020 Survey Results



Great: *"We are very fortunate to have our local utility company take a proactive approach in emergencies and natural disasters. SDG&E has led the example in our state."*

— Rich George, San Diego County Sheriff

Good: *"Communications to our Office of Emergency Services was good. OES relayed the information to us."*

— Jeff Moneda, San Diego County Department of Public Works

Fair: *"Might almost be too much? Flood of emails before and after event."*

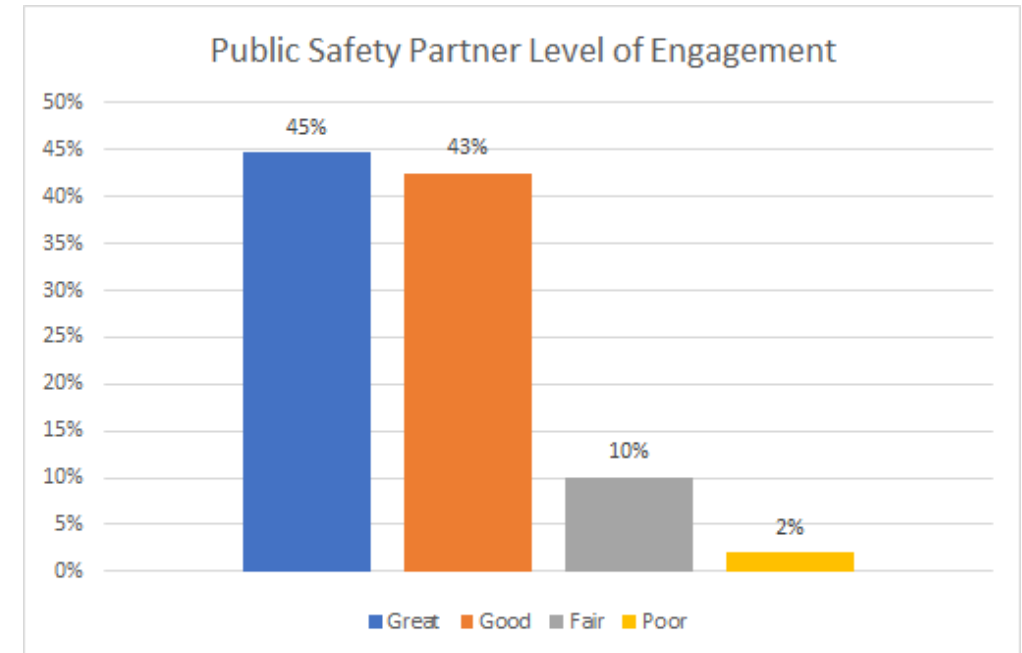
— Anonymous

Steps taken to address: Streamlined language of emails with input from the public safety partners focus group and will include message information in the PSPS secure portal.

