State Water Resources Control Board

Division of Water Quality
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Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

OCT 16 2006

Ms. Billie Blanchard CPUC/ Lynda Kastoll BLM
c/o Aspen Environmental Group
235 Montgomery Street, Suite 935
San Francisco, CA 94104-3002

Dear Ms. Blanchard:

RESPONSE TO NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT FOR SDG&E SUNRISE POWERLINK PROJECT

Thank you for the opportunity for the State Water Resources Control Board (State Water Board) to comment on the Notice of Preparation (NOP) for the Sunrise Powerlink Project (the proposed project). The proposed project involves the construction and installation of new transmission lines and associated infrastructure crossings from Imperial County to western San Diego County.

Our comments are submitted in compliance with California Environmental Quality Act (CEQA) *Guidelines* §15096, which requires CEQA responsible agencies to specify the scope and content of the environmental information germane to their statutory responsibilities and lead agency to include that information in their Environmental Impact Report (EIR) for the proposed project.

The State Water Board and the Regional Water Quality Control Boards (Regional Water Boards) regulate discharges, which could affect the quality of waters of the State in order to protect the chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water. If the proposed project has any of the following discharges, the project proponent is required to obtain a permit from the State or Regional Water Boards:

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Discharge Type	Types of Permits Involved
· Discharge of dredge and fill materials	- Clean Water Act (CWA) §401 water quality certification for federal waters; or Waste Discharge Requirements for non-federal waters.
· Wastewater discharges	- CWA §402 National Pollutant Discharge Elimination System permit, e.g., storm water permit.
· Other discharges	- Waste Discharge Requirements or other permits for discharges that may affect groundwater quality and other waters of the State, such as operation of proposed solid waste transfer facilities and other proposed project activities.

Because the proposed project will cross the jurisdictions of the Colorado River Basin Region and the San Diego Region, the State Water Board will take the lead regulatory role for CWA §401 water quality certification. Please consult us during development of project-specific mitigation measures for impacts to State waters (such as wetlands, streams, creeks, and their riparian areas). We will coordinate closely with the Regional Water Boards during our review of the mitigation measures. To facilitate this coordination, please also include Kirk Larkin (KLarkin@waterboards.ca.gov) of the Colorado River Basin Regional Water Board and Chiara Clemente (CClemente@waterboards.ca.gov) of the San Diego Regional Water Board in all future correspondence (see cc list for mailing addresses). Early consultation is encouraged, as project reconfiguration may be required to avoid and minimize impacts to State waters.

Our comments focus primarily on discharges regulated under the CWA §401 program.

Identification of Affected Waters

In your EIR, please identify all waters of the State that will be affected by the proposed project and list them in appropriate tabular format, organized by water body type (e.g., at a minimum: river/streambed, lake/reservoir, ocean/estuary/bay, riparian area, or wetland type) and Regional Water Board's jurisdiction. Include riparian areas as

defined by the National Academy of Sciences[1]. Please provide estimated affected acreage for each water body. Please also identify any "isolated" wetlands or other waters not subject to federal jurisdiction.

Potential Impact to Water Quality

In your EIR, please include analysis of potential direct and indirect impacts to water quality from discharges to waters of the State, including discharges of dredge and fill materials (such as pipeline crossing a stream or wetland).

The Certification and Wetlands Program at the State Water Board regulates discharges of dredge and fill material under CWA section 401 and the Porter-Cologne Water Quality Control Act. As a responsible agency, we will review the EIR to evaluate the water quality impacts from discharges of dredge and fill materials. Please use Enclosure 1 to this letter as a reference when you conduct this water quality analysis. Enclosure 1 includes a table that characterizes potential water quality impacts and the associated required analyses. Although specifically relevant to urban development, the table is generally applicable to construction projects.

Alternative Analysis

In your EIR, please include the alternative analysis required by CWA §404(b)(1) *Guidelines* as part of the alternative analysis in the EIR.

If the proposed project results in discharges of dredge and fill materials (e.g., installing a pipeline crossing a stream) to the waters of the State, the project proponent is required to obtain a CWA §401 Water Quality Certification from the State Water Board and a CWA §404 permit from the Army Corps of Engineers and will, therefore, need to conduct an alternative analysis consistent with the requirements of the federal CWA §404(b)(1) *Guidelines.* While these *Guidelines* are most directly incumbent on the Army Corps of Engineers, the principles of avoidance, which they articulate, are directly relevant to the State and Regional Water Boards' mandate of protecting water quality.

[1] Riparian areas are transitional between terrestrial and aquatic ecosystems and are distinguished by gradients in biophysical conditions, ecological process, and biota. They are areas through which surface and subsurface hydrology connect water bodies with their adjacent uplands. They include those portions of terrestrial ecosystems that significantly influence exchanges of energy and matter with aquatic ecosystems (i.e., a zone of influence). Riparian areas are adjacent to perennial, intermittent, and ephemeral streams, lakes, and estuarine-marine shorelines. (National Research Bureau of the National Academy of Sciences. 2002. *Riparian Areas: Functions and Strategies for Management.* National Academy Press, 2102 Constitution Avenue, N. W., Washington, D. C., 20418).

Habitat Connectivity

Riparian corridors and other waters within the regulatory purview of the State and Regional Water Boards can play important roles in maintaining habitat connectivity. Linear projects have a major potential to fragment habitat. Enclosure 2, *Terrestrial Habitat Connectivity Related To Wetland, Riparian, and Other Aquatic Resources*, provides information and references on this subject. In-water aquatic habitat may also be fragmented by impacts to streams or other water bodies.

In your EIR, please analyze the regional importance of movement corridors in and along water bodies potentially affected by the pipeline alignment, the potential effect of disrupting such corridors, and the potential for enhancing such corridors through mitigation measures. Include information regarding any sensitive plant and animal species that likely utilize the corridors.

In conducting these analyses, please consider the information and literature referenced in Enclosure 2, including recent data on the role of riparian corridors as movement corridors in California.

