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October 12, 2015

Christopher J. Doyle
Vice President
AltaGas Sonoran Energy Inc.
1411 Third Street, Suite A
Port Huron, MI 48060

**Subject: SONORAN ENERGY PROJECT (02-AFC-1C) - PETITION TO AMEND
DATA REQUESTS - SET 1 (Nos. 1-58)**

Dear Mr. Doyle,

California Energy Commission (Energy Commission) staff has reviewed the Petition to Amend (PTA) for the Sonoran Energy Project (Sonoran) and requires additional information to supplement the environmental analysis pursuant to Title 20, California Code of Regulations, Section 1769(a)(1)(E). Energy Commission staff seeks the information specified in the enclosed data requests. The information requested is necessary to: 1) more fully understand the proposed project changes; 2) assess whether the modified facility would be constructed and operated in compliance with applicable laws, ordinances, regulations, and standards; 3) assess whether the proposed project changes would result in significant environmental impacts; 4) assess whether the facilities would be constructed and operated in a safe, efficient, and reliable manner; and 5) assess potential modification's to approved mitigation measures.

This set of data requests (1-58) is being made in the areas of Air Quality (1-22), Biological Resources (23-25), Hazardous Materials Management (26-29), Land Use (30), Socioeconomics (31-33), Soil and Water Resources (34-45), Transmission System Engineering (46-56), and Visual Resources (57-58). These data requests were developed as a result of staff's review of AltaGas Sonoran Energy Inc.'s August 7, 2015 PTA. Written responses to the enclosed data requests are due to Energy Commission staff on or before November 12, 2015.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send a written notice to me and the Committee within 20 days of receipt of this notice. The notification must contain the reasons for the inability to provide the information, the grounds for any objections, or the reason additional time is needed.

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If you have any questions regarding the enclosed data requests, please call me at (916) 651-8891, or email me at mary.dyas@energy.ca.gov.

Sincerely,



Mary Dyas
Compliance Project Manager

cc: Energy Commission Docket Unit

Enclosure: Data Requests

SONORAN ENERGY PROJECT (02-AFC-1C)
DATA REQUESTS – SET NO. 1

Technical Area: Air Quality
Author: Wenjun Qian and Tao Jiang

BACKGROUND: CONSTRUCTION AND OPERATION EMISSION CALCULATIONS

The Petition to Amend (PTA) Appendix 3.1B and 3.1C are used to document project construction and operation emissions calculations. Staff needs the original spreadsheet files of these estimates with live, embedded calculations to complete their review.

DATA REQUEST

1. Please provide the spreadsheet versions of Appendix 3.1B and 3.1C worksheets with the embedded calculations live and intact.

BACKGROUND: IN-STACK NO₂/NO_x RATIOS

The facility owner used the Ozone Limiting Method (OLM) to calculate the NO₂ impacts of the proposed project modification. The OLM requires an in-stack NO₂/NO_x ratio to determine how much of the NO_x in the exhaust is already in the form of NO₂ when the pollutants exit the stack.

Page 3-44 of the PTA shows that the facility owner used an in-stack NO₂/NO_x ratio of 13 percent during normal operating hours and 24 percent during startup/shutdown periods and commissioning tests when SCR is not fully operational for the proposed combustion turbine. The facility owner states that these ratios were recommended by the combustion turbine vendor, General Electric (GE). However, staff noticed that these ratios were for the GE LMS100 simple-cycle turbines for Pio Pico Energy Center and Carlsbad Energy Center projects. For the current amendment request, the facility owner proposed a combined-cycle unit using one-on-one single shaft arrangement with a different GE combustion turbine (a GE 7HA.02 gas turbine) and a D652 steam turbine. The proposed turbine technology is different than those approved for Pio Pico Energy Center and Carlsbad Energy Center projects. Staff needs adequately-justified in-stack NO₂/NO_x ratio data to be used for different operating scenarios suitable for the proposed combined-cycle unit.

For the auxiliary boiler, the facility owner used an in-stack NO₂/NO_x ratio of 29 percent for operation above 25 percent rated load (for normal operating hours) and 12.5 percent for operation below 25 percent rated load (during hours in which a startup/shutdown occurs). The facility owner states that these ratios were recommended by auxiliary boiler vendor (i.e. Babcock & Wilcox). However, for combustion turbines, staff has used higher in-stack NO₂/NO_x ratios during startup/shutdown than during normal operations. Staff needs justification to show why the in-stack NO₂/NO_x ratio for the auxiliary boiler would be lower during startup/shutdown than during normal operations.

