



San Diego Gas & Electric® CPUC & OEIS Safety Briefing

July 20, 2023



Agenda

- **Robert Borthwick** – Chief Risk Officer, Sempra; Board Safety Committee Chair
- **Kevin Geraghty** – Chief Operating Officer & Chief Safety Officer, SDG&E
- **Brian D’Agostino** – Vice President, Wildfire Mitigation and Climate Science, SDG&E
- **Jonathan Woldemariam** – Director of Wildfire Mitigation, SDG&E



SDG&E Board Safety Committee

Advises & assists SDG&E's board of directors in their oversight of safety matters that affect the company, including employees, contractors, customers and the community.

Duties

- Review and monitor SDG&E safety culture, goals and risks;
- Reviews incidents, measures and strategies taken by management to prevent, mitigate, or respond to safety-related incidents involving employees, contractors, customers or community members;
- Review and monitor current and emerging Company safety matters, including issues raised by safety audits;
- Reviews Company incentive compensation metrics related to safety and monitors performance
- Annual review of Committee charter

Committee Members

- Robert Borthwick (Chair), Chief Risk Officer, Sempra
- Karen Sedgwick, Chief Administrative Officer and Chief Human Resources Officer, Sempra
- Caroline Winn, Chief Executive Officer, SDG&E

The Committee engages with the community and stakeholders through participation in SDG&E's Wildfire Safety Community Advisory Council







SDG&E Board Safety Committee

Topics covered during the past 12 months include:

- Advancing Community Safety Through Innovation and Predictive Modeling
- 2023 Wildfire Safety, Grid Hardening and Vegetation Management Updates
- SDG&E Damage Prevention Program (protecting underground gas, electric, and fiber optic infrastructure)
- Lessons learned from contractor fatality at Sempra Infrastructure facility
- Implementation of SDG&E Safety Management System (SMS)
- Updates to SDG&E Safety Performance Metrics and Dashboard
- 2021 SDG&E Safety Culture Assessment and Recommendations
- Serious Injury and Fatality Program Update
- Wildfire Situational Awareness and Meteorology Tools
- Telematics on Fleet Vehicles

The Committee receives updates on the Company's safety performance at each meeting, including safety performance metrics

SDG&E Board Safety Committee Recommendations

Recommendation	Status
Arrange field visit for Committee members to observe vegetation management operations aimed at wildfire safety	
Report on Envista root cause analysis of PG&E wildfires and applicability of any lessons learned to SDG&E	
Review and report on SDG&E contractor safety management processes	
Report on 2022 SDG&E Wildfire Safety Culture Assessment and Recommendations	
Received presentation addressing SCG Safety Culture OIR Report and applicability of lessons learned to SDG&E	
Retained independent compensation consultant to advise Safety Committee on safety aspects of executive compensation	
Report on inspections of legacy gas transmission lines , and SDG&E's programs to address public safety during gas incidents (Recommended July 2023)	Late 2023
Report on SDG&E's 2023 internal wildfire challenge sessions and any actions taken by SDG&E in response to prepare for the fall Santa Ana season (Recommended July 2023)	Late 2023

Integration Within SDG&E's Safety Management System

SDG&E's SMS incorporates and adapts industry leading safety excellence standards into a holistic framework designed to meet the unique needs of electric utilities

Incorporating the core "pillars" into the SMS provides assurances that safety risks are identified and addressed

SMS processes:

- Build safety into everything we do with consistently-applied, repeatable steps
- Provide greater integration of safety, risk, asset, and emergency management with operational needs
- Solicit increased worker feedback; apply enhanced data collection and assessment
- Apply Plan-Do-Check-Act Cycle for continuous safety improvement



Employee & Contractor Safety Performance

Annual Safety Performance: 2022

Rate = (# Incidents X 200,000 / hours worked)

Safety Message: Set clear leadership safety goals and expectations – both safety culture and performance – in order to start the year strong. Establish goals by building risk and safety into everything we do focusing on mental, physical, asset and system safety. Encourage teams to establish their 2023 safety resolutions. 2022 safety data is being assessed to develop targeted, actionable, measurable enhancements within SDG&E’s 2023 Safety Management Action Plan.