If we may clarify any of our comments or be of further assistance, please contact Rita Reeves, Water Quality Certification Unit, at 916-341-5467 (rsreeves@waterboards.ca.gov). You may also contact Jenny Chen, Acting Chief, Wetlands and Certification Unit, at 916-341-5570 (hjchen@waterboards.ca.gov).

Sincerely,

Elizabeth L Haven

Elizabeth L. Haven
Assistant Deputy Director
Division of Water Quality

Enclosure 1: *Impacts Identification*
Enclosure 2: *Terrestrial Habitat Connectivity Related To Wetland, Riparian and Other Aquatic Resources*

cc: (See next page)

cc: (Continuation page)

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Enclosure 1

State Water Resources Control Board

SDG&E Sunrise Powerlink Project

Comments on Notice of Preparation: SDG&E Powerlink Project

October 16, 2006

Urban Development:
Potential Water Quality Impacts and Required Analyses

The degraded character of urban streams does not result from any single factor, but rather from the interaction of a variety of detrimental effects.

Klein, 1979

Urban development degrades water quality through a complex of interrelated causes and effects which, unmanaged, ultimately destroy the physical, chemical, and biological integrity of the watersheds in which they occur. The primary adverse impacts of poorly planned development on water quality are:

- the direct impacts to aquatic, wetland, and riparian habitat and other beneficial uses;
- generation of construction-related and post-construction pollutants;
- alteration of flow regimes and groundwater recharge as a result of impervious surfaces and storm drain collection systems;
- disruption of watershed level aquatic functions, including pollutant removal, floodwater retention, and habitat connectivity.

These factors have historically resulted in a cycle of destabilized stream channels, poor water quality, fragmented aquatic and terrestrial habitat, and engineered solutions to disrupted flow patterns, culminating in loss of natural functions and societal values in the affected basins.

The number and variability of the pathways through which water quality degradation can occur complicates analysis, but understanding how these pathways operate within the specific context of each development is essential to effectively mitigating the adverse effects. Fortunately, avoidance or minimization of any causal link will obviate or reduce subsequent effects and needed analyses, and a relatively small number of key variables mediate most of the pathways causing water quality degradation.

This Enclosure consists of a table (Table 1) displaying and characterizing the factors potentially affecting water quality.

Table 1 Table_1 provides literature citations for each of the effects, and identifies for each effect the types of project-specific information needed to assess and mitigate each adverse impact to water quality.

TABLE 1

[Project name]: Identification of Potential Water Quality Impacts and Required Analyses