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The facility owner used an in-stack NO₂/NO_x ratio of 13 percent for each of the existing Blythe Energy Project combustion turbines. The existing Blythe Energy Project combustion turbines are from Siemens and also operate as a combined-cycle unit. Staff needs adequate justification for the data used for the in-stack NO₂/NO_x ratios for the existing Blythe Energy Project combustion turbines.

DATA REQUESTS

2. Please provide vendor or other reliable data showing the in-stack NO₂/NO_x ratios for different operating scenarios suitable for the proposed combined-cycle unit, the auxiliary boiler, and the existing Blythe Energy Project combustion turbines.
3. Please explain why the in-stack NO₂/NO_x ratio for the auxiliary boiler would be lower during startup/shutdown than during normal operation.
4. Please update the NO₂ modeling analysis for changes to the NO₂/NO_x ratios.

BACKGROUND: FUMIGATION ANALYSIS

The facility owner used the SCREEN3 model to evaluate combustion turbine and auxiliary boiler impacts under inversion breakup conditions because these are special cases of meteorological conditions. Page 3-41 of the PTA shows that the facility owner did not do the fumigation analysis for the emergency fire pump engine because the facility owner believes that emergency engine emissions are small compared to gas turbine emissions. Even though the emergency engine emissions are small compared to gas turbine emissions, there is a possibility that the emergency engine could cause higher impacts due to lower stack height and/or lower plume height. Staff believes that the fumigation impacts need to be analyzed for the emergency engine.

The petitioner used SCREEN3 to model the inversion break-up fumigation impacts. The SCREEN3 model is essentially a screening version of the ISCST3 model, which was replaced by AERMOD. U.S. EPA released a screening version of AERMOD, AERSCREEN, in 2010. AERSCREEN has replaced SCREEN3 as the recommended screening modeling tool. U.S. EPA has incorporated the fumigation algorithms in the new version of AERSCREEN (version 15181). The AERSCREEN (version 15181) model is capable of analyzing the fumigation impacts of the project.

DATA REQUESTS

5. Please provide fumigation impacts analysis for the emergency fire pump engine.
6. Please update all fumigation impacts analyses using AERSCREEN (version 15181).

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BACKGROUND: EMISSIONS OF THE AUXILIARY BOILER

Page 3-33 of the PTA shows that the facility owner expects the auxiliary boiler to undergo one startup/showdown event for each gas turbine startup as a worst case scenario. The facility owner assumes that the auxiliary boiler would require up to 2 hours to comply with the proposed NO_x, CO, and VOC limits. During boiler shutdowns, the facility owner does not expect the emissions to exceed normal limits on a three-hour average basis. The facility owner assumed 2 hours per day of elevated NO_x, CO and VOC emissions as a result of startup and shutdown activities.

Page 3-27 of the PTA shows that the facility owner estimated the maximum daily emissions of the gas turbine assuming 20 hours of full-load operation with duct firing and 2 startup/shutdown cycles. Based on the above assumptions, the auxiliary boiler would also undergo 2 startups per day, which would lead to 4 hours per day of elevated NO_x, CO and VOC emissions. Assuming only 2 hours per day of elevated emissions is inconsistent with the scenario described on page 3-27 and would thus underestimate the worst-case daily emissions of the auxiliary boiler.

DATA REQUEST

7. Please make sure conservative and consistent assumptions are made to describe the worst-case operating scenario and to estimate the worst-case emissions of the auxiliary boiler. Please provide the results of the revised estimate.

BACKGROUND: COMMISSIONING MODELING

Page 3-46 of the PTA states that the facility owner assumed simultaneous commissioning of the auxiliary boiler and turbine for the commissioning modeling analysis. However, the modeling files show that the facility owner used emissions and stack parameters for normal operation of the auxiliary boiler while the turbine undergoes commissioning which implies that the auxiliary boiler would be commissioned first. The facility owner did not provide emissions calculations or annual impacts analysis for the commissioning year. Emissions and annual impacts during the commissioning year would generally be higher than those during normal operation year.

DATA REQUESTS

8. Please confirm whether the auxiliary boiler will be commissioned before any turbines undergo commissioning, as stated on Page 3-46.
9. If the auxiliary boiler and the turbines would not undergo commissioning simultaneously, please explain how onsite procedures would prevent simultaneous commissioning of the auxiliary boiler and turbines and provide a proposed condition of certification.

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10. If the auxiliary boiler and the turbine would undergo commissioning simultaneously, please provide correct impact analysis for the commissioning phase.
11. Please provide emissions calculations and annual impacts analysis for the commissioning year.