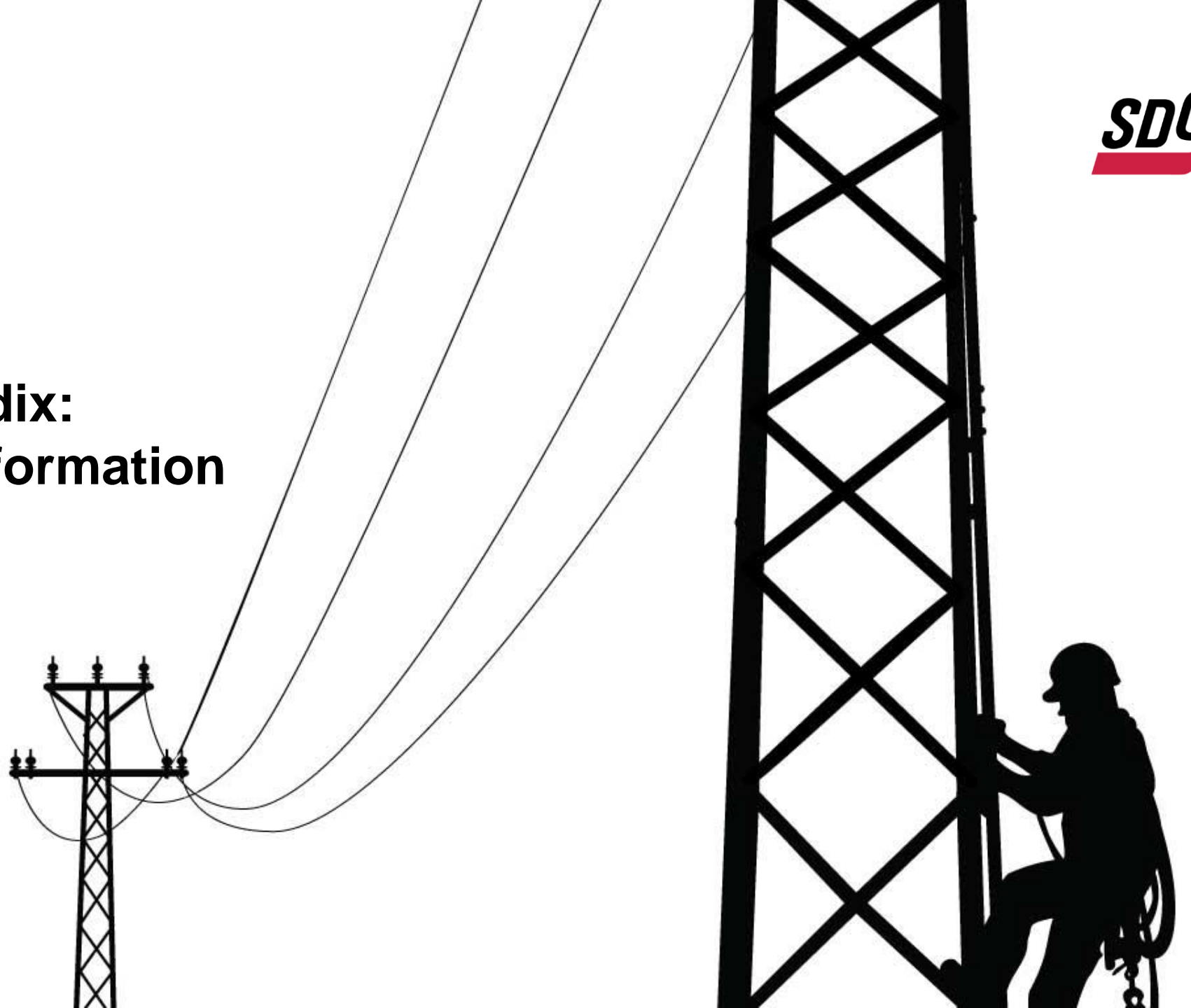
Poor: *"Residents have indicated that notification to them of power coming back on was poor. Power was back on before the initial notice by phone that they would be restored."*

— Anonymous

Steps taken to address: Increased capacity of auto-dialer to more quickly complete delivery of outbound customer notifications.



Appendix: Additional Information



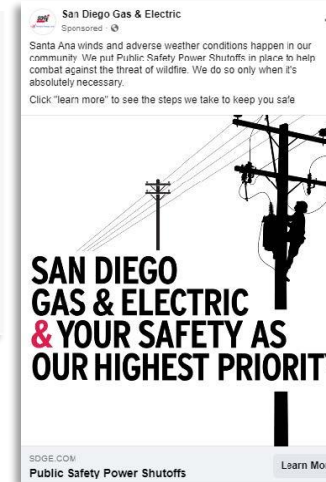
PSPS Marketing Product Examples



SAN DIEGO GAS & ELECTRIC & WILDFIRE SAFETY

Expanded campaign for 2021

Social & Digital Media



Television & Radio



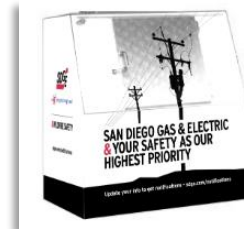
Print In-Language



Out-of-Home

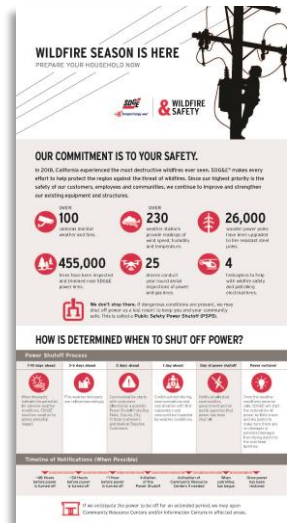


Bus Wrap



Ice Box Wrap

Bill Insert



PSPS Customer Communications



Augmented and diverse communications tools used to inform customers before, during and after events



