

# Revegetation, Restoration, and Monitoring Plan

Fulton-Fitch Mountain  
Reconductoring Project



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## 1.0 INTRODUCTION

Pacific Gas and Electric (PG&E) is proposing to reinforce the electric transmission and distribution system in Sonoma County by replacing existing conductor (reconductoring) on two power lines pursuant to California Public Utilities Commission (CPUC) General Order (GO) 131-D, Section III.B. PG&E proposes to replace the conductor on a 9.8-mile-long section of the Fulton-Hopland 60-kilovolt (kV) Power Line (Fulton-Hopland line or 60-kV line) between Fulton Substation and Fitch Mountain Substation. The proposed project would also include replacing poles along 8 miles of the Fulton-Hopland line, replacing conductor on 1.4 miles of the Geysers #12-Fulton 230-kV Transmission Line (Geysers #12 line or 230-kV line), and making modifications to Fitch Mountain Substation.

The proposed project would be comprised of two segments: the Southern Segment and the Northern Segment. The Southern Segment would extend from Fulton Substation to Shiloh Ranch Regional Park, and the Northern Segment would extend between Shiloh Ranch Regional Park and the Fitch Mountain #1 Tap 60-kV Power Line (Fitch Mountain #1 Tap). The project will be referred to as the Fulton-Fitch Reconductor Project throughout this document.

Mitigation Measure (MM) Biology – 7 of the Initial Study/Mitigated Negative Declaration (IS/MND) issued by the CPUC for the proposed project requires the preparation of a Revegetation, Restoration, and Monitoring Plan and includes parameters for performance standards, monitoring procedures, and reporting. In accordance with Mitigation Measures Biology – 7, PG&E has prepared this Revegetation Restoration and Monitoring plan for the Fulton-Fitch Reconductor Project. In addition, this Plan meets the requirements of Applicant Proposed Measure (APM) BIO – 10, MM Biology – 2, and MM Biology – 9, from the IS/MND, which describe mitigation requirements for trees, special-status plants, and sensitive natural plant communities, respectively.

## 2.0 RESULTS OF INITIAL VEGETATION MAPPING

### 2.1 VEGETATION COMMUNITIES

Surveys to map vegetation within the project area were conducted in 2011 and 2012, as reported in the IS/MND, and in 2017 to support the rare plant survey report. Data presented in this Plan are consistent with the IS/MND.

The study area, which encompasses approximately 477.5 acres, is defined as a 500-foot wide corridor extending 250-feet on either side of the project alignment. Access routes and landing zones/staging areas located outside of the project alignment were also surveyed. Vegetation communities documented in the survey area were classified in five categories: oak woodland/forest (includes riparian woodland), grassland, California bay forest, Douglas-fir forest, and eucalyptus. Disturbed/developed land cover types documented in the survey area include: mixed agricultural land, bare soil/heavily disturbed areas, and developed areas. Vegetation community types previously documented in IS/MND and 2017 rare plant report were reconciled and combined to have consistent nomenclature. Table 1 provides the crosswalk from the IS/MND nomenclature to the nomenclature used in this report and all others moving forward. All communities—excluding Mixed North Slope Cismontane Woodland—in the natural/semi-natural

category are classified following nomenclature in the Manual of California Vegetation, 2<sup>nd</sup> Edition (MCV2) (Sawyer et. al, 2009). One community, Mixed North Slope Cismontane Woodland, is not recognized in the MCV2. However, all communities were mapped to the extent necessary to determine presence or absence of sensitive natural communities (i.e. no sensitive natural communities have been subsumed into this vegetation type) (Sandomire pers. communication, 2018).

The table below provides an estimate of the approximate percentage of each vegetation community within the total study area, and descriptions of each land cover type are provided in the subsections below. Prior to construction, vegetation will be mapped within areas to be impacted and impact acreages will be calculated per vegetation type, as described in the Pre-Construction and Post-Construction Documentation Sections below.