BACKGROUND: REFINED 24-HOUR PM10/PM2.5 ANALYSIS

The petitioner estimated the daily emissions based on the assumption of 20 hours of base load operation with duct firing, 2 startup hours and 2 shutdown hours. Based on the emission calculations shown in Table 3.1B-6 in Appendix 3.1B, staff calculated the daily PM10/PM2.5 emissions of the proposed combustion turbine to be 238.2 lb/day. In the modeling file for refined 24-hour PM10/PM2.5 analysis, the facility owner used emission rate of 1.008 g/s for the proposed gas turbine, which is equivalent to 8 lb/hr and 192 lb/day. The emission rate of 8 lb/hr is associated with base load operation without duct firing as shown in Table 3.1B-6 in Appendix 3.1B. The refined 24-hour PM10/PM2.5 modeling analysis is inconsistent with the daily emissions calculations shown in Table 3.1B-6.

DATA REQUEST

12. Please update the refined 24-hour PM10/PM2.5 modeling analysis using correct daily emission rates of the combustion turbine.

BACKGROUND: DATA PROCESSING

The facility owner processed the meteorological data, ozone background data, and monthly hour-of-day NO₂ background data for the modeling analysis. The facility owner did not provide the input files and methods/procedures that were used for data processing. Staff needs these files to make sure that the facility owner has used appropriate data processing methods/procedures.

DATA REQUESTS

13. Please provide AERMET input files and AERMET model setup parameters that were used to process the AERMOD-ready meteorological data files.
14. Please provide the raw data files for ozone and NO₂ background data and data processing programs/software as well as a detailed description of the methods/procedures used to process the data.

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BACKGROUND: CONSTRUCTION IMPACT ANALYSIS

The facility owner provided the detailed construction emissions calculations in Appendix 3.1C. Staff is not able to match the short term and long term emissions shown in Appendix 3.1C with those used in the modeling files. A detailed comparison is shown in the following table:

AIR QUALITY TABLE 1
Comparison of Construction Emissions in PTA and Modeling Files

Short-term impacts		NO _x	CO	SO _x	PM ₁₀	PM _{2.5}
Off Road Equipment and Onsite Vehicle Combustion (with fugitive dust for PM [lb/hr])	Appendix 1.C	5.92	8.95	0.02	1.39	0.17
	Sum of Modeled Volume Sources	8.53	16.86	0.03	1.44	0.20
Sum of Wind Erosion and Soil Movement Fugitive Dust(lbs/hr)	Appendix 1.C	NA	NA	NA	0.495	0.194
	Sum of Modeled Area Sources	NA	NA	NA	0.07	0.0278
Long-term impacts						
Off Road Equipment and Onsite Vehicle Combustion (with fugitive dust for PM [lb/hr])	Appendix 1.C	1.44	2.85	0.01	0.32	0.02
	Sum of Modeled Volume Sources	1.68	NA	0.01	0.34	0.03
Sum of Wind Erosion and Soil Movement Fugitive Dust (lbs/hr)	Appendix 1.C	NA	NA	NA	0.22	0.09
	Sum of Modeled Area Sources	NA	NA	NA	0.0544	0.0215

DATA REQUESTS

15. Please explain why the emission rates used in the modeling files are different from those shown in Appendix 3.1C.
16. Please update the modeling analysis if any of the emission rates need to be changed.

BACKGROUND: IMPACTS CALCULATIONS

The 1-hour NO₂ impacts shown in the impacts tables (e.g. Table 3.1-37 through Table 3.1-42) are the maximum 1-hour impacts averaged over 5 years. U.S. EPA suggests the use of 5-year averaged 98th percentile daily maximum 1-hour NO₂ impacts to demonstrate compliance with the federal 1-hour NO₂ standard. However, to

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demonstrate compliance with the state 1-hour NO₂ standard, staff uses the maximum 1-hour impacts modeled over 5 years, instead of an averaged value. For example, Table 3.1-40 shows that the maximum 1-hour NO₂ impacts averaged over 5 years would be 130.7 µg/m³. However, staff uses the maximum modeled 1-hour NO₂ impact from the AERMOD output file (141.4 µg/m³) plus the most representative background data to demonstrate compliance with the state 1-hour NO₂ standard.

Similarly, staff uses maximum annually averaged impacts to demonstrate compliance with annual standards. However, the impacts shown in the tables (e.g. Table 3.1-39 through Table 3.1-41) as well as in the modeling files are those averaged over the 5 years (43,824 hours).

DATA REQUEST

17. Please update the analysis using worst case project impacts for both the short-term and annual standards, plus corresponding representative background data to demonstrate compliance with each ambient air quality standard.