Before Event

- Year-long dedicated marketing campaigns
- Multiple educational initiatives
- Extensive media and journalist education effort
- Power outage and preparedness videos
- Messaging amplification by 2-1-1 and CBOs
- SD County AFN Emergency Brochure
- Multiple customer surveys and research
- In-language communications



During Event

- Leverage 20+ diverse communications platforms
 - Hyper-local targeting via Nextdoor app
 - Media and journalist outreach
- PSPS mobile app and radio PSAs
- In-community and roadside signage
- PSPS community flyer distribution
- Dedicated PSPS and Wildfire Safety webpages
- Message amplification by 2-1-1 and CBOs
- Customer notification refinement to accommodate in-language and AFN customers
- Dedicated Spanish communications manager



After Event

- Follow-up customer communications via diverse platforms
- Customer research and campaign refinement
- Continuation of year-long marketing campaigns

Virtual EOC Tours

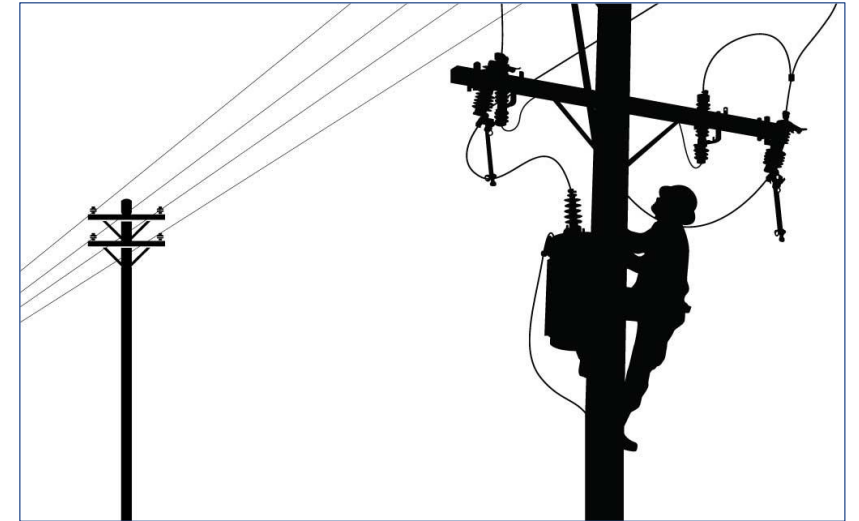


Virtual EOC tours consist of

- Overview of Emergency Management department and key programs
- Overview of Fire Science & Climate Adaptation department and the key programs
- PSPS protocol overview

Annual invitees include

- Senior and elected officials
- Regional Emergency Managers
- Public Safety Partners
- Other utility agency representatives
- Fire & Law representatives
- Local community-based organization representatives
- Tribal partners



Accessible PSPS Notifications

- New DeafLink technology (utilized by San Diego County OES) added to all PSPS notifications
- Includes:
 - Video of American Sign Language Interpreter
 - Audio readout voice over
 - Closed captioning of the message
- Will greatly enhance accessibility of PSPS notifications for people with sensory disabilities
- Transcript of message are also available in all 21 prevalent languages by embedded link to website



