![SDGE™]

Wildfire Mitigation Next Generation System
Providing Real-Time Data on Wildfire Threats

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SDGE™

4,100 Square miles

3.6 Million customers

2 Counties (San Diego & Orange)

25 Communities

16 Federally recognized Tribes

Coastal, mesa, valley, mountain and desert terrain

Utility of the Future

Utilities are facing increased risks demanding the use of technology & innovation to transform how we deliver energy with purpose

Increasing Climate Risks

CA wildfires increased in size by roughly 800% over the past 50 years demanding greater resiliency[1]

Energy Transition

$11 trillion has been committed to divest from fossil fuels[2]

[1]Earth's Future (Journal) [2]350.org

Business Transformation

Continuous & *high frequency* innovation through technology is critical to tackling our biggest challenges

Innovation Framework

Learn

Rapidly identify opportunities through Design Thinking & Innovation Workshops

Prove

Evaluate, assess & prove concepts through agile teams working in weekly sprints

Scale

Capture business value by scaling proven concepts to the enterprise level projects

Focus on **agile methodologies** to deliver **most value** as early as possible to have a **point-of-view** for an investment decision

Invest in **emerging technologies** that drive business value through **efficiencies & effectiveness** to help "close the gap"

WiNGS Journey

WiNGS started as an idea to build a risk-based approach to address wildfire risk, it has transformed into a single platform to make faster, more informed mitigation decisions when facing real-time threats

