BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Office of Energy Infrastructure Safety
Natural Resources Agency

COMMENTS OF THE GREEN POWER INSTITUTE

ON THE 2023 WMP GUIDELINES AND APRIL 22 WORKSHOP

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The Green Power Institute (GPI), the renewable energy program of the Pacific Institute for Studies in Development, Environment, and Security, provides these *Comments of the Green Power Institute on the 2023 WMP Guidelines and April 22 Workshop.*

Introduction

GPI appreciates the efforts put forth by the California OEIS to restructure the WMP Guidelines, risk assessment expectations, and maturity model, with the intention of improving the review process, method advancement, and compliance. We also appreciate the April 22, 2022, workshop (Workshop) that gave an overview of these topics and provided a platform for stakeholder comment.

The high-level introduction to the direction OEIS is considering for the 2023 WMP submissions and 2023-2025 3-year WMP cycle *initiates* public and stakeholder engagement in the development process. However, a more comprehensive and detailed proposed guidelines is required to adequately review the major changes being considered for the updated WMP Guidelines. We first provide recommendations on the WMP Guideline development plan and timeline.

The April 22, 2022, Workshop consisted of three parts: (1) Restructuring the Guidelines; (2) Risk Assessment; and (3) Maturity Model. We structure our comments according to these three sections, the pre-workshop material high-level outline, and the guiding questions included in the California OEIS workshop slides for each of the three sections.

WMP Guideline Development Timeline

Restructuring the WMP Guidelines and Maturity Model is a challenging task that requires detailed considerations in order to avoid unintended consequences. For example, loopholes within specific WMP guidelines and reporting requirements could result in

WMPs with inadequate responses or that are missing key information. WMP templates and resultant filings that are too thin could lead to many additional data requests, while poorly structured plans with too much detail are unwieldy and have redundancies. Furthermore, the guidelines proposed in the Workshop go beyond document changes to include a Petition process that would limit year-over-year changes to the WMPs and a proposal to freeze risk modeling. All proposals in the Workshop lack detail and could result in unintended and unforeseen consequences.

OEIS should provide detailed proposals for each high-level preproposal presented in the Workshop and an opportunity for opening and reply comments on the staff proposal

The high-level OEIS proposal is in the *early* deliberation and iterative development stage despite the fact that we are more than halfway through the proposed WMP Guideline Development Period. At this stage, stakeholders only have an initial high-level overview of the 2023 WMP Guideline proposal. This includes a major overhaul of the WMP structure, reporting requirements, and maturity model design, as well as a new Petition process, all without any concrete and comprehensive proposal or document for each of these elements. Each of these high-level proposals will require careful consideration and iterative development once a more detailed proposal is developed. Furthermore, there is simply insufficient time in the current 14-day post-workshop comment period for intervenors and stakeholders to develop detailed proposals and responses for each high-level concept presented in the Workshop. Comments on the Workshop content will likely constitute a wide range of high-level recommendations, questions regarding proposal specifics, and perhaps specific methodological recommendations that will require scrutiny.

The 2023 WMP Guideline Development Process, which runs from January through August (Workshop Slide 6, Figure 1), only includes two Public Comment Opportunities: this filing on May 6, 2022, and a second comment opportunity on the Draft Guidelines only 1-month before the Final Guidelines are approved. GPI is concerned that the current schedule neither includes the release of a detailed staff proposal on the high-level yet substantial changes (e.g. freezing risk models and creating a petition process) proposed in the Workshop, nor provides adequate opportunity for comments on a detailed staff proposal.

It also dismisses any opportunity for reply comments at any stage of guidance development, effectively limiting opportunities for iterative improvement.

GPI recommends providing a detailed staff proposal for public review that includes a request for comment. In our opinion a detailed staff proposal informed by the May 6 public comments is the next logical step for developing the WMP Guideline update proposals prior to releasing formal Draft WMP Guidelines. The staff proposal should adopt a structure similar to CPUC staff proposals and rulings, which contain background on the issue at hand, purpose/objectives of the proposed work/changes, and a detailed description of each proposal (e.g. comprehensive document restructuring templates and new process implementation plans) as well as a list of topics and specific questions for each topic where pubic and stakeholder input are sought. This structure is necessary to provide additional guidance for public comment and will support cross-comparison and dialogue.

GPI recommends adding an additional opportunity for public comment (June 6, Fig. 1) and reply comments (June 16) after the release of a staff proposal that provides details on all of the high-level proposals presented in the April 22 Workshop. We also recommend staggering the release of (1) the Draft 2023-2025 WMP Guidelines (including the Risk Assessment reporting requirements, August 1) and (2) the Draft 2023-2025 Maturity Model (August 15, Fig. 1). Each Draft document release would include a 10-day opening comment opportunity followed by a 5-day reply comment opportunity. Each of these comment additions would provide an opportunity for more focused and iterative stakeholder dialogue capable of guiding the final documents. This will also provide OEIS with the opportunity to review opening and reply comments on the Draft Guidelines while stakeholders review the Draft Maturity Model. We anticipate this can shorten the amount of time required in the "Energy Safety Finalizes" phase (Fig. 1 gray box), prior to the September 2020 Public Meeting. Adjustments should be made to extend the WMP Guideline Development Period given the late stage of this process and the absence of any detailed proposals.

A second workshop as proposed by PAO could support more iterative development. To ensure that it informs Guideline development it will be paramount to structure the workshop to address specific details and touchpoints within the most high-impact proposals. Scheduling the workshop after releasing a staff proposal but prior to a June 6 comment deadline would allow for deliberation that will inform stakeholder comments. However, we also recognize that the remaining time in the WMP Guideline Development Period is limited. Formal written public comments and reply comments may allow for more detailed and developed responses if there is insufficient time for both written comments and a workshop.

Figure 1. Alternate development timeline for the 2023 WMP Guidelines and Maturity Model
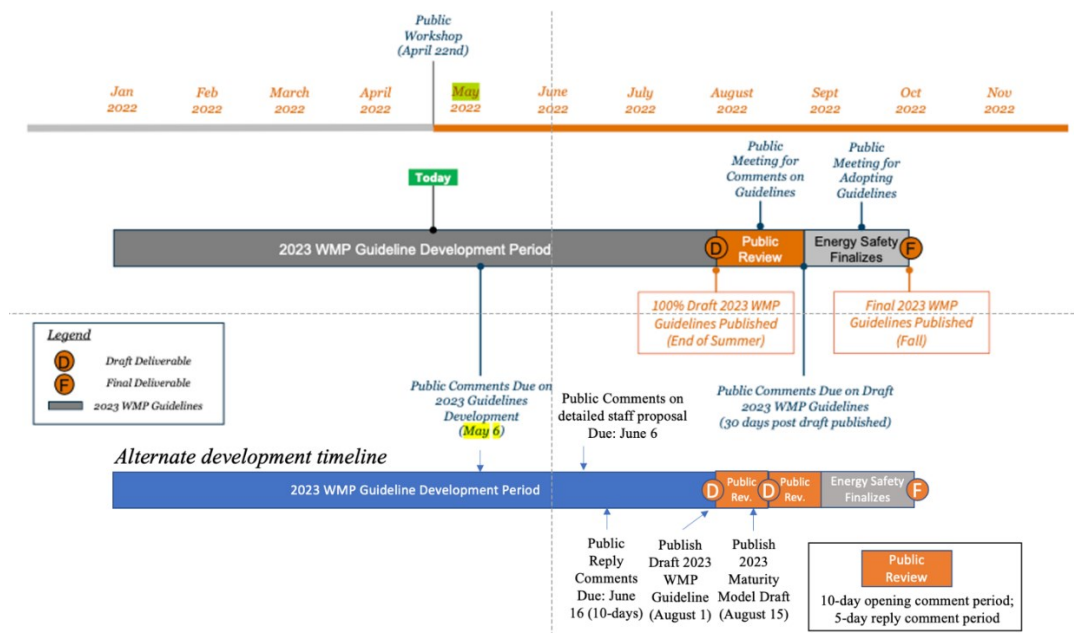
Restructuring of the Guidelines