CAUSE	EFFECT	NEEDED ANALYSES
1. FILL & EXCAVATION Fill or excavation in wetlands, riparian areas, or other waters of the state.	**A. Decreased Flood Storage.** Fill can impinge on the natural storage volume of ephemeral, intermittent, and perennial channels, backwaters, and wetlands, reducing capacity to retain runoff.[1]	1) Quantify reduced flood storage in each affected basin. 2) Identify mitigation.
	B. Change in Groundwater Storage. Fill and excavation can decrease groundwater recharge and cause lower water tables by changing soil percolation characteristics and reducing the area of standing water in recharge basins.[2] Linear excavation (e.g., for utility lines) can act as a conduit to drain groundwater and locally lower watertables.	1) Quantify groundwater response to changes in percolation. 2) Identify locations where linear alignments could act to dewater shallow aquifers. 3) Identify mitigation.
	C. Change in Wetland and Riparian Vegetation. Fill and excavation can bury or remove vegetation and can change site features to prevent reestablishment of characteristic species.	1) Identify and map types and areal extents of affected vegetation. 2) Identify mitigation.
	D. Impaired Beneficial Uses. Fill can directly impair beneficial uses by reducing water area and changing hydrology, geomorphology, substrate, and other waterbody characteristics. In addition, projects which fragment habitat and reduce wildlife movement along riparian and other corridors can degrade remaining patches of wetlands and other habitat by changing their physical characteristics and by isolating and exposing small populations of plants and animals, resulting in local or regional extinctions.[3]	1) Document types, areal extents, and (for drainage features) lengths of affected waters. 2) Characterize and map at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 3) Identify effects of fill on terrestrial and aquatic habitat connectivity (refer to Enclosure 3). 4) Identify watershed-level effects on pollutant removal and flood retention. 5) Identify mitigation.
2A. CONSTRUCTION Clearing, grading, and construction of structures and facilities.	**A. Production of Urban Pollutants.** Construction can produce pollutants through improper use and disposal of toxic construction materials.	1) Identify mitigation for inclusion in stormwater pollution prevention plan.
	B. Change in Soil Erosion. Active construction can dramatically increase soil erosion by exposing and destabilizing soils. Erosion is compounded by the increased runoff typically accompanying construction.[6]	1) Identify location and extent of planned grading. Display proximity and slope relationships to receiving drainages. 2) Document erodibility of soils and subsoils in areas proposed for grading. 3) Quantify amount and duration of increased sediment loadings to each affected drainage. 4) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	C. Increased Runoff. Construction can increase both the total and peak volume of stormwater runoff by removing vegetation, compacting soil, exposing dense subsoil, creating steep graded slopes, and eliminating terrain depressions and ephemeral and intermittent drainages that would naturally slow the movement of stormwater.[9]	1) Quantify total and peak volumes of increased runoff for each affected drainage 2) Identify mitigation.
	D. Impaired Beneficial Uses. Projects which fragment habitat and reduce wildlife movement along riparian and other corridors can degrade remaining patches of wetlands and other habitat by changing their physical characteristics and by isolating and exposing small populations of plants and animals, resulting in local or regional extinctions.[11]	1) Characterize and map at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 2) Identify effects of construction on terrestrial and aquatic habitat connectivity (refer to Enclosure 3). 3) Identify mitigation.
2B. POST-CONSTRUCTION Ongoing effects of constructed environment.	**A. Dry weather discharge.** Construction can cause dry-season "nuisance" runoff from activities such as landscape irrigation[5], sidewalk and vehicle washing, and basement dewatering.	1) Characterize volumes, seasonality, and other pertinent characteristics of "nuisance" flows for each affected drainage.
	B. Increased Groundwater Pumping. Construction can cause increased groundwater pumping for domestic or landscape use.[4]	1) Quantify and map locations of increased pumping.
	C. Production of Urban Pollutants. After construction, urban areas can generate pesticides, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, bacteria, viruses, and other pollutants from activities such as landscape care and vehicle operation and maintenance.[7]	1) Quantify projected increase in pollution production in each affected basin. 2) Identify mitigation.
	D. Change in Soil Erosion. After construction, erosion can be reduced to below natural levels because soils are covered with buildings and pavement, and runoff is routed through storm drains.[8]	1) Quantify reduction of natural sediment delivery rates to each affected basin. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	E. Increased Runoff. After construction, maintained landscapes and impervious surfaces such as roofs and streets increase total and peak runoff. The increased flows move quickly over paved surfaces and are collected, concentrated, and further accelerated in stormdrain systems. The combination of increased flows and more efficient transport causes a higher, "flashy", more rapidly peaking and falling hydrograph, especially for smaller, more frequent floods.[10]	1) Quantify project-induced changes in total and peak runoff rates to each affected drainage. 2) Identify mitigation.
3. CHANNELIZATION Engineered changes in channel structure or morphology to stabilize banks, prevent flooding, or increase flow conveyance.	**A. Decreased Flood Storage.** Channelization can reduce flood storage within a basin by restricting flows to the active channel, thereby preventing detention of floodwater in backwaters and on the adjacent floodplain.[12]	1) Quantify and map reductions in flood storage in each affected basin. 2) Identify mitigation.
	B. Change in Groundwater Storage. Lining channel bottoms can change groundwater storage by reducing percolation and groundwater recharge.[13] Deepening natural channels can drain adjacent shallow water tables.[14]	1) Quantify and map locations of reduction in recharge rates. 2) Quantify effects on channelization on shallow water tables and associated wetlands. 3) Identify mitigation.
	C. Channel Destabilization. Channelization can cause channel destabilization by changing the balance between the stream's flow, sediment load, and channel form. Destabilization tends to affect entire stream systems. For example, channelization can concentrate and synchronize peak flows from tributary streams, causing increased channel erosion both above and below the channelized reach. The eroded sediment is then deposited downstream when the flow slows down, where it may initiate further destabilization.[15]	1) Quantify basin-level hydrologic and fluvial geomorphic effects of channelization in each affected drainage. 2) Identify mitigation.
	D. Increased Flooding Frequency. Constricted channels (e.g., in leveed sections) can cause water to back up, resulting in localized upstream flooding. Rapid passage of floodwaters through "improved" channels can increase flooding downstream by concentrating and synchronizing tributary peaks.[16]	1) Quantify basin-level hydrologic effect of channelization on each affected basin, including changes in flood return frequencies. 2) Identify mitigation.
	E. Decreased Pollutant Removal. Channelization can decrease natural pollutant removal by reducing instream structural complexity and turbulent-flow aeration, increasing flow velocity, reducing overbank flow, and by causing change in vegetation.[17]	1) Map waters lost to channelization in each affected drainage and characterize type, areal extent, and pollutant removal value. 2) Quantify affect on pollutant loadings to each affected waterbody and downstream receiving waters. 3) Identify mitigation.
	F. Change in Wetland and Riparian Vegetation. Channelization and associated maintenance can directly destroy wetland and riparian vegetation and can change site features to prevent reestablishment of characteristic species.[18]	1) Map and Identify types and areas of affected vegetation. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	G. Impaired Beneficial Uses. Channelization and associated maintenance can directly impair beneficial uses by reducing waterbody area; increasing stream velocity; disrupting riffle and pool sequences, cover, and other structural features; changing substrate; cutting off nutrient inputs to and from backwaters and riparian wetlands, dewatering upstream reaches, and reducing aesthetic and recreational value. Reduced overbank flooding can adversely affect reproduction of riparian vegetation and wetland and riparian functions.[19] Channelization can inhibit the movement of fish, other aquatic biota, and wildlife, and thus isolate and reduce the viability of populations up and downstream.[20] Construction of channels can introduce sediment, nutrients, and toxics into the water column.[21]	1) Identify direct and indirect effects of proposed channelization projects on beneficial uses. 2) Characterize and display at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 3) Identify effects of channelization on terrestrial and aquatic habitat connectivity. 4) Identify mitigation.
4. DECREASED FLOOD STORAGE	**A. Increased Runoff.** Reduced flood storage on the floodplain and in channels, swales, wetlands, backwaters, and other natural depressions increases and accelerates runoff.[22]	1) Quantify total and peak volumes of increase runoff for each affected drainage. 2) Identify mitigation.
5. INCREASED GROUNDWATER PUMPING	**A. Change in Groundwater Storage.** Increased groundwater pumping can lower watertables locally or in distant donor basins.[23]	1) Quantify and map locations of project-induced changes in groundwater levels. 2) Identify mitigation.
6. DRY WEATHER DISCHARGE	**A. Change in Baseflow.** Dry weather runoff from urban activities can increase dry-period streamflows.[24]	1) Quantify hydrologic effects of dry weather flows on the baseflow of each affected drainage.
