

In the Matter of the Application of San Diego
Gas & Electric Company (U-902-E) for a
Certificate of Public Convenience and Necessity
For the Sunrise Powerlink Transmission Project

Application No. 06-08-010
Exhibit No.: _____

CHAPTER 4
GREENHOUSE GAS EMISSIONS

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

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I. BECAUSE SAN DIEGO’S DEMAND FOR ELECTRICITY WILL INCREASE, SUNRISE WILL RESULT IN THE FEWEST GREENHOUSE GAS EMISSIONS OF ANY FEASIBLE OPTION IDENTIFIED IN THE DEIR/DEIS FOR SERVING THAT DEMAND

One of the significant project objectives of Sunrise is to construct a transmission line that connects renewable power developed in the Imperial Valley to the SDG&E system. *See* PEA at 2-21 and 3-2, as referenced in Chapter 2, Section I.D. As discussed in Chapter 6, Section III.B, there are now renewable energy projects totaling 6600 MW of renewable energy that are seeking interconnection through the CAISO queue. As discussed in SDG&E's Phase 1 Opening Testimony (Vol. 2, Part 1 at III-11 to -12), SDG&E has contracted for renewable power from Imperial Valley that is contingent on Sunrise's construction. Finally, as set forth in Chapter III of SDG&E’s Phase 1 testimony, SDG&E expects to meet its Renewable Portfolio Standard obligation through contracting with renewable energy plants in Imperial Valley. In short, Sunrise plays a critical role in bringing renewable power to SDG&E and California’s energy resource mix.

As discussed below, California legislation and regulation require a timely reduction in the emissions of greenhouse gases (“GHG”) emitted in California or by the generation of power destined for California. Most forms of renewable energy have very low net GHG emissions (aside from insignificant maintenance-related emissions). Numerous government reports have recognized that new transmission facilities are necessary to bring renewable power from remote areas to the load centers in urban areas, and the California Legislature has encouraged the construction of such transmission lines (e.g., IEPR 2007, page 5, CEC-100-2007-008-CMF).¹

~~The Sunrise project is consistent with the intent of GHG related regulations and legislation as it provides access to energy production facilities with low GHG footprints.~~

¹ <http://energy.ca.gov/2007publications/CEC-100-2007-008/CEC-100-2007-008-CMF.PDF>

Given Sunrise's vital role in bringing renewable energy in the Imperial Valley into SDG&E's energy resource supply, the DEIR's conclusion that "because total construction GHG emissions exceed the GHG reductions achieved due to avoided power plant emissions over 40 years of transmission line operation, the Proposed Project would cause a net overall increase in GHG emissions and a significant climate change impact" (DEIR at D.11-55) is misleading. The DEIR concludes that the construction GHG emissions would be approximately 109,000 tons over the two-year construction period and that the offset emissions over 40 years would be 66,000 tons. *Id.*

The DEIR's conclusion is the result of an analytical method that does not adequately represent the positive impact that the Sunrise project will have on the regional GHG budget and is inconsistent in its analysis of project alternatives. First, the DEIR sets the "baseline" for GHG emissions, against which the Proposed Project is measured, as the fixed amount of electric generation emissions estimated in the past. Thus, not only will any construction emissions exceed the "baseline," but any net increase in GHG emissions from the Project overall will exceed the baseline regardless of what GHG emissions would result if load growth were met without Sunrise. Second, the DEIR sets the "significance" threshold at zero, meaning a project with a net GHG emission increase of even one pound is deemed significant. Third, the DEIR concludes that there is no way to offset GHG emissions, meaning that any such net increase is "significant and unavoidable," *i.e.* a "Class 1" impact.

The methodology employed by the DEIR arrives at the counterintuitive and counterproductive conclusion that a project undertaken to service load growth in San Diego by interconnecting renewable power in Imperial Valley, which is consistent with statewide efforts to reduce GHG emissions from energy production and result in the construction and utilization of

low GHG emitting renewable power plants, in fact has a significant and unavoidable GHG impact. The DEIR's methodology leads it to conclude that Sunrise, all Sunrise routing alternatives, the "New In-Area All Source Generation Alternative" and the LEAPS alternatives have "significant and unavoidable" GHG and climate change impacts. As discussed below, the DEIR then applies an inconsistent standard to assert that the "New In-Area Renewable Generation Alternative" will eventually offset its construction GHG emissions despite the fact that the DEIR did not quantify either the construction GHG emissions or the GHG emissions of this alternative.

It is common sense, and is shown quantitatively below, that the operational benefits of having renewable power plants with low operational GHG emissions will almost certainly offset the temporary GHG emissions associated with their construction. For instance, the 900 MW Stirling solar power plant is conditioned on Sunrise being constructed and it is widely held that solar power is part of the overall solution to reducing GHG emissions from statewide energy production. The transient and comparatively small construction emissions required to build and access electricity from solar plants should not be a barrier to the creation of renewable power.

The DEIR does not apply this common sense approach to highlighting the positive GHG aspects of a project that was designed in part to meet RPS obligations. Rather than analyzing the incremental benefits of making renewable power available based on existing conditions and availability, the DEIR determines the operational benefits of the Sunrise project based on a CAISO evaluation of how GHG emissions may be reduced on a WECC-wide basis with and without Sunrise. The future hypothetical CAISO base case requires significant infrastructure development including renewable plant development and additional transmission lines. Although the DEIR methodology explicitly determines the Sunrise construction emissions, the

construction emissions associated with the hypothetical 2015 CAISO base case are not calculated. This approach is inconsistent and prevents one from determining the actual GHG impact of the Sunrise project or its alternatives.

More to the point, the relevant question regarding GHG emissions is which of the potential and feasible alternatives for meeting load growth in San Diego has the most beneficial effect on GHG emissions (either the least GHG emissions or the greatest net reduction in GHG emissions). Given that demand for electricity is growing and that load growth will be satisfied with power generated by some means, the critical comparison is the Proposed Project GHG emissions measured against what would happen without Sunrise. Based on the alternatives identified in the DEIR, only the Sunrise project has been shown to have a quantifiable reduction of operational GHG emissions utilizing the CAISO methodology. Based on the common sense argument that renewable energy is part of the solution to reducing GHG emissions from energy production, in addition to the quantifiable operational benefits based on the CAISO analysis, the proposed Sunrise project is in fact a feasible, beneficial, and sensible approach to complying with the statewide efforts to reduce GHG emissions and to transition from fossil fuel use to renewable energy sources.

Each of these issues is discussed further below.

A. State Law and CPUC Policy Favor Renewable Power to Reduce Emissions of Greenhouse Gases, and Encourage Transmission Necessary to bring it to Market.

The California Legislature enacted the Global Warming Solutions Act of 2006 (AB 32; Health and Safety Code Section 38500 et seq.), which identifies global warming as a serious threat to California's economy, public health, natural resources, and environment and requires the reduction of GHG emissions to 1990 levels by 2020. AB 32 added Section 38530 to the Health and Safety Code, which requires that regulations be adopted requiring the reporting and

verification of GHG emissions from all electricity consumed in the state. Sections 38550 *et seq.* require the California Air Resources Board to set a GHG limit to be achieved by 2020 and to adopt regulations to reduce GHG emissions to achieve that limit.

Even before AB 32, Senate Bill 1078 established the California Renewables Portfolio Standard Program, which requires each electrical corporation to increase its procurement of eligible renewable energy resources by at least 1% per year until 20% of its retail sales are from renewable energy resources. Senate Bill 107, signed by the Governor in September 2006, moved the RPS date to achieve 20% renewable energy sales up to December 31, 2010.

The Commission established a GHG Emissions Performance Standard that requires long-term commitments for baseload generation of power plants to have emissions no greater than a combined cycle gas turbine plant (a level of 1,100 lb CO₂ per MWh). Investments into new plant or renewal contracts with a term of 5 years or more must meet this standard.²

Of the existing technology for energy production, only nuclear energy and renewable energy have sufficiently low GHG footprints to help achieve our statewide reduction goals. Under current California law, it is unlikely that new nuclear energy plants will be a viable energy source for near or long term energy production. As a result, to achieve GHG reduction goals, we must increase the amount of energy produced from low GHG emitting renewable power plants.

This legislation and regulation requires California utilities to have a greater emphasis on renewable energy sources. Future energy production based exclusively or primarily on fossil fuel combustion is a business-as-usual approach to energy production that is inconsistent with efforts to reduce the statewide GHG footprint.