WMP Restructure

The OEIS proposed WMP Restructure includes the following objectives:

- Create a logical flow-down of information in the plans, beginning with the most general, territory-wide information and narrowing into individual mitigations. 1. Utility service territory overview; 2. Risk assessment; 3.

Overall wildfire mitigation strategy; 4. Individual wildfire mitigation initiatives (e.g., system hardening, vegetation management)

- Slim down main body of the WMP to key narratives and metrics. Supporting explanations and substantiations to be included as appendices.

- Require the use of a WMP submission template

Guiding Question 1: Do you think the proposed restructure is an improvement (Slide 43)?

GPI generally supports the proposed restructuring of the WMP guidelines relative to the organizational structure used in the 2020- 2022 WMP filings. Namely, we agree with OEIS that the issue of redundant information persists, and a reviewer must cross-reference multiple sections to understand why, how, when, where, and who is implementing a given mitigation, as well as whether each utility is actively assessing mitigation efficacy and using those findings to refine approach. Our reviews over the past WMP cycle also found that a lack of specificity in the WMP guidance provides loopholes that allows utilities to omit key information such as model validation and verification efforts and results. We recommend developing specific reporting requirements to close these loopholes.

GPI also agrees that the 2020-2022 WMP filings, especially annual updates, are unwieldy documents that require substantial review time. In the first 3-year cycle, GPI and other parties anticipated that the Annual Updates would contain *update* content, versus complete WMP overhauls. We further anticipated that over time the WMP filings would stabilize as they matured. However, given the degree of, and need for novel model and method development over the 2020-2022 WMP cycle, the WMP maturation process may be progressing more slowly than originally anticipated. We further suspect that given the complexity of wildfire risk assessment and mitigation, WMP base-content should and will remain extensive even after methods have stabilized. Restructuring WMP Update filings does however present an opportunity to reduce filing length in the interim years between base plans. OEIS should release a staff proposal detailing how staff envisions reducing content in the WMP Updates while retaining sufficient detail for review.

GPI supports performing a major overhaul of the WMP guidelines including: (1) Establishing a prescriptive WMP template; and (2) Restructuring WMP organization.

Establishing a prescriptive WMP template – GPI generally supports the proposal to develop and require adherence to a WMP template. A well-structured template will provide utilities with ample opportunity to provide a comprehensive description of their programs without needing additional, customized sections. This will also support cross-comparisons with respect to how each utility is developing and deploying customized methods to address universal issues (e.g. vegetation management and contact from vegetation risk). However, a template can present a double-edged sword, whereby any missing elements may become content loopholes, while overly prescriptive requirements could be ill-suited to capturing the plans of 6 different utilities, or lead to redundancies. GPI recommends providing a detailed staff proposal that includes WMP template and guideline specifics for public comment and reply comments. This will field targeted and actionable comments that reflect a wide range of stakeholder viewpoints ranging from community members to scientists.

GPI has no objections to the proposed high-level Chapter A – F, WMP guideline and template structure at this time.

With respect to "Standards for data visualizations (Slide 21)," GPI recommends also allowing utilities to provide additional data visualizations that are not prescribed in the template. This will foster creativity and support reporting on disparate and complex methodologies that may lead to further visualization optimization for all utility WMPs. GPI recommends establishing requirements for legibility as figures are sometimes low-quality reproductions that provide little value.

There is insufficient time and direction for us to develop more detailed or specific recommendations for each section of the proposed updated WMP instructions and template in these comments. We believe that a detailed staff proposal is needed prior to the release of a draft template and guidance document.

Restructuring WMP organization – Regarding Section 6 and the example (sub-) Section 10 (Workshop slides 16-17), we agree with Workshop comments by PAO that the depth of sub-sectioning in the 2020-2022 WMP filings is confusing and unwieldy. Breaking Section 6 into separate level 1 section headers for each mitigation would reduce at least one layer of sub-sectioning. It appears OEIS is considering this given that "Section 6.5" on slide 14 is re-named "Section 10" on exemplar slide 17. GPI further recommends that any section with more than four sub-levels should be reevaluated for consolidation opportunities.

GPI generally supports the proposed scope and structure of Mitigation Initiative sections as presented on slide 16. We further recommend integrating mitigation specific Lessons Learned and Research Proposals and Findings (previously Section 4.4) into each mitigation section. This will consolidate information on how each utility is conducting mitigation program evaluations and using the results to refine their approach – an aspect of program development that is expected but was patchy and often difficult to assess in the previous WMPs.

In the proposed Chapter C, Section 3 "Utility Service Territory Overview," we recommend updating the "Projected Growth Plans" sub-section to "Projected Expansion or Decommissioning Plans" to include decommissioning projects. The proposed "Overview of Wildfire Environmental Settings" sub-section could result in a wide range of description quality depending on the granularity of information provided by each utility. For example, generalized descriptions of ecology, fire history and vegetation on a territory-wide basis would have less value compared to an assessment at the ecosystem-level granularity. Similarly, the section regarding ingress/egress capacities and their risk-relevance are likely dependent on local conditions. It may be prudent to move ingress/egress discussions to a qualitative risk assessment section in the Risk Analysis Section.

Suggested content for Section 10.4 Preparedness and Planning for Service Restoration is relatively thin compared to its "Emergency and Disaster" counterpart (Section 10.2). While emergency and disaster preparedness are paramount, relieving the impacts of emergency outages through rapid service restoration may be the ultimate remedy in some

instances, such as PSPS. It follows that this section might need to be more comprehensive, or simply moved to the De-energization section. Section 10.6 may also be better suited in the De-energization section.

GPI recommends retaining and restructuring the Vegetation Management and Inspections sub-section regarding "Fuel Management and Management of All Wood and 'Slash' From Vegetation Management Activities." The OEIS initiative definition states:

> Plan and execution of fuel management activities in proximity to potential sources of ignition. This includes pole clearing per PRC 4292 and reduction or adjustment of live fuel (based on species or otherwise) and of dead fuel, including "all downed wood and "slash"" generated from vegetation management activities.