	B. Increased Pollutant Delivery. Dry weather runoff can carry the pollutants generated by the activity causing the flow, e.g., pesticides, nutrients, and petrochemicals from landscape maintenance and cleaning sidewalks and vehicles. Collection of polluted dry weather flows in catch basins may result in shock loadings when it is displaced by subsequent storm flows.[25]	1) Quantify and characterize pollutant loadings from activities generating dry weather runoff to each affected drainage. 2) Identify mitigation.
7. PRODUCTION OF URBAN POLLUTANTS	**A. Increased Pollutant Delivery.** Increased production of urban pollutants can cause increased delivery of pollutants to surface and groundwater.[26]	1) Quantify and characterize pollutant loadings from to each affected drainage. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
8. CHANGE IN SOIL EROSION	**A. Channel Destabilization.** Changes in upland soil erosion can destabilize stream channels by changing the amount of sediment carried into the stream. The stream may then erode or aggrade its channel to balance its available energy with the changes in its sediment load. 1. Increased sediment from construction causes channel aggradation, changing stream cross sections and redirecting flows.[27] 2. Decreased sediment from a paved watershed can cause channel incision and/or side-cutting. The effect may be compounded by increased runoff from the paved watershed. Aggradation may occur downstream where the flow slows and deposits the eroded sediment, which may deflect flows against the channel banks and cause further bank erosion.[28]	1) Conduct geomorphologic analysis of channel response to increases in construction-related sediment. 2) Conduct geomorphologic analysis of channel response to long-term reductions in sediment delivery to each affected drainage. 3) Identify mitigation. Note: Sediment as a pollutant is considered in No. 7, "Production of Urban Pollutants".
9. INCREASED RUNOFF	**A. Change in Soil Erosion.** Increased runoff can dramatically increase soil erosion by causing greater runoff velocities which more effectively displace and carry soil particles. Construction-related soil destabilization can compound the effect.[29]	1) Quantify increases in sheet and gully erosion resulting from increased runoff. 2) Identify mitigation.
	B. Change in Groundwater Storage. Increased runoff can reduce groundwater recharge and lower water tables, since water draining from impervious surface is unable to percolate to groundwater at that location.[30]	1) Map locations of and quantify losses of recharge and water table response. 2) Identify mitigation.
	C. Channel Destabilization. Increased peak runoff can destabilize channels by increasing the flow velocity and erosive power of the stream. Head cutting, incision and/or widening of the channel, and associated sideslope failures can result. Reduced sediment input as a result of change in soil erosion rates can compound the effect.[31] In small streams, increased runoff may also dislodge logs and other channel features that help to define the channel.[32]	1) Quantify channel geomorphic response to increased runoff for each affected drainage. 2) Identify mitigation.
	D. Increased Pollutant Delivery. Increased runoff increases pollutant delivery because it can more effectively carry particulate and soluble pollutants to receiving waters. Increased flow velocity reduces contact time with soil and vegetation that might otherwise remove pollutants.[33]	1) Quantify types and quantities of increased pollutant loadings to each affected drainage. 2) Identify mitigation.
	E. Increased Flooding Frequency Increased runoff and greater transport efficiency result in higher peak flows from storms of a given return period.[34]	1) Quantify basin level hydrologic effect of increased runoff on each affected basin, including changes in flood return frequencies. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	F. Change in Water Temperature. Increased runoff from urban areas can raise the temperature of receiving waters because runoff from impervious surfaces is often warmer than runoff from pervious surfaces or subsurface flow.[35]	1) Model increase in water temperature along stream profile of each affected drainage. 2) Identify mitigation.
	G. Impaired Beneficial Uses. Increased runoff can impair habitat values by flushing fish and invertebrates out of streams,[36] increasing water level fluctuations and the velocity of flows entering wetlands,[37] and causing salinity changes in estuaries and other nearshore marine waters.[38]	1) Identify direct effects of increased flow on aquatic biota, hydrologic regimes of adjacent wetlands, and salinity of marine receiving waters for each affected drainage. 2) Identify mitigation.
10. CHANGE IN GROUNDWATER STORAGE	**A. Change in Baseflow.** Changes in watertable level can cause changes in the dry weather baseflow of streams fed by groundwater.[39]	1) Quantify for each affected drainage the changes in baseflow associated with lowered water tables and map locations. 2) Identify mitigation.
	B. Change in Wetland and Riparian Vegetation. A lowered watertable can dry up wetlands, stress or kill mature riparian vegetation, and reduce or eliminate seedling survival.[40]	1) Identify types and areas of wetlands and riparian areas that would be affected by expected lowering of shallow water tables and map locations. 2) Identify mitigation.
	C. Impaired Beneficial Uses. A lowered watertable can impair water supply and other beneficial uses which use groundwater. Seawater intrusion is possible in coastal areas.[41] Aquifer compaction and subsidence can also occur.[42] Wetland and riparian areas can be dewatered, harming associated vegetation and habitats.[43]	1) Identify affects of expected water table lowering on water supply and other beneficial uses and map locations. 2) Identify mitigation.
11. CHANNEL DESTABILIZATION	**A. Channelization.** Channel erosion can threaten property and structures, leading to placement of riprap or other engineered stabilization of critical sections.[45]	1) Identify stream reaches in which project-induced channel destabilization may require channelization. 2) Identify mitigation.
	B. Change in Groundwater Storage. Channel incision can dewater shallow aquifers adjacent to the channel.[46]	1) Identify and map stream reaches in which project-induced stream incision may dewater shallow aquifers. 2) Identify mitigation.
	C. Increased Pollutant Delivery. Channel erosion can result in increased suspended solids and turbidity in the water column.[47]	1) Identify and map stream reaches subject to project-induced destabilization, quantify changes in channel dimension, and volume of eroded material for each affected basin. 2) Identify mitigation.
	D. Increased Flooding Frequency. Channel aggradation can cause local flooding by diverting flows and decreasing a stream's flow capacity.[48]	1) Identify and map stream reaches in which project-induced channel destabilization may cause aggradation and associated flooding. 2) Identify mitigation.
	E. Change in Water Temperature. Bank erosion and aggradation can increase water temperature by creating a broader channel with shallow flows, increased water surface relative to flow volume, and a smaller proportion of shaded water surface. As a result, summer water temperatures and daily and seasonal temperature fluctuations tend to be greater.[49]	1) Identify and map stream reaches in which project-induced destabilization can increase water temperature. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	F. Change in Wetland and Riparian Vegetation. Channel destabilization can encroach on riparian wetlands and undermine streamside vegetation.[50]	1) Identify, characterize, and map wetland and riparian areas subject to encroachment by channel destabilization; . 2) Identify mitigation.
	G. Impaired Beneficial Uses. Channel destabilization can reduce or eliminate habitat, recreation, esthetic values, and other uses by affecting deep pools, pool-riffle ratios, undercut banks, substrate suitability, and other structural features.[51]	1) Identify, characterize, and map stream reaches in which channel destabilization can directly impair beneficial uses. 2) Identify mitigation.
	H. Increased Maintenance and Property Damage. Channel erosion can undermine streamside buildings, bridges, utility crossings, and other property. Aggradation can bury diversion structures and other infrastructure and may require removal to maintain flow capacity.	1) Identify and map stream reaches in which destabilization may cause increased maintenance and property damage. 2) Identify mitigation.
12. CHANGE IN BASEFLOW	**A. Change in Groundwater Storage.** Reduced stream baseflow can decrease groundwater recharge by reducing wetted area and the amount of water available for recharge in stream channels.[52]	1) Identify and map affected stream reaches. 2) Quantify losses of recharge and water table response. 3) Identify mitigation.
	B. Change in Water Temperature. Decreased baseflow, typically resulting from change in groundwater storage, can cause elevated and fluctuating stream temperature because groundwater usually enters the stream at cool, stable temperatures.[53]	1) Identify and map affected stream reaches; 2) Quantify temperature effects along stream profile. 3) Identify mitigation.
	C. Change in Wetland and Riparian Vegetation Decreased stream baseflow can cause riparian vegetation to shift to upland species.[54]	1) Characterize and map affected riparian areas. 2) Identify mitigation.
	D. Impaired Beneficial Uses. 1. Decreases in the amount or duration of baseflow can impair habitat quality by eliminating aquatic and riparian habitat area, reducing flow velocities, and otherwise disrupting the life cycles of plants and animals which are dependent on water.[55] 2. Increases in baseflow resulting from dry weather discharge can impair waterbodies such as seasonal wetlands, vernal pools, and intermittent streams which are naturally defined by seasonal water availability.	1) Identify and map affected waterbody segments. 2) Characterize and quantify changes in baseflow. 3) Identify direct effects on beneficial uses 4) Identify mitigation.
13. INCREASED POLLUTANT DELIVERY	**A. Impaired Beneficial Uses.** Urban pollutants can impair many beneficial uses, e.g., water supply, recreation, fish and wildlife habitat, and shellfish production.[56]	1) Identify direct effects of increased pollutant loadings on beneficial uses in each affected waterbody segment. 2) Identify mitigation.
14. INCREASED FLOODING FREQUENCY	**A. Channelization.** Increased flooding can lead to channelization of the critical section to more efficiently pass flood flows.[57]	1) Identify stream reaches in which project-induced flooding may require channelization. 2) Identify mitigation.