BACKGROUND: MISSING MODELING OUTPUT FILES

Staff is unable to find the output files for refined modeling analysis which evaluates 24-hour PM₁₀/PM_{2.5}, 1-hour SO₂, and 1-hour NO₂ combined impacts from the project and Blythe Energy Project. The output files would be named as "TR_PM10D.out", "TR_SO2_1b.out", and "TRNNO2_1.out". In addition, no impacts are shown in the refined modeling output file for the annual PM₁₀/PM_{2.5} impact analysis of the project. The file is named "SR_TM10Y.out" but should be named as "SR_PM10Y.out", with the naming convention that the facility owner used.

DATA REQUEST

18. Please provide all output files mentioned above.

BACKGROUND: CUMULATIVE AIR QUALITY IMPACTS

The PTA (Section 3.1.7 and Appendix 3.1G) describes the methodology for the cumulative effects analysis but does not include the analysis because no cumulative projects have been identified by the facility owner in this area. The cumulative analysis should include all reasonably foreseeable projects within a 6-mile radius, i.e. the projects that have received construction permits but are not yet operational, and those that are in the permitting process or can be expected to be in permitting in the near future. A complete cumulative impacts analysis should identify all existing and planned stationary sources that affect the baseline conditions and consider them in the modeling effort. Staff is aware that a new peaker project, known as "Irish", will be developed in this area under the common control of Altagas.

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19. Please describe why the Irish project should or should not be included in the cumulative analysis.
20. If the Irish Energy Project should be included, please provide the cumulative modeling and impact analysis, including Blythe Energy Project, Sonoran Energy Project and Irish Energy Project.

BACKGROUND: DRY COOLING

As discussed in Section 3.16.4.1 of the PTA, the Project Owner contends that Energy Commission's 2005 conclusion to reject the use of dry cooling is still applicable to Sonoran project because it is feasible to meet project objectives without dry cooling. However, due to the current California drought, Energy Commission staff believes that the dry cooling option should be reevaluated.¹ Power plant projects using the same turbine technology (i.e., GE 7HA) in similar climates have been proposed to use air cooled technology, such as Exelon's Wolf Hollow and Colorado Bend generating stations in Texas.

DATA REQUESTS

21. Please provide the project emission estimates and impact modeling for a dry cooled alternative.
22. Please provide an air cooled condenser thermal plume velocity analysis for a dry cooled alternative for the proposed SEP configuration.

¹ This is discussed in the September 21, 2015 Issues Identification Report under the Soil & Water Resources section.

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Technical Area: Biological Resources
Author: Andrea Martine

BACKGROUND: TRANSMISSION LINE

Section 2.1.3.2 of the 2015 Petition to Amend (PTA) the Blythe Energy Project Phase II (Sonoran Energy Project) states: “The new 161-kV Gen-Tie line will go from the high side of the SEP generator step-up unit (GSU) transformer to the existing Buck Boulevard (or Buck) 161-kV substation, on the existing BEP site” (page 2-6). On page 3-83 the petition states that “[t]he interconnection will be built on the previously surveyed SEP site...” However, Figure 2-2b shows a portion of the Gen-Tie north of W. Chanslor Way and extending east parallel to W. Chanslor Way for approximately 900 feet before entering the Buck substation. This portion of the proposed Gen-Tie line will be constructed within a habitat (Sonoran creosote scrub) suitable for biological resources including desert tortoise. The impacts to biological resources from this portion of the Gen-Tie on the north side of W. Chanslor Way were not discussed in the petition and would need to be considered in staff’s analysis of the amendment.

DATA REQUESTS

23. Please provide a habitat assessment for sensitive plants and wildlife and plant communities (listing species), along with an environmental impact analysis of the proposed Gen-Tie line.
24. Please provide a map that shows the habitats with acres within 500 feet of either side of the Gen-Tie line.
25. Please provide permanent and temporary impact acres of the habitats for the Gen-Tie line.

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Technical Area: Hazardous Materials Management
Author: Brett Fooks

BACKGROUND

Section 3.5.1 of the Petition to Amend (PTA) states that the new Sonoran Energy Project (SEP) will have a total of 24,000 gallons of aqueous ammonia. However, Table 3.5.1 lists two aqueous ammonia solutions at 19 and 29 percent by weight. The table does not specify the precise quantities for each percentage of aqueous ammonia and the PTA does not explain why SEP needs both concentrations, or how each will be used. Staff needs more information in order to complete its analysis.

