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January 17, 2014

Reg.12-10/A.12-10-009
SDG&E CNF PTC Application

**Sent Via Electronic Mail and Insignia FTP site**

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|---|---|
| Lisa Orsaba<br>California Public Utilities Commission<br>Energy Division<br>505 Van Ness Avenue<br>San Francisco, CA 94102 | Rica Nitka<br>Dudek<br>605 Third Street<br>Encinitas, CA 92024 |

**Subject: ED-SDG&E-04 SDG&E Response**

Dear Ms. Orsaba and Ms. Nitka:

San Diego Gas and Electric Company's (SDG&E) hereby submits responses to Data Request No. 4 dated December 19, 2013 regarding MSUP/PTC Attachment A additional information.

This submittal provides responses to the 7 areas identified in the data request.

In response to question #4, the Paleontological Resources Technical Report is provided under **confidential** cover on the Proposed Projects' FTP site.

In response to question #5, the three referenced tables were generated by spatially evaluating the Roads_All shapefile obtained from San Diego Geographic Information Source (SANGIS) against the existing geographic information system data for the Proposed Projects. Additional research using publicly available sources was conducted to verify road names where this information was not included in the SanGIS file. The SanGIS Roads All shapefile is provided on the Proposed Projects' FTP site. Here is the FTP login information for the CNF Power Line Replacement Projects.

https://sa.insigniaenv.com/ftp

The files are saved in the Data Request #4 folder. The access instructions to the website will be provided shortly in a separate email.

This completes the utility's response to the above-referenced data request. If you have any questions, please let me know.

Sincerely,

**Signed**

Rebecca Giles
Regulatory Case Manager

Enclosures

cc: Allen Trial – SDG&E
Estela de Llanos – SDG&E
Tim Knowd – SDG&E
Central Files - SDG&E
John Porteous – Dudek
Bob Hawkins – US Forest Service
Debbie Hobbs – Cleveland National Forest, USFS
Fred Bauermeister – Insignia
Kelli Taylor - Cleveland National Forest, USFS

# QUESTION 1: PROJECT DESCRIPTION

Concern has been raised that the proposed project, which is intended primarily for fire hardening (wood to steel pole replacement), will also add capacity to the system. The concern is that adding capacity to the system could be potentially growth inducing by providing additional system capacity which would allow and provide incentive for additional renewable energy projects in the area to tie into the system that otherwise could not. The following data requests have been prepared based on comments received during the public review period and review of SDG&E responses provided to the December 7, 2013 Forest Service comments on the Preliminary Plan of Development (*SDG&E 02/15/13 Complete Response Cleveland National Forest Review of the San Diego Gas & Electric Preliminary Plan of Development for the Master Special Use Permit (Dated December 7, 2012)*; available on the project website here: http://www.cpuc.ca.gov/environment/info/dudek/CNF/Main/CNF%20USFS%20DR1%20Complete%20Response%20(02-15-13S).pdf).

**SDG&E General Response to Data Request 4:**

Please note that the above referenced written comments submitted by members of the public during the Scoping Period were first made available on the CPUC's website at http://www.cpuc.ca.gov/environment/info/dudek/CNF/ScopingReport2014.htm on January 16, 2014; therefore, the following responses have been prepared without a full understanding of the specific concerns raised by members of the public or the context in which those concerns were expressed. SDG&E expressly reserves the right to supplement, clarify, revise, or correct any or all of the responses herein as necessary to ensure accuracy and completeness, and to assert additional arguments, objections or privileges, in one or more subsequent supplemental response(s) or hearings.

**Question 1.1 Proposed Conductors**

a) Please provide the rationale for the proposed conductors on the 69 kV power lines. Why the conductor size is increased with implementation of the fire hardening project. Also, please indicate if there are specific regulations requiring the proposed conductors.

b) Please provide the temperature rise used to rate both new and existing conductors and explain how proposed new conductors and associated rating could affect the maximum permitted conductor temperature.

**SDG&E Response to Q1.1:**

a) As explained in more detail below, the primary rationale for the proposed conductors on the 69 kV power lines is prudent engineering and judgment by the public utility responsible for the design, construction and maintenance of the 69 kV power line system based upon accepted good practice for the given known local conditions. For the CNF Power Line Replacement Projects, SDG&E is proposing to install the smallest of the standard conductors used by SDG&E for new construction and reconstruction throughout the 69 kV system to ensure compliance with General Order 95 Rule 31.1.