² http://www.cpuc.ca.gov/PUC/energy/electric/Climate+Change/070411_ghgeph.htm.

The increases in California population (and the concomitant demands for energy) are expected to outpace any decreases in per capita energy use in the near term. To effectively reduce GHG emissions, energy efficiency must be coupled with replacement of energy from high-GHG emitting power plants with energy from lower-GHG emitting power sources. Therefore, new energy sources must be developed. In the long term, energy efficiency, conservation and changes in human lifestyle may result in reductions in per capita energy use, which in turn, may reduce the need for future additional energy sources. Prior to these hypothetical changes in energy use, however, there will continue to be a need for additional statewide power.

To meet this demand with renewable power, transmission of renewable power to the areas requiring power is necessary due to the location of cost-effective renewables. The California Energy Action Plan states:

An expanded, robust electric transmission system is required to access cleaner and more competitively priced energy, mitigate grid congestion, increase grid reliability, permit the retirement of aging plants, and bring new renewable and conventional power plants on line. (Section II.4 of the October 2005 Energy Action Plan II an “implementation roadmap for energy policies,” as adopted by the Commission and the CEC.)

The Legislature further recognized, as has the CPUC, that many forms of renewable power are developed away from the urban areas where energy demand is highest. Thus, both the Legislatures and the CPUC have adopted policies to encourage transmission necessary to bring renewable power to market. The California Energy Commission adopted the Strategic Transmission Investment Plan, which identifies the need for certain major transmission project and specifically stated this of the Sunrise project:

Sunrise Powerlink 500 kV Project – The proposed 500 kV Sunrise Powerlink Project would provide significant near-term system reliability benefits to California, reduce system congestion and its resultant costs, and provide an interconnection to both renewable resources located in the

Imperial Valley and lower-cost out-of-state generation. Without this proposed project, it is unlikely that SDG&E will be able to meet the state's RPS goals, ensure system reliability, or reduce RMR and congestion costs. The Energy Commission therefore believes that the proposed project offers significant benefits and recommends that it move forward expeditiously so that the residents of San Diego and all of California can begin to realize these benefits by 2010 (*Strategic Transmission Investment Plan* CEC, p. 6. September 2005).

Senate Bill 1078 contains the following language regarding new transmission lines codified as § 399.25:

Notwithstanding any other provision in Sections 1001 to 1013, inclusive, an application of an electrical corporation for a certificate authorizing the construction of new transmission facilities shall be deemed to be necessary to the provision of electric service for purposes of any determination made under Section 1003 if the commission finds that the new facility is necessary to facilitate achievement of the renewable power goals established in Article 16. (commencing with Section 399.11)

The 2008 EAP Update states that “investment in conventional transmission infrastructure is crucial to helping the state meet its renewable energy goals” (2008 Update Energy Action Plan, page 6, February 2008).³ This 2008 Update EAP also asserts that “many of the approved projects still must successfully overcome project development obstacles, such as permitting, siting, and the development of new transmission” to meet the RPS standard (2008 Update EAP, page 12, February 2008).

The 2007 Integrated Energy Policy Report finds that “RPS results have not kept pace with its mandate due to principally to insufficient transmission infrastructure and complex administration... The 22 percent goal by 2020 is feasible, but only if the state commits to significant investments in transmission infrastructure and makes some key changes in policy” (IEPR 2007, page 5, CEC-100-2007-008-CMF).

³ <http://energy.ca.gov/2008publications/CEC-100-2008-001/CEC-100-2008-001.PDF>

In sum, California policy favors renewables and transmission necessary to integrate renewable power into the California energy supply.

B. The DEIR’s Approach to GHG Emissions Is Overly Conservative and Inconsistent

The DEIR takes a very conservative approach to evaluating GHG emissions. In the absence of any regulations governing how to address GHG emissions under the California Environmental Quality Act (“CEQA”) or the National Environmental Protection Act (“NEPA”), the DEIR has set a fixed “baseline” to evaluate whether GHG emissions exceed the baseline, thus guaranteeing that there will be an exceedence during the construction phase and an overall exceedence unless the Project’s net GHG emissions are zero or negative. Further, the DEIR sets the significance criteria for GHG emissions at zero, meaning that Sunrise would be found to have a “significant” impact on the environment if it resulted in a net increase of one pound of CO₂. Finally, the DEIR asserts that GHG emissions cannot be mitigated.

This type of analysis is not particularly useful because it does not consider the GHG impact of Sunrise compared with the “no project” alternative, i.e. against a baseline that reflects the need to supply power to satisfy customer demand. Moreover, it does not compare the GHG impact of Sunrise against the DEIR alternatives. Each issue is addressed below.

1. The DEIR’s GHG emission baseline determination methodology does not account for growing demand.

The DEIR sets the CEQA “baseline” for GHG emissions within California based on the GHG emission inventories listed in Table D.11-2 (DEIR at D.11-7). DEIR at D.11-52. Table D.11-2 quantifies GHG emissions associated with in-state electricity generation in the years 1990 and 2005. Emissions resulting from electricity imports are estimated for 2004. DEIR at D.11-7. The year that is considered for baseline determination in Table D.11-2 is not explicitly

stated, although it is assumed the most recent year 2004 was employed. In any event, the baseline year would have to be in the past based on Table D.11-2 data.

Under the methodology utilized in the DEIR, any project that would emit any amount of GHG would be deemed to cause an increase in GHG emissions over the baseline identified in Table D.11-2 because existing emissions have already occurred, unless the project was defined so as to simultaneously remove more GHG emissions than were created. Thus, the DEIR concludes that the emissions of approximately 109,000 tons of CO₂ during the construction of the Sunrise Proposed Project would be a “substantial increase over the baseline condition” and a “significant and unavoidable impact.” DEIR at D.11-52 to -53.

The DEIR’s approach to the “baseline” for construction emissions is to look at ‘past conditions’ rather than the construction that would be necessary to serve energy demand in some other fashion. By this methodology every alternative, including the No Project alternative, will show an increase over baseline levels for construction emissions. Because any project will have construction emissions, using a baseline fixed to past emissions by definition will ensure there is an increase over baseline in construction emissions.

The DEIR takes a different approach to determining baseline for operational GHG emissions whereby it considers any net increase over the fixed “baseline” to be a “significant” exceedence of the baseline condition. In assessing operational emissions for the Proposed Project (though not the non-Sunrise alternatives), the DEIR looked to CAISO estimates of 2015 emissions in relation to what the CAISO modeling project considered the 2015 baseline case. The details of the CAISO model results and assumptions are detailed in a subsequent section. The CAISO baseline is based on a hypothetical future condition where all RPS obligations already are met. In this future base-case, the augmentation of existing power plants, the

construction of new power plants, and even the construction of various transmission systems are assumed. Thus, the baseline for operational conditions includes significant construction emissions. However, in deciding whether the GHG emissions “substantially exceed” the baseline, the DEIR again considers only whether there has been a net increase of GHG emissions from the Project, thus comparing it to the fixed baseline where the emission of even a single pound of CO₂ is considered to “substantially exceed” the baseline. DEIR at D.11-17, D.11-55.

The DEIR did not evaluate either construction emissions or operational emissions against a baseline of what GHG emissions would be expected if SDG&E’s need for energy to serve San Diego load growth were served without Sunrise. As the DEIR repeatedly states with respect to each generation unit: “Demand for electricity would not change as a result of the [generation unit], and power generated in response to the demand would occur regardless of whether the [generation unit] moves forward.” DEIR at D.11.39, -44, -47, E.5-210, -212, -214, -216. Yet the DEIR does not utilize a baseline that reflects the real world condition of increasing load growth that will result in the construction of electrical facilities, both generation and transmission.

2. The DEIR’s GHG emission significance threshold precludes a meaningful comparison among the project and alternatives.

The DEIR uses a “net zero threshold” for the significance determination on GHG emissions. See, e.g., DEIR at D.11-21 (Table D.11-12), D.11-24 (Table D.11-13), D.11-26 (Table D.11-14). The DEIR states that “consistent with the aim of AB 32 to provide GHG reductions, overall Proposed Project GHG emissions would ‘substantially exceed’ baseline emissions if the total effect of all project activities causes a net increase of GHG emission over the baseline.” DEIR at D.11-17. Because the DEIR fixes the baseline on past emissions, the end result is that any net increase in GHG emissions is considered to be “significant.” The DEIR significance determination becomes difficult in light of the fact that differing baselines are used

for construction versus operational emissions. In point of fact, it is probably not valid to directly compare construction emissions and operational emissions for significance determination since the same baseline for construction and operational emissions was not used.