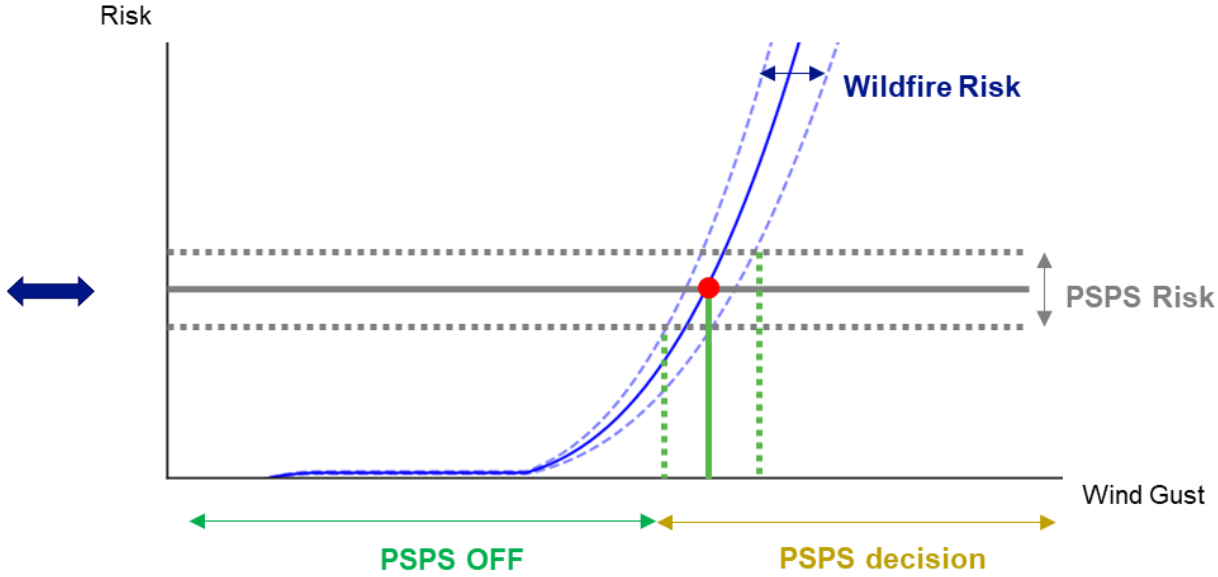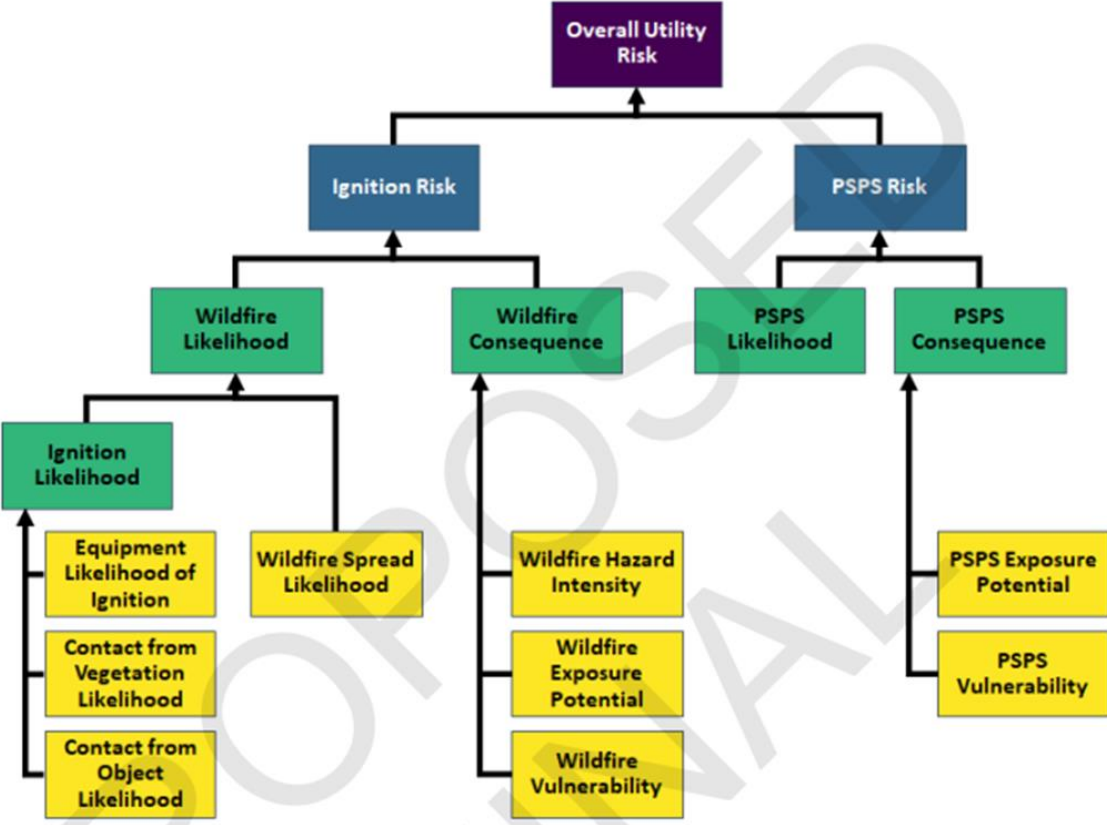| Siloed data within the business pertaining to risk, customer, weather, and assets | WiNGS model development for calculating risk insights | Migration of models to cloud & data mesh | Ingestion of data mesh models to Digital Twin Platform to visualize on map | User-interactivity with WiNGS models through Digital Twin Platform |

