Company: San Diego Gas & Electric Company (U 902 M)
Proceeding: 2024 General Rate Case – Track 3
Application No.: A.22-05-016
Exhibit: SDG&E-T3-WMPMA-12

SUPPLEMENTAL REBUTTAL TESTIMONY OF JONATHAN WOLDEMARIAM ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY (TRACK 3 – WILDFIRE)

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

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SUPPLEMENTAL REBUTTAL TESTIMONY OF JONATHAN WOLDEMARIAM ON BEHALF OF SAN DIEGO GAS & ELECTRIC COMPANY

I. INTRODUCTION

Q. What is the purpose of your testimony?

A: The purpose of my supplemental rebuttal testimony is to address the testimony from The Protect our Communities Foundation (PCF) submitted by B. Powers (Exhibit PCF-59) dated April 2026, regarding SDG&E's Track 3 request. Specifically, I focus on Mr. Powers' incorrect assumptions and conclusions. In addition to SDG&E's previously submitted testimony and support, the supplemental workpapers, submitted on March 9, 2026, provide enhanced cost breakdown and addresses detailed content not provided in previous submittals, allowing the Commission to find that the 2023 Wildfire Mitigation Plan Memorandum Account (WMPMA) costs are just, reasonable, and prudent for cost recovery.

As background for my testimony, SDG&E's Track 3 request requests recovery of the costs that were necessary, reasonable, and prudent to implement a successful utility wildfire mitigation program. The Office of Energy Safety (Energy Safety) has previously noted the effectiveness of SDG&E's wildfire mitigation program.[1] SDG&E has likewise been lauded numerous times by credit rating agencies for its successful wildfire mitigation program.

- **Standard & Poors (S&P):** SDG&E "has developed a 17-year track record of not causing a significant wildfire (in part due to its robust wildfire mitigation practices)."[2]

[1] Energy Safety, Action Statement on SDG&E's 2021 Wildfire Mitigation Plan Update, at 28 ("Compared to its peers, SDG&E continues to lead the three large electric utilities in assessing risk. It has the most sophisticated situational awareness and understanding of its risk exposure.").

[2] S&P: Tear Sheet: Sand Diego Gas & Electric Co. Monitored Due to Risk of Material Draw on Wildfire Fund (Feb. 11, 2025) at 1.

- **S&P:** SDG&E has "develop[ed] and implement[ed] sophisticated analytics and an advanced wildfire warning system that includes weather stations and fire cameras, which aids the fire mitigation efforts."[3]

- **Moody's:** SDG&E has a "track record of effective wildfire risk mitigation."[4]

The fact that SDG&E has not ignited a catastrophic wildfire in its service territory for almost 20 years provides ample evidence that the investments made by SDG&E have been prudent ones for SDG&E's customers and for the state. SDG&E has over 60% of its territory in high fire threat zones—perhaps the highest proportional exposure of any investor-owned utility in California. For Track 3, SDG&E should be benchmarked against itself, not against other utilities who have not been as successful despite billions of dollars of investment to harden their systems. The costs of underinvestment in utility infrastructure has real human and financial consequences that cannot be separated from the costs to appropriately invest in utility infrastructure.

As such, the financial costs of a potential catastrophic wildfire also need to be considered when determining whether a wildfire mitigation program was reasonable based on the information that the utility knew at the time. Specifically, the inquiry about whether the wildfire mitigation efforts were reasonable at the time must consider whether those efforts prevented any catastrophic wildfires—which SDG&E did during the period in question—against the potential costs of a catastrophic wildfire.

By contrast, Mr. Powers' continued preoccupation with his idealized solar-plus storage (SPS) framework is irrelevant to a reasonableness review of SDG&E's actual 2023 wildfire mitigation activities. And at no point—including in SDG&E's 2024 GRC—has the Commission

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[3] *Id*.

[4] Moody's, San Diego Gas & Electric Company (Apr. 3 2025) at 1.

adopted SPS as a wildfire mitigation or PSPS measure despite PCF repeatedly raising the concept.[5] In reality, SPS would fail to meet the region's electricity needs, leaving hospitals, schools, and businesses without power.

II. RESPONSE TO PCF

Q. Is Mr. Powers' statement on page 19 that "covered conductor, undergrounding, and distribution overhead system hardening" all "do not cost-effectively reduce ignitions" accurate? If not, why not?