**Table 1: Vegetation Communities**

Land Cover Type		Percent of Study Area
IS/MND	Revised Nomenclature	
<b>Natural and Semi-Natural Vegetation Communities</b>		
Oak Woodland/Forest*	--	43%
Coast Live Oak Woodland and Forest	Coast Live Oak Woodland	
Central Coast Live Oak Riparian Forest	Riparian Coast Live Oak Woodland*	
Mixed North Slope Cismontane Woodland	Mixed North Slope Cismontane Woodland	
Oregon Oak Woodland	Oregon Oak Woodland*	
Blue Oak Woodland	Blue Oak Woodland	
Grasslands	Non-Native Grassland	30%
California Bay Forest	California Bay Forest*	<1%
Douglas-Fir Forest	Doug-Fir Forest	<1%
Eucalyptus	Eucalyptus Semi Natural Woodland Alliance	<1%
<b>Disturbed/Developed</b>		
Mixed Agricultural Land	Agricultural Land	15%
Bare Soil/Heavily Disturbed	Agricultural Land	1%
Developed Areas	Developed	11%

\* CDFW-recognized sensitive natural community (ranked S1, S2, or S3, or riparian vegetation)

### 2.1.1 Coast Live Oak Woodland

The canopy is dominated by coast live oak (*Quercus agrifolia*). Other tree species such as madrone (*Arbutus menziesii*), blue oak (*Quercus douglasii*), Oregon oak (*Quercus garryana* ssp. *garryana*), and California bay (*Umbellularia californica*) are common; occasionally California buckeye (*Aesculus californicus*) are present. Common woody plants in the understory include poison oak (*Toxicodendron diversilobum*) and hairy honeysuckle (*Lonicera hispidula* var. *vacillans*). Common herbaceous species include slender wild oat (*Avena barbata*), rattlesnake grass (*Briza maxima*), wavy-leaf soaproot (*Chlorogalum pomeridianum*), hedgehog dogtail (*Cynosurus echinatus*), blue wildrye (*Elymus glaucus*), purple needlegrass (*Nassella pulchra*), and common hedge parsley (*Torilis arvensis*). Coast live oak woodland has an intermittent canopy with a grassy, open understory, while coast live oak forest has a more closed canopy.

### 2.1.2 Mixed North Slope Cismontane Woodland

The overstory of this woodland contains the same mixture of species as in coast live oak woodland; however, in the mixed north slope cismontane woodland, no single species regularly dominates the overstory. Common tree species include California buckeye, madrone, coast live oak, blue oak, Oregon oak, and California bay. California black oak (*Quercus kelloggii*) and grey pine (*Pinus sabiniana*) are also present, though in smaller quantities. Shrub species include common manzanita (*Arctostaphylos manzanita*), coyote brush (*Baccharis pilularis*), hairy honeysuckle (*Lonicera hispidula*), snowberry (*Symphoricarpos mollis*), and poison oak. The herbaceous layer in this mixed woodland is like that of the coast live oak woodland.

### 2.1.3 Oregon Oak Woodland

This woodland type is dominated by well-spaced, medium-sized Oregon oak trees. Other trees such as California buckeye, madrone, coast live oak, and blue oak are scattered throughout the overstory. Common woody plants in the understory include poison oak, hairy honeysuckle, and snowberry. The herbaceous layer contains grasses and herbs that are also common to both coast live oak woodland and grasslands. This community type integrates with coast live oak woodland and mixed north slope cismontane woodland. Oregon oak woodland is considered a sensitive natural community by CDFW and is ranked S1 by the California Native Plant Society (CNPS).

### 2.1.4 Coast Live Oak Riparian Forest

The canopy is dense, multi-storied, and tall, often up to 50 feet. Although coast live oak is the dominant tree in the dense overstory of these riparian corridors, these forests have a more evenly-mixed canopy than upland coast live oak communities. This community includes broad-leaved and riparian trees such as big-leaf maple (*Acer macrophyllum*), California buckeye, Valley oak (*Quercus lobata*), interior live oak (*Quercus wislizenii*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*). Common understory shrubs include lackberry (*Rubus armeniacus*, *Rubus ursinus*), snowberry, and poison oak. The streams contain a mix of hydrophytic herbs such as tall nutsedge (*Cyperus eragrostis*), dense willow-herb (*Epilobium densiflorum*), pennyroyal (*Mentha pulegium*), seep-spring monkeyflower (*Mimulus guttatus*), rabbit's foot grass (*Polypogon monspeliensis*) and, on rocks below ordinary high water, the moss *Scleropodium*. This community is considered sensitive by CDFW because it is riparian habitat.