Since the wildfires of 2007, SDG&E has put a tremendous amount of effort into identifying ways to "harden" the overhead electric system. SDG&E has used a multi-stranded steel core conductor that would remain in service even if several steel strands are damaged, including by foreign objects or gunshots, which have been the cause of damaged conductors in the backcountry. With multi-stranded steel core conductors, several of the strands can be damaged but the conductor can remain in service. When selecting a type of conductor to use for the backcountry hardening projects, one of the key factors was mechanical strength characteristics. One of the biggest advantages of ACSS/AW conductor over ACSR/AW conductor is that the conductor depends primarily on the steel core for strength. In addition, the aluminum strands are already annealed (heat treatment that alters a material to increase its ductility) and less affected by extreme heat. ACSS/AW is a standard conductor used by SDG&E. ACSS/AW is unique in that the hoisting grips and the compression fittings/connection dies are specific for each conductor size. The advantages of using standard conductors include the cost effectiveness of only buying and stocking sizes which also provides availability of spare materials, ability to use the same hydraulic presses/dies, reduced outage restoration time due to standard tooling, and keeping spare reels in stock. Using standard conductors also reduces the potential for confusion during construction and maintenance activities. SDG&E primarily uses two different sizes of ACSS/AW conductor, 900 KCMIL ACSS/AW (CANARY) and 636 KCMIL ACSS/AW (ROOK). SDG&E is using the smallest ACSS/AW standard conductor (Rook) on the CNF projects.

Considering the majority of the lines in the backcountry have had the same conductor in place for the past 40-50 years, it is prudent to install conductor that will have similar performance history and do not need to be replaced in the near future.

Although there are no specific regulations requiring a specific conductor, General Order 95 Rule 31.1 adopted by D. 12-01-032 provides that:

> **31.1 Design, Construction and Maintenance**
> Electrical supply and communication systems shall be designed, constructed, and maintained for their intended use, regard being given to the conditions under which they are to be operated, to enable the furnishing of safe, proper, and adequate service.

> For all particulars not specified in these rules, design, construction, and maintenance should be done in accordance with accepted good practice for the given local conditions known at the time by those responsible for the design, construction, or maintenance of communication or supply lines and equipment.
>
> A supply or communications company is in compliance with this rule if it designs, constructs, and maintains a facility in accordance with the particulars specified in General Order 95, except that if an intended use or known local conditions require a higher standard than the particulars specified in General Order 95 to enable the furnishing of safe, proper, and adequate service, the company shall follow the higher standard.
>
> For all particulars not specified in General Order 95, a supply or communications company is in compliance with this rule if it designs, constructs and maintains a facility in accordance with accepted good practice for the intended use and known local conditions.

Based on the now known local conditions, SDG&E's adopted internal design standards for fire threat areas call for increased conductor sizes to ensure compliance with General Order 95 Rule 31.1.

Reference Page 30 of the Revised Plan of Development (April 2013) for additional information.

b) Conductor material types on the existing 69kV power lines include the following:

- Copper (Cu)
- Aluminum Conductor Steel Reinforced/Alumoweld® Aluminum-Clad Steel (ACSR/AW)
- Aluminum Conductor Steel Supported/Alumoweld® Aluminum-Clad Steel (ACSS/AW)

The proposed conductor material type is ACSS/AW. The maximum allowable steady state conductor temperature rating for the new and existing conductor materials is as follows:

- Cu: 75 degrees(°) Celsius(C)
- ACSR/AW (New and Existing): 90°C
- ACSS/AW (New and Existing): 132°C

The proposed new conductor could allow for increased operating temperatures of the conductors; however the actual operating temperatures of the conductors are dependent upon system loads and configurations and weather conditions and would not instantaneously be operated at the higher temperatures once installed.

Furthermore, the maximum permitted conductor temperature is limited by the power line rating (not just the conductor size). In many cases the line rating is established by other power line elements such as current transformers, disconnect switches, and relay settings.

**SDG&E January 17, 2014 Response**
**A. 12-10-009 Cleveland National Forest Power Line Replacement Projects PTC**
**ED Data Request 4 Dated December 19, 2013**
**ED-SDGE-004: Q 1-7**

**Question 1.2-1 System Capacity**

The Forest Service, in its December 7, 2012 comments on the preliminary Plan of Development asked the following question: Section, 4.1, Single to Double Circuit Conversion, **Question 1:** *"The POD emphasizes that the proposed action would not increase system capacity, yet doubling certain circuits would appear to increase the capacity of the system between selected substations. The proposed action should explain any changes to system capacity that will result from the additional circuits*."

**Follow-up questions to SDG&E's response (02/15/13) are as follows:**

a) The common definition of "system capacity" is the maximum amount of power, generally expressed in terms of MVA or MW that can be transferred from one location to another. In the context of a transmission line the term "capacity" would imply the maximum amount of electric power that can be transferred over the transmission facility in a reliable manner. While the **voltage** of the facility is a key parameter the amount of **current** (ampacity) the conductor can safely transmit is also critical in determining the power transferred. For example a 69kV line capable of carrying 100 amps will have twice as much capacity to transmit power as a line carrying 50 amps.

   In light of the above please provide all sources relied upon in support of the statement " '*System capacity', as used in this context, refers to the nominal operating voltages of the transmission facilities in question"* Fully explaining why capacity is solely tied to voltage and not to power being transmitted.

b) Describe the basis for SDG&E's statement that "These proposed reconfigurations do not in any way alter the potential system load nor allow for an increase in system capacity."