CAUSE	EFFECT	NEEDED ANALYSES
	B. Impaired Beneficial Uses. Increased flooding can impair habitat,[58] water supplies, navigation, and other beneficial uses.	1) Identify stream reaches in which project-induced flooding may impair beneficial uses. 2) Identify mitigation.
	C. Increased Maintenance and Property Damage. Increased flood frequency can result in more maintenance and flood damage.	1) Identify stream reaches in which project-induced flooding may increase maintenance and property damage. 2) Identify mitigation.
15. INCREASED WATER TEMPERATURE	**A. Impaired Beneficial Uses.** Increased water temperature can directly stress aquatic biota and can also affect other parameters associated with habitat quality, such as dissolved oxygen concentration and rate of chemical reactions.[59]	1) Identify and map affected waterbody segments. 2) Quantify temperature changes. 3) Characterize effects on beneficial uses. 4) Identify mitigation.
16. DECREASED POLLUTANT REMOVAL	**A. Increased Pollutant Delivery.** Less removal of pollutants by natural processes can result in greater concentrations of pollutants in receiving waters.[60]	1) Quantify effects to pollutant loadings for each affected waterbody. 2) Identify mitigation.
17. CHANGE IN WETLAND AND RIPARIAN VEGETATION	**A. Channel Destabilization.** Loss of vegetation and its associated anchoring root masses can destabilize channel banks and other geomorphic features.[61]	1) Characterize and map affected geomorphic features. 2) Identify mitigation.
	B. Change in Water Temperature. Loss of riparian vegetation can increase maximum water temperature by exposing more water surface to the sun. Daily and seasonal temperature fluctuations also tend to be greater.[62]	1) Identify and map stream reaches in which loss of riparian vegetation can increase water temperature. 2) Identify mitigation.
	C. Decreased Pollutant Removal. Removal of vegetation adjacent to a waterbody can reduce removal of pollutants from the waterbody and from the overland flow draining to the waterbody.[63]	1) Describe type, areal extent, and pollutant removal value of affected vegetation and map location. 2) Identify mitigation.
	D. Impaired Beneficial Uses. Loss of vegetation directly impairs the quality of aquatic and riparian habitat by reducing cover, structural diversity, and nutrient sources.[64] Removal of vegetation can also fragment and isolate remaining patches of habitat, resulting in decreased habitat value over large areas.[65]	1) Identify affected waterbody segments. 2) Characterize direct effects of vegetation loss on beneficial uses. 3) Characterize and display at project-area and regional scales existing wildlands, along with riparian corridors and other water features supporting habitat connectivity. 4) Identify effects of vegetation change on terrestrial and aquatic habitat connectivity. 5) Identify mitigation.