THEN ⟶ NOW

Problem Statement

References:
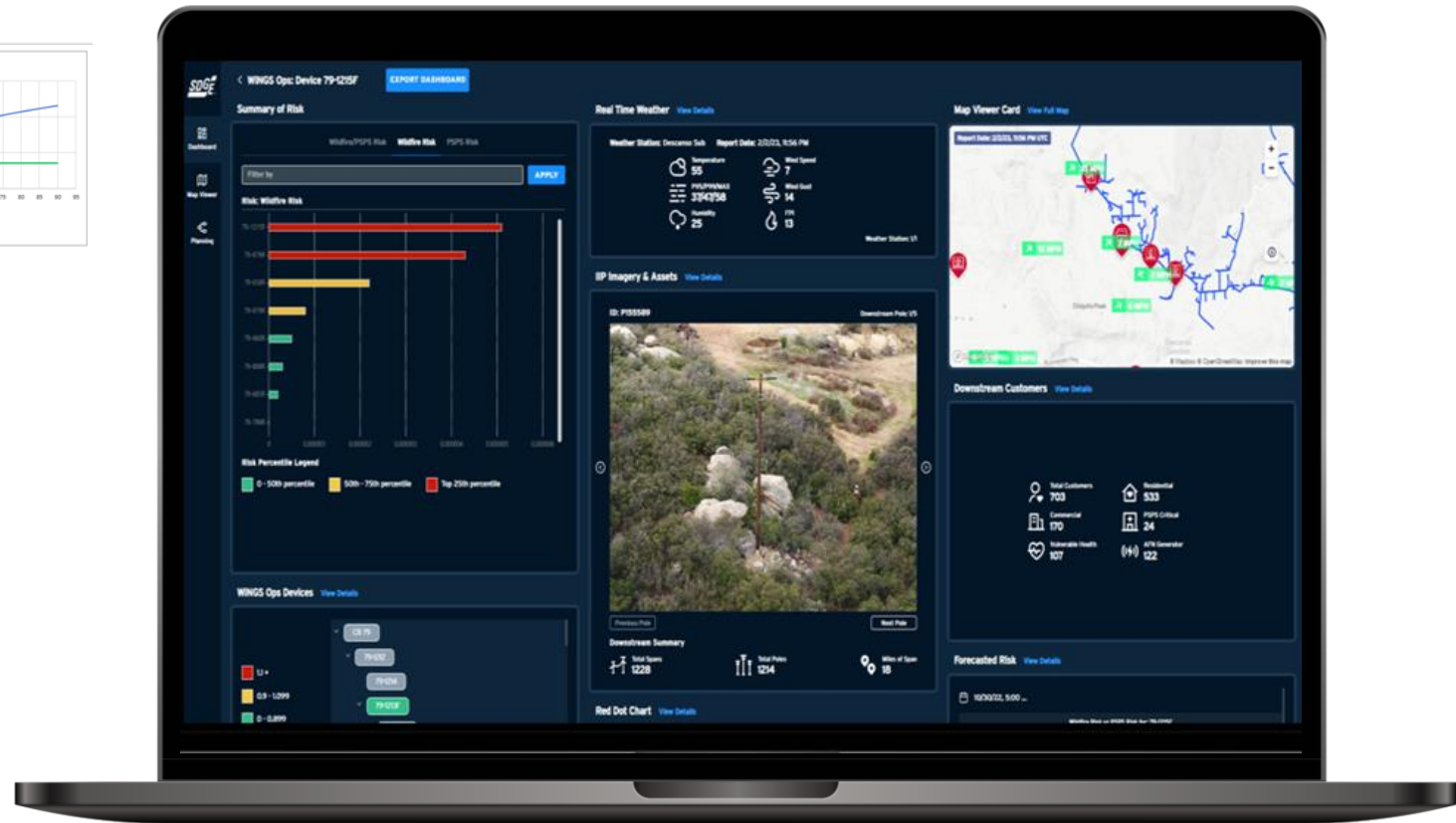1) Figure 6-1. 2023-2025 Wildfire Mitigation Plan Technical Guidelines

The Solution

2021

2023+

- Data Scientist (x2) modeling in local machines
- Interactive Excel Macro visualization

WiNGS

Informs wildfire mitigation efforts through predictive scenario analysis & supports real-time operational decision-making during emergencies