A: No. Mr. Powers has no basis for this claim. Nor does he define what "cost-effective" even means or how he is using that term. SDG&E has repeatedly demonstrated—and Energy Safety and the Commission has approved in SDG&E's Wildfire Mitigation Plan (WMPs)—that these mitigation measures are the appropriate ones depending on the circumstances. Moreoever, as I have previously testified, SDG&E is required to meet its Energy Safety WMP targets within reason, which specifically include these hardening mitigations. Mr. Powers saying that these should be zero is inconsistent with the wildfire mitigation framework established by Senate Bill 901 and Assembly Bill 1054, SDG&E's compliance obligations to comply with its approved WMP targets, and better suited for a policy argument in a general rate case forecasted rate proceeding; not a prudent manager reasonableness review.

[5] Decision (D.) 24-12-074 at 482 ("it is not clear how customers would buy their own SPS systems using their own funds . . . the Commission finds insufficient information to implement SPS at this time as a wildfire risk mitigation measure.").

Q: Is Mr. Powers' statement on page 20 of his testimony regarding the Wildfire Next Generation System (WiNGS) model correct that "Undergrounding and covered conductor are considered first and prioritized over all other grid hardening options?" Can you please explain how SDG&E selects the appropriate grid hardening measure?

A: Although Mr. Powers is correct that SDG&E prioritizes strategic undergrounding (SUG) and covered conductor (CC) because, in many circumstances, those mitigation measures are the best way to reduce wildfire and public safety power shutoff (PSPS) risk in the long-term, he is incorrect in asserting that SDG&E is not considering the most cost-efficient mitigation to reduce ignitions by "prioritizing undergrounding, and then covered conductor" instead of other mitigation options such as "advanced protection, PSPS sectionalizing, early fault detection, and equipping customers with solar plus storage (SPS)."[6]

SDG&E hardening programs such as covered conductor, strategic undergrounding, and distribution overhead system hardening (DOSH) focus both on reducing the risk from wildfires ignition and PSPS reduction—as required by Commission and Energy Safety directives to reduce PSPS and the use of other risk mitigation techniques that impact customer reliability. SDG&E's focus in 2023 was primarily on the highest PSPS risk-ranked circuits within the high fire threat district (HFTD)—including those with immediate life and property threats from potential wildfires in areas with high historical wind speeds. Most locations selected for strategic underground and covered conductors were locations with maximum winds above 50 mph in areas with vegetational risk and immediate impact should an ignition[7] occur.

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[6] Exhibit (Ex.) PCF-59, *Prepared Direct Track 3 Testimony of Bill Powers, P.E. on Behalf of The Protect Out Communities Foundation* (April 6, 2026), at 22.

[7] See. Ex. SDGE-T3-WMPMA-08-E, *Errata Supplemental Workpapers of Jonathan Woldemariam* (April 2026) (Ex. SDGE-T3-WMPMA-08-E) at 26.

And the locations selected for CC often had conductors that were over 70 years old. Specifically, about 90% of the total CC miles completed in 2023 were on feeder segments with an average conductor age over 70 years. Again, the Commission and/or Energy Safety have found that a reasonable balance of undergrounding in the highest risk areas—in combination with other hardening measures—is beneficial and reasonable.

Such efforts have helped SDG&E avoid a catastrophic wildfire. And strategic undergrounding was required by SDG&E's approved WMP for 2023. If SDG&E had not complied with that approved plan it would have been out of compliance and subject to significant finds—as evidenced by PacifiCorp's $27.3 million fine for failing to comply with its WMP.[8]

As discussed further below, PCF's focus on the reduction of ignition through the utilization of approaches that do not reduce PSPS is a short-sighted solution that directly contradicts Commission and Energy Safety directives and stakeholder expectations to reduce PSPS and other risk mitigation techniques that negatively impact customer reliability. Proper evaluation of these investments requires treating them as catastrophic-risk-avoidance measures, not as incremental operational expenditures. The appropriate comparison is not between SUG and customer-sited backup generation or other short-term mitigations on a per-customer basis, or on a per-mile basis, but between the expected avoided financial and societal cost of severe wildfire—including loss of life, significant ratepayer financial costs, property damage, environmental harm, and prolonged outages—and the cost of permanently eliminating the ignition source.

[8] CPUC-21-AEO, In the matter of: PacifiCorp's 2020 WMP Compliance, [Proposed] Administrative Enforcement Order.

Short-term measures such as PSPS, sectionalization, or customer backup systems may reduce exposure during discrete events, but they do not permanently remove ignition risk from the system. Strategic undergrounding does. Accordingly, evaluating SUG using narrow, static cost metrics misrepresents its role in SDG&E's wildfire mitigation strategy and materially understates its long-term public safety and risk-reduction benefits.