LEADING INDICATORS		Near Miss Submittals		Safety Observations	
		Employee	Contractor	Employee	Contractor
	2022	371	142	20,355	13,091
	Goal	350	N/A	17,178	12,000









	EMPLOYEE SAFETY										CONTRACTOR SAFETY								
Period	SIF Rate		P-SIF Rate		TRIR			LTI Rate			SIF Rate		P-SIF Rate		TRIR			DART Rate	
	Rate	Trend	Rate	Trend	Rate	Goal	Trend	Rate	Goal	Trend	Rate	Trend	Rate	Trend	Rate	Goal	Trend	Rate	Trend
2022	0.04		1.30		1.82	1.26		0.37	0.31		0.03		0.28		0.76	0.94		0.33	
2021	0.02		2.53	N/A ¹	1.81	N/A		0.55	0.36		0.03		0.29	N/A ¹	0.85	0.96		0.56	
2020	0.00	--	N/A ¹	N/A ¹	1.56	N/A	--	0.54	0.48		0.08	N/A ¹	N/A ¹	N/A ¹	0.97	1.37		0.53	

Positive trend or improvement; on track to meet targeted goal
 Negative trend; potentially not on track to meet goal without further attention
 Neutral; remains steady or no change
 1. Data collection began in 2021



SIF: Serious Injury or Fatality
 P-SIF: Potential Serious Injury or Fatality
 LTI: Lost Time Incident
 TRIR: Total Recordable Incident Rate
 DART: Day(s) Away/Restricted or Transfer Rate

Public & Operational Safety Performance

Annual Safety Performance: 2022					
CPUC Reportable Metric	2020	2021	2022	Trend	Overall Performance
Public Serious Injuries and Fatalities (# Serious Injuries # Fatalities)	3 0	2 0	0 0		Seeking Target Zero; continuous improvement processes in place with Asset, Risk and Safety Management efforts.
Fire Ignitions (# CPUC-reportable ignitions)	29	25	20		Launched program connecting different data owners within the company to enhance the connections between ignition data with other data.
T&D OH Wires Down – including secondary & Major Event Days (# instances)	179	372	372		Tracking of secondary wires down began in August 2020.
Electric Emergency Response (Average time in minutes)	46.57	49.71	46.59		~6% improvement vs. 2021; Response times remain stable with slight decrease corresponding with a historically average number of emergency orders in 2022.
Gas Emergency Response Time (Average time in minutes)	30.36	29.06	28.72		Steady. Continued improving trend since 2018.
Gas Dig-ins (Dig-ins per 1,000 USA tickets)	1.61	1.54	1.19		Continued improving trend since 2018.
Control Time – Gas Shut-in Time Mains (Median time in minutes)	580.50	871.00	833.00		~4% improvement vs. 2021; Increased 2021-22 times are largely attributed to the coordination, callout efforts, and crew travel times due to COVID-19 safety measures. In 2023, Gas Ops will continually implement operational efficiencies and process enhancements.
Control Time – Gas Shut-in Time Services (Median time in minutes)	94.00	127.00	98.08		~23% improvement vs. 2021; see above narrative.

Advancing as a Learning Organization

Early identification of safety risks allows for preventative mitigation measures

Reactive

Investigate, share and learn from incidents; implement corrective actions to prevent reoccurrence

Proactive

Proactively seek identification of risks and hazards; implement preventative measures

Predictive

Analyze system, data, and processes for early identification of potential risks; mitigate risk

Examples

- Safety Incident Review Meetings
- Serious Injury & Fatality (SIF) Potential Assessment
- Equipment Failure Reports
- Emergency Mgt. After Action Review Program