We recommend following additions to the initiative definition:

> Plan and, execution, and documentation of fuel management activities in proximity to potential sources of ignition. This includes pole clearing per PRC 4292 and reduction or adjustment of live fuel (based on species or otherwise) and of dead fuel, including "all downed wood and "slash"" generated from vegetation management activities. Report on the amount of vegetation residue (live and dead) produced versus collected and the fraction that is routed to waste streams versus value-added pathways (e.g. biomass, customer fuel, landscaping chips, etc.). Describe the value-added pathways and plans for expanding these residue management programs.

GPI is concerned that moving WMP detailed content to appendices could result in cross-referencing challenges and inefficiencies that are similar to those created by the current WMP structure. Detailed content generally requires information that establishes broad context. Decoupling introduction and background narratives that provide context for detailed methodological descriptions may prove inefficient if not fully thought through. GPI recommends considering each mitigation initiative section as an extended scientific journal article that is subject to peer-review and that includes clear guidelines on the contents of supplemental, in this case Appendix, content. Without a detailed proposal for the base and update WMP guidelines and sections therein we are unable to provide more specific recommendations.

Guiding Question 2: Any other suggestions that could better streamline the structure (Slide 43)?

Without more transparency and detail regarding the contents and structure of all sections and sub-sections we are unable to provide more specific or informed recommendations. The next step is to provide a comprehensive staff proposal for public comment to ensure that all key elements of the WMP are included in the proposed sections and sub-sections. It may be a worthwhile exercise to reorganize (or minimally cross-correlate) an existing IOU WMP plan into the proposed WMP structure to ensure that the end product includes all currently mandated key information, reduces redundancies and efficiently requires otherwise missing specifics (e.g. model verification/validation metrics), while providing a more manageable and consolidated narration.

WMP Submission Timelines

OEIS submission and timeline proposals:

- Proposed WMP (a proposed submission before final submission of WMP)

- Beginning in 2024 or 2025: WMP to cover subsequent year (i.e., submit 2025 WMP in 2024)

- Stagger large IOU submissions within the year

- Stagger large IOU and SMJU/ITO comprehensive WMPs to different years

Guiding Question 3: Any initial thoughts on the best timeline for WMP submissions (Slide 43)? What is the best timeline for WMP submissions to satisfy the following: 3-month statutory evaluation period; Cross-utility comparisons; Public review and feedback (Sample options: 1-,2-,3-weeks stagger; 1-year stagger, Slide 25)?

We do not anticipate a substantial reduction in base WMP content or length following the proposed WMP restructuring. Moving detailed content to Appendices will not obviate the need to review modeling or mitigation specifics in order to assess whether utility plans are acceptable. Consequently, the time required for an in-depth review of all IOU and SMJU base plans will still not be supported by the 2-week staggered release of WMPs or the 3-month statutory review and determination period as mandated by the CPUC.

GPI recommends (1) staggering the deadline for IOU and SMJU base plans by 1 year, (2) adjusting the WMP submission timeline to 1-year ahead of implementation (See response to question 4); (3) adjusting the WMP timeline to expand on the 3-month statutory evaluation timeline via a Draft plan option, and (4) staggering each annual WMP filing by a wider offset of 3-weeks rather than the 2-weeks provided in 2022.

GPI is concerned that staggering IOU (or SMJU) base-plans by 1 year may make it challenging to compare WMPs as well as Maturity Model scoring. Staggering IOU utility base plan filings by 1 year or more would require reviewers to compare two slimmed down Update filings coupled with their prior base plans against one new base plan each year. This may prove unwieldy especially since substantial developments continue to occur year-over-year as methods mature.

GPI does support staggering base plans for IOUs versus SMJUs by 1-year. That is, all IOUs should submit a base plan (or update plan) in the same year, whereas SMJU base plans could be submitted in the follow year. IOUs and SMJUs generally use very different risk modeling methods that are by nature not comparable. Other elements such as mitigation implementation prioritization needs and methods are also very different between the small and large IOUs. Decoupling IOU and SMJU filing timelines might even support more comprehensive review of SMJU filings, which have been overshadowed by IOU WMPs and reports. This would also provide SMJUs the opportunity to review, learn-from, and integrate elements from IOU WMP content that can then inform their WMP process.

GPI wonders whether a *Draft* WMP plan would be subject to the 3-month statutory evaluation requirement, or whether that timeline is only applicable to a Final WMP plan. GPI suggests an updated WMP filing and review timeline that includes (1) a Draft WMP version followed by (2) a longer period for stakeholder, public, and OEIS review, and (3) a Final WMP filing that includes an updated redlined version and clean version, that is used for the basis of compliance and that is subject to the 3-month statutory evaluation period. This method is reflective of existing CPUC processes such as annual Renewable Performance Standard (RPS) compliance filings. If allowable, this would provide

additional stakeholder and OEIS evaluation time. It could also allow for stakeholder input on whether each utility should be awarded or denied a safety certification on the basis of their Final WMP *after* having the opportunity to remedy critical plan issues, versus approval *despite* outstanding critical issues that may or may not be remedied during the plan implementation period.

Guiding Question 4: Any suggestions for getting 1-year ahead on evaluations (Slide 43)? What is the best approach to getting the WMP evaluation period, 1-year ahead of the period-of-application (Slide 25)? (Sample options: on-time4-year WMP.)

GPI supports a WMP filing schedule 1-year ahead of implementation. It is apparent that mitigation initiatives require substantial planning efforts and ramp-up time. This includes factors such as managing or mitigating personnel and asset limitations as well as obtaining land-owner permissions for vegetation management. In the current WMP filing and implementation timeline, much of the on-the-ground planning and ramp-up phase is likely occurring prior to WMP plan approval. Any directional changes to the WMP plan that arise from the review process, such as substantial changes to risk assessments and risk-informed mitigation strategies, could result in delayed, ineffective, or inefficient mitigation implementation for the originally planned work and/or the updated scope of work. In the worst-case scenario, these factors may result in a Utility's failure to remedy critical issues identified in the WMP, especially if a safety certification is already awarded. That is, failure to course correct WMPs early on and prior to the critical planning phase may reduce the ability of the plan evaluations to effect change. For example, in the last 3-year cycle, PG&E's own correction to their risk models required a substantial pivot in the location of mitigation deployments that slowed their mitigation progress and effectiveness.

Implementing a "WMP evaluation period 1 year-ahead of the period of application" would put WMP plan evaluation more concurrent with initial utility planning and preparation phases. This will provide benefits in regard to both the ability of WMP evaluations to guide activities planned for the following 3-year and update application cycles, as well as the quality of WMP evaluations if given additional time.

With respect to achieving a year-ahead schedule, there are two relatively apparent options, either extend or compress the upcoming WMP cycle to allow for one 4-year or what we consider a compressed 3-year cycle, respectively. We interpret a 4-year cycle as spanning from 2023 – 2026 where planning years 2024-2026 are at least 1-year ahead of the 2023 WMP base proposal. The next 3-year WMP base-plan would be required in 2026 and would provide a plan for 2027-2029 (Fig. 2). In a compressed 3-year plan the 2023 WMP would still cover 2023 – 2025 but the annual WMP update slated for 2025 would be replaced with a full three-year base WMP that includes forward planning for 2026 – 2028 (Fig. 2). Both the extended 4-year cycle and compressed 3-year cycle place the upcoming base plan in the first year of implementation. The 4-year cycle allows for two full update plans while the 3-year compressed cycle only requires one update plan (Fig. 2).