Q: Does PCF's reliance on cost-per-avoided-ignition metrics provide an appropriate basis for concluding that Strategic Undergrounding or covered conductor investments are unreasonable?

A: No. PCF's reliance on cost-per-avoided-ignition metrics is an analytically flawed way to evaluate cost-effectiveness of wildfire mitigations because it ignores the risk context and consequence asymmetry inherent in wildfire mitigation. Framing SUG or CC investments in terms of "cost per customer" or "cost per ignition avoided" fails to recognize that not all ignitions carry the same risk or consequences. For example, an ignition occurring in a paved, low-fuel area with minimal wind exposure is fundamentally different from an ignition in a remote, fuel-rich area subject to extreme wind conditions, where the potential for catastrophic wildfire is orders of magnitude higher.

Areas with elevated baseline wildfire risk driven by terrain, vegetation, and exposure to extreme weather conditions must therefore be prioritized—an approach central to SDG&E's mitigation strategy, any modern wildfire risk governance, and fully consistent with Commission expectations. For example, the Project Scope table in the strategic undergrounding supplemental workpaper includes vegetation risk, max windspeed, and qualitative notes on extreme weather exposure. Yet PCF's proposed evaluation framework disregards this fundamental reality. Moreover, the simplistic focus on "cost per avoided ignition" fails to capture the broader

system-wide benefits of SUG and CC, including meaningful reductions in reliability risk, PSPS frequency and duration, and protective equipment and devices settings risk, as required by Energy Safety. These risks result in substantial customer hardships, significant economic costs, and potential public safety consequences for affected communities, yet are wholly excluded from PCF's evaluative framework.

PCF's claim, again, reflects a misunderstanding of how wildfire risk is managed and how a mitigation program must be evaluated. SDG&E does not prioritize SUG or covered conductor solely—or even primarily—on a narrow "cost per ignition avoided" basis. Instead, these mitigations are selected when they provide durable, structural risk reduction by eliminating or materially reducing exposure to high-consequence wildfire ignitions over the long term.

Unlike operational mitigations, SUG permanently removes overhead ignition mechanisms and reduces both ignition likelihood and potential fire severity across multiple future years and extreme weather scenarios. Evaluating these investments solely on short-term ignition counts ignores their long-lived risk-reduction benefits, significant financial impacts, and the cumulative risk avoided over the useful life of the asset.

Q: Is Mr. Powers' testimony on page 21 correct that "RSE metric did not play a substantial role in SDG&E's determination of which mitigation measure to employ and where to employ it?" If it is not correct, can you please explain what role those risk-spend efficiency (RSE) metrics played?

A: RSE is a preliminary screening metric, not a standalone binary decision rule, used to assess whether a mitigation achieves a minimum level of risk reduction per dollar relative to predefined benchmarks. RSE is not intended—and was never designed—to capture tail risk scenarios, long-term mitigation benefits, lifecycle cost considerations such as total or net

operations and maintenance impacts, cross-hazard risk reduction, or the avoidance of low-probability, high-consequence wildfire events. As Mr. Powers himself cites on page 21 of his testimony, SDG&E uses a holistic, multi-factor approach based upon its subject-matter expertise.

As SDG&E's wildfire mitigation strategy matured, consistent with Commission and Energy Safety guidance, reliance on RSE was appropriately supplemented and increasingly superseded by Benefit-Cost Ratio (BCR)-based and risk-based decision frameworks that explicitly account for long-term risk reduction, asset life, system resilience, and public safety outcomes. Accordingly, the selection of certain segments for undergrounding despite RSE values below historical thresholds reflects sound engineering judgment informed by site-specific risk characteristics and consequence severity, not inconsistency or disregard for ratepayer cost considerations.

Q. Is Mr. Powers correct on the cost per mile for SDG&E's SUG?

A: No. SDG&E has submitted an errata testimony that updates costs for the 2023 strategic undergrounding and covered conductor programs with updated cost per mile of $1.934M and $1.594M respectively[9]

[9] On April 27, 2026, SDG&E submitted errata testimony and workpapers which corrected direct costs and their associated RSEs related to strategic undergrounding, covered conductor, distribution overhead system hardening, and drone inspections and associated repairs. Those direct costs were not originally captured due to an accounting change in engineering costs as well as correcting a linking issue in the summary tables in Jonathan Woldemariam's Testimony at Appendix A. While the direct costs were not included in the previous workpapers, those direct costs were included in the revenue requirement calculations sponsored by Jack Guidi, and so SDG&E's revenue requirement request did not change with the errata.