   Is SDG&E suggesting that increasing the size of the conductor will not result in a corresponding increase in the ability of the lines to carry additional current and hence increase the system's ability to transmit power? If so, fully explain the electrical and applicable laws of physics used in support of the statement. If not, fully describe the impact the new conductor will have on the lines ability to transmit power.

c) With regard to the following statement:

   From a technological perspective, the capacity of these power lines is limited to the voltage ratings of the substation facilities and other related equipment. To increase the system capacity, the installation of additional substation and associated equipment would be required. The Proposed Action does not include the installation of such equipment; therefore, the voltage rating and system capacity will remain the same. In addition, SDG&E would have to obtain CAISO approval and CPUC authority to increase the voltage ratings (i.e., the capacity of these lines). SDG&E is not requesting this authority from the CPUC or CAISO.

Please list all equipment that is referred to as placing limitations on the transmission of power over the referenced facilities once the planned larger conductors have been installed. Please provide the rating (expressed in Amps or MVA) for each limiting piece of equipment as well as the ampacity of the existing and proposed conductor.

**SDG&E Response to Q1.2-1:**

a) As explained more fully below, Commission precedent is the source for the statement that "capacity" refers to the nominal operating voltages of the power line facilities in question and is tied to voltage, not to power being transmitted.

In D.94-06-014, OII No. 83-04-03, Filed April 20, 1983, the Commission issued General Order (GO) 131-D which expanded the previous rules to cover the construction of electric power line and substation facilities designed to operate between 50 and 200 kilovolts (kV). These rules are responsive to the requirements of the California Environmental Quality Act (CEQA) (Public Resources (Pub. Res.) Code § 21000 et seq.). The tiered permitting structure adopted under G.O. 131-D, Section III, treats the voltage rating of the electric transmission/power/distribution line or substation facilities as its designed maximum "capacity". The CPUC has reaffirmed this in D. 03-08-033 (*City of Santee vs. San Diego Gas & Electric Company*, 2003 Cal. PUC LEXIS 445, at *6-7.). Further, in D.94-06-014, at *29, the Commission specifically rejected a similar ampacity rating proposal submitted in OII No. 83-04-03 by the Northern California Power Agency (NCPA) and the City of Anaheim, which argued "that a 10 MW increase in transmission capacity is the appropriate threshold for triggering CEQA review under the permit-to-construct process". As Commissioners Michael R. Peevey, President; Carl W. Wood; Loretta M. Lynch; Geoffrey F. Brown; and Susan P. Kennedy unanimously expressed in D. 03-08-033, at *7, "[a] narrow reading of the notion of "capacity" in the CEQA Guidelines is inconsistent with the broader purpose of the exemptions in the GO and would potentially lead to unlimited reconsideration of routine power line maintenance practices."

b) See SDG&E Response to Q1.2-1. The proposed reconfigurations will not cause system load to change, nor will they increase "capacity" as that term has been defined by the Commission. SDG&E does not dispute that modifications necessary to increase the size of the electric power line conductor will generally increase the existing power transfer capability between substations, however, pursuant to G.O. 131-D the current operational voltage "capacity" rating of the facilities will remain the same under the proposed projects' design. Furthermore, as discussed more fully below, power transfer is not a function of a line's capacity. It is determined by the terminal voltages and the line impedance.

Specifically with regards to the "doubling" of certain 69 kV circuits (i.e. the loop-in of TL625 to Loveland substation) – this project is required to mitigate a specific forecast N-1 overload (i.e. the potential overload of TL626 for loss of the three-terminal TL625). This forecast overload is due to projected load growth by the distribution customers served by this section of the 69 kV system in East County San Diego. The California Independent System Operator (CAISO) reviewed and approved this project as necessary to reliably serve customer load in this area. So, to that extent, the loop-in of TL625 will increase the load-serving capability of the power line system.

The main reason for double circuiting in the two cases presented in this project are for reliability, not capacity. This is evident in the fact the double circuit structures do not go from sub to sub, rather only from one substation to a bifurcation point. This allows for the splitting up of a single line to two lines, ultimately improving reliability.

Generally speaking, however, a simple increase in conductor size will not necessarily result in an increase in the load-serving capability of a specific power line. There are numerous other elements that affect the load-serving capability of the system (thermal ratings of breakers, switches, jumpers, and other current-carrying components, voltage limitations, limitations on available generation, etc.)

Finally, with regards to the ability of any future generation to connect to the 69 kV system in East County San Diego – none of the modifications discussed as a part of this project, in and of themselves, will allow interconnection of any proposed generation. Proposed generation will be required to go through the CAISO's generator interconnection process as specified in the CAISO's FERC tariff and Business Process Manual (BPM). This process requires extensive, detailed studies of any proposed generation's effects on the power line system and identifies necessary upgrades to the system for that generation to connect reliably and safely.

c) Ampacity of existing and new 69kV conductors at 37.8°C (100°F) ambient temperature, range from the following:

| Type | Conductor Material | Temperature (°C) | Ampacity (Amps) |
|---|---|---|---|
| Existing | 1/0 Cu | 75°C | 270 |
| Existing and New | 636 ACSS/AW | 132°C | 1,158 |

As mentioned in SDG&E's response to Q1.1, transmission power transfer is limited by the most limiting power line element. Such elements include, but are not limited to, current transformers, jumpers, disconnect switches, circuit breakers, relay setting etc. To list the ratings for such equipment would require analysis of a specific power line, especially in the case of relay settings.