### 2.1.5 Blue Oak Woodland

Blue oak woodland is dominated by well-spaced, medium-sized blue oak trees. The understory consists of the same grasses and herbs discussed below under Non-Native Grassland.

### 2.1.6 Non-Native Grassland

Non-native Grassland is the second most common community type in the survey area, covering 30% of the area. Grasslands consist of areas dominated by low-growing grasses and herbs, with few trees and/or shrubs. Common species in the grasslands are Spanish lotus (*Acmispon americanus*), barbed goatgrass (*Aegilops triuncialis*), slender wild oat, purple false brome (*Brachypodium distachyon*), rattlesnake grass, ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), sterile brome (*Bromus sterilis*), hedgehog dogtail, medusahead (*Elymus caput-medusae*), blue wildrye, stork's-bills (*Erodium botrys*), six weeks rattail fescue (*Festuca myuros*), rye grass (*Festuca perennis*), Harding grass (*Phalaris aquatica*), purple needlegrass, little

hop clover (*Trifolium dubium*), and rose clover (*Trifolium hirtum*). Some areas support low concentrations of native wildflowers such as clarkias (*Clarkia* spp.), lupines (*Lupinus* spp.), and leptosiphon (*Leptosiphon* spp.).

### 2.1.7 California Bay Forest

California bay dominates the overstory in California bay forest. Coast live oak and madrone are present in the understory. A small patch of California-tea (*Rupertia physodes*) occurs at the edge of this forest type. California bay forest is considered a sensitive natural community by the California Department of Fish and Wildlife (CDFW) and is ranked S3 by CNPS.

### 2.1.8 Doug-Fir Forest

Doug-fir (*Pseudotsuga menziesii*) dominates the overstory. California bay and madrone occur in the sub-canopy.

### 2.1.9 Eucalyptus Semi Natural Woodland Alliance

A small stand of eucalyptus (less than an acre) dominated by tall red gum trees (*Eucalyptus camaldulensis*) was observed growing on a ridge in the central portion of the project study area.

### 2.1.10 Agricultural Land

Lands in the project study area are used for grazing horses or cropland, including fallow fields that are disked. Cultivated grape (*Vitis vinifera*) vineyards and fallow vineyards are located in numerous areas within the project study area. An abandoned orchard and a small maintained orchard were included in this category. The vineyards are managed with even-aged grape vines and a mowed ruderal understory. Common understory species include wild oat, soft chess, ripgut brome, various types of filaree, black medic (*Medicago lupulina*), English plantain (*Plantago lanceolata*), little hop clover, rose clover, and subterranean clover (*Trifolium subterraneum*). Fallow vineyards are dominated by a thick, weedy coverage of wild oat, field mustard (*Brassica rapa*), common mallow (*Malva neglecta*), Harding grass, blessed milk thistle (*Silybum marianum*), scarlet clover (*Trifolium incarnatum*), and winter vetch (*Vicia villosa*).

### 2.1.11 Developed Areas

Developed areas comprise large portions of the project study area. Development areas include residential developments, roadways, schools, urban parks, existing substations, and other paved or landscaped areas.

## 2.2 SENSITIVE NATURAL COMMUNITIES

The sensitive natural communities present within project impact areas consist of woodland/forest vegetation alliances, some with sparse herbaceous understories and some with dense herbaceous understories dominated by non-native grasses and forbs including slender wild oat, rattlesnake grass, and ripgut brome. It is suspected that natural communities within the project impact areas would contain non-native vegetation and noxious weeds that would not be afforded protection described in MM Biology-9.

### 3.0 PRE-CONSTRUCTION VEGETATION SURVEYS AND REPORTING

Prior to construction, a qualified biologist or botanist shall survey all final work areas and overland access routes to identify the vegetation resources that may be impacted. Surveys shall consist of documentation of the location, position, condition, and extent of planned project disturbance in each final work area and/or access route and will include photo documentation. The baseline conditions for adjacent and comparable vegetation resources will also be recorded and used as a qualitative control for post-construction monitoring to account for seasonal fluctuations.