DATA REQUESTS

26. Please clarify that SEP will require both types (19% and 29% by weight) of aqueous ammonia on site and provide a site map with the location showing each of the aqueous ammonia tank locations.
27. Please submit a separate line item for each aqueous ammonia by weight on site listing the amount of each in gallons.
28. Please clarify whether the 19% or 29% by weight of aqueous ammonia will be used and stored for the selective catalytic reduction (SCR) process. For the aqueous ammonia not used for the SCR process, please provide a detailed written analysis showing how the aqueous ammonia will be used and stored on site.
29. Please provide an updated Offsite Consequence Analysis (OCA) due to the increase in the amount of aqueous ammonia on site. If both concentrations of aqueous ammonia are to be kept on site, please provide a separate OCA for each tank.

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Technical Area: Land Use
Authors: Andrea Koch and Ellen LeFevre

BACKGROUND: AIRPORT LAND USE COMPATIBILITY ZONE MAP FOR LICENSED PROJECT

Page 3-95 of the Petition to Amend (PTA) for the Sonoran Energy Project (SEP) states: “The licensed project site includes land located in Airport Compatibility Zones B1 (Inner Approach/Departure Zone), C (Extended Approach/Departure Zone), and D (Primary Traffic Patterns and Runway Buffer Area) of the Riverside County Airport Land Use Compatibility Plan (ALUCP). The previously licensed project was located in Zones C and D. As part of this project modification, and as Figures 3.6-2A and 3.6-2B clearly show, all SEP structures and facilities will occupy the eastern portion of the site, and fall within Compatibility Zones C and D, with the vast majority of project components situated within Zone D.”

Figures 3.6-2A and 3.6-2B of the PTA show the relationship between the SEP's structures and the ALUCP Compatibility Zones. However, to compare the licensed project and the SEP, staff would like to see a figure similar to 3.6-2B for the licensed project, which would show the licensed project's structures overlaid on the ALUCP Compatibility Zones. The Energy Commission's Cartography Unit could not create this figure due to lack of data, and staff could not find the relevant information in past filings and analyses for the licensed project.

DATA REQUESTS

30. Please provide a figure for the licensed project (the Blythe II amendment filed in October 2009) similar to Figure 3.6-2B in the PTA, showing the licensed project's structures, including the transmission structures, overlaid on the ALUCP Compatibility Zones.

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Technical Area: Socioeconomics
Author: Ellen LeFevre and Lisa Worrall

BACKGROUND: PROJECT CONSTRUCTION

Section 2.3.5 on page 2-9 of the Petition to Amend (PTA) notes that construction of the Sonoran Energy Project (SEP) would take 26 months, including four months for commissioning.

However, Table 2-6 presents the construction schedule with workforce by month. The table shows months 1 through 22 with workers in the various trades followed by a 6-month period (months 23 to 28) where no workers are shown; month 29 shows 220 transmission line workers. Staff interprets the information in the table as construction occurring from months 1 through 22 with commissioning occurring during months 23 through 28, and month 29 having 220 transmission workers for a total construction and commissioning period of 29 months.

Staff has proposed the following request to clarify information in Section 2.3.5 on page 2-9 and information in Table 2-6.

DATA REQUEST

31. Please verify the estimated construction duration and workforce needs by month.

BACKGROUND: CALIFORNIA EDUCATION CODE, SECTION 17620 AND CALIFORNIA GOVERNMENT CODE, SECTIONS 65995-65997

California Education Code, Section 17620 authorizes the governing board of any school district to levy a fee, charge, dedication, or other requirement for the purpose of funding the construction or reconstruction of school facilities. Fees are calculated based on the square foot area of chargeable covered and enclosed space. Fees are imposed for industrial construction and construction is defined in Government Code Section 65995 (d) as new construction and reconstruction of existing building for industrial, residential, or commercial.

As stated in Section 2.1.2 on page 2-1, administration and maintenance buildings are to be constructed. These buildings would be assessed school impact fees.

Based on the definition of construction in Government Code Section 65995 (d) and the proposed project as described in the PTA, staff requests the following:

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DATA REQUEST

32. Please identify the buildings, including the amount of covered and enclosed square footage SEP proposes to construct.

BACKGROUND: ESTIMATED FISCAL RESOURCES

Section 3.9 on page 3-132 of the PTA presents total construction cost estimates (including wages), the value of local product purchases, and estimated tax revenue from the sale of local products during construction.

Staff has the following question about the estimated fiscal resources for project construction.

DATA REQUEST

33. Please identify the dollar year used in the fiscal resource estimates described above and presented in the PTA.

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Technical Area: Soil and Water Resources
Author: Mike Conway

BACKGROUND

A groundwater basin budget was prepared for the Blythe Mesa Solar Project, which was licensed by BLM in 2015. The budget (include as Table 1 below) shows that the Palo Verde Mesa, not including water use at the Sonoran (or Blythe 2) project, is currently over-allocated by 2,111 acre-feet per year (AFY). Sonoran's proposed use would result in an over allocation of 4,911 AFY. There are also many other projects proposed or already in operation on the Palo Verde Mesa that could impact the budget in the future. A map of the potential projects is included below (BLM Figure 4.1-1 Cumulative Projects).