**Question 1.2-2 System Capacity- Upgrading the Conductors**

The Forest Service, in its December 7, 2012 comments on the preliminary Plan of Development asked the following question: Section, 4.1, Single to Double Circuit Conversion, **Question 2:** *"Upgrading the conductors on the 69 kV systems would also appear to increase overall system capacity. Please explain any changes to the system capacity that will result from the upgraded conductors.*"

**Follow-up questions to SDG&E's response (02/15/13) are as follows:**

a) SDG&E includes the following statement in its response:

*Although the proposed conductors are physically capable of transmitting voltages higher than 69 kV, as discussed previously, the Proposed Action does not include or authorize any increase in voltage rating. Any such increases to system capacity would require changes to the substation and other infrastructure.*

Why does SDG&E link increases in system capacity, which is a measure of power transfer (generally measured in MVA or MW), only to voltage and does not recognize that capacity (power transfer) will be increased as a result of larger conductors operating at 69kV? What would the transfer capacity (measured in MVA or MW) of the lines be, based on the new conductor and existing substation equipment?

b) Is there a megawatt limit to what could interconnect with the system, e.g., could renewable energy projects interconnect with the power line facilities being installed? If yes, please explain.

**SDG&E Response to Q1.2-2:**

a) Reference Question 1.2-1a in response to the Commission's adopted definition of system capacity. Generally, the MVA rating is 138 MVA for new 69kV - 636 ACSS/AW conductor and 132°C maximum allowable steady state conductor temperature rating. The 69kV line specific ratings are dependent on line specific data including, substation equipment, phase spacing and line mileage which would require more extensive analysis and studies.

Furthermore, power transfer is not a function of a line's capacity. It is determined by the terminal voltages and the line impedance. A power line is part of a network and the amount of power flow is determined by the network configuration and local sources and sinks, not by the size of the conductor. The transfer capability of this specific portion of the power line system is also dependent on other system parameters, including voltage, load, generation dispatch, availability of sources of reactive power, and so forth.

b) The size of a generator allowed to connect to the SDG&E power line system is determined by transmission planning studies, as described by the California ISO's FERC-approved tariff and Business Process Manual. The size limit, in terms of megawatts, is determined by many factors, including the size of the interconnecting facilities, proximity of other generation, the technology of the specific generator, etc. Generally speaking, the greater the current-carrying capability of the interconnected facilities the larger the allowable generation, but there may be other limiting elements that need to be taken into account.

An entity seeking interconnection for any new generation would be required to obtain all necessary approvals and undergo environmental review as required by law prior to interconnection.

**Question 1.3: Pole Size Increase**

a) Please provide the rationale for why the pole heights are increased with implementation of the fire hardening project. Also, please indicate if there are specific regulations requiring the increase in the poles heights.

b) Please confirm that all constructed facilities e.g. cross arms, guy wires if used will remain in SDG&E's existing ROW easements.

c) Please describe the performance of the existing wood poles compared to the proposed steel poles in extreme weather including heat and/or wildfire/lighting effects, wind and snow.

**SDG&E Response to Q1.3:**

a) Pole heights are generally increased with implementation of the fire hardening project due to increased conductor spacing. This increased spacing provides for greater distances between conductors and reduces risk of conductor to conductor contact. The pole heights are also increased in order to properly maintain appropriate ground clearances. In addition, the 69kV poles were considered for current and future under-build of 12kV distribution and communication wires resulting in increased structure height in some areas. For residential zoning areas, increases to structure heights were adopted to support the project Magnetic Field Reduction Field Management Plan.

b) SDG&E cannot confirm that all constructed facilities e.g. cross arms, guy wires if used will remain in SDG&E's existing ROW easements. Although the intent of the project is to rebuild the existing facilities within established ROW easements to the greatest extent possible, SDG&E may incorporate design changes to improve public safety, reliability and resource protection. Examples of this include spanning or relocating poles to avoid culturally or environmentally sensitive areas, consolidating 12kV and 69kV facilities to single pole construction were feasible, reducing vegetation management and improving access. Following environmental review and during project implementation, SDG&E would continue to exercise efficient design strategies within existing ROW easements in conjunction with its Land Services department who, in a cooperative effort with landowners, may acquire or revise easement rights on a case by case basis as well as quitclaim ROW easements of non-use when possible.

c) Existing wood poles as compared to the proposed steel poles are more susceptible to fire damage, woodpecker damage, termite damage, and deterioration due to weather conditions. Proposed steel poles are not susceptible to these deterioration items and will remain standing during wildfire conditions due to the fire resistant material resulting in improved system reliability. Existing wood poles are natural products with inherent variability in the material

strength properties as compared to the proposed steel poles that are engineered with minimal variability. Existing wood poles were designed for historical design conditions (56mph); whereas, proposed steel poles are designed for extreme wind conditions (85mph). Existing wood poles could have pole guys and anchors; whereas the proposed 69kV steel poles were generally designed to eliminate pole guying and associated anchors to improve reliability and eliminate a potential source of failure. Existing wood poles are susceptible to failures from lighting strikes; whereas the proposed steel poles will not fail due to a lighting strike as well as increased reliability from proposed addition of static wire in areas of frequent lighting strikes.