Q: Can you please explain the limitations with the other "wildfire mitigation options" that Mr. Powers cites on page 22 of his testimony?

A: As discussed above, the wildfire mitigation options noted within Mr. Power's testimony include advanced protection, PSPS sectionalization, early fault detection, and equipping customers with solar plus storage (SPS) to assure reliable power during PSPS events. The first three options can support mitigation efforts in certain situations, but each has limitations that do not provide long-term reductions.

Advanced Protection is an operational mitigation that uses enhanced protection settings and/or equipment to reduce the likelihood that certain fault events result in ignition, particularly in some low-fault-current/high-impedance conditions. But it does not prevent the underlying risk events from occurring. By contrast, SUG and CC are physical hardening measures that reduce the likelihood of risk events across key ignition drivers (e.g., vegetation/foreign-object contact and conductor-related failures).

Similarly, early fault detection aims to identify incipient faults on the system with enough time to location and potential repair. But it is limited in that it cannot help mitigate the key causes of ignitions mentioned above.

PSPS sectionalization's main purpose is to reduce customer impact through de-energizations by increasing the number of remotely operated, strategically placed sectionalizing devices. But this method does not improve the resiliency of the system—or mitigate wildfire risk.

Mr. Powers' proposal of SPS focuses on reliance of PSPS for all residential customers in Tier 3 within the HFTD. Such ongoing PSPS reliance is contrary to Energy Safety and Commission requirements that SDG&E reduce the reliance on PSPS. And SPS provides no

benefit to customers within Tier 2 of the HFTD or the wildland urban interface (WUI), provides no reduction to key ignition drivers during times when the distribution and transmission system are energized, and provides no benefit to commercial or industrial customers.

Moreover, SDG&E's approved-WMP did not rely on SPS. As such, it is not relevant to reviewing SDG&E's wildfire mitigation costs for 2023. Nor could have SDG&E have thus relied upon SPS, even if it wanted to, without violating its WMPs. And, as noted, PCF has previously raised its SPS approach—such as in SDG&E's 2024 GRC—without the Commission adopting SPS as a wildfire mitigation or PSPS measure.[10] Mr. Powers' arguments on this point are thus not relevant here.

Q: Is Mr. Powers' statement on page 23 of his testimony that the "cost of the SPS would be about $34,000 without the discontinued residential solar and battery investment tax credit" correct?

A: No. The $34,000 cost per customer appears to be based on the assumption of a six kilowatt (kWh) solar array at $2.29/watt and a 20kWh battery at $20,620 that Mr. Powers provided within previous Track 3 testimony.[11] This cost is derived from the site Energysage based on information on June 19, 2025. However, on April 29, 2026, the site has updated the average solar panel cost to $2.52/W and the average system size of 8.93 kW. This would increase Mr. Powers' proposed battery size recommendation to approximately $43,000.

[10] D.24-12-074 at 482.

[11] Ex. PCF-47, *Prepared Direct Track 3 Testimony of Bill Powers, P.E. on Behalf of The Protect Our Communities Foundation* (July 14, 2025), at FN 173 at 41.

Q: Does SDG&E have commercial and/or industrial customers in its Tier 3 segments?

A: Yes, SDG&E has commercial and/or industrial customers in its Tier 3 segments, including core safety facilities such as hospitals, fire stations, communication infrastructure providers, water districts, and police stations.

Q: Would Mr. Powers SPS proposal apply to them? If not, would Mr. Powers' SPS proposal provide any wildfire mitigation for those customers?

A: No. Mr. Powers's recommendation applies only to residential customers. Mr. Powers' proposal includes a solar array that is smaller than the average residential customer would require and battery back-up. It would thus not provide enough electricity for one residential customer, let alone for commercial or industrial customers that use multiple times the electricity based on 2025 actual data. The upshot would be ratepayers spending millions of dollars for certain residential customers to receive solar and battery systems while schools, hospitals, and first responders are left in the dark.

Q: Are there any other reasons why Mr. Powers' proposal to equip customers with "solar plus storage (SPS)" is not a viable option?