GPI recommends a compressed 3-year cycle for two reasons: (1) WMPs and methods therein continue to experience substantial maturation year-over-year and should therefore not be used to plan four years in advance, especially if the OEIS decides to freeze risk modeling; and (2) One cycle with the new base-plan and update template and requirements should provide an adequate baseline to inform guideline and template *adjustments* that can be enacted sooner rather than later for the 2026-2028 WMP cycle. The 2026-2028 WMP cycle would then proceed with a year-ahead base plan in 2025, year-ahead WMP update plans in 2026 and 2027, and the next base plan in 2028 for the 2029-2031 cycle.

Figure 2. Examples of one 4-year versus a compressed 3-year WMP filing schedule. An example of a Draft Base WMP filing time is included in year 2025-26 and 2024-25 of each year ahead filing proposal. 1-year staggered SMJU filing timelines are not included.
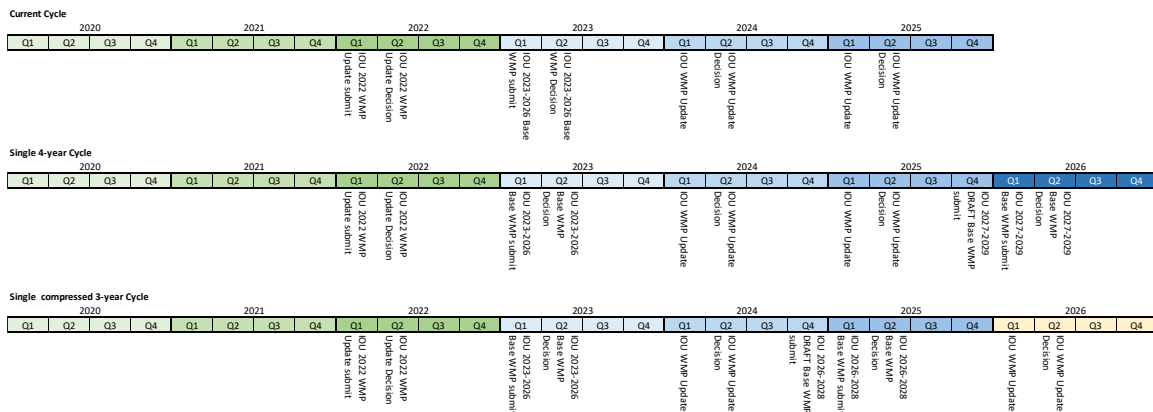
WMP Update Submissions

OEIS proposals:

- Freeze risk models and high-level mitigation strategies

- Allow only the following "permissible" changes to WMPs in update years: (1) Progress reporting; (2) Identified areas for improvement from prior evaluation; (3) Errata from prior year; (4) Approved Change Order requests; (5) Additional changes pre-approved by Energy Safety - Petition process for utilities to request additional changes

Guiding Question 5: Do you think Energy Safety should restrict changes in the WMP Update years?

GPI generally supports restructuring WMP Update filings to only include those elements which are changed relative to the 3-year base plan including progress reports and updated risk maps, identified areas for improvement, errata, and approved Change Order requests.

GPI does not support the proposal to freeze risk modeling. The IOU wildfire risk models include complex machine learning models as well as many other sub-models that the WMP filings have yet to provide adequate transparency into model verification and validation methodologies or the model results. SMJUs use a wide range of risk modeling approaches that are similarly relatively novel methods and that not transparently verified or validated. The wildfire risk MAG remains in session and MAG recommendations and reports are still forthcoming. GPI advocates for continued and transparent refinement, verification, and validation of wildfire risk models versus freezing models. We recommend requiring 3-year forward risk model outputs in the WMP base filing that include possible climate change impacts, plus subsequent annual model output updates to inform how adjustments to the model and near real-time conditions changed granular wildfire risk from outputs published in the base plan. We further recommend advancing risk model output reporting to align with the WSD data and analytics vision for 2023+ (Figure 3) as discussed in Section 3 on Risk Assessment, below.

Guiding Question 6: What do you think of the petition process?

Based on the information provided in the workshop it is not immediately clear how the proposed new Petition process is anticipated to work, or what year-over-year WMP changes it seeks to manage. Further, the proposal states:

> "Approval" of a petition does not imply acceptance of the proposed change, but permission for utilities to include it in their WMP Updates for evaluation (Slide 32).

GPI is concerned that adding a petition process, in addition to annual WMP filings, Quarterly reports, Change Order requests and Data Requests will only add more administrative filing requirements that will not necessarily improve WMP Updates. If a petition is approved the complete proposal will still have to be reviewed in the WMP Update. Even if there is only one approved petition, this will still add an evaluation requirement. If petitions are denied, the decisions will still require a thorough review to minimize the potential for unintended or unforeseen consequences. GPI requests additional clarity regarding the vision for the WMP Update Petition process.

We further recommend developing examples from the 2020-2022 WMP cycle, such as which changes from the 2020 Base WMP to the 2021 and 2022 WMP Updates would have required a Petition, and which of those changes would have been approved versus denied for inclusion in the WMP Updates. In this look back it is also important to evaluate how the proposed Petition process might have functioned without the 20/20 hindsight afforded in the retrospective exercise. Would any of the changes that occurred over the 2020 – 2022 WMP cycle have been denied, and if so, what could the impacts be today? What are the potential unforeseen or unintended consequences of Petition approvals or denials? For example, would the proposed Petition method have allowed PG&E to make risk modeling improvements or denied them for the sake of planning stability? What would the impacts of using an outdated and more inaccurate risk model include? Would the change from Reax to Technosylva fire spread modeling have been approved based on the Petition process design? If not, would this have slowed the maturation of ignition consequence modeling? What information would have been required to ensure adequate insight into each proposal for it to receive appropriate Petition Approval or Denial?

Notably, massive changes from the 2020 3-year WMP to the 2021 WMP update filings were likely related to the number of critical issues identified in the WMPs as well as the progressive development of otherwise relatively immature methodologies and modeling capabilities. One might consider this the expected path of a generalized learning curve. While perhaps less than ideal from a review and forward planning standpoint, *not allowing* these substantive changes would have stymied the development and maturation of wildfire risk mitigation approaches. Based on the 2022 Maturity Model there are plenty of utility responses at a 1 – 3 level. For example, PG&E model automation remains in the 2-3 range, egress considerations are in the 1-2 range, and equipment inventory ranges from 1- 3 by January 2023. Utilities likely still sit on the "steep" part of the learning curve for risk mitigation planning, modeling and implementation elements. Year-over-year changes should therefore be expected and welcomed so long as they mark forward progress towards more mature capabilities and eventually methodological stabilization. Artificially controlling the rate of development of any and all WMP elements via a petition process will only drag out maturation and stabilization. Allowing and even pushing updates and developments to proceed in interim years between base plans will allow well structured WMP Updates to shrink and/or stabilize over time as wildfire risk management matures.

Guiding Question 7: What else would you like to see [in regard to restructuring the WMP Guidelines] that we did not cover [during the April 22, 2022 workshop] today?