Biologists will survey impact areas following the relevé protocol modified in such a way to collect data applicable to future monitoring and reporting efforts (CNPS 2007). The following survey data will be collected:

- Vegetation communities/land cover, project work areas, and access routes will be mapped using a hand-held Trimble Global Positioning System (GPS) or similar device during pre-construction surveys. Actual impact areas will be updated during post-construction documentation. The devices will be used to relocate and survey these areas during annual monitoring visits.
- In addition, vegetation communities/land cover in undisturbed locations adjacent to impact areas will also be recorded. Adjacent locations will be selected such that the vegetation is similar in composition to the impact areas. These areas will serve as control sites and will be used to determine annual levels of invasive plants and overall growth conditions in non-impacted areas.
- Impacted/revegetated areas and adjacent areas will be surveyed walking meandering transects across the impacted areas taking ocular estimations and selecting representative plots for each impact area and averaging multiple plots in larger areas. In impact areas with more than one vegetation type, each vegetation type will be sampled separately. The following data will be collected:
  - absolute cover of vegetation compared to bare ground
  - dominant plant species and cover (defined as greater than or equal to 20 percent cover)
  - relative percent cover of each dominant species
  - noxious weed species (Cal-IPC-rated moderate or high) and relative percent cover
  - notation of presence or absence of native species other than the dominants
- Revegetated areas and adjacent areas will also be photo-documented. Color photographs of the entire impacted/revegetated areas will be taken from fixed photo points with the same view to allow a review of the revegetation progress over time. The location, direction, and magnification of each photo point will be documented using the GPS unit to ensure that the same fixed points are used during each survey.

Vegetation alliances and associations ranked S1, S2, or S3 are considered sensitive natural communities by the California Department of Fish and Wildlife (CDFW) and are addressed under the California Environmental Quality Act (CEQA) Guidelines. If sensitive natural communities, as identified by CDFW (2018) are found in work areas and overland access routes during pre-

construction surveys, work areas and overland access routes shall be repositioned where possible to avoid adverse impacts to sensitive natural communities. The removal of trees during construction will be avoided and minimized to the extent feasible.

The preconstruction vegetation surveys will not include an inventory of trees scheduled for removal. As construction crews mobilize to work locations, the need for vegetation management will be assessed by the Environmental Inspector and/or biological monitor(s). Native trees in sensitive natural communities that require removal and have a 6-inch or greater diameter at breast height (DBH) shall be documented for mitigation according to MM Biology – 9. Within vegetation communities not classified as sensitive, large valley oak trees greater than 20 inches dbh or small valley oaks with a cumulative dbh greater than 60 inches that occur within the Sonoma County Valley Oak Combining District that require removal will be documented for mitigation according to APM – 10. The removal of trees during construction will be avoided and minimized to the extent feasible.

PG&E will prepare a Pre-Construction Report which will identify and depict in figures the types and locations of the vegetation resources that may be impacted, the limits of the planned work areas, and project access routes. Anticipated impacts to vegetation resources shall be quantified and documented in the Pre-Construction Report, such as special-status plant individuals; the characteristics of plant populations (i.e., size and cover estimates); or the types and numbers of tree and shrub individuals. Restoration acreages and conditions for impacted grassland, woodland, and forest vegetation communities will also be included. An initial Pre-Construction Report shall be submitted to the CPUC 30 days prior to construction. Separate Pre-Construction Reports may be submitted for each project segment, if necessary. If new impacts or restoration procedures are identified, the Report shall be updated and submitted in track changes to the CPUC. A qualified biologist or botanist shall document vegetation resources that are impacted.

## 4.0 POST-CONSTRUCTION REVEGETATION AND REPORTING

In accordance with MM Biology – 9 from the IS/MND, areas temporarily disturbed by project construction will be revegetated and restored to near pre-construction conditions. Additional restoration recommendations and requirements incorporated in this Plan include Applicant Proposed Measure BIO-10, MM Biology – 2, and MM – Biology 10 from the IS/MND.