An important consequence of the zero threshold is that all projects that are not net zero or better are weighted equally from a GHG perspective because they all result in significant and unavoidable impacts unless the DEIR provides some additional criteria (such as total GHG emissions associated with each project) to compare the projects from a climate change perspective.

The future hypothetical baseline for operational emissions complicates comparison to the significance threshold since a different baseline is used for construction. For example, if future conditions are equal to the hypothetical CAISO base-case emissions, the project alternative would be net-carbon neutral even though it has increased emissions above existing conditions.

If the significance threshold of net zero is used as stated in the construction emissions section of the DEIR, then it would be best to compare the construction and operational emissions *for each project alternative, using the same baseline*, to allow for a comparison of the project alternatives' impacts on GHG emissions.

3. The CPUC has recognized that GHG emissions can be mitigated, and SDG&E will mitigate any net increase in GHG emissions caused by Sunrise's construction.

After utilizing a fixed baseline and a zero significance level to find that construction emissions “substantially exceed” baseline, and that overall emissions would pose a “net increase in GHG emissions,” DEIR at D.11-55, the DEIR concludes that this impact cannot be fully mitigated. The DEIR proposes a Mitigation Measure AQ-4a to require SDG&E to obtain “carbon credits to offset 55,000 tons of carbon dioxide emissions for each of the two years of

construction,” but then asserts: “However carbon credit trading markets are not fully formed or regulated, and the relationship of credits to real GHG reductions is not uniformly enforceable.” DEIR at D.11-52, -53, & -55. Thus, the DEIR concludes that the impacts are “unavoidable.” *Id.*

The DEIR is mistaken. In reality, offset programs do exist that should satisfy any mitigation requirement. For example, the California Air Resources Board, the agency responsible for implementing GHG regulations, formally adopted “the California Climate Action Registry’s (CCAR) forestry protocols as non-regulatory quantification methods for the purposes of voluntary greenhouse gas accounting.” Attachment 4-1 (Resolution 07-44). CCAR recently announced the certification two forest projects under the CCAR Forest Protocols. Attachment 4-2 (CCAR Press Release). For instance, CCAR verified that 77,000 tons/year of CO₂ offsets were available at the Garcia River Forest which could offset any net GHG emissions from Sunrise’s construction.

Moreover, the Commission itself has approved Pacific Gas and Electric Company contracting for GHG reductions from forest projects approved by CCAR under its Forestry Protocol. D.06-12-032 at 39. Thus, the DEIR’s conclusion that Sunrise construction emissions are significant and unavoidable is false given that SDG&E could reduce any such emissions to zero (which is the implied significance threshold used in the DEIR). The circumstances under which SDG&E would purchase carbon credits for Sunrise is discussed in Chapter 1.

C. The DEIR Analysis of GHG Emissions Is Neither Helpful Nor Consistent.

The end result of the DEIR’s chosen analysis is that the DEIR finds Sunrise, each alternative route for Sunrise, the “New In-Area, All-Source Generation Alternative,” and both of the LEAPS alternatives “would cause a net increase of greenhouse gas emissions (Class I).” DEIR at D.11-52, D.11-57, E.1.11-1, E.2.11.1, E.3.11.1, E.4.11-1, E.6-179, 181, 184, E.7-168,

E.7-298. As noted above, further concluding that the “markets for carbon credits are not fully formed or regulated, and the relationship of credits to real GHG reductions is not uniformly enforceable,” the DEIR concludes that the impact would be “significant and unavoidable.” *Id.*

Oddly, the DEIR also recognizes that each of the renewable generation components found in the DEIR’s “New In-Area Renewable Generation Alternative” will have greenhouse gas emissions during construction and future maintenance, but asserts that construction GHG emissions “would be offset by the indirect net decrease in CO2 emissions from [other] power plants.” DEIR at E.5-210, -212, -214, -216. The DEIR thus concludes that the GHG impact of the renewable components will be Class III—“adverse for the construction phase, but less than significant overall.”

The DEIR’s treatment of the “New In-Area Renewable Generation Alternative” components is peculiar in two respects.

- First, in response to questions from SDG&E, the authors admit that they do not have “quantitative estimates of construction phase [GHG] emissions” for such renewable projects. Attachment 4-3 (Response to SDG&E Technical Questions Dated 2/13/08 at 3). Moreover, the DEIR does not quantify the higher-GHG emitting power that would be displaced by the renewable power plants. Without knowing either the amount of construction GHG emissions or the amount of displaced GHG emissions, there is no basis for the DEIR’s conclusion.
- Second, the DEIR is inconsistent in its evaluation of displacement of higher-GHG emitting power by lower-GHG emitting power as a result of Sunrise and as a result of the DEIR’s “New In-Area Renewable Generation Alternative.” For the Renewable Generation Alternative, the DEIR notes, for one component, the “solar

thermal facility and associated transmission line would enable reductions of CO₂ and other pollutant emissions that would otherwise occur from fossil fuel-fired power plants.” DEIR at E.5-210. This is entirely accurate and common sense makes plain that displacement of fossil fueled plants by renewable plants rapidly will reduce GHG emissions far below any temporary construction emissions. However, as discussed below, the DEIR does not take this common sense approach to evaluate the net GHG impact of Sunrise, which will facilitate the development of and interconnect renewable power plants in Imperial Valley.

The DEIR’s determination that Sunrise and essentially all of its alternatives have a “significant and unavoidable” GHG impact is an unfortunate result of the DEIR’s methodology, which fails to consider the increasing electric generation required even without Sunrise and sets the significance criteria at zero. Moreover, the DEIR provides very little analysis of Sunrise compared to the non-Sunrise alternatives. However, there is one short discussion that reveals the extremely disproportionate GHG impact of the DEIR’s “New In-Area All-Source Generation Alternative compared to Sunrise.

In discussing the GHG impact of the South Bay Replacement Project, the DERI notes: “The increased power output provided by San Diego area natural gas-fired power plants under this alternative would occur at a level exceeding the CPUC Greenhouse Gas Emissions Performance Standard of 0.5 metric tons (1,100 lb) of CO₂ per megawatt-hour, resulting in a significant impact. This is based on a CAISO forecast shows 2,571 million pounds of CO₂ would be produced in the course of generating 2.206 million megawatt-hours in San Diego in 2015, resulting in roughly 1,165 lb. of CO₂ per megawatt-hour.” DEIR at E.6-179. The estimate that generation under this alternative would result in emissions of 2,571 million pounds

(1,285,500 tons) of CO₂ in one year and continue to do so indefinitely puts in perspective the DEIR claim that Sunrise would cause 109,000 tons of CO₂ emissions over two years and then have zero emissions thereafter. The sections below further evaluate the GHG emissions in comparison to the other options and alternatives for meeting demand.

D. Construction Emissions are Only Estimated for The Proposed Sunrise Project and Are Not Determined for Any Other Project Alternative.

The DEIR estimates that the CO₂ emissions associated with the two year construction of the Sunrise Powerlink would be approximately 109,000 tons of CO₂ or 0.1 MMT (DEIR at D.11.13.3). To do so, the DEIR authors assumed that the “total emissions from each piece of equipment are based on the total possible hours of equipment operation.” Attachment 4-3 (Response to SDG&E Technical Questions Dated 2/13/08 at 1). The DEIR, however, did not quantify construction emissions associated with any of the project alternatives. Attachment 4-3 (Response to SDG&E Technical Questions Dated 2/13/08 at 2-3). Aspen could have estimated the construction emissions associated with each alternative in order to make an apples-to-apples comparison of the proposed project and project alternatives GHG emissions. However, as discussed in the following section, construction emissions associated with any project alternative are trivial in comparison to operational emissions, and the speculation required to estimate the emissions associated with the construction of hypothetical alternatives is not warranted for this analysis.

E. Comparison of Construction to Operational Emissions for Power Generation.

The following analysis was conducted in order to gain perspective on the relative magnitudes of the construction emissions from the installation of Sunrise and the operation emissions from 750 MW of power derived from natural gas. This analysis assumes that the

GHG emission rate of a new natural gas power facility is no greater than the Commission's GHG Emission Performance Standard of 1,100 lbs of CO₂ per MWh.