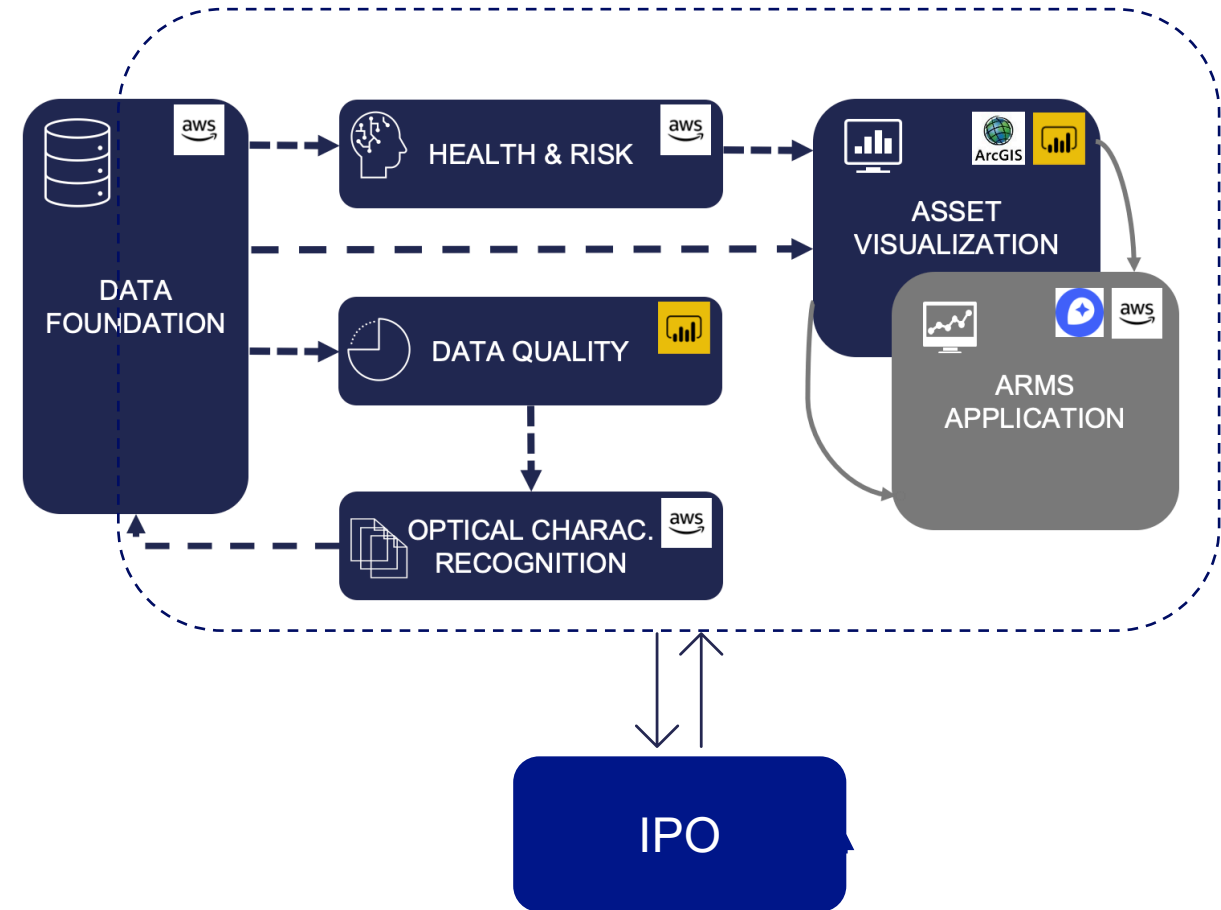
- “Just Culture” initiative promoting psychological safety
- Monthly Safety & Operational Performance Dashboard
- Near Miss reporting
- Behavioral Based Safety (BBS) & supervisor field observations

- **Asset Risk Management System (ARMS)**
- Vehicle Telematics
- **Fire Science & Climate Adaptation (FCSA) application**
- Ignition Mgt. Program
- Power Quality data

Asset Risk Management Systems (ARMS)

Deploying Enhanced Data Analytics & Risk-Informed Decision Making:

- New tool to generate data-driven, risk-informed capital projects for Investment Prioritization Optimization (IPO)
- Comparison of Risk Reduction and 'what-if' scenarios between project alternatives to optimize projects on safety, reliability, and financial risk
- Enables detailed scoping approval to optimize on safety, reliability, and/or financial risk



Fire Science & Climate Adaptation Smartphone Application

Provides users access to forecasted weather directly from SDG&E's own meteorologists

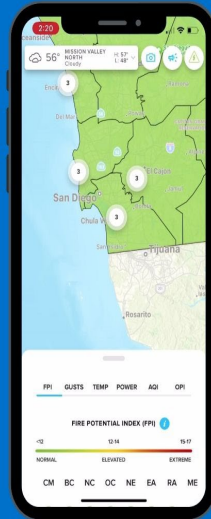
Want more accurate weather forecasting?