## QUESTION 2: HAZARDS/FIRE

2.1 In order to understand the usefulness of the SDG&E weather station network in terms of determining the areas where electrical transmission system hardening is best applied, we request additional weather station network information. In particular, please provide the type of weather stations in use, a map of their locations, how they are monitored (i.e., via the Web or other remote system), and whether there are any other current uses for the weather station data, such as determining when field activities are restricted (e.g., when humidity is lower than 10% or winds over 15 mph, then no hot works should occur, etc.).

2.2 Please describe how SDG&E applies the weather data collected in their decisions to shutoff power lines (i.e., what level wind would trigger shutoff; what other weather conditions would lead to a similar action?)

**SDG&E Response to Q2:**

2.1 The SDG&E Weather Network is very sophisticated with both cellular and SCADA communications creating redundant and reliable communication. The multiple streams of data allow us to ingest the data into internal operational interfaces while simultaneously streaming the data onto the web for public use. Every weather station is standardized in terms of height off the ground, 20 feet. Standard hardware includes solar panels, antennas, mounting hardware, cable, conduit, batteries and enclosures. Anemometers, Temperature/Relative Humidity, Dataloggers and SCADA are standard equipment.

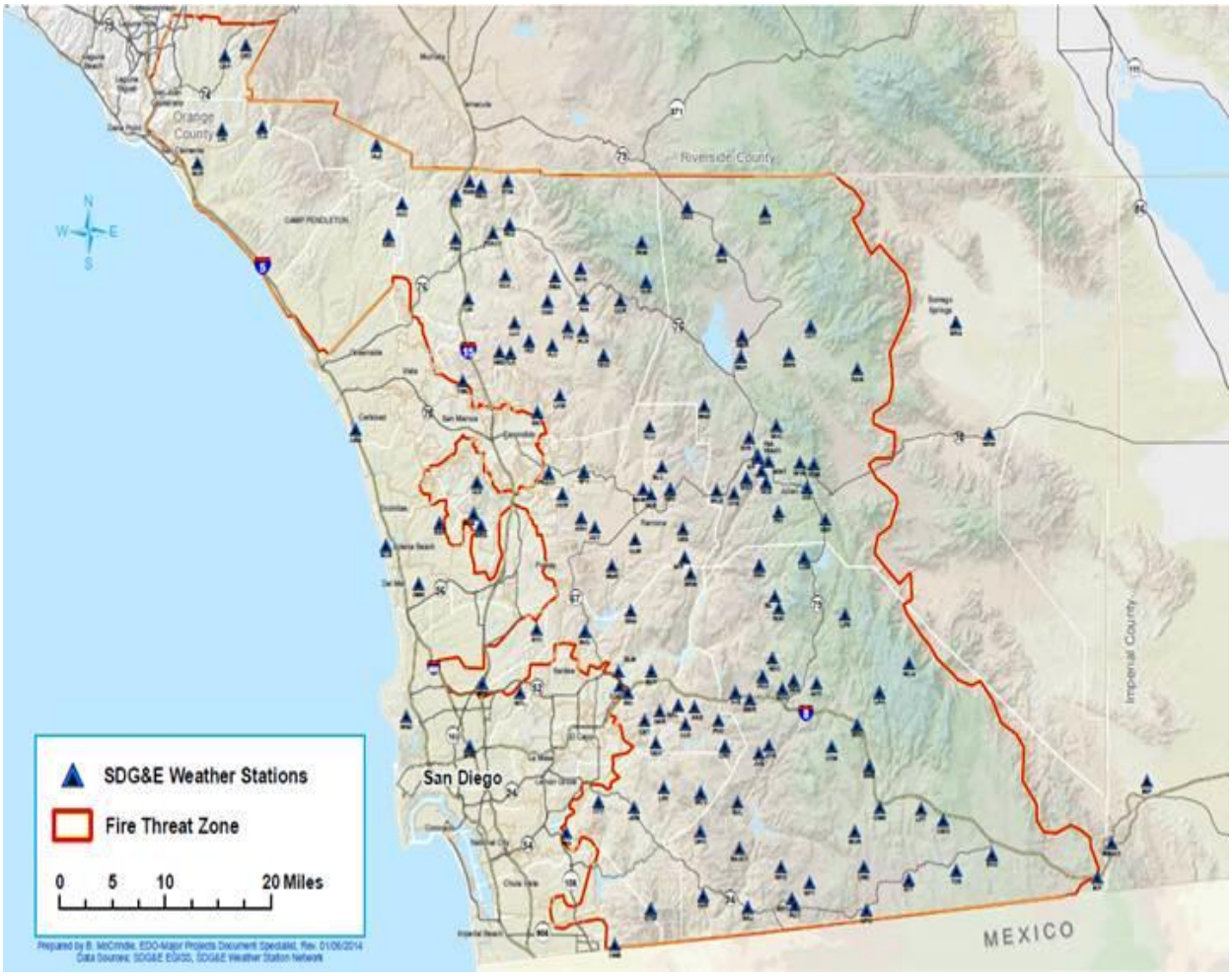
- Anemometer (RM Young 05106 Wind Monitor)
- Temperature/Relative Humidity Probe (Vaisala HMP155A)
- Datalogger (Campbell Scientific CR1000) and handheld keypad for on-site back-up.
- SCADA 12-volt power supply (incl. Sunsaver voltage regulator, 12-volt 84AMPHR battery and 20- watt solar panel)
- Sierra Wireless Airlink CDMA Cellular Digital Modem for Verizon systems
- Sierra Wireless Airlink GPRS Cellular Digital Modem