The CO₂ emissions generated from natural gas power plants delivering an average load of 750MW while meeting the Commission's GHG performance standard are approximately 7,227,000,000 lbs CO₂/year ($1100 \times 750 \times 24 \times 365$). This is approximately equal to 3,600,000 tons CO₂/year or 3.25 million metric tons ("MMT") of CO₂/year and is approximately equivalent to 1% of California's statewide emissions based on the March 2006 Climate Action Team Report.

In the DEIR, 40 years is the typical period used for many calculations regarding Sunrise based on an assumed 40 year operations period. Using this same event horizon, a 750MW natural gas power plant would emit approximately 130 MMT of CO₂ over a 40 year period. In comparison, the construction emissions for the Sunrise transmission lines are estimated in Section D.11.13.3 to be approximately 109,000 tons of CO₂ or 0.1 MMT emitted over two years. The comparison of transmission line construction emissions with the operational emissions of 750 MW and 1000 MW of energy delivered by natural gas are shown here as Figure 1. Based on this analysis, the operational emissions from a natural gas power plant with an average load of 750 MW are approximately 1,325 times greater than the construction emissions associated with the construction of Sunrise.

Based on the analysis above, 750 MW of energy generated from natural gas power plants would emit the total construction GHG emissions associated with Sunrise (109,000 tons CO₂) in approximately **11 days** time. The net result of this analysis is that construction GHG emissions associated with Sunrise are trivial compared to the operation emissions associated with even the cleanest fossil fuel power plants. In effect, the construction GHG emissions associated with the creation of transmission line access to renewable power will immediately be offset by the

reduction of CO2 emissions associated with conventional fossil fuel use. As a consequence, it is most important to analyze the operational emissions associated with each project rather than further resolve the trivial emissions associated with construction.

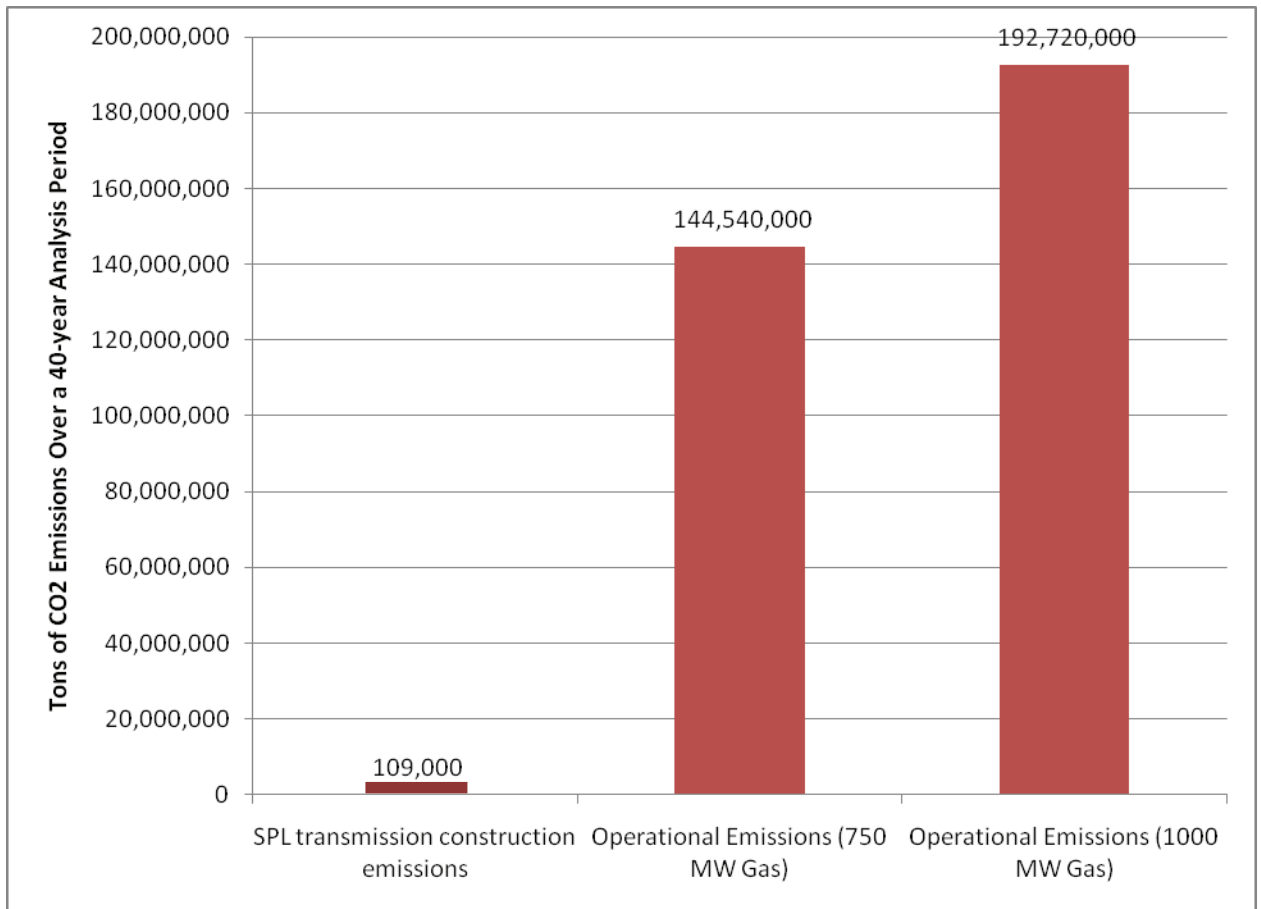


Figure 1. Comparison of Sunrise Transmission Line Construction Emissions with the Operational Emissions Associated with Natural Gas Power Plants for a 40-year Analysis Period

F. CAISO Energy Output and Emissions Analysis for the year 2015.

As part of its evaluation of the Sunrise project, CAISO performed an assessment to compare the Sunrise Project with third-party alternatives. This assessment used assumptions obtained from CAISO, SDG&E, the Seams Steering Group—Western Interconnection (“SSG-WI”) and the CAISO South Regional Transmission Plan (“CSRTP”) study group. After reviewing testimony from SDG&E (Exhibit J attached to Supplemental Testimony), CAISO

discovered that the data and planning assumptions used by SDG&E differed from those used by CAISO. CAISO then reevaluated and updated its assumptions. The CAISO model run dated 1/26/2007 was updated to reflect this new information.

The “base case” scenario was designed to evaluate the energy benefits of each alternative to a scenario which is likely to occur without each project. The base case includes best available information regarding future generation projects, transmission lines and new resource availability from PG&E, SSG-WI, and CAISO. The CEC 2006 forecast of energy and demand for 2015 was used to predict energy demand. Adjustments for roof top solar and losses were made.

Critically, the base case assumes compliance with the Renewable Portfolio Standard (RPS), which amounts to 26.5% in 2015, half-way between the 20% target in 2010 and the 33% target in 2020. (Initial Testimony of the CAISO Corporation, Part II, page 13-14, March 1, 2007). Table 2.1, taken from “Initial Testimony of the California Independent System Operator Corporation Part II,” given March 1, 2007, illustrates what energy procurement was expected in the base case without the Sunrise, South Bay or Green Path +LEAPS projects. The CAISO model assumes load growths of 1.2% per year statewide from 2006-2015. San Diego’s growth was slightly higher, at 1.5%.

When the three alternatives were compared to the base case, all were assumed to be added to a scenario where California’s utilities already had met RPS compliance obligations for 2015. To meet RPS targets, CAISO projects that a total of 79.6 TWh/yr of renewable energy will be needed in 2015. The Center for Resource Solutions (“CRS”) 2005 report to the CPUC, entitled *Achieving a 33% Renewable Energy Target*, identified renewable resources that could be used to meet the RPS targets for 2020. The CAISO document maintains that it would be

possible to achieve the RPS goals by 2015 without any of the project alternatives since the base-case scenario was specified such that the 2015 RPS goals were met. However, the methodology used to create a 2015 base case is not scalable, and may not put the region on a trajectory by which the 2020 goals could be met. This highlights the need for a project such as Sunrise to provide access to renewable energy and allow the region to meet its future RPS goals.