A: Yes. Mr. Powers' proposal focuses on installation within Tier 3 of the HFTD and relies on PSPS usage as the sole ignition mitigation methodology. This proposal continues with the same previous flaws as it does not comply with SDG&E's obligation to safely operate its electric infrastructure and reduce the scale, scope, and frequency of PSPS events.[12] In addition, the SPS solution focuses on minimizing PSPS risk for single-family residential homes while leaving customers without the ability to install rooftop solar (such as apartment complexes or duplexes

[12] Ex. SDG&E-T3-WMPMA-04-R, *Prepared Rebuttal Testimony of Jonathan Woldemariam (Track 3-Wildfire)* (September 2025), at 52. See also Pub. Util. Code § 8386.

without appropriate space for the necessary panels), business, and other critical customers such as hospitals, police stations, and fire stations without any PSPS or wildfire mitigation support.

Q: **On page 17 of his testimony, Mr. Powers testifies that none of the 2007 fires in SDG&E's territory were caused by SDG&E pole or overhead equipment defects. Can wildfires be caused by utility pole or overhead equipment defects?**

A: Yes, the Witch, Guejito, and Rice wildfires were not technically caused by SDG&E equipment failures. However, in at least the Guejito and Rice fires, drone inspections could have been instrumental in preventing such fires. The Guejito Fire was caused by a communications lashing wire that blew into the 12kV powerlines sitting above it. The drone inspections would likely find this condition, which would have allowed it to be repaired. The Rice Fire was caused by a tree branch contacting the powerlines. The drone inspection could have identified the tree branch as needing immediate trimming.

Utility equipment failures have caused fires as evidenced by other wildfires in California. The Camp and Kincaid wildfires were caused by equipment failures, namely c-hook failures on transmission lines. Similar equipment failures such as connector failures could just as easily have been on the distribution lines.

Q: On page 26, Mr. Powers addresses SDG&E's "Aviation" program. Mr. Powers states that "aviation costs should be denied because it is not SDG&E's responsibility to take on the role of the county and CAL FIRE in fighting fires." Was the purpose of SDG&E's Aviation program to take on the role of the county and CAL FIRE? If not, what was the purpose?

A: No, the purpose of SDG&E's Aviation program was not to take on the role of the county and CAL FIRE but instead to supplement existing services, provide patrols of powerlines during elevated or extreme fire potential days, conduct re-energization patrols for PSPS and other wildfire prevent events, and provide construction support for grid hardening work or maintenance repairs.

Q: Does SDG&E provide additional support in this Track 3 proceeding for its Aviation program beyond the showing that SDG&E provided in Track 2?

A: Yes, SDG&E provided additional support for its Aviation program in the Supplemental Workpapers of Jonathan Woldemariam (Ex. SDG&E-T3-WMPMA-08-E).[13] These Supplemental Workpapers include annual spending broken down at the project level, project level justifications, cost drivers, project timing and phases, and alternative analysis.

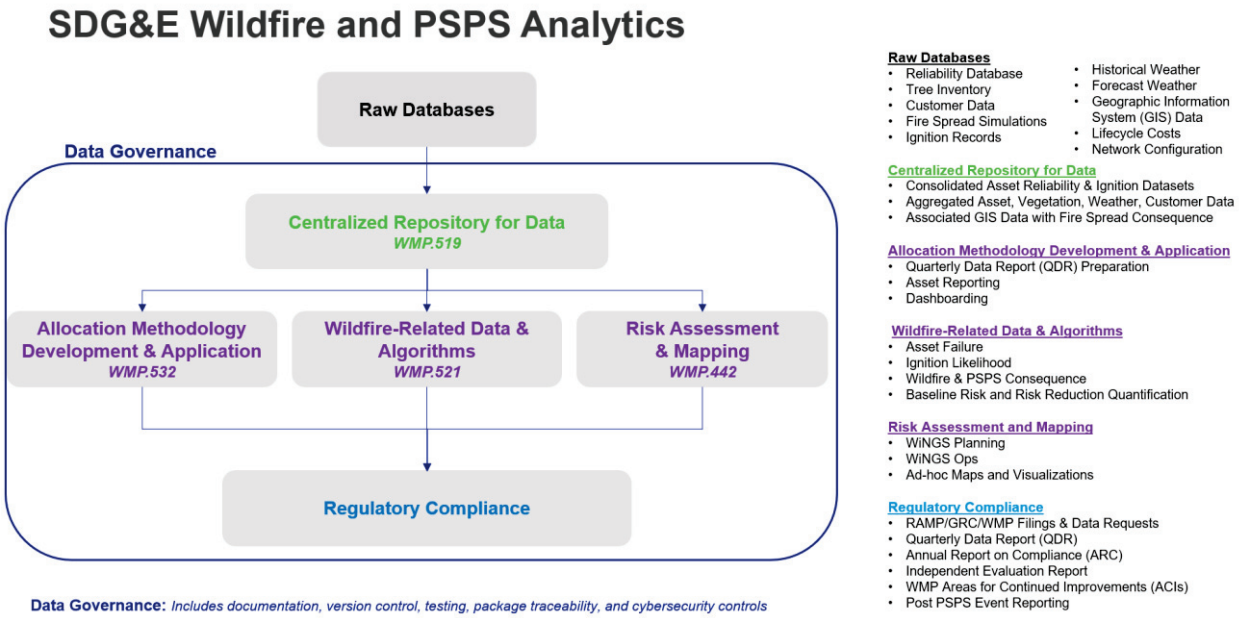
Q: Is Mr. Powers correct on page 27 of his testimony that the Commission should deny the costs for these programs because spending $19 million in one year on the WiNGS program is unreasonable? If not, can you explain what these costs for these programs were for?