SOIL & WATER TABLE 1: Water Budget for the Palo Verde Mesa Groundwater Basin

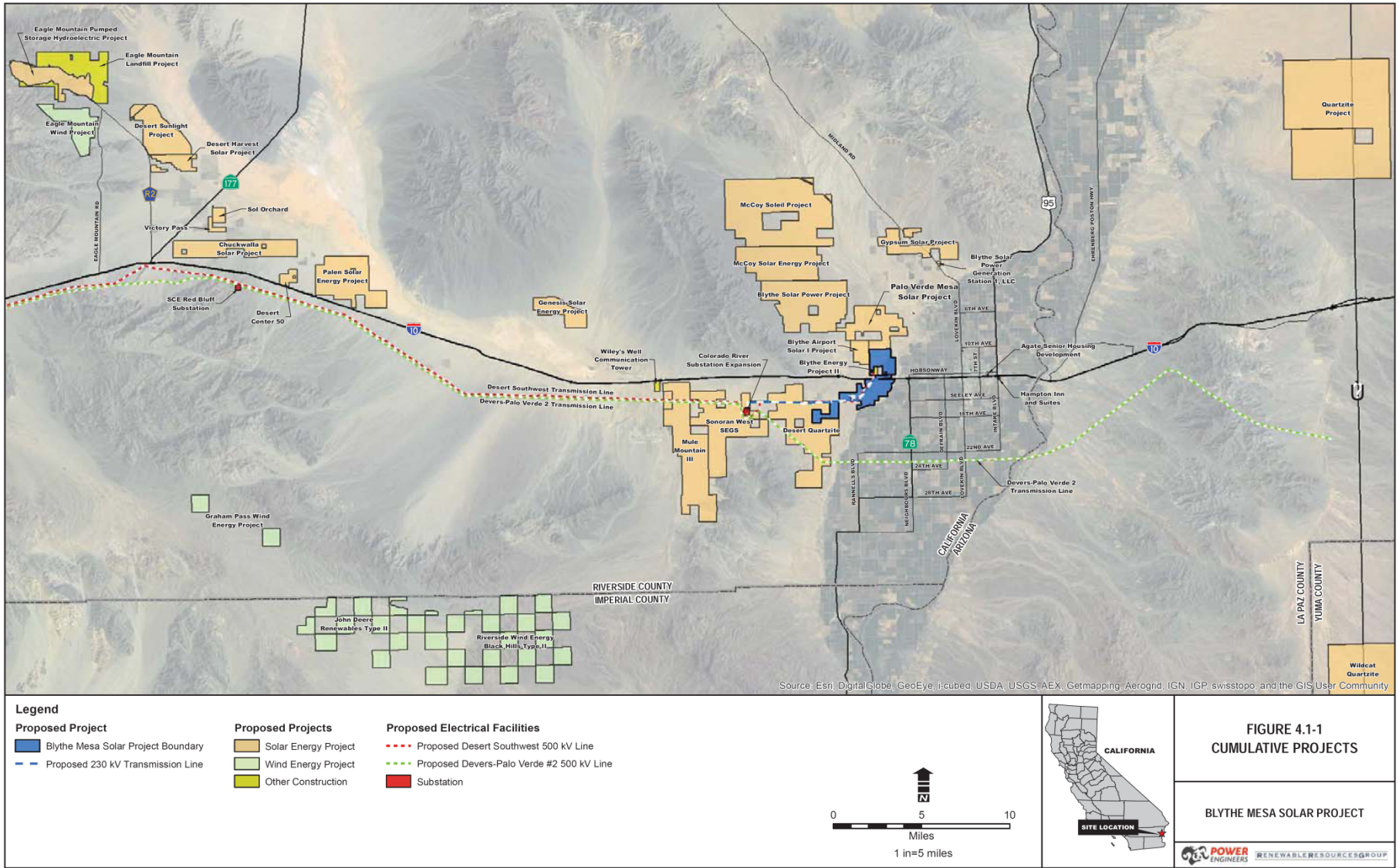
BUDGET COMPONENTS	PALO VERDE MESA GROUNDWATER BASIN
Recharge from runoff infiltration (1%)	242 ac-ft/yr
Underflow from Chuckwalla Valley Groundwater Basin	400 ac-ft/yr
Underflow from McCoy Wash	175 ac-ft/yr
Irrigation Return Flow (1.8% of 3,911 ac-ft [2010])	72 ac-ft/yr
<i>Total Inflow</i>	889 ac-ft/yr
Groundwater Extraction (wells)	0 ac-ft/yr
Blythe Energy	3,000 ac-ft/yr
<i>Total Outflow</i>	3,000 ac-ft/yr
Budget Balance (Inflow-Outflow)	-2,111ac-ft/yr

Source: BLM, 2015

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34. Please provide expected water use rate and source for the proposed AltaGas, LLC Irish Energy Project.