There's an SDG&E app for that!



STAY UP TO DATE

Get the app for real-time weather updates, safety messaging, and more, go to the App store or Comp Portal and search for FSCA.



METEOROLOGY

Delivering 24/7/365 forecasting, our Meteorology team is dedicated to using their considerable resources for developing tools to further enhance situational awareness, thereby ensuring the safety of our employees, our customers and our operations.

<https://sdgweather.com>

Sample Communication:

This forecasted heat index alert is issued for:

- 06/13/2023 Borrego Springs: 93°F

The "Real Feel" or Heat Index is forecasted to exceed 90°.

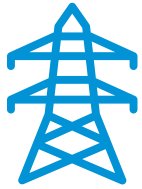
Employees working outdoors during the forecasted heat event should start hydrating to prepare for the heat event.

Supervisors of employees working outdoors during the forecasted heat event must:

- Provide 4 cups of water per person per hour (unless there is a means to replenish) and encourage employees to drink 4 cups of water per hour.
- Encourage frequent breaks and provide access to shade.
- Discuss heat illness prevention controls at a pre-job meeting or tailgate.
- Be on alert and monitor employees for heat illness symptoms.
- Directly observe or regularly communicate with employees.

SDG&E 2023 Incentive Compensation Plan (ICP): Operational & Safety Metrics

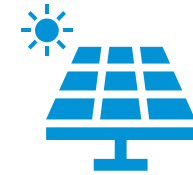
ICP goals for 2023 were developed with an emphasis on safety, operational excellence, and customer experience



- Wildfire & PSPS System Hardening
- Vegetation Contacts in High Fire Threat District (HFTD)
- PSPS Average Circuit Restoration Time (Hours)
- Electric Overhead Fault Rate During Elevated Fire Potential
- Annual Average Phishing Report Rate



- Lost Time Incident (LTI) Rate
- Controllable Motor Vehicle Incidents (CMVI)
- Field Observations
- Near Misses



- System Average Interruption Duration Index (SAIDI)
- Customer Service Value
- ESG Project Progress
- Diversity, Equity, and Inclusion
- Community Relations and Supplier Diversity

2022 Wildfire Safety Culture Assessment Report Recommendations

2022 Progress

76% participation overall compared to 71% in 2021

Overall score of 4.34, improvement over 4.22 in 2021



The Prioritization of Safety

Reduce barriers to prioritizing safety over job task goals.

Leadership consistently demonstrate that safety is the priority above all else.



Risk from Interactions with the Public

Combine customer visits when possible.

Train frontline workers in de-escalation.

Improve communication to crew regarding hostile customers.







Safety Event Reporting

Track quality and trends of near-miss reporting.

Monitor anonymous vs. non-anonymous reporting.


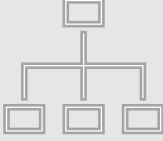
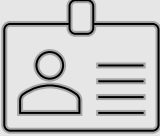


Address issues in Ignition Management Program

Safety Culture Goals & Objectives

	Build Trust & Promote Psychological Safety	Compliance Assurance	Employee Engagement	Contractor Engagement
Actions	<ul style="list-style-type: none"> Communicate and follow-up on reported hazards and incidents, including: <ul style="list-style-type: none"> Those that pose wildfire risk Proactively reduce exposure Prevent future incidents Encourage non-anonymous reporting by demonstrating leadership commitment and support 	<ul style="list-style-type: none"> Detailed inspection cycles Risk prioritization Identify corrective actions Track actions through timely completion Verification and certification 	<ul style="list-style-type: none"> Supervisors/leaders observing tasks and peer-to-peer observations to provide: <ul style="list-style-type: none"> Opportunity to identify and communicate safe and at-risk behaviors Coaching regarding avoidance of at-risk behaviors Increased trust and transparency Reinforcement of safety best practices and expectations 	<ul style="list-style-type: none"> Safety observations of third-party contractors provide: <ul style="list-style-type: none"> Additional safety assurances that the work is being performed safely Opportunity to identify and communicate safe and at-risk behaviors Coaching regarding avoidance of at-risk behaviors Recognition of safe behaviors
Measurable Metric	Near Misses 	Corrective Maintenance Program (CMP) Inspections & Findings Mediated 	Employee Safety Observations 	Contractor Safety Observations 
2022 Goal	300	100%	17,718	12,000
2022 Actual	371	100%	20,355	13,091