This report was used by CAISO to identify renewable energy sources in locations which could be used to meet RPS targets under each scenario. The Testimony given by CAISO representatives (Initial Testimony of the CAISO Corporation, Part II, page 72, March 1, 2007), concludes the following:

1. The energy benefits for Sunrise are modest but positive.
2. Sunrise provides access to renewable without which it will be difficult for CA LSEs to meet the 33% RPS by 2020.

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Table 2.1: Base Case resource plan for 2015

| Resource | Size | Remark |
|---|--|---|
| Incremental CTs in San Diego | 565 MW | Reliability compliance |
| RMR / capacity contract | 1400MW | Reliability compliance |
| Incremental renewable resources in the Salton Sea area | 185MW geothermal previously identified in IID's resource plan. 600MW geothermal (added by CAISO) | Limited renewable energy development absent new transmission |
| Incremental renewable resources outside the Salton Sea area | 433 MW biomass (distributed) 3940 MW Tehachapi wind 986 MW Solar thermal (NV border) 101 MW Altamont wind 1031 MW San Bernardino wind 6 MW East San Diego wind 560 MW Kern wind 298 MW Alameda wind 200 MW Solano wind 400 MW Sonoma geothermal 300 MW Colusa Lake wind 300 MW Modoc geothermal 300 MW Lassen wind 200 MW Shasta wind 350 MW Mono geothermal 500 MW Washoe (NV) geothermal 40 MW Colusa geothermal | Incremental means above the resources already identified in the SSG-WI database. |
| Transmission to accommodate incremental renewable resources outside of Salton Sea area. | Added New Transmission Capacity 1000 MWs Northeast California 740 MWs Sonoma/Lake/Colusa 756 MWs Alameda/Solano 4500 MWs Tehachapi 4580 MWs San Bernardino /Mono 750 MWs San Diego 1775 MWS CA – Distributed | Transmission added into GridView to facilitate renewable generation without a significant increase in congestion. |
| Sunrise transmission project | No | Alternative plan in Case 2 described in Section 3 |
| Repowering South Bay | No | Alternative plan in Case 3 described in Section 3 |
| Green Path + LEAPS | No | Alternative plan in Case 4 described in Section 3 |

CAISO has estimated the change in energy output and GHG emissions for the year 2015 for various energy infrastructure development scenarios (Initial Testimony of the CAISO Corporation: Part II, page 15, March 1, 2007). The results of this study were included in the DEIR to evaluate the operational emissions associated with the Sunrise Powerlink. Findings of this study are outlined in this section to allow for a meaningful comparison of project alternatives. In the CAISO study, energy and emission estimates in comparison to a base case were made for the following scenarios:

1. Sunrise Case (equivalent to the proposed project in the DEIR)
2. South Bay Case (equivalent to In-Area All-Source Generation Alternative in the DEIR)
3. Green Path + LEAPS (equivalent to LEAPS Generation and Transmission Alternative)

The CASIO modeling considers the changes in power generation and associated GHG emissions for large geographical area, including load area from Alberta to Mexico. Although the CASIO modeling is limited in the number of years analyzed, it was geographically comprehensive and did not limit GHG emissions analyses to the San Diego and Imperial regions.

What is critical to note about the CAISO study and is that the “base case,” against which Sunrise was compared, assumes (a) an equal amount of renewables will be constructed in Northern California and Nevada if Sunrise is not built and renewables are not built in Imperial Valley; and (b) transmission is constructed to access these renewable facilities outside of Imperial Valley. As shown in CAISO Table 2.1 above, the CASIO base case simply assumes such transmission will exist to renewable power somewhere other than in Imperial Valley: “Transmission added into Gridview to facilitate renewable generation without a significant increase in congestion.” Based on these assumptions in the “base case,” CAISO’s study

comparing alternatives against the base case shows the WECC-wide CO₂ emissions reduced only slightly by Sunrise.

The CAISO's assumptions, however, result in the CAISO study not addressing critical questions relevant to assessing the GHG impact of Sunrise. First, the assumption that renewables outside of Imperial Valley already will have met 2015 RPS obligations likely skews the modeling of what higher GHG-emitting power plants are displaced by renewables that develop in Imperial Valley if Sunrise is constructed. Second, the assumption that transmission is constructed to access renewables outside of Imperial Valley ignores the construction GHG emissions associated with the construction of such transmission. Yet the DEIR finds that the construction GHG emissions associated with Sunrise give it a net negative GHG impact without considering that the "base case" against which Sunrise is compared simply assumes transmission is built and does not quantify those emissions, and thus is not an "apples to apples" comparison. The 2015 CASIO projected CO₂ emissions impacts of the three scenarios listed above are below in Tables 1, 2 and 3.

As shown in Table 1, the Sunrise model run demonstrates a significant reduction in CO₂ emissions from the natural gas electricity generation for the San Diego area, Imperial County, and across the entire modeling network. Total Sunrise CO₂ emissions from natural gas electricity generation are reduced by approximately 165,283 tons CO₂/year; for this simulation coal fired emissions increase by 132,934 tons CO₂/year (mainly in Colorado and Alberta) and fuel oil emission increase by 30,701 tons CO₂/year, resulting in an aggregate emission reduction of 1,649 tons CO₂/year. This independent analysis conducted here agrees with the DEIR estimation that the Sunrise project will result in 1,650 tons of CO₂/year emission reductions.

As shown in Table 2 below, the equivalent to the “New In-Area All-Source Generation Alternative” results in an increase of 219,594 tons of CO₂/year primarily due to a large increase in natural gas combustion in the San Diego area. As shown in Table 3 below, the equivalent to the “LEAPS Generation and Transmission Alternative” results in an increase of 120,686 tons CO₂/year due to a large increase of coal and fuel oil use.

It is not reasonable to assume that the estimated power output and emission factors used in the 2015 study will be representative over a forty year period. However, for illustrative purposes, it is of interest to compare the emissions associated over a design life of 40 years. In this period, the proposed Sunrise project will **reduce** CO₂ emissions by approximately 8.8 million tons compared to the “New In-Area All-Source Generation Alternative” and reduce CO₂ emissions by 4.9 million tons compared to the “LEAPS Generation and Transmission Alternative.”

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Table 1. Change in CO2 Emissions for Sunrise Relative to Base Case in 2015

| Load Area | Generation Type | | | Total | 40 Year Emissions (tons CO2) |
|------------------------|-----------------|---------|----------|-----------|---------------------------------|
| | gas | coal | fuel oil | | |
| (tons of CO2 per year) | | | | | |
| Imperial | (20,925) | - | - | (20,925) | (837,001) |
| San Diego | (518,131) | - | - | (518,131) | (20,725,252) |
| All Regions | (165,283) | 132,934 | 30,701 | (1,649) | (65,944) |

Table 2. Change in CO2 Emissions for New In-Area All-Source Generation Alternative Relative to Base Case in 2015

| Load Area | Generation Type | | | Total | 40 Year Emissions (tons CO2) |
|------------------------|-----------------|----------|----------|-----------|---------------------------------|
| | gas | Coal | Fuel oil | | |
| (tons of CO2 per year) | | | | | |
| Imperial | (349) | - | - | (349) | (13,942) |
| San Diego | 1,285,526 | - | - | 1,285,526 | 51,421,049 |
| All Regions | 242,712 | (22,874) | (244) | 219,594 | 8,783,767 |

Table 3. Change in CO2 Emissions for LEAPS Generation and Transmission Relative to Base Case in 2015

| Load Area | Generation Type | | | Total | 40 Year Emissions (tons CO2) |
|------------------------|-----------------|---------|----------|-----------|---------------------------------|
| | gas | coal | fuel oil | | |
| (tons of CO2 per year) | | | | | |
| Imperial | (20,925) | - | - | (20,925) | (837,001) |
| San Diego | (123,606) | - | - | (123,606) | (4,944,246) |
| All Regions | (69,819) | 158,194 | 32,310 | 120,686 | 4,827,426 |

The DEIR relies on the CAISO study to determine operational emissions associated with Sunrise, but does not use it to estimate the GHG emissions for the project alternatives identified in the DEIR. Moreover, the CAISO analysis addressed only 2015 rather than the foreseeable life of the Sunrise transmission line. These shortcomings undermine its usefulness in assessing both the best option from a GHG impact standpoint and in assessing the GHG emission reductions that Sunrise will facilitate during its lifetime.