Visualize, navigate, and interact with machine learning outputs in a **geospatial tool** to identify areas with a high risk of a wildfire
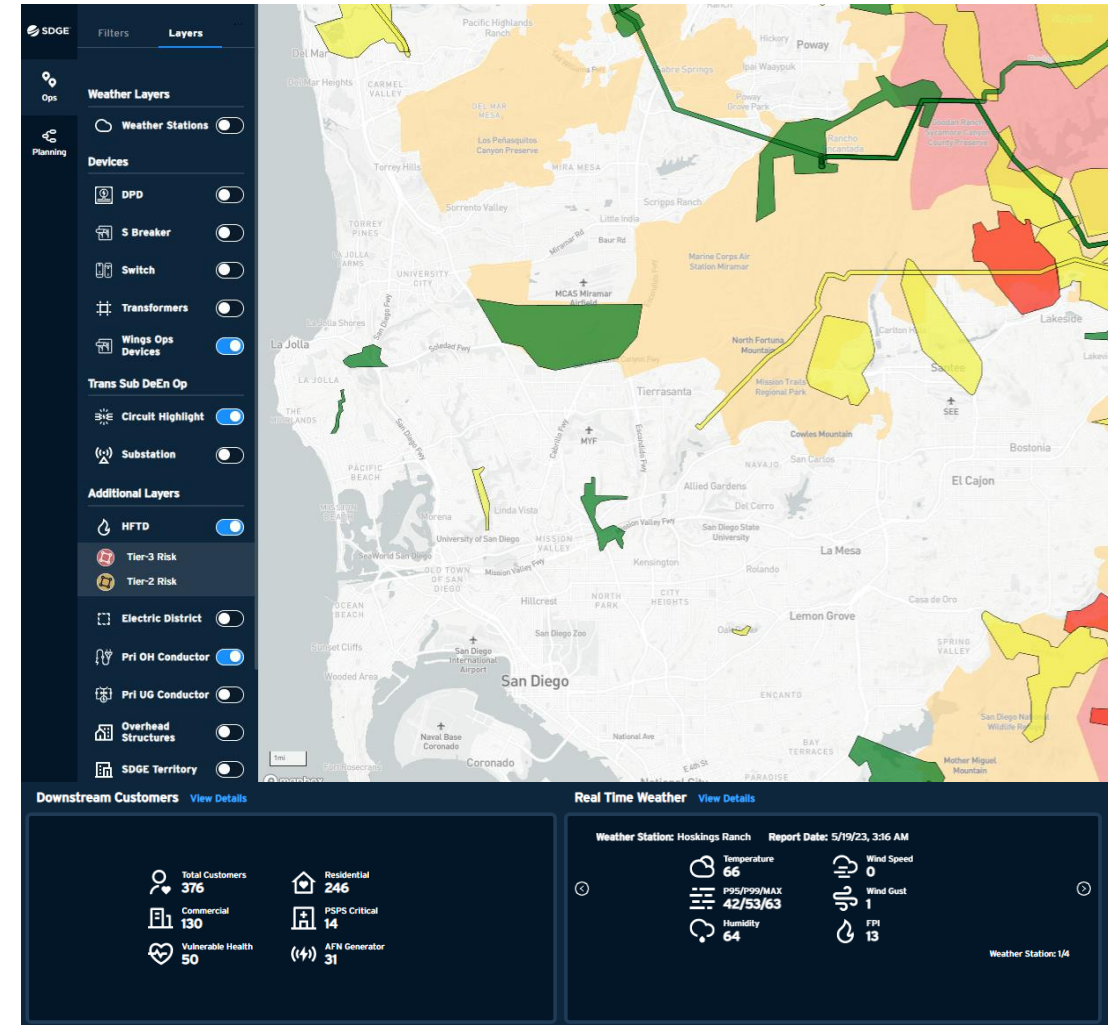
Model Wildfire vs PSPS risk accounting for assets, weather, and customer information based on a Multi-Attribute Value Framework