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Source: BLM, 2015

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BACKGROUND

The Sonoran project is required to provide an offset for all site water uses and include the details of how the project's water use would be replaced in the Water Conservation Offset Program (WCOP). Staff's preliminary conclusions regarding the availability of offsets for the proposed project water use in the Colorado River basin is that they are limited and will be difficult to identify.

The Commission Decision states, "The BEP II WCOP will target 786 acres to be acquired and confirmed prior to commercial operation and selected from eligible acreage in the Palo Verde Valley or Mesa. The final submitted WCOP provides for an average consumptive water use rate of 4.2 acre-feet per acre." The Petition to Amend (PTA) states the other options such as canal lining are being considered by the petitioner. Staff is concerned that the canal lining would not meet the terms of the previously agreed upon terms of the WCOP, as lining canals in the region are unlikely to provide a meaningful offset of actual use. Most canal seepage in the area is returned to the Palo Verde Valley groundwater basin and then the Colorado River.

DATA REQUEST

35. Please provide staff with details about the offset options being considered. Details should include how the proposed water offsets replace water that would otherwise be consumed or lost to evaporation or evapotranspiration from the basin(s).

BACKGROUND

Section 3.16.4.2 of the PTA discusses alternative water supply, but it relies solely on the 2005 Commission Decision. Staff believes the use of recycled water as a supply should be revisited through new analysis. Although use of recycled water could indirectly impact flows to the Colorado River, the loss in flow should be balanced with the potential degradation of water quality that often occurs with discharge of higher salinity wastewater. Staff also understands that the project owners of the adjacent Blythe Solar Power Project have been approached by the City of Blythe to discuss their possible use of recycled water for project operation. Based on this information it appears there may be some recycled water available for use in the basin.

DATA REQUESTS

36. Please provide updated information about the feasibility and availability of recycled water from the City of Blythe Wastewater Treatment Plant, including planned and under construction infrastructure additions.
37. Please compare the water treatment costs of wet cooling versus dry cooling.

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38. Please compare the wastewater treatment and disposal stream resulting from wet cooling versus dry cooling. Please include volumes discharged and any other resulting waste streams.

BACKGROUND

Investigations conducted during the licensing of the Blythe I project indicated the chloride concentrations were about 200 mg/L and have increased to 280 mg/L. A change of this magnitude in this time period is significant in water quality terms and may suggest current groundwater use in the area is degrading water quality. Additionally, CEQA requires a more recent evaluation of the proposed groundwater resource. The groundwater quality data relied upon for the 2005 Decision will need to be updated. It is also important for the owner to evaluate current water levels at the proposed site to establish a baseline.

DATA REQUESTS

39. Please provide a recent evaluation of the groundwater water quality available at the site.
40. Please provide a recent evaluation of depth to water at the site.
41. Please provide water level data from wells in the site vicinity that show water level trends over the last five years.

BACKGROUND

Section 3.16.4.1 of the PTA discusses how the 2005 Commission Decision concluded that dry cooling was infeasible because it would not meet the project objectives. Staff believes that the conditions in Blythe and California have changed substantially since 2005. Water sources in the State are inherently connected and extremely valuable; if reasonably available technology can drastically reduce the consumption of water by the Sonoran project, it should be evaluated for implementation. The issue of whether or not dry cooling meets the plant's objectives should be revisited and given thorough consideration in the context of the current setting. There are more projects now (compared to 2005), in similar climates, that are utilizing air cooled technology. For example, Exelon Generation has started constructing two 1,000 megawatt combined cycle plants using the 7HA turbine and air-cooled condensers for the steam cycle at Wolf Hollow and Colorado Bend plant sites in Texas. The Sonoran project is proposing to use the same 7HA turbine, but with wet cooling for the steam cycle. The financing and construction of the Exelon projects is a signal that dry-cooling in a similar climate is technologically and economically feasible, especially considering the high cost of water (and mitigation for its use) in California.

Though the PTA includes the design cases used to evaluate operating profiles, staff is unclear which cases (or combination of cases) were used to evaluate the cost

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differences between a wet-cooled and a dry cooled plant. The PTA states, “The use of dry cooling for the SEP will result in approximately a 7-percent reduction in electrical output during hot weather conditions, when electrical power is most in demand, with approximately twice the cost over the use of a wet cooling tower.” Staff needs to review the design cases used to calculate the 7-percent difference. Staff is also interested in understanding the details of the cooling tower costs.