GPI has no suggested additions at this time.

Risk Assessment

Risk Assessment and Modeling

OEIS proposals:

- Transparency of risk calculation methodology: 1. Reporting of individual risk components and outputs; 2. Reporting of approach to combine risk components;
- Model substantiation requirements: 1. Reference standards on model substantiation; 2. Reporting of each aspect of model substantiation.

- Detailed model documentation: 1. Technical documents describing the model; 2. Verification and validation documents
- Expand data governance requirements: 1. Require reporting of local conditions and model forecasts of risk events and outcomes; 2. Require version control for models; 3. Emphasis on modular approach to models; 4. Alignment of models

Guiding Question 8: Thoughts on the risk and risk component framework? Risk reporting requirements?

Risk reporting requirements – We agree that risk analysis reporting requirements should be restructured and expanded in order to increase transparency. Structurally, each of the four proposal elements (above) and the proposed Risk Modeling and Assessment Section (proposed Section 4) should be designed with the goal of increasing transparency. The need for transparency is a cross-cutting factor. For model documentation and substantiation this includes but is not limited to details on data QA/QC, model/sub-model inputs, model/sub-model methods, equations, verification/validation methods, uncertainty/confidence intervals, outputs, intended use cases, and applications. The proposed Risk Modeling and Assessment Section should also specify that each required reporting element must be provided for wildfire as well as PSPS modeling, and planning versus operational risk models. The proposed WMP guidelines should establish requirements and perhaps separate sub-sections for each of these four high-level model types.

We attempted to reconstruct a detailed Section 4 with sub-sections based on content from Workshop slides 47, 55, 60, and 66 in order to develop a clearer picture of putative updates for risk reporting requirements in the forthcoming 2023 WMP Guidelines. OEIS new or expanded requirements for 2023 WMP submissions based on the Workshop slides are in italics.

> Section 4: Risk Modeling and Assessment [OEIS Proposal, Slide 47 unless otherwise noted]
>
> *4.1 Introduction*
> *   4.1.1 Definitions of Risk and Risk Components*
> *4.2 Risk Analysis*
> *   4.2.1 Risk Analysis Requirements*

- Evaluate each risk and all *risk components* in service territory (Slide 60)
- For each risk and risk component, provide the following (Slide 60):
  - Bow tie schematic showing the inputs, outputs, and consequences (Slide 60)
  - *Schematic showing the high-level calculation procedure* (Slide 60)
  - Summary description for each model and sub-model (Slide 60)
  - *High-level description of the approach (such as MAVF) used to combine risk components* (Slide 60)
  - *High-resolution geo-spatial maps for each risk and risk component in the appendix* (Slide 60)
  - *Detailed model documentation for each model and sub-model* (Slide 60)

4.2.2 Modeling Requirements

4.4 Calculation of Key Metrics (not discussed in this talk)

4.4 Service Area Risk Maps

 4.4.1 Evaluate each risk and all risk components in service territory (Slide 55)

 4.4.2 Maps of each risk and risk component in an appendix (Slide 55)

 4.4.3 Map of high fire risk areas not included in HFTD (Slide 55)

 4.4.4 Spatial data submission of risk, risk components, and HFRA (Slide 55)

4.5 Data Governance

 4.5.1 Submit risk, *risk component, and model output* layers to submitted geospatial data (Slide 66)

 4.5.2 Additional data collection from each ignition / retrospective analysis (Slide 66)

  4.5.2.01 *Risk and risk component scores at the time ignition occurred* (Slide 66)

  4.5.2.02 *Risk and risk component scores at the time WMP was submitted* (Slide 66)

  4.5.2.03 *Local conditions at the time ignition occurred* (Slide 66)

  4.5.2.04 *Local conditions (forecasts) at the time ignition occurred* (Slide 66)

 4.5.3 Updating definitions in WMP, non-spatial data, and GIS schema to be aligned. Similar data in non-spatial and geo-spatial data must be consistent. (Slide 66)

 4.5.4 Emphasis on modular design of models (Slide 66)

  4.5.4.01 *Simplify sensitivity assessment of different assumptions* (Slide 66)

  4.5.4.02 *Ease of version control and independent review* (Slide 66)

 4.5.5 Alignment of sub-models (Slide 66)

4.6 Retrospective Analysis from Fires, PSPS, and Near-Miss Events
4.7 Maturity Assessment (discussed in session 3)

We were unable to determine a clear picture of the proposed new Section 4 from our reconstructions and assume that the structure remains under development. Based on the available information we provide some addition/relocation (underlined) and deletion/relocation (strikethrough) suggestions to support this process. However, this is not a comprehensive assessment on our part, rather an initial review and recommendation:

Section 4: Risk <u>Assessment and</u> Modeling ~~and Assessment~~ [OEIS Proposal, Slide 47 unless otherwise noted]

4.1 Introduction
      4.1.1 Definitions of Risk and Risk Components
4.2 Risk Analysis
    <u>4.2.1</u>   *Risk* <u>Identification [or Assessment]</u> *~~Analysis~~ Requirements*
- Evaluate each risk and all *risk components* in service territory (Slide 60) <u>including but not limited to: [provide a list of specific risk and risk components.]</u> For each risk and risk component, provide the following (Slide 60):
  - Bow tie schematic showing the inputs, outputs, and consequences (Slide 60)
  - <u>*High-level description of the approach (such as MAVF) used to combine risk components* (Slide 60)</u>
  - <u>*Alignment of sub-models* (Slide 66)</u>
  - *Schematic showing the high-level calculation procedure* (Slide 60) <u>with references to each model and sub-model described in section 4.2.2</u>
  - ~~Summary description for each model and sub-model (Slide 60)~~
  - *~~High-level description of the approach (such as MAVF) used to combine risk components~~* ~~(Slide 60)~~
  - *~~High-resolution geo-spatial maps for each risk and risk component in the appendix~~* ~~(Slide 60)~~
  - *~~Detailed model documentation for each model and sub-model~~* ~~(Slide 60)~~
- <u>4.2.2</u>   <u>Risk Quantification (Modeling)</u> *~~Modeling Requirements~~*
  - *4.2.2.01*   <u>Summary description for each model and sub-model (Slide 60)</u>
  - *4.2.2.02*   *Detailed model documentation for each model and sub-model* (Slide 60) <u>provided in Appendices, one document/sub-appendix each for each model and sub-model that follows ASTM E 1427 7. "Contents of the Technical</u>

Document." Each model and sub-model documentation package should also contain (i) the model substantiation flow chart (Slide 61) and responses to each component and (2) version control and a documentation page with modification log (element updated, date implemented).