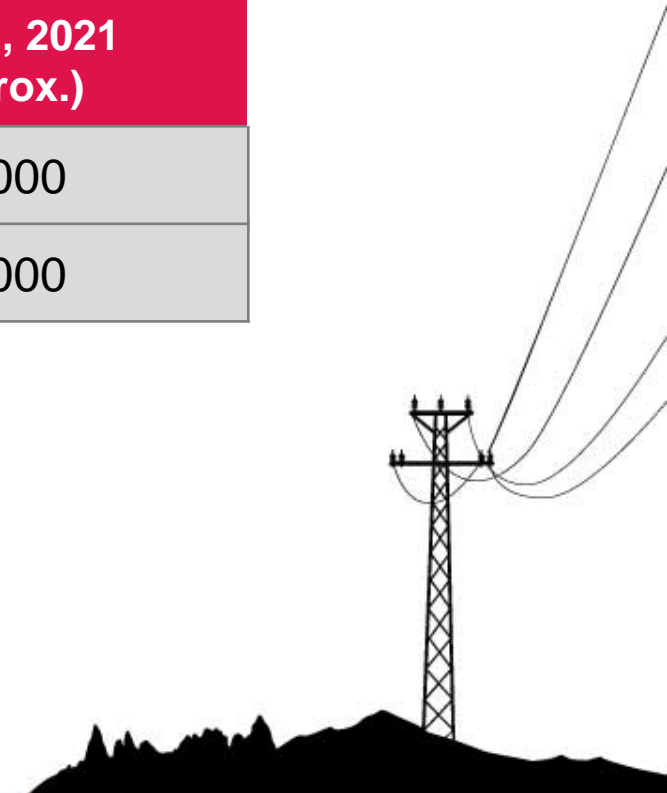
[Play Video](#)

Medical Baseline



SDG&E customers enrolled in the Medical Baseline Program for June 1, 2019–present

	Enrollment as of June 1, 2019 (approx.)	Enrollment as of June 1, 2020 (approx.)	Enrollment as of June 1, 2021 (approx.)
Total	51,000	57,000	66,000
HFTD	9,000	11,000	12,000



Mitigation: Backup Generators

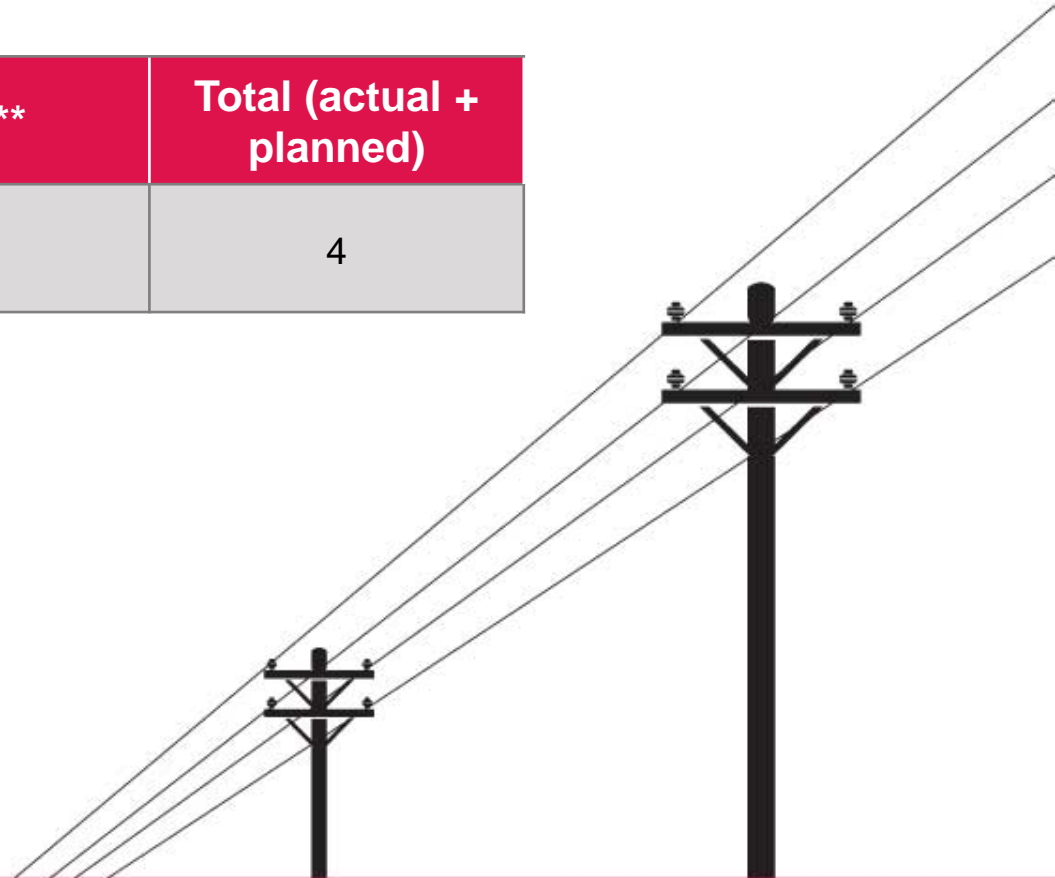


Backup generators provided to critical facilities customers in 2019, 2020 and planned for 2021