Enclosure 2

State Water Resources Control Board

Terrestrial Habitat Connectivity Related To Wetland, Riparian, and Other Aquatic Resources

Comments on Notice of Preparation: SDG&E Sunrise Powerlink Project

October 16, 2006

Terrestrial Habitat Connectivity Related To Wetland, Riparian, and Other Aquatic Resources,

"Habitat connectivity" refers to the need for plant and animal populations to have some mobility over the landscape, i.e., to avoid becoming "isolated" or "disjoint."[i] In recent decades a large body of research has demonstrated that such "isolated" populations face a high probability of eventual extinction, even if their immediate habitats are spared.[ii] In general, the smaller such an isolated population, the more quickly it will die out. Urban development typically fragments habitat by creating artificial landscapes, which are movement barriers for most species. Unless mitigation measures are taken, isolated, non-viable populations are created as buildings, roads, and landscaping cut off lines of movement.

In the context of wetlands, "habitat connectivity" refers to three related phenomena:

1. The need of some animals to have access to both wetland and upland habitats at different parts of their life cycle. Some wetland animals, e.g., some amphibians and turtles, require access at different seasons and/or at different life stages to both wetland and to nearby upland. Preserving the wetland but not access to upland habitat will locally exterminate such species.[iii]
2. The ecological relationship between separate wetlands. Some wetland communities and their associated species comprise networks of "patches" throughout a landscape. Wetland plants and animals are adapted to the presence of wetland complexes within a watershed and are dependent on moving among the wetlands within the complex, either regularly or in response to environmental stressors such as flood or drought, local food shortage, predator pressure, or influx of pollution. Removing one such water from the complex will reduce the biological quality of the rest, and, at some point the simplified wetland complex will be incapable of supporting at least some of the species, even though some wetlands remain.[iv]
3. The role wetlands and riparian corridors play in allowing larger-scale movements. Some strategically located wetlands and especially continuous strips of riparian habitat along streams facilitate connectivity at watershed and regional scales for terrestrial as well as aquatic and amphibious species.

As noted above, habitat connectivity is critical to biodiversity maintenance and will become more so because of global warming. Significant range shifts and other responses to global warming have already occurred. The ability of biotic populations to move across the landscape may be critical to their survival in coming decades.[v]

[i] Such mobility may occur at the level of the individual organism (e.g., a bird or turtle travelling between separated wetlands) and/or of the population (e.g., a plant species colonizing a new wetland through seed dispersal); and over different time scales.

[ii] For the effects of habitat fragmentation and population isolation on the survival of plants and animals, see for example:

K. L. Knutson and V.L. Naef, *Management Recommendations for Washington's Priority Habitats: Riparian*, Washington Dept. of Fish and Wildlife, Olympia, WA, December 1997, p. 71.

R.F Noss and A.Y Cooperrider, *Saving Nature's Legacy; Protecting and Restoring Biodiversity,* Washington, D.C., Island Press, 1994, pp. 33-34, 50-54, 59-62, 61-62.

D.E. Saunders, R.J. Hobbs, and C.R. Margules, "Biological Consequences of Ecosystem Fragmentation: A Review," *Conservation Biology* 5(1), March 1991, pp. 18-32.

Michael E.Soulé, "Land Use Planning and Wildlife Maintenance, Guidelines for Conserving Wildlife in an Urban Landscape," *Journal of the American Planning Association* 57(3), 1991, pp. 313-323.

Michael E. Soulé, "The Effects of Habitat Fragmentation on Chaparral Plants and Vertebrates," *Oikos* 63, 1992, pp. 39-47.

United States Federal Interagency Stream Restoration Working Group, *Stream Corridor Restoration: Principles, Practices, and Processes*, October 1998, [Online]. Available from: http://www.usda.gov/stream_restoration. Printed copy available from: National Technical Information Service (NTIS), Springfield, VA, pp. 2-80, 2-82.

[iii] Regarding the relationship between wetland/riparian and upland habitats, see for example:

Vincent J. Burke and J. Whitfield Gibbons, "Terrestrial Buffer Zones and Wetland Conservation: A Case Study of Freshwater Turtles in a Carolina Bay," *Conservation Biology* 9(6), 1995, pp. 1365-1369;

C. Kenneth Dodd , Jr. and Brian S. Cade, "Movement Patterns and the Conservation of Amphibians Breeding in Small Temporary Wetlands," *Conservation Biology* 12(2), 1998, pp. 331-339;

Raymond D. Semlitsch, "Biological Delineation of Terrestrial Buffer Zones for Pond Breeding Salamanders," *Conservation Biology* 12(4), 1997, pp. 1113-1119.

Hilty, J. A. and Merenlender, A. M. Use of Riparian Corridors and Vineyards by Mammalian Predators in Northern California. Conservation Biology 18(1) 126-135; 2004 February.

[iv] Regarding the ecological relationship between separated wetlands, see for example:

C. Scott Findley and Jeff Houlahan, "Anthropogenic Correlates of Species Richness in Southeastern Ontario Wetlands, *Conservation Biology* 11(4), 1997, pp. 1000-1009;

Lisa A. Joyal, Mark McCollough, and Malcom L. Hunter, Jr., "Landscape Ecology Approaches to Wetland Species Conservation: A Case Study of Two Turtle Species in Southern Maine," *Conservation Biology* 15(6), 2001, pp. 1755-1762;

Raymond D. Semlitsch and J. Russell Bodie, "Are Small, Isolated Wetlands Expendable?" *Conservation Biology 12(5),* 1998, pp.1129-1133;

National Research Council, *op. cit.,* 2001, p. 42;

Nature Conservancy, *op. cit.*, July 2000, p. 10.

[v] Recent reports comprehensively review observed effects of global change on plant and animal range shifts, advancement of spring events, and other responses. See:

Terry L. Root, Jeff T. Price, Kimberly R. Hall, Stephen H. Schnieder, Cynthia Rosenzweig, and Alan Pounds, "Fingerprints of Global warming on Wild Animals and Plants," *Science* 421:2, January 2003, pp. 57-60.

Camille Parmesan and Gary Yohe, "A Globally Coherent Fingerprint of Climate Change Impacts cross Natural Systems," *Science* 421:2, January 2003, pp. 37-42.