*Reporting structure places an *Emphasis on modular design of models* (Slide 66)

Purpose: Simplify sensitivity assessment of different assumptions (Slide 66)
Purpose: Ease of version control and independent review (Slide 66)

~~4.2.2.03 Alignment of sub-models (Slide 66)~~

4.2.3 Qualitative Risk Assessments

4.5 Calculation of Key Metrics (not discussed in this talk)
4.6 Service Area Risk Maps

~~4.6.1 Evaluate each risk and all risk components in service territory (Slide 55)~~

4.6.2 *High-resolution geo-spatial maps for each risk and risk component in the appendix* (Slide 60)

~~4.6.3 Maps of each risk and risk component in an appendix (Slide 55)~~

4.6.4 *Map (context and detail) of high fire risk areas not included in HFTD (Slide 55)*

4.6.5 *Spatial data submission of risk, risk components, and HFRA (Slide 55)*

4.7 Data Governance

4.7.1 Description of data portals, features, and access instructions for viewing web-based circuit level risk maps and completed/planned mitigations

4.7.2 Submit risk, *risk component, and model output* layers to submitted geospatial data (Slide 66) and provide in web-based data portal

~~4.7.3 Additional data collection from each ignition / retrospective analysis (Slide 66)~~

~~4.7.3.01 Risk and risk component scores at the time ignition occurred (Slide 66)~~

~~4.7.3.02 Risk and risk component scores at the time WMP was submitted (Slide 66)~~

~~4.7.3.03 Local conditions at the time ignition occurred (Slide 66)~~

~~4.7.3.04 Local conditions (forecasts) at the time ignition occurred (Slide 66)~~

4.7.4 *Updating definitions in WMP, non-spatial data, and GIS schema to be aligned. Similar data in non-spatial and geo-spatial data must be consistent.* (Slide 66)

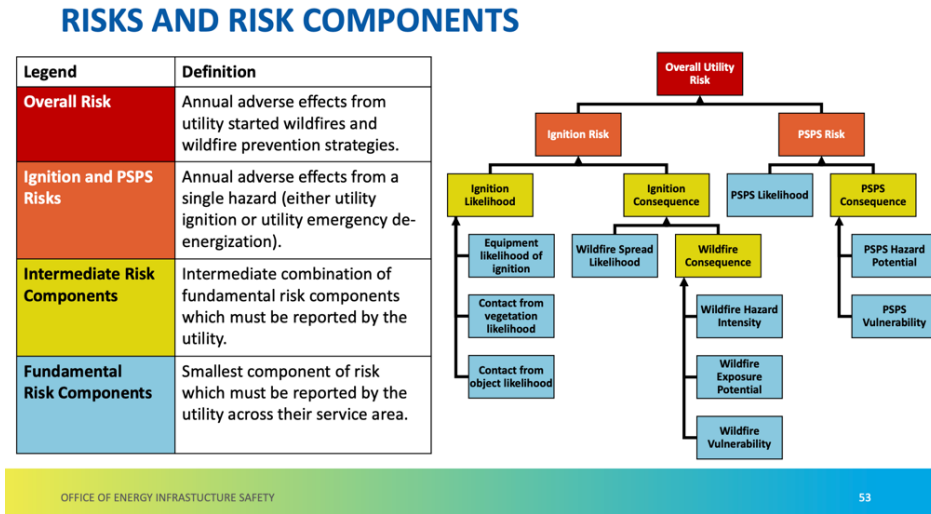~~4.7.5 Emphasis on modular design of models (Slide 66)~~

GPI has general concerns over potential overlap between content allocated to Section 4 subsections. For example, modeling descriptions were included in the Risk Analysis level-3 sub-section versus the Modeling Requirements section. Developing clear definitions for each level-2 and level-3 subsection header would help organize information while reducing overlap that would require cross-referencing between subsections. For example, Subsection 4.2.2 "Risk Analysis" Requirements could include both identifying and quantifying risks, which is redundant to the overarching section 4.2 "Risk Analysis" and overlaps with subsection 4.2.3 on Modeling (risk quantification).

GPI interprets the proposed Data Governance section as containing a combination of data elements and data reporting requirements that overlap with other reporting requirements such as the retrospective analysis and modeling subsections. A guiding definition of Data Governance may help define the types of information relevant to this subsection. For example, Google Cloud defines data governance as "Data governance is everything you do to ensure data is secure, private, accurate, available, and usable. It includes the actions people must take, the processes they must follow, and the technology that supports them throughout the data life cycle." This definition is different from what is listed in the Data Governance section, such as specific contents of a retrospective dataset.

Risk-based versus Risk informed decision making and qualitative risk factors and assessments – GPI appreciates the distinction between Risk-based versus Risk-informed decision making established during the Workshop. The WMPs to date have described that their mitigation selection methods utilize a combination of quantitative and qualitative inputs such as risk model results, RSEs, location factors (egress), resource availability, and SME input. The qualitative risk factors that go into mitigation selection remain relatively opaque. For example, the identification and ranking of ingress and egress route risk or material availability risk. GPI recommends adding a sub-section that requires utilities to describe qualitative risk assessment factors including the information/data collected and the collection methods used to develop and document these qualitative risk components that ultimately feed into their risk-informed decisions making process. This risk analysis information is necessary to inform downstream sections on risk-informed decision-making methods.

Risk Component Framework – As part of the increased transparency goal, GPI supports the risk component framework presented on slide 53 (Figure 3) and the proposal to require utility reporting at the "fundamental risk components" level. The IOUs appear to have (or be close to) this capability in their probability of ignition models. Metrics for the consequence risk components are likely available from Technosylva fire spread results. We are unsure whether the SMJUs have developed POI and consequence models to the point of being able to provide these same granular fundamental risk components. It would be prudent to assess this based on the forthcoming SMJU 2022 WMP filings. In the event that they are unable to provide these risk components there may need to be a decision that mandates modeling capabilities and/or relaxes reporting standards for SMJUs.

Figure 3. Reproduction of Slide 53 outlining risk component framework.

RISKS AND RISK COMPONENTS

Legend	Definition
Overall Risk	Annual adverse effects from utility started wildfires and wildfire prevention strategies.
Ignition and PSPS Risks	Annual adverse effects from a single hazard (either utility ignition or utility emergency de-energization).
Intermediate Risk Components	Intermediate combination of fundamental risk components which must be reported by the utility.
Fundamental Risk Components	Smallest component of risk which must be reported by the utility across their service area.

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Guiding Question 9: Thoughts on model documentation requirements (Technical and V&V)? Any additional needs?

OEIS presented examples of model documentation standards, including methods and templates from ASTM and the Society of Fire Protection Engineers (SFPE). GPI supports using these pre-existing reporting standards to structure detailed technical filing requirements for risk models in the WMP. The machine learning models that IOUs use to extrapolate probability of ignition risk may deviate from the ASTM and SFPE Fire Models described on Slide 64 in terms of data input QA/QC, imputation standards, and model verification, validation, and uncertainty assessment methodologies. GPI recommends researching and establishing data science best practices that are relevant to machine learning models such as data imputation methods and model validation and verification/uncertainty assessment. Minimally, establishing specific reporting requirements for machine learning models based on industry best practices would provide more transparency into the IOUs methods, and would provide a pathway for identifying which utilities exemplify best practices.