Optional and strategically located additional equipment includes:

- Barometer (Vaisala PTB110, 500-1100 hPa)
- Pyranometer (Li-Cor Li200X, Fixed Calibration)

- Rain Gauge (Texas Electronics TE525WS
- Fuel Moisture sensor (Fine Dead Fuels)

Below is a map showing the location of the 144 pole mounted weather stations and 5 Remote Automated Weather Stations (RAWS) owned and operated by SDG&E. This weather network has been installed to monitor weather conditions at locations across the service territory to support the safe and reliable operation of the distribution and power line systems.




The weather network was installed with the original intention to monitor and better understand the fire weather conditions that lead to potential catastrophic wildfire across San Diego County. We have used the enhanced understanding acquired from the weather network to help develop a Fire Potential Index (FPI). The FPI is a planning and decision support tool that incorporates weather and fuels information to rate the overall fire threat

within predetermined subsets of the SDG&E service territory. The FPI is currently being incorporated into operations to assist decision makers in determining when field activities should be restricted and when no hot work should occur, when sensitive relay settings are enabled, when and where crews are staged, and other considerations.

2.2 The weather data that SDG&E collects is one of many inputs considered when making a determination to proactively shutoff power lines. In D.09-09-030 and D. 12-04-024 the California Public Utilities Commission acknowledged that SDG&E has authority under Pub. Util. Code § 399.2(a) and § 451 to shut off power in emergency situations when necessary to protect public safety, including the situation where strong Santa Ana winds exceed the design basis for SDG&E's overhead power-line facilities but there is no requirement that automatically triggers a shut-off under specified conditions, and thus there is currently no defined wind speed that would "trigger" a power shutoff. SDG&E utilizes the information from the weather network, together with other collected data and live field observations, in exercising its judgment to make independent, site and condition-based decisions related to the operation of its electric system. However, and as an example only, in the decision-making process attention is taken of wind gusts greater than 56 mph when coupled with a critically dry burn environment, due to the electric system's increased vulnerability to blowing debris and possible mechanical failure.

## QUESTION 3: NOISE

3.1 Please provide a list of all the types of helicopters that could be used for this project and the associated noise levels with each type.

3.2 APM-NOI-06 provides that no more than 64 helicopter flights per day will be conducted. What is the anticipated average helicopter use per day (total flight duration, and typical hovering time/time in one specific work zone (pole location etc.), per day, and for how many days at a specific work zone)? Also, what is the anticipated total number of helicopter flights and associated flight hours over the 5-year construction period?

**SDG&E Response to Q3:**

3.1 As described in section 7.0.1 Helicopter Access of the April 2013 Revised Plan of Development (POD), SDG&E foresees the potential use of the following helicopter types during construction of the Proposed Projects:

- Erickson Air Crane
- Hughes 500D
- Kaman K-MAX
- Bell 206L Long Ranger

Helicopter noise is typically rated using the sound exposure level (SEL) at 500 feet above ground level during flyover or during approach and landing. When delivering equipment and materials and assistingwith the installation and removal of poles and conductors, the helicopters are anticipated to operate at approximately 50 feet above ground level. In this instance, potential noise from helicopter operation is measured using $L_{max}$, which is the highest time-weighted sound level measured for the equipment at that height. The following table presents the anticipated noise levels for each helicopter type at a flying height of 500 feet as well as an operating height of 50 feet. During takeoff and approach, noise levels are anticipated to be approximately 3 to 8 dB higher than the $L_{max}$ shown due to increased engine use during these times.

| Helicopter Type | SEL at 500 feet | $L_{max}$ at 50 feet |
|---|---|---|
| Erickson Air Crane | 89 | 101 |
| Hughes 500D | 76 | 88 |
| Kaman K-MAX | 83 | 95 |
| Bell 206L Long Ranger | 81 | 93 |