A: PCF contends that SDG&E improperly subdivided what it characterizes as a single "WiNGS program" into four separate programs—(1) Risk Assessment and Mapping, (2)

[13] See Ex. SDG&E-T3-WMPMA-08-E at 169.

Wildfire-Related Data and Algorithms, (3) Allocation Methodology Development and Application, and (4) a Centralized Repository for Data—and argues that the Commission should deny the majority of the approximately $19.5 million incurred costs associated with these programs. PCF's critique rests on a fundamental misunderstanding of how large-scale wildfire analytics systems are designed, governed, and deployed at SDG&E.

While each of the four programs PCF references interfaces with or supports the WiNGS environment, that interaction does not render the programs duplicative or interchangeable. To the contrary, SDG&E deliberately structured these programs to reflect distinct layers of an enterprise analytics stack, each with a separate function, cost driver, and regulatory purpose, an approach fully consistent with modern data governance, cybersecurity, and analytics best practices widely adopted in risk and analytics functions across different industries, utilities, system operators, and public safety agencies.



PCF's "overlap" arguments improperly conflate *interaction* with *duplication*. Under PCF's logic, any dataset, algorithm, methodology, or software used by more than one planning

tool would be inherently unreasonable. That position is inconsistent with both Commission precedent and operational reality.

The four programs are distinct in scope, scale, and cost from each other. The Centralized Repository for Data was an overarching repository of data across all wildfire mitigation programs and data points including but not limited to vegetation management, avian protection, weather, asset management. In other words, it was a repository for all wildfire related data; not where models were developed.

The Allocation Methodology Development and Application program mainly assembled asset data including geospatial asset data to help provide the proper allocation of wildfire risk. This feeds into the WiNGS models to integrate with other risk drivers to provide a fuller analysis of wildfire risk and mitigations. This program and the costs were driven to develop these asset-related components of risk assessment. It is not duplicative of WiNGS—instead it is integrated into WiNGS for the overall utility wildfire risk assessment.

The Wildfire Related Data and Algorithms is for the development of the Likelihood of Risk Event and Consequence of Risk Event models. These models help refine algorithms and calculations, which in turn, help evaluate the likelihood and consequence parts. Although this is a pipeline into WiNGS, it was developed separately and designed so that it could be easier to maintain and provide more accuracy.

Finally, the Risk Assessment and Mapping program was instrumental in developing a visualization tool of the WiNGS Planning and WiNGS Ops models. The visualization tool provided a way to assess various scenarios and visualize them on a map in a more interactive way. The program also included a gap assessment through a third-party review and meeting WMP guidelines. The difference between the programs are also detailed within the supplemental

workpapers sharing additional content on the programs that had not been previously provided previously including around cost drivers, risk identification and mitigations, and the consideration of alternative solutions

Q: Was the Centralized Repository for Data a discretionary program?

A: No. SDG&E was required to build a tabular and geospatial data repository to meet Energy Safety's requirements for quarterly data reporting. From 2019 to present,[14] the Commission has repeatedly emphasized the importance of transparency, repeatability, and traceability in wildfire reporting metrics and risk-informed decision-making, and the centralized repository directly responded to those expectations.

Q. Does this conclude your testimony?

A: Yes.

[14] Energy Safety, *Data Analytics Division*, *available at*: https://energysafety.ca.gov/who-we-are/department-organization/data-analytics-division/