### 4.1 TREE REPLACEMENT

For the removal of trees that are unavoidable, in accordance with APM BIO-10 from the IS/MND, PG&E will coordinate with landowners to either replace or pay an in-lieu fee to the Sonoma County Valley Oak Planting Program in accordance with Article 67 Sonoma County Zoning Regulations, “Valley Oak Habitat Combining District”. If any additional Valley oak trees are removed during project construction, PG&E will document the removed trees and will either replace each tree at a 1:1 ratio or coordinate with Sonoma County or the Town of Windsor to provide an equal level of compensation in a different manner.

If tree impacts cannot be avoided in sensitive natural communities, PG&E shall attempt to trim native trees rather than removing them. Native trees over 6-inches DBH trimmed over 25 percent will be assessed by an arborist. Should the arborist conclude that it is likely the trees will not survive the trimming, PG&E shall ensure the trees are replaced at a 1:1 ratio and replaced in the

closest appropriate location by seed and/or container stock. Sensitive natural communities shall be restored at a ratio of 1:1.

## 4.2 SEEDING

Vegetated areas disturbed by project construction will be revegetated with a seed mix to stabilize soils and minimize the introduction or spread of invasive plants. Seed will be applied by hand, broadcast seeding, or hydro-seeding procedures. PG&E will work with a local native plant nursery to develop the final native seeding mix, including ratios of various native species in the seed mix, ensuring that only native species are used. On lands grazed by cattle, as requested by land owners, a forage seed mix will be used that will include suitable forage species, such as rye grass (a non-native grass species). An example native seed mix is provided in Table 2 below; the species are listed for reference only and the actual palette used will be based on native species that currently occur on the project site, including grasses and forbs. PG&E expects that shrubs will naturally colonize the restored sites from adjacent, undisturbed areas.

**Table 2: Representative Native Seed Palette**

Common Name	Scientific Name
Blue wildrye	<i>Elymus glaucus</i>
Purple needlegrass	<i>Stipa pulchra</i>
California brome	<i>Bromus carinatus</i>
Meadow barley	<i>Hordeum brachyantherum</i>
Three weeks fescue	<i>Festuca microstachys</i>
Tomcat Clover	<i>Trifolium wildenovii</i>

## 4.3 SPECIAL-STATUS PLANT SPECIES

No special-status plant species (federal-, state-, and/or California Rare Plant Rank List 1, 2, 3 or 4) were documented on the project site during protocol-level rare plant surveys conducted in 2011, 2012 and 2017 (GANDA, 2017). As such, this plan addresses the revegetation of suitable habitat for special-status plants and wildlife (grassland, woodland, and forest), sensitive natural communities, and protected valley oak trees, pursuant to MM Biology – 7. If special-status plants are documented on the project site prior to construction activities and impacts to these species are considered to be substantial, as determined by the CPUC, PG&E shall prepare and implement a Salvage and Replanting Plan as specified in MM Biology – 2.

## 4.4 SENSITIVE NATURAL COMMUNITIES

Restoration within any impacted sensitive natural communities will focus on the affected native stratum only. Restoration will consist of hydroseeding the disturbed herbaceous understory with an appropriate seed mix. The seed mix will not include non-native, invasive, or noxious weed species. Seeding with a native seed mix will not guarantee restoration to conditions free of noxious weeds and/or non-native species due to the presence of a long-established non-native seed bank that may be present. Success criteria in these areas will therefore follow the performance standards outlined above for other vegetation communities, focusing on the affected native stratum only, and relative to documented preconstruction conditions. This will ensure a 1:1 replacement for sensitive natural communities relative to baseline conditions.



## 4.5 POST-CONSTRUCTION DOCUMENTATION

Following construction, PG&E shall prepare and submit a Post-Construction Report to the CPUC, which will include the following:

- Table summaries of actual project impacts;
- Maps of the areas that identify the limits of actual impacts;
- Location name/ID for each impact area;
- Brief statement describing revegetation, restoration, and monitoring procedures, as defined in this plan.

## 5.0 ANNUAL MONITORING AND REPORTING

In accordance with MM Biology – 7, post-construction monitoring of impacted project areas will occur annually until the performance standards are achieved, or the CPUC agrees that no further monitoring or corrective actions are necessary. Areas that meet the final standards prior to the three-year monitoring period will be considered restored and will no longer be monitored. The following subsections describe the performance standards, protocols, and reporting procedures to be used for annual monitoring of revegetated areas.