3.2. As described in the Revised POD, helicopters will be used to transport materials and personnel to work areas not accessible by truck as well as set poles and string conductors. The anticipated average helicopter use per day includes flying helicopters from a nearby airfield, such as Gillespie Field in El Cajon, to a laydown yard/staging area. From the laydown yard/staging area, the helicopter will pick up materials, poles, or personnel as required, then fly directly to the work area. Once at the work area, the helicopter will hover while delivering materials or assisting in pole-setting. Average flight times from Gillespie Field to the Proposed Projects' staging areas are anticipated to require approximately 15 minutes of flight time per trip; typical hovering time at each work area is anticipated to be 2 to 5 minutes during pole setting, and 2-3 minutes when delivering materials. Helicopter-set poles typically require significantly less than one day of helicopter use per pole; for the Proposed Projects, an average of approximately 10 poles per day are anticipated to be set using helicopters over an eight-hour period, requiring 2 to 5 minutes per work zone.

SDG&E anticipates that approximately 514 poles will require helicopter setting over the 5-year construction period. Assuming an average of 10 poles set by helicopter per day, approximately 52 eight-hour days of helicopter flights—including one roundtrip flight from Gillespie Field and 10 round-trip flights to pole work areas each day—would be conducted for the Proposed Projects, resulting in a total of approximately 566 total round-trip helicopter flights over the five-year construction period. Assuming each helicopter flight to and from Gillespie Field requires approximately 15 minutes to complete, and each helicopter flight from the laydown/staging area to the pole work area requires an additional 15 minutes each way to complete, a total of approximately 286 flight-hours over the 5-year construction period is anticipated. However, flight times may vary due to a number of factors, including local weather conditions, air traffic control requirements, and other unforeseen limitations on flight availability and regularity.

## QUESTION 4.PALEONTOLOGICAL RESOURCES

4.1 Please provide a copy of the Paleontological Resource Report prepared by the San Diego Natural History Museum in March 2012.

4.2 In the Existing Conditions file (12-03-12S) submitted with response to CPUC data request no. 1 (December 2012), please explain why in Table 8, TL 625, TL 626, and TL 629 have two rows of numbers in the columns. Also, if not in the Paleontological Resource Report, please provide a similar table as Table 8 for the Potential Fossil Yield Classification Ranking for each circuit.

4.3 Please clarify the discrepancy in the Preliminary POD regarding the sentences on pages 103 and 105 that indicate, "TL 682 is the only [Proposed Action /Connected Action] powerline that contains poles located within areas of high sensitivity for buried fossil deposits" and the POD text and Table 8 of the existing conditions file (12-03-12S) that indicates there are no Class 4 (high) or 5 (very high) geologic units located within the [Proposed Action/Connected Action] ROW.

**SDG&E Response to Q4:**

4.1 The Paleontological Resources Technical Report is provided under confidential cover on the Proposed Projects' FTP site.

4.2 SDG&E recommends using the April 2013 Revised POD, which was provided on June 26, 2013, and the three previous data requests as the basis for all data and other information pertaining to the Proposed Projects. The Revised POD serves as the current supporting document to SDG&E's PTC application. Changes and refinement in the design and location of the Proposed Projects' poles and work areas have occurred through an iterative process since 2012, and with the continued fielding and siting work SDG&E has performed since the Existing Conditions (12-03-12S) file was originally submitted with Data Request 1, additional data have been gathered regarding pole placement for the Proposed Projects, as well as the distribution lines proposed for fire hardening under the Master Special Use Permit. Table 8 of the Existing Conditions (12-03-12S) document was not included in the Preliminary or Revised POD; however, an updated version of this table displaying both power lines and distribution lines is provided herein for reference.

| Line* | Potential Fossil Yield Classification Ranking | | | | | Total |
|---|---|---|---|---|---|---|
| | Class 1 – Very Low (Number of Poles) | Class 2 – Low (Number of Poles) | Class 3 – Moderate or Unknown (Number of Poles) | Class 4 – High (Number of Poles) | Class 5 – Very High (Number of Poles) | |
| TL625 | 252 | 4 | 11 | 0 | 0 | 267 |
| TL626 | 267 | 0 | 12 | 0 | 0 | 279 |
| TL629 | 311 | 122 | 9 | 0 | 0 | 442 |
| TL682 | 161 | 56 | 42 | 0 | 0 | 259 |
| TL6923 | 131 | 6 | 0 | 0 | 0 | 137 |
| C78 | 29 | 15 | 0 | 0 | 0 | 44 |
| C157 | 57 | 0 | 0 | 0 | 0 | 57 |
| C440 | 389 | 6 | 45 | 0 | 0 | 440 |
| C442 | 103 | 13 | 13 | 0 | 0 | 129 |
| C449 | 42 | 6 | 0 | 0 | 0 | 48 |
| **Total** | **1,742** | **228** | **132** | **0** | **0** | **2,102** |

*C79 is not included, as no new poles are being constructed for this distribution line as part of the Proposed Projects. TL=69 kV power line; C=12 kV distribution line or circuit.