2019	2020*	2021**	Total (actual + planned)
0	4	4	4

* Includes temporary generators

** Includes microgrids.



Mitigation: Battery Storage



Number of battery storage devices provided to customers through SDG&E's Generator Grant Assistance Program in 2019, 2020 and planned for 2021, as well as the maximum performance in hours

	2019	2020	2021 (planned)	Total (actual + planned)
Number of customers provided with devices	65	1,420	2,000	3,485
Maximum performance (hours)*	3,055	66,740	94,000	N/A

**Using CPAP as an example, 65 Wh CPAP with fully charged Yeti 3000x = 47 hours of runtime per charge.*

Source: Goal Zero Tech Specs [Yeti 3000X Portable Power Station | Goal Zero / Goal Zero](#)

www.sdge.com/ggp



Mitigation: Grid Hardening



Near Term

- PSPS Sectionalizing devices can reduce scope of PSPS
- Backup power programs can reduce the impact of PSPS to customers

Long Term

- WiNGS-informed grid hardening strategies to reduce wildfire risk and PSPS impacts

Key Considerations

- Circuit topology may require multiple segments on a circuit to be hardened in order to realize full benefits
- Full segment hardening is necessary to maximize benefits to customers
- Hardening projects take 18 – 24 months to implement
- Circuit hardening status is a key consideration in PSPS decision-making




Illustrative
Segment Analysis

		Pre-Mitigation		Post-Mitigation	
				<u>Underground</u>	<u>Covered Conductor</u>
PSPS Risk	Probability	50%	0%	20%	
	Consequence	1000 Customers	1000 Customers	1000 Customers	

PSPS Reduction Over Time



Risk-informed grid hardening measures support long-term vision of reducing PSPS impacts

Mitigation	How it Reduces PSPS	Outcomes
Covered Conductor	Allows utility to raise threshold ¹ for de-energization	 <i>Scope of PSPS</i>
Undergrounding	Reduces necessity of shut-off	
PSPS Sectionalizing	Enables more targeted de-energization	
Microgrids	Keeps communities energized during shut-off	 <i>Frequency of PSPS</i>
Fixed Backup Power	Keeps customers energized during shut-off	
Resiliency Grant Programs	Provides backup solutions to keep critical appliances/equipment energized during shut-off	 <i>Duration of PSPS</i>
Resiliency Assistance Programs	Provides instant rebates to customers to purchase backup generators to reduce their PSPS impacts	

1) Adjustments to de-energization thresholds based on new mitigations such as covered conductor are still under development

PSPS Website Highlights

Accessibility



- Website built to Web Content Accessibility Guidelines (WCAG) 2.1.
- Coded “lite” to help low-bandwidth customers be able to use the page.
- Page available in 21 languages (use same Google widget as <https://www.cpuc.ca.gov/>).

Stability and Performance



- Website is built on Amazon Web Service’s (AWS) cloud infrastructure.
- Increase web servers as traffic and bandwidth increase.
- Utilize a Content Delivery Network (CDN) that caches the page to different regions (think Black Friday).

Other Highlights



- New AFN landing page has even more resources and personalized experience.
- CRC look-up tool will be a new feature this year.
- Data source for website is same as other PSPS systems to ensure consistency and accuracy.

Integrated Communications

When PSPS customer notifications are issued **48 hours** prior to an event, the PSPS dashboard is launched in parallel at sdge.com/Ready

The page is available until we end the event.