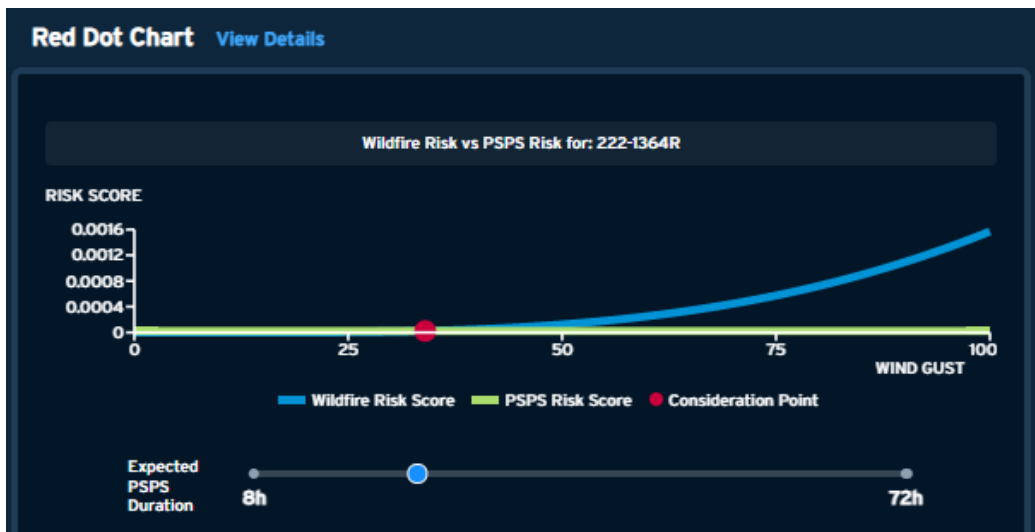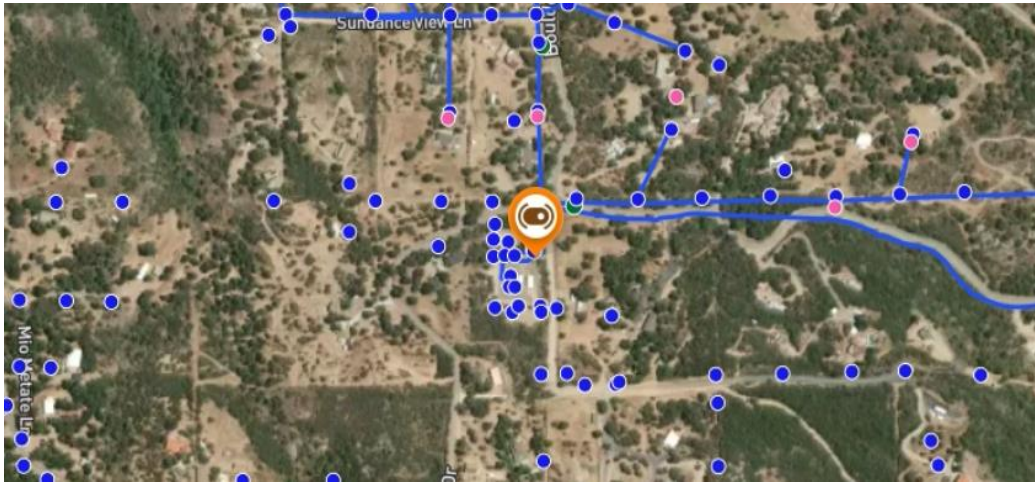Aggregate siloed data sets into one platform to make faster, **more informed, and targeted decisions.**

Keep safe and more reliable power in San Diego with **250x faster analysis.**

All values shown are for illustration purpose only

WiNGS Ops

WiNGS Ops supports real-time de-energization decisions during EOC activations

Instant access to the top 10 devices for Wildfire risk, Public Safety Power Shutoff risk, or Wildfire-to-PSPS risk ratio