Key Lessons Learned Over Past 12 months

Objective: Apply lessons learned to identify opportunities for continuous safety improvement

Management Commitment 	Supervisor Engagement 	Employee Involvement 	Safety Support Activities 	Safety Support Climate 
<ul style="list-style-type: none"> • Examples of top management demonstrating their leadership and commitment to safety include: <ul style="list-style-type: none"> ○ 2023 Start Strong offsite safety event ○ Executive Safety Council hearing directly from front-line employees and supervisors ○ Chief Safety Officer and management participation in various safety committees ○ Chief Safety Officer and management participation in monthly Behavior Based Safety meetings 	<ul style="list-style-type: none"> • Examples of improved Supervisor Engagement include: <ul style="list-style-type: none"> ○ Supervisor Training Academy ○ First annual Working Foremen and Supervisor Safety Summits ○ Increased field safety visits ○ Training curriculum and testing program Employee Safety 	<ul style="list-style-type: none"> • Increased measures to promote safety awareness and an active role in incident investigations and in identifying and eliminating hazards, including: <ul style="list-style-type: none"> ○ Increased number of near miss events reported by contractors and employees ○ Implemented a specific skills audit team from the Skill Training Center ○ Solicited worker suggestions and feedback on wildfire safety mitigation efforts 	<ul style="list-style-type: none"> • Improved the frequency of detailed and regularly scheduled inspections • Implemented enhancements to safety and skills trainings, including new employees • Performed Serious Injury and Fatality (SIF) potential assessments on Safety Incidents and reported Near Miss incidents 	<ul style="list-style-type: none"> • Improved the status and value of safety committees; increased supervisory level focus from on how they think about safety, including: <ul style="list-style-type: none"> ○ Near Miss Reporting program <ul style="list-style-type: none"> - tailgates - safety meetings - through an online process - using a smart device application
<p>Employee Safety Barometer Survey results: Improved</p> <p>2018: 91.7 2020: 98.3 2022: 98.7</p>	<p>Employee Safety Barometer Survey results: Improved</p> <p>2018: 90.8 2020: 99.0 2022: 99.2</p>	<p>Employee Safety Barometer Survey results: Improved</p> <p>2018: 85.3 2020: 95.8 2022: 96.6</p>	<p>Employee Safety Barometer Survey results: Improved</p> <p>2018: 89.0 2020: 96.9 2022: 98.0</p>	<p>Employee Safety Barometer Survey results: Improved</p> <p>2018: 89.8 2020: 98.6 2022: 99.3</p>