The technical documentation for each model and sub-model should be designed as a stand-alone document with version control and update/revision descriptions. We agree that

stand-alone model-specific technical documents could be appended to the WMP as recommended for Appendix A.1 (Slide 14). This documentation requirement achieves the OEIS goal to put "Emphasis on modular design of models" in order to "Simplify sensitivity assessment of different assumptions" and for "Ease of version control and independent review (Slide 66)." Models and sub-models can be expected to mature at varying rates depending on complexity and refinement prioritization. Stand-alone model and sub-model technical reports will provide independent documentation that tracks the development rate of each model versus shoehorning updates into the WMP filing cycle. For example, version control would clarify if utilities are updating their modeling methods multiple times a year. Alternatively, if the same version of a model and its documentation is used for two consecutive years for WMP risk modeling this would be evident based on the technical documentation version cited in, and attached to, the WMP. This would support more efficient review since it would be easier to assess whether and where a model was updated relative to past WMP filings.

Guiding Question 10: What risk / risk component maps should be required in the WMP? At what interval (annual, 3-year, 5- year, 10-year, etc.)?

GPI strongly supports the proposal to require risk component maps in the WMP. We further support the proposal to require ignition likelihood and ignition consequence maps for HFTD Tier 2 and 3 at a minimum. Maps would preferably include data layers that map the "fundamental risk components." We clarify that IOU reported maps should not source data from the CPUC or wildfirerisk.org as presented in the OEIS Workshop, but rather their own risk modeling outputs that are used for mitigation planning. These maps should be regenerated at least every 3 years with each base WMP filing, and preferably annually to reflect changes in the risk modeling methodology. We also generally support the proposal to require circuit-level mitigation plan tables, stated as "Provide a table listing each circuit identified for mitigation and summarize key parameters (Slide 72)". However, limiting these rich wildfire risk and mitigation datasets to static document formats will limit use case application and accessibility.

In 2020 GPI advocated for the development of a publicly available online viewing platforms that displays geospatial (GIS) data filed in the WMP. These comments were in response to the Final Utility Wildfire Mitigation Strategy and Roadmap for the Wildfire Safety Division, released in December 2020. The roadmap outlined a longer-term plan for 2023+ that is applicable to the coming 2023-2025 3-year WMP cycle (Figure 4). Specifically, the data and analytics roadmap envisioned that the 2020-2022 cycle would include the development of digital platforms that would support WMP "use cases." By the 2023 three-year cycle these digital platforms were envisioned to support external stakeholder engagement and "enable advanced capabilities."

Given this vision and the rapid advancements in risk modeling, GPI reiterates our 2020 recommendation to advance beyond the proposed static wildfire risk maps and circuit-level granularity mitigation tables in the WMP filings. *The 2023 WMP guidelines should require that IOUs establish web-based data portals that host the wildfire risk maps, as well as circuit-level data on completed and planned mitigations*. The maps should support risk and mitigation data downloads akin to the requested static maps and tables. This can be achieved relatively efficiently by adding risk map and mitigation data as layers to the IOUs existing data portals that host the Integration Capacity Analysis (ICA) maps.

The IOUs already maintain web-based data portals suitable for hosting digital risk and mitigation activity maps. The IOU's ICA maps are web-based circuit-level maps that were developed for the now closed Distributed Resources Plan (DRP) proceeding.

> The DRP Integration Capacity Analysis (ICA) is one example of a CPUC-mandated, high granularity dataset that was developed as both a tool for use by the utilities, the CPUC, and third-party DER developers to enable increased transparency regarding DER integration into the distribution system. This tool was developed through input by the public, third-party DER developers, the IOUs, and the CPUC staff. The result was a standardized, GIS-enabled platform that provides DER developers and parties to parallel CPUC proceedings and processes, and utilities a window into the DER integration capacity of an IOU's entire distribution system at a circuit-node level. Furthermore, the user does not need to operate GIS software to view the ICA maps, making them accessible to all stakeholders. The ICA platform can also host complimentary GIS data layers, such as the recently mandated addition of fire risk and tree mortality maps.

Figure 4. A reproduction of Figure 6 from the Final Utility Wildfire Mitigation Strategy and Roadmap for the Wildfire Safety Division released in December 2020.

	Shorter-term (2020)	During Next WMP Cycle (2020–2022)	Longer-term (2023+)
Objectives	Establish vision and goals Support WMP review Build capabilities	Design and build digital platform for use cases Procure software	Enable advanced capabilities Establish external stakeholder connections
People	Develop data governance playbook to provide standards for data sharing across state agencies and associated partners	Engage program management team to define needs, use cases Engage platform management team for software build-out	Enable collaboration with external stakeholders Facilitate data capture for next-generation analytics
Process	Ensure data security protocols are executed Build preliminary data dictionary and taxonomy to support standardization of data inputs	Design platform architecture Continue build-out of data taxonomy and dictionary	Enable predictive analytics and next-generation insights Transform WMP, utility ops reviews into data-driven processes
Tools	Utilize standardized templates (data schema) Develop secure file repository with standardized file	Procure platform software Integrate data collection software to connect data providers	Build out reports, dashboards, and algorithms to power predictive analytics and support proactive decision making

Developing the ICA was, notably, a major undertaking that required years of development time to establish, standardize, and refine the analysis and platform. While embarking on a circuit level wildfire risk analysis across the entirety of utility territories may be out of scope for the WMP, the ICA is a prime example of a central data platform that provides transparency by enabling approved stakeholder access to complex datasets and visualizations without the need for individual software licenses. The ICA is expandable as new data types are deemed relevant to its use cases, provides both a visual platform and data export functionality, includes standardized metadata and data labeling approaches across the IOUs, and is designed to support a range of pre-defined use cases. GPI recommends that the WSD, WSAB, and stakeholders explore the ICA development process and platform as a potential model for guiding the development of a more granular wildfire risk and initiative data strategy (GPI comments on the WMP Roadmap, June 30, 2020).

Now, in 2022, circuit-level wildfire risk modeling is in-scope for wildfire mitigation planning. We update our position to recommend that OEIS require the IOUs to publish the proposed risk maps and circuit-level mitigation table requirements as data layers on the existing ICA data platforms. The existing platforms will provide circuit map and satellite view base layers that complement and provide context for the requested maps and tables.

The ICA was also envisioned to support Grid Needs Assessments for distributed energy resource (DER) integration and solutions to grid needs. ICA development and use cases are now under the jurisdiction the active High DER proceeding. Layering wildfire risk with DER planning tools such as the ICA was deemed relevant in the DER and may dovetail with the HDER proceeding goals since WMPs and HDER both address distribution grid design and reliability. As described in our June 30, 2020, comments to the CPUC on the 2020 WMP Roadmap:

> Notably, the DRP proceeding has already mandated that IOUs include a GIS layer in the ICA showing the locations of wildfire risk, tree mortality, and PSPS:
>
> > IOUs should include the fire threat and tree mortality data from the online Commission FireMap (https://ia.cpuc.ca.gov/firemap) as layers on the DRP Data Portal online maps (Reform No. 10). This will be useful for customer siting with respect to Self-Generation Incentive Program (SGIP) resiliency incentives, for example, which may also lead to deferrals. Energy Division should explore with the IOUs to what extent and when detailed historical PSPS outage data can be provided and mapped on the DRP Data Portals in coordination with existing efforts, including those in R.19-09-009 (Reform No. 11) (Administrative Law Judge's Ruling Modifying The Distribution Investment Deferral Framework— Filing And Process Requirements, P. 30).

GPI urges Energy Safety to include this proposal in the WMP Guidelines for the 2023-2025 WMP cycle since developing the web-based maps will take time.