Visibility to downstream customer impact

Real-time weather information from SDG&E weather stations covering all the service territory
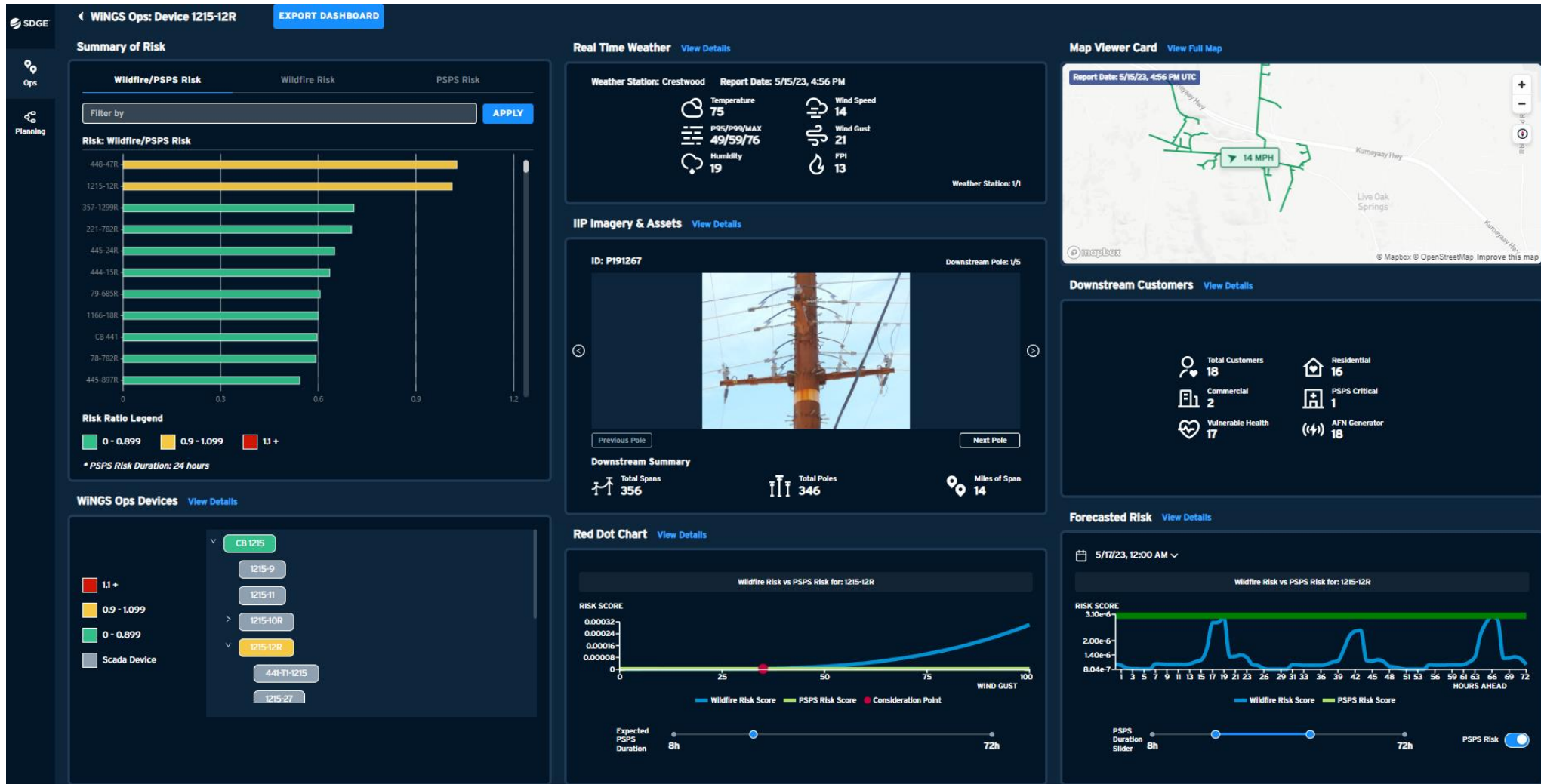
Forecasted risk over the next 3 days with hourly resolution

Imagery of vegetation and asset configuration at the pole level from SDGE's Intelligent Imagery program