Measured Response Through Three Investment Areas

Situational Awareness

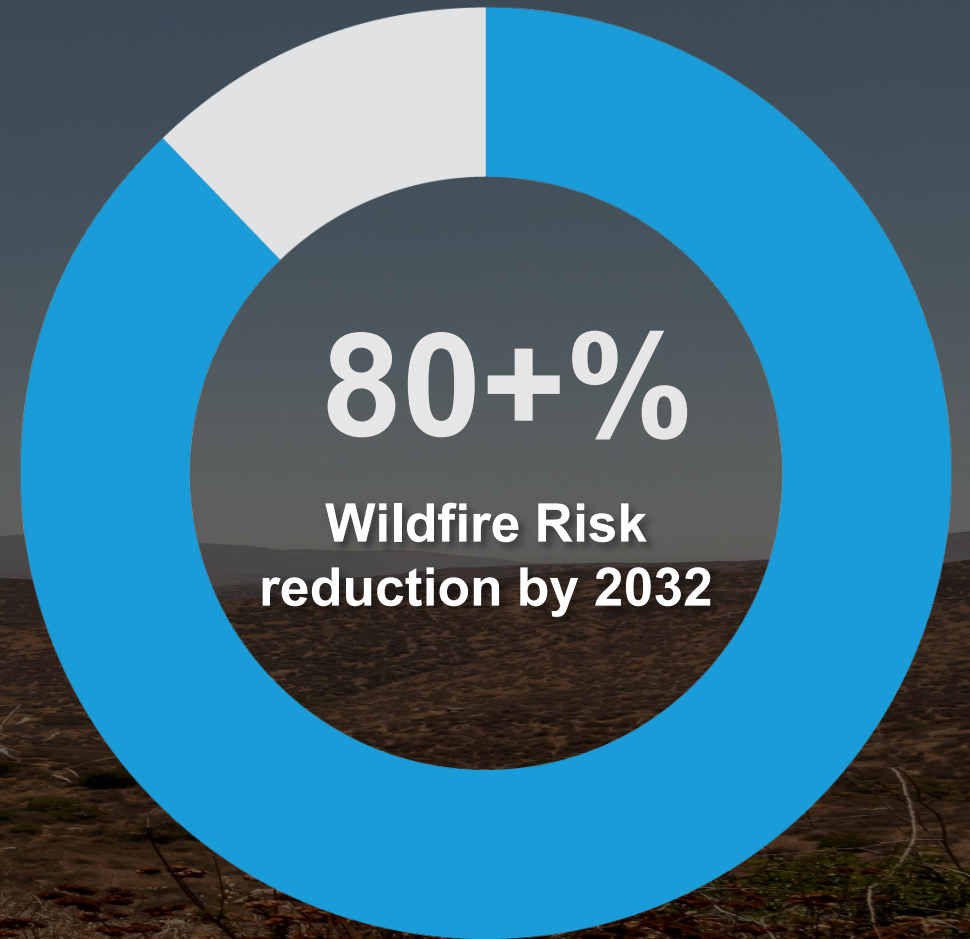
Using advanced data collection, curation & consumption solutions to improve the ability to drive hardening & resilience strategy, reduce wildfire risk & track progress

Infrastructure Hardening

Targeted Investments through undergrounding, covered conductors, vegetation management, system protection & management of Public Safety Power Shutoffs (PSPS)

Stakeholder & Community Outreach

Proactively communicating with key stakeholders & customers in the event of a PSPS or adverse weather, fostering new & existing relationships with community-based organizations



Investments have resulted in the 15th consecutive year without a catastrophic utility-caused wildfire in SDG&E's service territory



**15
YEARS**

Without a large utility-caused wildfire



**~\$4.9
BILLION**

Invested in Wildfire Mitigation since 2007



**100% RISK
INFORMED**

Industry-leading risk models informing grid hardening investments

Efficacy studies show a reduction in risk events from WMP programs



Grid Hardening Fault Reduction

98%

Reduction in faults on undergrounded circuits

83%

Reduction in faults on transmission circuits

65%

Reduction in faults on covered conductor distribution circuits



Asset Replacements

100%

Reduction of ignitions from CAL FIRE approved fuses

40%

Reduction in fuse outages

30%

Reduction in lightning arrester outages



Enhanced Vegetation Management

93%

Reduction in vegetation-related ignitions

62%

Reduction in vegetation-related faults



Sensitive Relay Settings reduced ignition rate for faults in the HFTD

100%

Reduction in ignitions downstream of SRP-enabled devices

61%

Reduction in ignition rate

Informing Decisions & Actions through Situational Awareness

Awareness enabled by data & Artificial Intelligence (AI)

Readily available, varied & accurate data delivers valuable AI & Machine Learning capabilities.

The ongoing advancements in mapping, situational awareness, wind studies, advanced data analytics & risk models help shape the grid hardening strategy



**Alert SDG&E
Camera Network**

Captures video & images of service territory in high fire threat districts



**Internet of Things
(IoT) Sensors**

Devices in the field capture precise fuel moisture & chlorophyll measurements & weather conditions