Based on available data in the DEIR and CAISO report, it is possible to make limited quantitative and qualitative evaluations of the GHG emissions associated with each project alternative. There are only four operationally distinct project alternatives from a GHG emission perspective:

1. Proposed Project or its associated alternative Routes
2. New In-Area All-Source Generation Alternative
3. LEAPS Generation and Transmission Alternative⁴
4. New In-Area Renewable Generation Alternative

According to the DEIR's analysis, and disregarding the flaws noted above, the proposed Sunrise project will result in approximately 110,000 tons of CO₂ emissions from construction activities while operation of Sunrise would reduce GHG emissions by 1,650 tons of CO₂/year through displacement of higher GHG-emitting power plants with renewable power plants. The DEIR used these values to compare Sunrise to "base case" conditions – which assumed renewables were developed in Northern California and Nevada and transmission was built to interconnect them, without regard to their construction emissions.

⁴ As discussed in Chapter 2, Section VIII, the "LEAPS Transmission-Only Alternative" does not appear to be a feasible project as no proponent has committed to construct the transmission line without the pumped storage component.

The more useful analysis, however, is to compare Sunrise to each of the project alternatives. For this analysis, the assumption is made that the GHG emissions from construction associated with the New In-Area All-Source Generation Alternative, New In-Area Renewable Generation Alternative, and the LEAPS Generation and Transmission Alternative are zero and that the construction emissions associated with the Sunrise project are approximately 110,000 tons of CO₂ as stated in the DEIR. Obviously, construction emissions for any of the projects would be greater than zero, but since construction emissions are complex, time consuming, and require significant amounts of data which are not listed in the DEIR, all construction emissions for the non-Sunrise related project alternatives are simply assumed to be zero for purposes of this comparison. This assumption is made to highlight the operational emissions, which are considerably more important than the construction emissions.

The CO₂ emissions for Sunrise and non-Sunrise alternatives, as analyzed in the CAISO modeling using CAISO’s assumptions, are listed in Table 4.

Table 4. Comparison of GHG emissions over a 40 year analysis period for various project scenarios (tons of CO₂)

| Configuration | Construction | 40-year Operational | Total |
|-----------------------------------|-----------------------|------------------------|-----------|
| Sunrise | 110,000 | (65,944) | 44,056 |
| New In Area All-Source Generation | unknown- Assumed 0 | 8,783,767 | 8,783,767 |
| LEAPS Generation & Transmission | unknown- Assumed 0 | 4,827,426 | 4,827,426 |

As shown in Table 4, of the alternatives considered in the CAISO report, the Sunrise project is vastly superior to the New In-Area All-Source Generation and LEAPS Generation & Transmission alternatives. Though the DEIR concludes that Sunrise has approximately 44,000 tons net increase in CO₂ emissions over a 40 year design period compared to a base case with

renewables built in Northern California and Nevada with unknown construction emissions associated with connecting those renewables to the grid, this emission rate is approximately 8,700,000 tons less than the New In-Area All-Source Generation Alternative and approximately 4,700,000 tons less than the LEAPS Generation and Transmission Alternative. The New In-Area All-Source Generation Alternative emits approximately 200 times more CO₂ than the Sunrise Project and the LEAPS Generation & Transmission Alternatives emits approximately 110 times more CO₂ than the Sunrise Project over a 40 year evaluation period. Thus, even with the zeroing out of construction emissions of the project alternatives, the Sunrise project is far and away the environmentally superior project, from a GHG perspective, of those projects analyzed in the CAISO report.

Because configurations approximating the New In-Area Renewable Generation Alternative and the LEAPS Transmission Only Alternative were not analyzed in the CAISO report, the operational emissions of these configurations cannot be estimated without additional assumptions. However, it is illustrative to consider these two additional configurations based on scaling of the alternatives listed in the CAISO report.

Assume that the LEAPS Transmission – Only Alternative has zero construction emissions and only 1% of the operational emissions associated with the LEAPS Generation & Transmission alternative; this corresponds to a GHG emission rate of approximately 50,000 tons CO₂ over a 40 year period. This is not to imply that the LEAPS transmission lines will have significant GHG emissions, but rather, since the LEAPS Transmission Only Alternative will likely not meet the power delivery requirements that would be met by Sunrise, additional power must be developed by other means that will have non-zero GHG emissions. Based on these assumptions, the LEAPS Transmission-Only Alternative would still emit more GHGs than

Sunrise even when LEAPS construction emissions are assumed to be zero (which is not the case).

Evaluation of the GHG emissions associated with the New In-Area Renewable Generation Alternative on an “apples to apples” basis is complicated by the fact that this configuration, or a similar incarnation, was not specifically evaluated in the CAISO report. As discussed in Chapter 2, it is not evident that there is 1000 MW of cost-effective renewables in the San Diego area. Since the feasibility or the exact components of the New In-Area Renewable Generation Alternative were not specified in the DEIR, it is impossible to estimate the operational GHGs associated with this project alternative. To the extent that there are not sufficient renewables, they would likely be replaced with fossil generation and have the significant GHG impacts described above. Moreover, as discussed in Chapter 2, Section VII, significant transmission would need to be constructed to interconnect the renewable generation assumed to exist under the New In-Area Renewable Generation Alternative, which would itself have unquantified construction emissions.

For comparative purposes only, consider that the New In-Area Renewable Generation Alternative has only 1% of the operational GHG emissions of the New In-Area All-Source Generation Alternative. The 1% assumption used here is similar to the one used above to evaluate the LEAPS Transmission-Only Alternative, and accounts for the fact that additional power may need to be developed by other means that will have non-zero GHG emissions if the alternative does not meet the power demands of the project area. Based on the CAISO 2015 prediction, this corresponds to operational emissions of approximately 50,000 tons of CO₂, which is greater than the DEIR’s Sunrise Project estimate including construction emissions.

As a result of this quantitative analysis, it is highly likely that the Proposed Project has significantly less net GHG emissions than all of the non-Sunrise project alternatives.

G. Sunrise Will Considerably Reduce GHG Emissions and is Consistent with Statewide Climate Change Initiatives.

One of the main goals of the Sunrise Powerlink project is to provide access to renewable power in the Imperial Valley. The development of these renewable power plants, and the transmission infrastructure necessary to bring their generation to load centers, will result in GHG emissions from construction activities. As shown in a previous section, the operational emissions from the production of 750 MW of electrical energy from natural gas combustion over an eleven day period are approximately equal to the DEIR's estimates of the two year construction emissions for the installation of Sunrise, which is necessary to access renewable power in the Imperial Valley. The GHG impact of Sunrise is inconsequential compared to the feasible non-Sunrise alternatives considered in the DEIR.

As a consequence of these calculations, the following conclusions can be drawn:

1. From a GHG perspective, the temporary emissions associated with the construction of transmission lines to access renewable power are trivial in comparison with operational emissions of conventional fossil fuel based power plants.
2. To weigh the project alternatives, the operational emissions associated with each project alternative, and not solely the construction emissions to the operational emissions for a given project, should be compared.
3. To explicitly calculate the GHG impact of each project alternative individually, both the construction emissions and the operational emissions for each alternative would need to be quantified. The DEIR does not provide this information. As shown in the calculations above, a 1% change in operational efficiency will likely result in greater GHG impacts than 2 years of construction emissions.

The DEIR's quantitative analysis for operational emissions relied solely on the CAISO's regional analysis of GHG emissions in the year 2015 and the assumptions embedded in the

CAISO analysis. Many of the direct GHG benefits of the proposed project were not directly apparent in the CAISO report because of the assumptions that renewables would otherwise be built and the transmission necessary to connect them also would have been built. However, the CAISO study, even with its assumptions, showed loads and GHG emissions in other areas increased while the GHG emissions in the San Diego and Imperial Valley regions were reduced. Thus, to the extent there are co-benefits in terms of reductions in other criteria pollutants, the CAISO analysis underestimates the value of the local GHG reductions.

Below is presented an overview of the quantitative results noted above with an analysis of the qualitative merits of each project alternative with respect to GHG emissions.

- Energy demand in the San Diego area and in California is expected to increase in the future to service a growing population and economy. The development of renewable energy is consistent with statewide regulations and initiatives to reduce GHG emissions from electricity generation and to increase renewable energy use. If renewable energy sources are not brought online, it is likely that fossil fuel power plants will supply power to meet increasing demand, which will result in increased GHG emissions.
- Vast sources of renewable power are available in the Imperial Valley. Construction and utilization of these energy sources is consistent with statewide environmental goals.
- For the San Diego area to access proposed Imperial Valley renewable energy, new transmission lines must be constructed.