Guiding Question 11: Thoughts on additional data recording of ignitions (local environmental conditions + forecasts)?

GPI is not opposed to requiring additional data relating to ignition events. The two examples provided are somewhat ambiguous. OEIS should clarify this proposal. For example, whether forecasts are referring to weather or climate models. The time at which

a weather forecast is generated prior to an ignition event can vary along with its uncertainty and weather forecasts may not describe the actual conditions associated with an ignition location. Using weather forecasts to assess ignition probability is risky in contrast to using measured weather conditions at or near an ignition location and using the predictive power of those measured parameters to inform risk under future potential conditions (i.e. forecasts). We also presume that forecasts are already available for ignition locations since the IOUs have and source data from weather prediction systems for their operation risk models. Additional information is required to establish the specific application envisioned for forecast data associated with ignition events.

Local environmental conditions are presumably collected for probability of ignition modeling as these data have predictive power required to develop machine learning models. The environmental conditional data that are already collected for and used in probability of ignition models is not transparent in the WMP filings. The first step is to require ignition data input summaries in the proposed stand-alone technical modeling documentation in order to provide transparency on the local environmental conditions already considered in probability of ignition models. This would inform whether additional data collection is required.

Guiding Question 12: Thoughts on model stability, version control, and modularization?

See responses to Guiding Question 9.

Wildfire Mitigation Strategy

OEIS proposals:

- Transparency in risk-informed prioritization process: 1. Reporting of methods used to identify areas prioritized for mitigation; 2. Reporting of methods used to select mitigation types; 3. Mapping and narrative justifying prioritization and mitigation selection
- Reporting of schedule and implementation for planned mitigations

- Mapping of plan and forecasted risk reduction: 1. Geo-spatial maps of the implementation plan; 2. Forecasted annual risk maps based on successful implementation of the plan

Guiding Question 13: What information should be collected about prioritization strategy?

GPI supports the proposal to require mitigation plan and forecasted risk reduction maps, including: 1. Geo-spatial maps of the implementation plan; and 2. Forecasted annual risk maps based on successful implementation of the plan. We further recommend that these two maps be developed as data layers in the IOU ICA data portals, as described above in Guiding Question 10. Requiring that all required risk mapping is provided on one web-based viewing platform with pre-existing satellite and circuit base-layers will substantially improve WMP transparency and provide a functional tool for stakeholder, OEIS, and community engagement.

Guiding Question 14: What granularity of implementation timeline should be provided? How far into the future?

GPI has no comments at this time.

Guiding Question 15: What are acceptable interim strategies? What are long-term mitigation activities?

GPI has no comments at this time.

Maturity Model

OEIS proposals:

- Reorganize Maturity Model into Eight Categories Covering 39 Capabilities: i. Merge "Grid Design and System Hardening" and "Asset Management and Inspections" categories; ii. Addition of "Safety Culture" category; iii. Reorganize existing capabilities to better align with updated scoring approach; iv. Replace some existing categories with cross-category theme scores (see below)

- Expand maturity capability definitions: i. Expand scoring philosophies to include other key maturity themes; ii. Link each maturity capability to related risk and risk components; iii. Link each maturity capability to related outcomes
- Cross-category theme scores: i. Risk and risk component scores; ii. Critical cross-cutting themes (e.g., risk prioritization, QA/QC)
- Cross-category theme scores: i. Risk and risk component scores; ii. Critical cross-cutting themes (e.g., risk prioritization, QA/QC)
- Increase transparency of maturity scoring: i. Include scoring approach in WMP Guideline attachment; ii. Increase granularity of each maturity capability
- Link maturity assessment to utility WMP discussion: i. Section within each WMP initiative chapter on how the initiatives are expected to advance maturity and reach the levels projected for future years; ii. Space for utilities to describe efforts that are not captured in the maturity level definitions for potential future inclusion

Guiding Question 16: Thoughts on reorganization of capabilities? New capabilities? Gaps in updated model?

GPI appreciates the effort invested in reorganizing the maturity model capabilities. The proposed concept and expansion of scoring philosophies and rubric-like levels have the potential to provide a deeper and more transparent assessment of WMP maturity. We also appreciate the expansion of Capability 20 to read "Vegetation treatment *and removal.*" At this stage, however, there is limited transparency into each capability and their scoring elements. We recommend providing a complete version of the proposed reorganization in a staff proposal with ample time for review from a wide range of stakeholders.

Our general concerns regarding the updated Maturity Model include:

(1) Loss of comparability between the 2020-2023 Maturity Model responses and the reorganized structure, which appears to deviate substantially from the previous model. GPI wonders if this major restructuring could impede the objective of using the Maturity Model to correlate related outcomes with maturity if the maturity framework in the next WMP cycle is not comparable to the previous cycle.

(2) In the "Expanded Capability Definition (Example)" (Slide 98, 100-101) capability 1 groups together statistical weather, climate, and wildfire modeling. Each of these models

may mature at different rates. However, based on the Maturity Model method and rubric they would all be ranked according to the least mature model. This may hinder evaluations regarding which models require the most development work. This same issue may apply to risk assessment and mitigation strategy capabilities that combine wildfire and PSPS risk and vulnerability assessments since each of these models/methods may not advance at the same rate.

(3) GPI recommends adding a new Vegetation Management and Inspections capability 22. "Vegetation residue management" that specifically calls for utilities to report on their vegetation residue removal method (Level 1), tracking of total vegetation residue production (Level 2), a complete summary of end-use and disposal pathways (Level 3), and the mass of residue routed to waste versus each end-use pathway and a description of each disposal method (Level 4).

(4) Capability 1 also nests two Scoring Philosophies "Validation" and "Documentation and Disclosures." However, the scoring rubric is largely focused on Validation.

GPI looks forward to a more complete draft of the proposed Maturity Model for additional context.

Guiding Question 17: Thoughts on expanded capability definition (link to outcomes, risk components, scoring philosophies)?

GPI has no comments at this time.

Guiding Question 18: Thoughts on integration in WMP guidelines?

GPI generally supports the proposal that "Discussion of mitigation initiatives in each area should identify how the plan will result in improved maturity (Slide 112)." However, a more complete description of how and where these sub-sections will be implemented is required to properly evaluate the proposal.

Guiding Question 19: Thoughts on new maturity levels (risks and risk components, cross-category themes)?

GPI has no comments at this time.

Guiding Question 20: Are there other cross-category theme scores which would be valuable?

GPI recommends adding a sustainability scoring philosophy under the Continuous Improvement Cross-cutting theme. This sets a precedence for exploring risk reduction pathways and practices such as more sustainable methods for vegetation residue use, long-term vegetation management strategies (e.g. native planting versus annual trimming and herbicide use), long-term risk reduction solutions, or other mitigations with lower maintenance requirements.

Guiding Question 21: Clarification needed on the proposed determination approach?

OEIS should detail the complete Maturity Model update in a staff proposal.

Guiding Question 22: Thoughts on reorganization of capabilities? New capabilities? Gaps in updated model?

GPI has no comments at this time.

Conclusions

We urge the OEIS to adopt our recommendations herein.

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Respectfully Submitted,

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