WiNGS Ops

All values shown are for illustration purpose only

WiNGS Planning

Evaluate proposed risk-reduction scenarios to optimize infrastructure improvements to help prevent the consequences of wildfires

Heatmap overlay of Wildfire & PSPS risk

Time slider functionality allowing users to see **risk reduction over time** in the serviced territory based on model-suggested mitigations

Circuit & segment specific metrics for customer, asset, historical weather conditions, and risk

Self-service **model editing & re-run**, empowering users to make scenario analysis to evaluate risk reduction and cost efficiency solutions
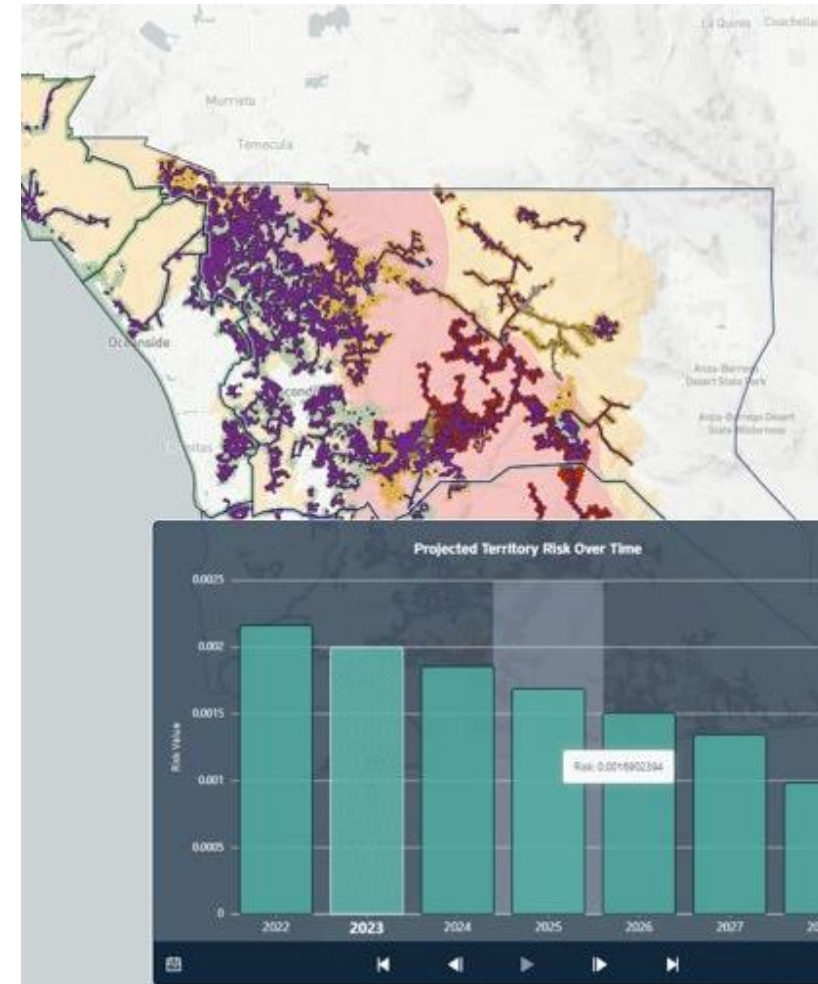