When there is no event customers can find:

- Preparedness information
- Safety tips
- Checklists, and
- Videos

Incorporations of Lessons Learned



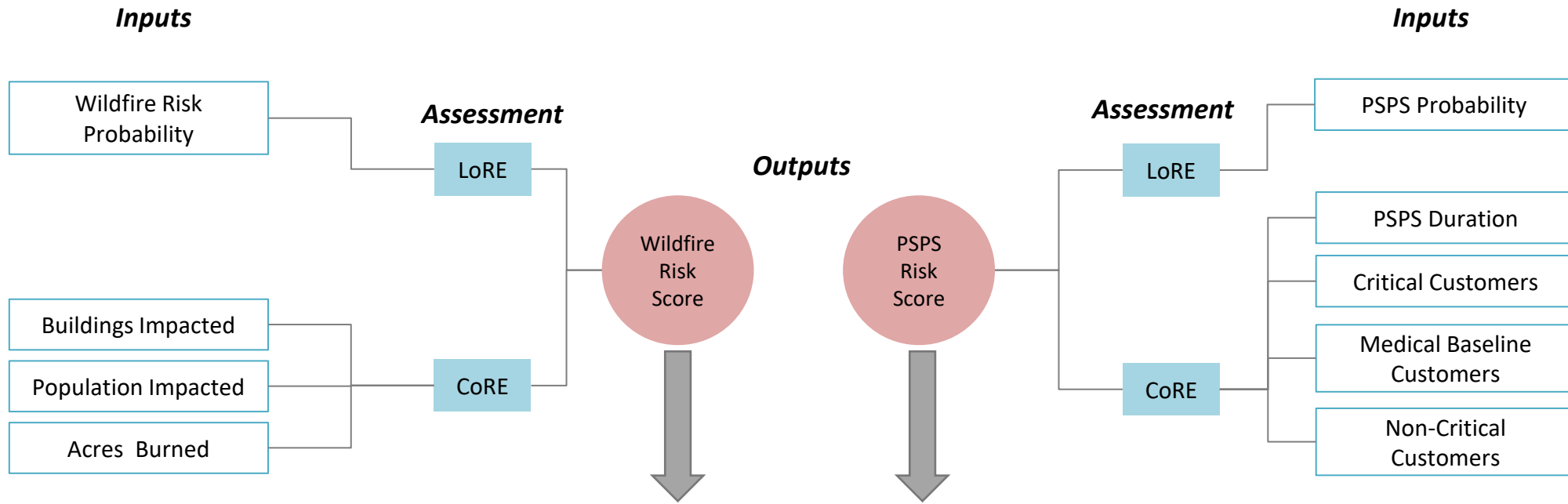
2020 PSPS Key Lesson Learned Action Item	Outcome
Multiple, simultaneous incidents, customer messages were not timed to ensure the customer notification system could accommodate the volume of notifications and various message types in the appropriate timeframes.	The capacity of the notification platform was expanded to accommodate a higher volume of notifications.
PSPS event converged with other emergencies (Load curtailment & Valley Fire), the timing and content of SDG&E's messaging was unclear at times and caused confusion for public safety partners.	Conducted an ad-hoc workshop for public safety partners, when converging events occur, a clear distinction will be made in overall messaging.
SDG&E website and internal PSPS de-energization dashboard at times did not match, creating confusion about the timing of the "all clear" message sent at the PSPS event conclusion.	Corrected the timing of the synchronizations so they were on the same cycle.
Feedback on the maps on the SDG&E website and Alerts by SDG&E mobile app was that they were not as user friendly as they could be.	Maps were improved on both platforms.

AFN Working Group Feedback



Working Group Feedback	SDG&E Actions
Promote availability of support via 2-1-1 during PSPS	Robust marketing campaign promoting 211 services including flyers, web and media; extensive partner trainings
Utilize print flyers and newsletters to reach individuals that do not use or own electronic media devices	Distribution of a flyer with information about assistance programs, contact information customer can use
AFN point of contact for SDG&E for customers and partners to utilize during PSPS	Established dedicated email AFNsupport@sdge.com and dedicated landing page for customers with AFN at www.sdge.com/AFN
Coordinate emergency messaging to standardize the format, timing, and distribution between the various stakeholders	Developed Information Sharing Template with single source event information, that will be sent out at the same interval and timing of other partners
Preparedness and safety outreach to those with limited cell or broadband service and those off the grid entirely within the HFTD with a trusted organization	Partnering with Community Emergency Response Team (CERT) from rural communities for PSPS outreach to canvas areas with little or no internet or cell service

Advanced PSPS Risk Modeling



Segment	Wildfire Risk Score	PSPS Risk Score
Segment 1	500	200
Segment 2	650	315
.....
Segment n	300	400

LoRE: Likelihood of Risk Event
CoRE: Consequence of Risk Event