Thomas, et al. "Extinction risk from climate change", *Nature* 427, January 2004, pp. 145-148

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October 17, 2006

11-SD/IMP-VAR
PM VAR
SDG&E Sunrise Powerlink
NOP EIR

Mr. Billie Blanchard, CPUC
c/o Aspen Environmental Group
235 Montgomery Street, Suite 935
San Francisco, CA 94104-3002

Dear Mr. Billie Blanchard:

The California Department of Transportation (Caltrans) appreciates the opportunity to have reviewed the SDG&E Sunrise Powerlink Notice of Preparation/Environmental Impact Report (NOP/EIR). Caltrans has the following comments:

Caltrans Environmental Division recommends that all areas, where impacts to or encroachments upon state right-of-way will or are likely to occur, should be clearly identified in the Draft Environmental Document (DED) by appropriate-scale mapping and Caltrans right of way lines. In the interests of expedience, Caltrans also recommends that all environmental specialist studies for the project be submitted to Caltrans along with the DED during public review.

NPDES/Storm Water Compliance Comments

- Determine the impaired water bodies along the proposed alignments and their beneficial uses from the Regional Water Quality Control Board Basin Plans.
- Determine if any of the water bodies are 303(d) impaired or have TMDL (Total Maximum Daily Load) requirements. Determine temporary potential impacts (during construction) and how they will be mitigated.
- Determine potential permanent impacts (if any) and how they will be mitigated.

Stewardship Comments

This proposed project (alignments as shown on the maps) crosses several of our facilities including State Route 56 (SR-56), Interstate 15 (I-15), State Route 78 (SR-78), and State Route 52 (SR-52) in San Diego County and State Route 78 (SR-78) and State Route 79 (SR-79) in Imperial County. At the scale of the mapping in the exhibits, the Stewardship cannot determine what kinds of regulatory permits may be required for the project. Avoidance and minimization of impacts to regulatory waters are recommended.

Community Impact Assessment Comments

The proposed project will likely result in various impacts that will affect adjacent communities. Impacts should be minimized as much as possible, and then studied thoroughly. The following issue areas are of special concern:

- Community Character
- Visual Impacts
- Noise Impacts (including noise anticipated from transformers/towers)
- Economic Impacts (including anticipated impacts to local tourism)

Landscape Comments

- Scenic highway designation and eligibility must be fully addressed.
- Key views with simulation of towers and lines from the state highway should be developed after consultation with Caltrans Landscape Architecture using Federal Highway Administration (FHWA) visual analysis methodology.
- Alterative route visual impact assessments should be performed.
- Impacts to existing vegetation and potential highway planting should be addressed.
- Please provide postmiles where Caltrans encroachment permit(s) would be required.

Cultural Resource Comments

The above referenced project could adversely impact cultural resources within Caltrans Right of Way (ROW). Caltrans will require that the applicant hire qualified professionals in the fields of archaeology, architectural history and paleontology to conduct the appropriate studies within our ROW. Caltrans cultural resource staff will review these studies for completeness and accuracy and may place conditions on the permits as needed.

Hazardous Waster Comments

A hazardous waste investigation of the proposed work area within Caltrans ROW shall be performed to evaluate the presence or lack of hazardous concentrations of various hazardous waste materials. Investigations and remediation shall include using public health and safety mitigation measures. The public health and safety mitigation measures shall call for preparation of appropriate management and health and safety plans, environmental screening during construction, and use of appropriately trained individuals for hazardous waste and health and safety related construction tasks. Soil and groundwater excavated or removed during construction shall be tested for suspected contaminants, and if hazardous concentrations of suspected contaminants are found, proper disposal shall be performed. These measures must be followed for work within Caltrans ROW.

Biology Comments

Environmental has reviewed the project areas that cross Caltrans' ROW for biological impacts and included the following comments:

- **Imperial Valley Link**-this segment of the project consists of 98.0 kilometers (60.9 miles) of the route including the entire Imperial County portion and a few miles within San Diego County. This portion crosses Caltrans' ROW at two locations, Interstate 8 (I-8) at a point location and adjacent to SR-78 for approximately 15.4 kilometers (9.6 miles).
- Environmental requests that if any of the 205 towers are to be constructed within Caltrans' ROW that the locations are to be delineated on a map in the EIR for evaluation of potential biological impacts within Caltrans' ROW.
- SDG&E proposes to acquire 61.0 meters (200 feet) of ROW width for installation. Will all work occur within this ROW or is additional land needed for temporary access and staging?
- At the SR-78 location, San Felipe Creek occurs within Caltrans' ROW. This creek provides habitat for the federally endangered desert pupfish (*Cyprinodon macularius*). The flat-tailed horned lizard (*Phrynosoma mcallii*), a state Species of Special Concern, also occurs along the proposed installation.
- If the U.S. Fish and Wildlife Service (USFWS) has identified any critical habitat for federally listed species potentially affected by this project, then the critical habitat should be mentioned in the EIR/EIS.