- Construction emissions associated with the installation of transmission lines are trivial when compared to the reduction in operational emissions derived from the use of renewable power in place of fossil fuels.
- Based on the CAISO analysis, even with its assumptions, Sunrise results in a net reduction in operational CO2 emissions in San Diego, Imperial Valley, and system-wide compared to project alternatives.
- Based on the CAISO analysis, even with its assumptions, the New In-Area All-Source Generation Alternative will result in significant increases in GHG emissions. Based on the 2015 CAISO estimate, GHG emissions in the San Diego will increase by approximately 1,250,000 tons CO2/year with a system wide increase in emissions of approximately 220,000 tons CO2/year.
- Based on the CAISO analysis, even with its assumptions, the LEAPS Generation and Transmission Alternative will result in significant increases in GHG emissions. Based on the 2015 CAISO estimate, GHG emissions system-wide will increase by approximately 120,000 tons CO2/year.
- One cannot accurately predict the operational emissions associated with the New In-Area Renewable Generation Alternative without knowing whether it is actually feasible. Construction emissions from the renewable generation units, the transmission necessary to interconnect these units, and installation of 60,000 rooftop photovoltaic units is unknown and not quantified in the DEIR. Even assuming this alternative is feasible in large part, even a small shortfall of renewable power replaced by natural gas-fired generation would result in GHG impacts far greater than the DEIR's estimate of Sunrise emissions. Without a

determination that the necessary level of cost-effective in-area renewable energy can be met, the future system-wide GHG emissions impacts of this alternative cannot be estimated.

- One cannot accurately predict the operational emissions associated with the LEAPS Transmission-Only Alternative without knowing whether it is feasible and further evaluation consistent with the 2015 CAISO estimates. Because the Transmission-Only Alternative was not analyzed in the CAISO report, and the DEIR did not assess its construction emissions, a detailed specification of how this project alternative will impact the GHG emissions over the entire system grid cannot be completed. For example, if the LEAPS Transmission-Only Alternative did not meet the energy load needs for the San Diego area, as discussed in Chapter 2, additional fossil fuel power may need to be developed which would result in significant amounts of GHG emissions.

In conclusion, the proposed Sunrise project is part of an effort to increase the use of renewable electricity generation in the California energy supply. The transition from fossil fuels to renewable energy is broadly considered an essential part of the State's efforts to reduce GHG emissions in California. Although Sunrise has limited GHG emissions associated with its construction, these emissions are trivial when compared to the amount of emissions associated with the operation of a fossil fuel power facility. The CAISO report, even with its assumptions, indicated that the New In-Area All-Source Generation Alternative and LEAPS Generation and Transmission Alternative would have significantly more operational emissions, producing between 4.9 and 8.8 million tons of CO₂ over a 40 year analysis period compared to the Sunrise

project. Sunrise should be considered beneficial from a climate change perspective as it facilitates the transition from fossil fuel to renewable energy use.

The DEIR properly reached this conclusion for the renewable energy components of its New In-Area Renewable Generation Alternative, stating: “Overall, the construction-phase and routing operational-phase emissions including SF6 fugitives would eventually be offset by the GHG emissions that would be avoided by generating [renewable power], which would reduce emissions from fossil-fueled power plants. Net reductions of GHG emissions from the [renewable power] component would cause this impact to be adverse for the construction phase but less than significant overall (Class III).” DEIR at E.5-211, -214, -216. The same conclusion is applicable to Sunrise, which brings renewable energy in the Imperial Valley on to the electrical grid and into San Diego.

Attachment 4-1

State of California
AIR RESOURCES BOARD

Resolution 07-44

October 25, 2007

Agenda Item No : 07-10-3

WHEREAS, the Legislature found in the Global Warming Solutions Act of 2006 (AB 32) that global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California;

WHEREAS, AB 32 creates a comprehensive multi-year program to reduce greenhouse gas (GHG) emissions to 1990 levels by 2020, and designates the Air Resources Board (ARB or Board) as the State agency charged with monitoring and regulating sources of GHG emissions that cause global warming;

WHEREAS, AB 32 directs ARB to identify opportunities for emission reduction measures from verifiable and enforceable voluntary actions, including, but not limited to, carbon sequestration projects;

WHEREAS, California has nearly 40 million acres of forested land with the ability to sequester significant amounts of carbon, giving forests the potential to play a major role in reducing the State's GHG levels;

WHEREAS, the California Climate Action Registry (CCAR) was mandated by Senate Bill 812 to develop and adopt procedures and protocols for the monitoring, estimating, calculating, reporting, and certifying of carbon forest stores and carbon dioxide emissions resulting from the conservation and conservation-based management of native forest reservoirs in California;

WHEREAS, the forestry protocols developed by CCAR provide a methodology for complete, consistent, transparent, accurate and conservative accounting of carbon emission and reductions including standardized eligibility rules, calculation methods, monitoring instructions, and procedures for reporting and verifying project information;

WHEREAS, the forest protocols were developed over a four-year multi-stakeholder public process, reviewed by 50 external experts representing the forest industry, government agencies, and academia, and were supported by the California Board of Forestry in 2004 and adopted by the CCAR Board in 2005;

WHEREAS, ARB supports and encourages voluntary actions to reduce GHGs and the CCAR forestry protocols provide a mechanism to recognize voluntary GHG reductions from potential forest projects;

WHEREAS, AB 32 directs ARB to use CCAR protocols where appropriate and to the maximum extent feasible;

WHEREAS, AB 32 directs ARB to adopt methodologies for the quantification of voluntary greenhouse gas emission reductions and specifies that the adoption of methodologies is exempt from the rulemaking provisions of the Administrative Procedure Act (Government Code section 11340 et seq.);

WHEREAS, after consideration of the staff report, written comments, and public testimony received before and at the hearing, the Board finds that:

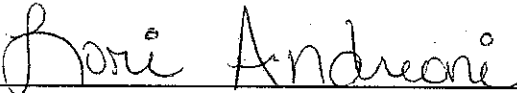
1. GHG reductions resulting from forestry projects will play an important role in meeting California's greenhouse gas reduction goals;
2. The GHG emission CCAR forestry protocols provide a technically sound method for forest carbon accounting;
3. Additional forest carbon accounting methods or forest protocol project types are needed to encourage broader forest sector involvement and reduce potential barriers to participation.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby adopts the California Climate Action Registry's forestry protocols as non-regulatory quantification methods for the purposes of voluntary greenhouse gas accounting.

BE IT FURTHER RESOLVED that the Board directs ARB staff to initiate a stakeholder process working with government agencies, private and commercial land owners, and other interested parties, to develop additional approaches for forest carbon accounting.

BE IT FURTHER RESOLVED the Board directs ARB staff to return to the Board by June 2008 with a status report on the development of additional approaches for forest carbon accounting, and to return to the Board by the end of 2008 with the additional approaches that have been developed.

I hereby certify that the above is a true and correct copy of Resolution 07-44, as adopted by the Air Resources Board.


Lori Andreoni, Clerk of the Board

Attachment 4-2



PRESS RELEASE

Contact:
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California Climate Action Registry

FOR IMMEDIATE RELEASE: February 11, 2008

First Forest Project Carbon Reductions Registered

Sustainably Managed Forests Play Key Role in Solving Climate Change

LOS ANGELES, California – The California Climate Action Registry (CCAR) announced today the verification and registration of carbon reductions from the first two forest projects to utilize the CCAR Forest Protocols.

The Forest protocols were developed over the past four years by a CCAR workgroup which included representatives of forest land owners, science, government and business and were subject to a formal public review process. The protocols were adopted by the California Air Resources Board in 2007 marking the first time a government agency in the U.S. adopted standards for voluntary greenhouse gas reduction projects.

“With credible measurement systems and sustainable management techniques, forests are positioned to play an increasingly vital role in the challenge of curbing climate change,” said Mary Nichols, Chair of the California Air Resources Board, (CARB).

The first two forest projects certified are the 24,000-acre Garcia River Forest in Mendocino County, owned and managed by The Conservation Fund, with a conservation easement held by The Nature Conservancy, and the 2,100-acre Van Eck Forest in Humboldt County, managed by Pacific Forest Trust. Both projects follow the Forest Protocols whose requirements include, a permanent conservation easement be placed on the forest; third party verification; and sustainable management techniques that go above both “business as usual” and California State Forest Laws which are some of the strictest in the world.