4.3 SDG&E recommends using the April 2013 Revised POD, which was provided on June 26, 2013, and the three previous data requests as the basis for all data and other information pertaining to the Proposed Projects. The Revised POD serves as the current supporting document to SDG&E's PTC application. According to the Paleontological Resources Technical Report, there are no PFYC Class 4 (High) or Class 5 (Very High) geologic units located within the Proposed Projects' associated rights-of-way (ROWs), and no San Diego Natural History Museum or Los Angeles County Museum of Invertebrate Paleontology fossil localities are recorded within 0.5 mile of the TL682 ROW. The sentence in question, which states that "TL 682 is the only [Proposed Action /Connected Action] power line that contains poles located within areas of high sensitivity for buried fossil deposits", was erroneously included in the Preliminary POD as well as the Existing Conditions (12-03-12S) document.

**SDG&E January 17, 2014 Response**
**A. 12-10-009 Cleveland National Forest Power Line Replacement Projects PTC**
**ED Data Request 4 Dated December 19, 2013**
**ED-SDGE-004: Q 1-7**

# QUESTION 5: TRANSPORTATION AND TRAFFIC

Please provide the excel file (or GIS if available) for Tables 35, 36, and 37 of the Plan of Development.

**SDG&E Response to Q5:**

The three referenced tables were generated by spatially evaluating the Roads_All shapefile obtained from San Diego Geographic Information Source (SANGIS) against the existing geographic information system data for the Proposed Projects. Additional research using publicly available sources was conducted to verify road names where this information was not included in the SanGIS file. The SanGIS Roads_All shapefile is provided on the Proposed Projects' FTP site.

## QUESTION 6: SOLID WASTE

**Question 6.1:** Please provide information regarding the following:

a) Is the brush/plant waste collected during maintenance of the existing transmission lines is sent to a recycling facility?

b) How much waste is generated annually from the maintenance of these transmission lines?

c) Please provide the waste facility names of where the hauling company(s) dispose of the plant materials collected.

**SDG&E Response to Q6.1:**

a) SDG&E currently has three options for disposing of vegetation waste generated during maintenance activities. Where maintenance activities occur in locations requiring crews to walk in significant distances, SDG&E employs a United States Forest Service-approved practice of lopping and scattering vegetation waste in the vicinity of the work area. When maintenance crews are able to carry vegetation waste to their support vehicles for removal, the waste is chipped and either hauled to an approved recycling or landfill site, or is provided to customers in the local area, at their request, for use as erosion control, weed abatement, or landscaping materials. In these instances, the requesting customer signs a release form prior to receipt of the materials. Any materials hauled but not released to a requesting customer are disposed of at an approved recycling or landfill facility.

b) The amount of biomass generated annually from these power lines varies based mainly on the amount of water available to trees, brush and annual plants growing in proximity to these facilities. Seasons with high rainfall amounts will subsequently yield greater amounts of biomass from vegetation management operations. Conversely, prolonged drought will generally yield less biomass, with the exception of tree decay and overall mortality caused by drought.

   On average SDG&E estimates 77 tons of biomass is generated from the maintenance of the existing power lines.

c) SDG&E's currently approved disposal locations for vegetation wastes are the San Diego Landfill, Escondido Transfer and Recycling Center, Ramona Transfer Station, and Otay Landfill.

## QUESTION 7: WATER RESOURCES

Please provide the estimated quantity of water that will be required during the construction phase as well as the amount of water needed on an annual basis for operations and maintenance. Please provide the source of this water.

**SDG&E Response to Q7:**

Construction-related water usage is needed mainly to provide for dust control, fire suppression, and minimal earthwork activities. Water usage can be highly variable depending on climatic conditions, soil types, fire-threat conditions vegetation types, among a host of variables. Estimated water usage requirements for the Proposed Projects was determined by examining several factors, including; the duration of each project phase, the number of pole work areas, miles of conductor, miles of access road, or miles of undergrounding to be included in each phase; and the average water requirements per day for each type of work to be conducted. By calculating the average water requirements per day, per site type, and multiplying that average across the number of days for each phase included in the construction schedule, we anticipate that approximately 5 to 10 million gallons of water per year will be required to complete all phases of the Proposed Projects' construction over an approximate 5-year period.

SDG&E intends to use a variety of water sources, both commercial and private. Some examples of these sources include, but are not limited to, the Cities of San Diego, La Mesa and/or El Cajon local community services districts, and private groundwater extraction operations. Once SDG&E concludes discussions with a water supplier that commits to serve the Proposed Projects with the water required for construction, SDG&E will forward the commitment letter to the CPUC.

Water requirements for the operation and maintenance of these power lines typically include access road maintenance and dust control during helicopter operations. Annual estimated water usage is 130,000 gallons and the water is purchased from local sources.