WiNGS Architecture
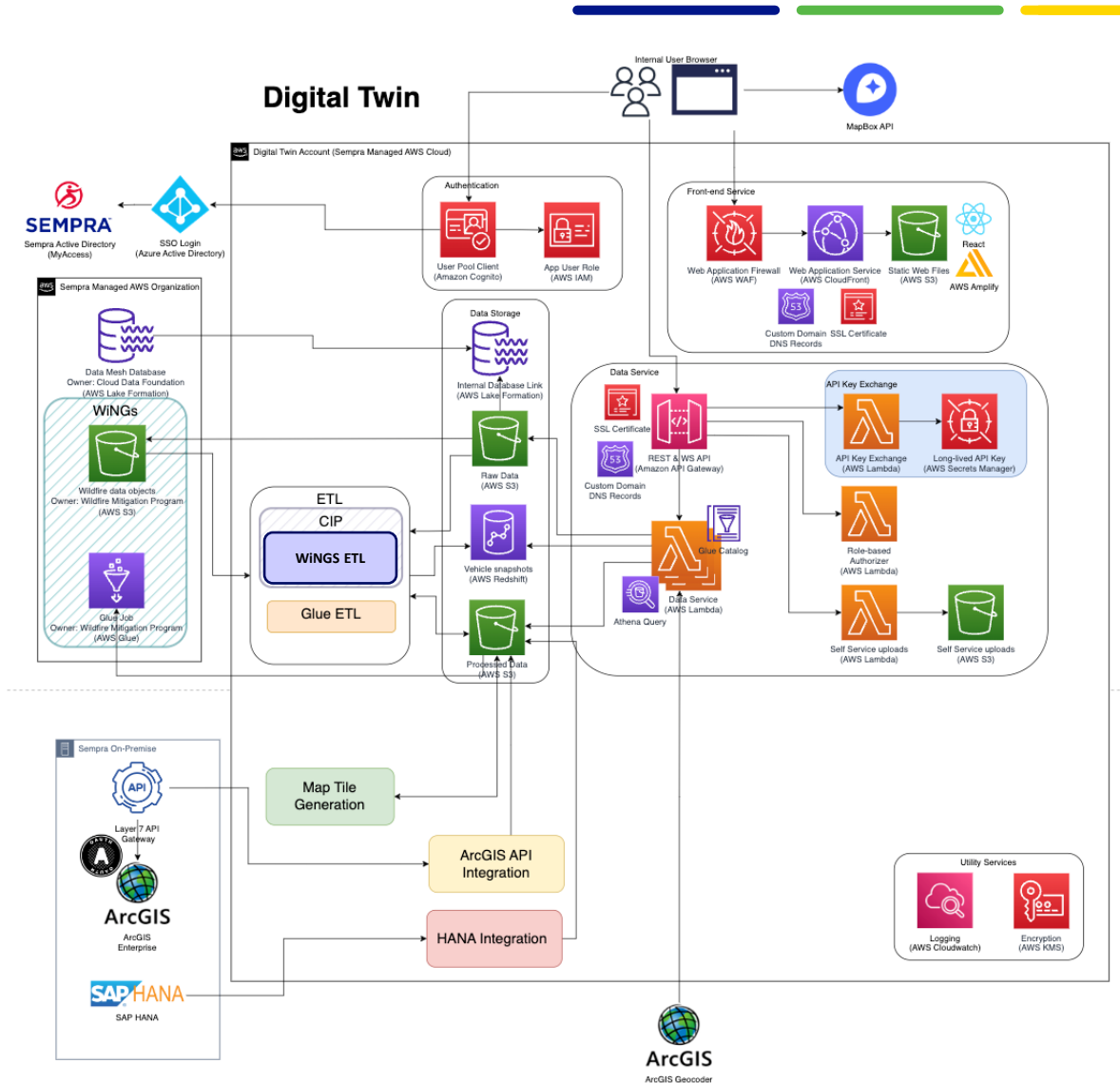
Built using AWS + React and MapBox

Data is **managed and stored** using AWS serverless services

Data Integration

- Live data comes from data mesh

- Extracts use Glue ETL jobs enabling an easy switch to the data mesh

- Integrations with SAP Hana & ArcGIS data systems is also enabled

> *Nothing is more important than the continued safety and well-being of the communities we serve. We are working tirelessly to integrate new, innovative technologies to decrease the PSPS impacts experienced by our customers and to reduce utility-related wildfire risk.*

Caroline Winn

Chief Executive Officer

SDG&E

SDGE™

Thank You