“These two forest projects clearly demonstrate that the CCAR forestry protocols can be used in the fight against global warming”, said Gary Gero, Interim President of the California Climate Action Registry. “I commend The Conservation Fund, The Nature Conservancy, The Van Eck Forest, and The Pacific Forest Trust for their leadership.”

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The **California Climate Action Registry** is a non-profit public/private partnership that serves as a voluntary greenhouse gas (GHG) registry to protect, encourage, and promote early actions to reduce GHG emissions. Over 300 major companies, cities, government agencies and NGO’s measure and publicly report their GHG emissions through the Registry. www.climateregistry.org

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Attachment 4-3

Response to SDG&E Technical Questions of February 13, 2008

- 1. The Draft EIR/EIS's analysis of the air quality impacts of the construction of the Sunrise Powerlink Project along the proposed project route ("Proposed Project") references Appendix 10 for the calculation of emissions. Appendix 10 does not identify the source of the information or assumptions used in the calculations, or exactly what calculations were being performed. Although we can back-calculate some numbers to understand some of the calculations, we would appreciate more explanation. In addition, did your contractor use information regarding the number and type of construction equipment, and estimated hours of total operation, set forth in SDG&E's Proponent's Environmental Assessment ("PEA"), or did you use some other source? Did your assumptions deviate from those contained in the PEA and, if so, why?**

Response: The emission calculations in DEIR/EIS Appendix 10 rely on the best information available in SDG&E's PEA Appendix F, where supported by subsequent Data Responses from SDG&E, and repeated in Section B.4 of the DEIR/EIS.

The equipment inventory and activity information used in the DEIR/EIS is from SDG&E's PEA Appendix F, but because SDG&E's emission calculations in PEA Appendix F and results shown in PEA Chapters 5 through 8 were not verifiable or consistent, independent emission calculations were prepared. Any assumptions or emission factors that deviate from the PEA are shown in the DEIR/EIS Appendix 10 with the basis. Because monthly activity data in PEA Appendix F could not be rectified with SDG&E's Project Description or responses to Data Requests, the activity of most off-road equipment is counted for the entire duration of each phase.

- 2. Please state whether, in calculating the construction phase emissions for the Proposed Project, the Draft EIR/EIS assumes that each piece of equipment that SDG&E identified in the PEA as operating at the site during construction has its engine operating during the entire generating period identified in Appendix 10.**

Response: The total emissions from each piece of equipment are based on the total possible hours of equipment operation. The total hours are calculated by multiplying the expected hours per day, times the days per week, times the number of months of the construction phase. This accounts for the entire construction period or duration of each phase.

- 3. Are we correct that the baseline set for greenhouse gas emissions in the Draft EIR/EIS is not a calculation of what greenhouse gas emissions would be in any future year if the Sunrise Powerlink Transmission Line is not constructed?**

Response: No. The baseline accounts for what GHG emissions would occur if Sunrise is not constructed. The CAISO GHG modeling results (in CAISO October 12, 2007 letter to Energy Division staff) show the change in CO₂ emissions at power plants compared to a 2015 base case without Sunrise.

- 4. Are we correct that, under the methodology utilized in the Draft EIR/EIS, any project that would emit any amount of any greenhouse gas would be considered to cause an increase in greenhouse gas emissions over the baseline identified in Table D.11-2 because Table D.11-2 is a calculation of past emissions?**

Response: No. A project that emits any amount of any GHG could also enable GHG emission reductions when compared to the baseline or a continuation of conditions without the project. If GHG

reductions can be attributed to a project, then it could result in a net decrease. Although Table D.11-2 shows past emissions, the baseline would be a continuation of these past emissions without the project.

- 5. Are we correct that, under the methodology utilized in the Draft EIR/EIS, any project emitting any amount of CO₂, no matter how little, would be identified as having a “significant” environmental impact?**

Response: No. A project that emits any amount of any GHG could also enable GHG emission reductions. For example, a project that reduces emissions from fossil-fueled power plants that would otherwise occur without the project could have a net GHG decrease and a “beneficial” environmental impact. A new renewable generation facility like the Stirling Concentrating Solar Project (with its impact described on DEIR/EIS p. D.11-39) would be an example of such a project.

- 6. Please explain why the Draft EIR/EIS’s analysis of GHG emissions assumes that the Sunrise Powerlink Transmission Line would operate for only 40 years (the “Assumed 40 Year Period”).**

Response: The CAISO modeled the reliability costs of Sunrise over a 40 year period (for example, see CAISO testimony dated March 1, 2007).

- 7. Please explain the Draft EIR/EIS’s reasons for assuming that the avoided GHG emissions resulting from the Sunrise Powerlink Transmission Line will remain at 1,650 tons of CO₂ each year of the Assumed 40 Year Period. Please provide all documents you rely upon for such assumption.**

Response: The CAISO GHG modeling results are only available for 2015. Without additional forecasts of GHG trends, this is the best available information.

- 8. Did you analyze or estimate the total tons of CO₂ that would be emitted by the construction phase of all power plants and associated transmission lines and other electrical facilities assumed to exist in the Draft EIR/EIS’s New In-Area All-Source Generation Alternative (including the South Bay Replacement Project, the San Diego Community Power Project, the Encina Power Plant Repowering Project, and the peaking power plants). If so, please state the estimated CO₂ emissions for each, describe how you calculated such emissions and provide all workpapers reflecting such calculations.**

Response: The emissions caused by construction of all power plants and transmission lines in the New In-Area All-Source Generation Alternative are analyzed qualitatively (DEIR/EIS Section E.6.11, e.g., p. E.6-177). Because exact construction scenarios are not available, quantitative estimates of construction phase emissions are not available.

- 9. Did you analyze or estimate the tons of CO₂ that would be emitted by the operation and maintenance of all of the new in-area generation that the Draft EIR/EIS assumes would exist in the New In-Area All-Source Generation Alternative for each year of the Assumed 40 Year Period? If so, please state the estimated CO₂ emissions, describe how you calculated such emissions and provide all work papers reflecting such calculations.**

Response: The change in CO₂ emissions during operation of the New In-Area All-Source Generation Alternative is shown in the CAISO GHG modeling results for “South Bay relative to base case in 2015”

(in CAISO October 12, 2007 letter to Energy Division staff). Additional forecasts of GHG trends in other years are not available.

- 10. Did you analyze or estimate the total tons of CO₂ that would be emitted during the construction phase of all new generation expected to be constructed under the New In-Area Renewable Generation Alternative (including the “large-scale solar thermal energy development in the Borrego Springs area” and associated transmission system upgrades, the 60,000 residential and 255 commercial photovoltaic system installations, the Fallbrook Renewable Energy Facility, the Miramar Renewable Energy Facility, Miramar Landfill Biogas Facility, the Fallbrook Renewable Energy Facility, and the wind projects). If so, please state the estimated CO₂ emissions, describe how you calculated such emissions and provide all work papers reflecting such calculations.**

Response: The emissions caused by construction of all renewable generation facilities, transmission lines, and photovoltaic system installations in the New In-Area Renewable Generation Alternative are analyzed qualitatively (DEIR/EIS Section E.5.11, e.g., p. E.5-209). Because exact construction scenarios are not available, quantitative estimates of construction phase emissions are not available.

- 11. Did you analyze or estimate the total tons of CO₂ that would be emitted during the operation and maintenance of all new generation expected to be constructed under the New In-Area Renewable Generation Alternative (including the “large-scale solar thermal energy development in the Borrego Springs area” and associated transmission system upgrades, the 60,000 residential and 255 commercial photovoltaic system installations, the Fallbrook Renewable Energy Facility, the Miramar Renewable Energy Facility, Miramar Landfill Biogas Facility, the Fallbrook Renewable Energy Facility, and the wind projects) for each year of the Assumed 40 Year Period. If so, please state the estimated CO₂ emissions, describe how you calculated such emissions and provide all work papers reflecting such calculations.**

Response: The change in CO₂ emissions during operation of the New In-Area Renewable Generation Alternative is analyzed qualitatively under the assumption that power output by renewable facilities replaces power that would otherwise be provided by burning natural gas, coal, or fuel oil. The CAISO GHG modeling results for Sunrise support this assumption because they attribute zero CO₂ emissions to nuclear, wood, biomass, hydroelectric, wind and solar resources.