**Satellite
Imagery**

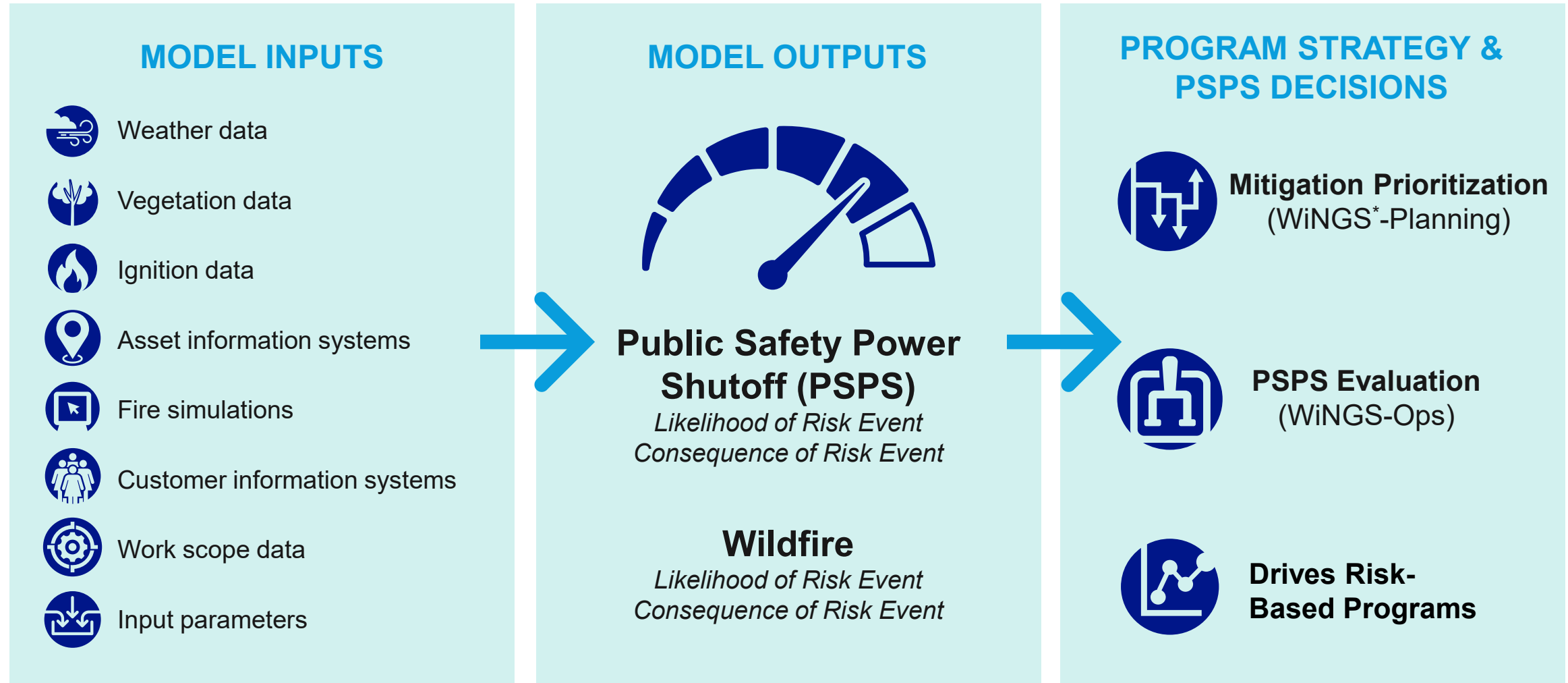
Enables image capture in frequent intervals to identify hot spots & support asset & vegetation management



**Image
Detection**

Processes imagery from the field to detect proximity of vegetation to the system & accelerate predictive infrastructure maintenance

Risk-Based, Data-Driven



* WiNGS - Wildfire Next Generation System

Infrastructure Hardening Investments

Driven by situational awareness, operational & system enhancements are imperative to reduce system risk exposure & increase reliability



Vegetation Management

Managing an inventory of over 495,000 trees with new data sources to reduce the likelihood of a tree strike, with twice yearly inspections in the HFTD



Grid Hardening

Strategic undergrounding (~1,500 miles through 2032), covered conductor (~370 miles through 2032), grid reconfiguration, asset replacement & overhead hardening reduce system risk exposure



Advanced Protection Systems

Developments in edge-computing capabilities include falling conductor protection, high-speed relays & new private LTE Network enabling autonomous preventative actions



System Inspections

Enhanced inspection capabilities using drones, new data sources from the field, advanced analytics & machine learning.



Thank You