- **Anza-Borrego Link**-this segment of the project consists of 36.4 kilometers (22.6 miles) of the route through the Anza-Borrego Desert State Park. This portion crosses Caltrans' ROW adjacent to SR-78 for approximately 16.1 kilometers (10.0 miles).
- Environmental requests that if any towers are to be constructed within Caltrans' ROW that the locations are to be delineated on a map in the EIR/EIS for evaluation of potential biological impacts.
- SDG&E proposes a total of 45.7 meters (150 feet) of ROW width for installation. Will all work occur within this ROW or is additional land needed for temporary access and staging?
- Part of the 92 kilovolt power line will be installed underground within the highway. Environmental requests the methods of installation and maps of the installation locations be included in the EIR/EIS. Trenching may result in impacts to jurisdictional waters of the United States, including wetlands, which may occur in the project area.
- At the SR-78 location, San Felipe Creek occurs within Caltrans' ROW. This portion of the creek provides habitat for the federally endangered least Bell's vireo (*Vireo bellii pusillus*). Habitat within and adjacent to the ROW consists of cottonwood-willow riparian forest, chaparral, and coastal sage scrub which is capable of supporting many federal and state listed plants and animals. The federally endangered peninsular bighorn sheep (*Ovis canadensis*) also occurs near the project area.
- If USFWS has identified any critical habitat for federally listed species potentially affected by this project, then the critical habitat should be mentioned in the EIR/EIS.
- Noise generated by construction equipment of 80 to 100 dBA at a range of 15.2 meters (50 feet) from the active construction site will affect the least Bell's vireo.
- **Central Link**-this segment of the project consists of 43.9 kilometers (27.3 miles) of the route from Grapevine Canyon to the Mesa Grande Reservation. This portion crosses Caltrans' ROW at two locations, adjacent to SR-79 for approximately 3.2 kilometers (2.0 miles) and adjacent to SR-79 and SR-78 for approximately 8.0 kilometers (5.0 miles).
- Environmental requests that if any towers are to be constructed within Caltrans' ROW that the locations are to be delineated on a map in the EIR/EIS for evaluation of potential biological impacts.
- SDG&E proposes to acquire a total of 61.0 to 91.4 meters (200 to 300 feet) of ROW width for installation. Will all work occur within this ROW or is additional land needed for temporary access and staging?
- At the SR-79 and SR-79/SR-78 intersection location, Santa Ysabel Creek occurs within Caltrans' ROW. This portion of the creek provides habitat for the federally endangered arroyo toad (*Bufo californicus*). Habitat within and adjacent to the ROW consists of annual grasslands, chaparral, and coastal scrub which is capable of supporting the federally endangered Stephen's kangaroo rat (*Dipodomys stephensi*), the federally threatened coastal California gnatcatcher (*Polioptila californica californica*), and many federal and state listed plants and animals.
- If USFWS has identified any critical habitat for federally listed species potentially affected by this project, then the critical habitat should be mentioned in the EIR/EIS.
- Noise generated by construction equipment of 80 to 100 dBA at a range of 15.2 meters (50 feet) from the active construction site will affect the coastal California gnatcatcher.
- **Inland Valley Link**-this segment of the project consists of 41.0 kilometers (25.5 miles) of the route from southwest of Santa Ysabel to the north edge of Marine Corps Air Station in Miramar. This portion crosses Caltrans' ROW at a point location on State Route 67 SR-67).

- Environmental requests that if any towers are to be constructed within Caltrans' ROW that the locations are to be delineated on a map in the EIR/EIS for evaluation of potential biological impacts.
- If any of the underground installation occurs within Caltrans' ROW, Caltrans requests the methods of installation and maps of the installation locations be included in the EIR/EIS. Trenching may result in impacts to jurisdictional waters of the United States, including wetlands, which may occur in the project area.
- SDG&E proposes to acquire a total of 61.0 meters (200 feet) of ROW width for installation. Will all work occur within this ROW or is additional land needed for temporary access and staging?
- At the SR-67 location, habitat within and adjacent to the ROW consists of chaparral and coastal sage scrub, which is capable of supporting the coastal California gnatcatcher.
- If USFWS has identified any critical habitat for federally listed species potentially affected by this project, then the critical habitat should be mentioned in the EIR/EIS.
- Noise generated by construction equipment of 80 to 100 dBA at a range of 15.2 meters (50 feet) from the active construction site will affect the coastal California gnatcatcher.
- **Coastal Link-**this segment of the project consists of 21.9 kilometers (13.6 miles) of the route from Rancho Penasquitos to the Torrey Hills area of the City of San Diego. This portion crosses Caltrans' ROW adjacent to SR-56 for approximately 7.2 kilometers (4.5 miles).
- Environmental requests that if any towers are to be constructed within Caltrans' ROW that the locations are to be delineated on a map in the EIR/EIS for evaluation of potential biological impacts.
- West of the Chicarita Substation, part of the 230 kilovolt power line will be installed underground. If any of the underground installation occurs within Caltrans' ROW, Environmental requests the methods of installation and maps of the installation locations be included in the EIR/EIS. Trenching may result in impacts to jurisdictional waters of the United States, including wetlands, which may occur in the project area.
- At the State Route 56 location, habitat within and adjacent to the ROW consists of chaparral and coastal sage scrub which is capable of supporting the federally endangered Orcutt's spineflower (*Chorizanthe orcuttiana*), coastal California gnatcatcher, and other federal and state listed species. There also may be vernal pools within and near Caltrans' ROW which are capable of supporting the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*), federally endangered San Diego button celery (*Eryngium aristulatum* var. *parishii*), and the federally endangered San Diego mesa mint (*Pogogyne abramsii*).
- If USFWS has identified any critical habitat for federally listed species potentially affected by this project, then the critical habitat should be mentioned in the EIR/EIS.
- Noise generated by construction equipment of 80 to 100 dBA at a range of 15.2 meters (50 feet) from the active construction site will affect the coastal California gnatcatcher.

The main biological concerns within Caltrans' ROW include adverse effects on federal and state listed species; riparian, chaparral, coastal sage scrub, and vernal pool habitat; and federally protected wetlands.

Any impacts to wetland or riparian habitat from this project within Caltrans' ROW will require a Section 1602 Lake and Streambed Alteration Agreement from the California Department of Fish and Game (CDFG) and a Section 404 Nationwide or Individual Permit from the U.S. Army Corps of Engineers. Any impacts to federally listed species or critical habitat within Caltrans' ROW will require coordination with USFWS. Any impacts to state listed species within Caltrans' ROW will require coordination with CDFG.

Any work performed within Caltrans right of way will require an encroachment permit. For those portions of the project within the Caltrans right of way the permit application must be stated in English units. Information regarding encroachment permits may be obtained by contacting our Permits Office at (619) 688-6158. Early coordination with our agency is strongly advised for all encroachment permits.

If you have any questions on the comments Caltrans has provided, please contact Trent Clark of the Development Review Branch at (619) 688-3140.

Sincerely,

for AL COX, Chief
Development Review Branch