### 5.1 PERFORMANCE STANDARDS

Final and annual performance standards (i.e., success criteria) for restoration of vegetation communities will be measured using two criteria, percent cover and invasive plants, and are defined below. Performance standards for both vegetation cover and invasive plants are set relative to baseline conditions established during pre-construction surveys. For example, if pre-construction percent cover of native vegetation in a work area was documented as 50-percent cover, the performance standard for restoration would be 70 percent of the original 50 percent ( $0.70 \times 0.50 = 0.35$ ), or 35-percent cover. In addition, percent cover of invasive plants will be determined compared to baseline conditions. For example, if 10 percent of vegetation in a work area was occupied by grasses listed as moderate in the Cal-IPC, the performance standard for restoration would be less than 5 percent increase from the original 10 percent (less than 15 percent of total cover).

PG&E will not be responsible for meeting the success criteria at sites that are periodically or continuously disturbed by landowners or others outside of PG&E control. In addition, success criteria are contingent upon sufficient rainfall and may be modified, in consultation with the CPUC, if climatic conditions are unfavorable.

#### 5.1.1 Percent cover

**Final Performance Standard.** A minimum of 70 percent vegetation cover relative to baseline conditions, consisting of a native species composition consistent with the pre-construction vegetation conditions.

**Annual Performance Standard.** Using the same metric defined above, a minimum of 30 percent vegetation cover will be expected during year one annual monitoring, and a minimum of 60 percent vegetation cover will be expected during year two annual monitoring.

### 5.1.2 Invasive Plants

No increase in percent cover of plants listed as high in the Cal-IPC, no more than a five percent increase of percent cover of grasses listed as moderate in the Cal-IPC, and no increase in percent cover of forbs listed as moderate in the Cal-IPC.

## 5.2 ANNUAL MONITORING PROTOCOL

Monitoring surveys to assess vegetation conditions and progress towards performance standards will be conducted on an annual basis until performance standards are achieved or CPUC agrees that no further monitoring or corrective actions are necessary. Annual monitoring must occur during the appropriate growing season (generally late spring). Biologists will survey impact areas following the same protocol used for pre-construction vegetation surveys (described in Section 3.0).

## 5.3 ANNUAL MONITORING REPORT

PG&E shall submit Annual Monitoring Reports to the CPUC each year, following completion of project construction. The reports shall summarize revegetation and restoration efforts for each applicable impact area, provide data on annual performance standards and success criteria, and detail any corrective actions necessary to close out sites. Monitoring results will be updated in the plan only when applicable (i.e., seasonally or annually). Once the final success criteria have been achieved for a given work area, annual monitoring will not be conducted in that area and data on the given work area will not be included in subsequent annual monitoring reports.

PG&E shall provide written updates to CPUC upon request regarding seasonally dependent restoration and corrective actions prior to submission of the annual monitoring reports.

## 6.0 ADAPTIVE MANAGEMENT

This revegetation plan will be revised as needed for significant changes to the project description. PG&E will consider and implement additional protection measures or supplemental actions as required to meet the goals of the plan. In the case of fire, flood, drought or any unforeseen circumstances that may impact revegetation and restoration; the project site will revegetate in parallel with the surrounding communities damaged as a result of fire, flood, drought or unforeseen circumstances. Any such determinations shall be determined in coordination with CPUC.

## 7.0 CORRECTIVE ACTION

If revegetated areas do not meet the annual performance standards, PG&E will attempt to ascertain and address the source of the problem in a timely manner. Issues and corrective actions shall be documented in the annual monitoring report. Corrective actions may include additional seeding, removal of invasive plant species, and additional application of weed control measures. Implementation of supplemental actions will be based on the general

recruitment trend, site-specific factors, and consideration of regional trends (i.e., drought, etc.). Consideration of supplemental actions will be based on the causal factors contributing to mortality, slow growth, or poor recruitment. These considerations will be included in each annual monitoring report.

## 8.0 REFERENCES

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