DATA REQUESTS

42. Please provide the design cases that were used to project the Sonoran plant's efficiency. Please include daily temperature and relative humidity conditions as well as expected operating schedules.
43. Please provide details about the construction and operating cost of the proposed wet cooling tower. Please also explain the differences in cost associated with the construction and operation of a dry-cooling tower.

BACKGROUND

The PTA does not provide adequate information about the associated water costs, which are needed to evaluate the how the project's objectives would be met. Staff believes the PTA has not addressed all of the cost differences between the proposed project and a dry cooled one. The cost of mitigation of 2,800 AFY is expected to be very high and the opportunities for real water saving could be limited. Staff obtained draft terms of a fallowing agreement between landowners in Blythe and Metropolitan Water District (MWD), from 2004. The agreement provided landowner with an average of \$3,250 per acre of fallowed land that could only be exercised in 10 of the 35-year contract. An additional payment of \$604 would be paid to the land owners during fallowing years. The Blythe II project was expected to get credit for 4.2 AFY/acre fallowed. Assuming an annual consumption of 2,800 AFY, would require the fallowing of 667 acres. If the project followed similar terms to that of MWD and required land owners to fallow only one-third of the time, the Sonoran project would need rights to fallowing on 2,000 acres. The cost of 2,000 acres (in 2004) would have been \$6,500,000 in 2004. The additional cost of \$604 per acre per year fallowed would be an additional \$402,868 per year for 667 acres. Over the 30-year project life this cost would be \$12,086,040. The total expected cost of mitigation (in 2004) would have been \$18,586,040. Staff would expect this cost to be significantly higher today due to a decrease in local farmland supply and increase in demand for fallowable land.

DATA REQUESTS

44. Please provide a comparison of the cost to mitigate the water use by the proposed project (2,800 AFY) and the cost to mitigate a dry-cooled project (~280 AFY).

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45. Please provide a comparison of the water pumping and treatment costs for the proposed project (2,800 AFY) and a dry-cooled alternative (~280 AFY).

REFERENCES

BLM, 2015. Blythe Mesa Solar Project Final Environmental Impact Report/Environmental Assessment, Volume IV: Technical Appendices. March, 2015.

SONORAN ENERGY PROJECT (02-AFC-1C)
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Technical Area: Transmission System Engineering
Author: Ajoy Guha, P. E. and Mark Hesters

BACKGROUND

Staff needs to determine the transmission system impacts of the project and to identify the interconnection facilities, including downstream facilities, needed to support the reliable interconnection of the proposed Sonoran Energy Project (SEP) in the Western Area Power Administration (Western) System. The proposed interconnection facilities must comply with the utility (Western) rules for new interconnection, California Public Utilities Commission (CPUC) General Order (GO) 95 and the CPUC GO 128. The interconnection must also comply with the Western Reliability and Planning Criteria, North American Electric Reliability Corporation (NERC) Reliability Standards, Western Electricity Coordinating Council (WECC) Regional System Performance Criteria, and the California Independent System Operator (California ISO) Planning Standards for impacts in the California ISO system. In addition, the California Environmental Quality Act (CEQA) requires the identification and description of the “Direct and indirect significant effects of the project on the environment.” For the compliance with planning and reliability standards and the identification of indirect or downstream transmission impacts, staff relies on the System Impact Study (SIS) and Facilities Study (FS) as well as review of these studies by the agencies responsible for insuring the interconnecting transmission grid meets reliability standards, in this case, the Western, the Metropolitan Water District (MWD), and Southern California Edison (SCE) for the system impacts in their respective systems. The studies analyze the effect of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine that the project will cause the transmission system to violate reliability requirements, the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include modification and construction of downstream transmission facilities. The CEQA requires environmental analysis of any downstream facilities for potential indirect impacts of the proposed project.

The description of the SEP switchyard and interconnection facilities between the generators and Western’s Blythe 161 kV substation including major equipment and their ratings in the August, 2015 Petition to Amend are incomplete (Section 2, Page 2-1, Pages 2-6 to 2-7, Figures 2a & 2-2b, and Figures 2-5 & 2-6).

DATA REQUESTS

46. Please provide a complete and labeled electrical one-line diagram of the proposed SEP switchyard showing the two generators with their respective nominal ratings, and all equipment for each generator’s interconnection with the switchyard. The diagram should include:
 - a. Any 12.5/13.8 kV switch gear and the circuit breakers on the low side;

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- b. The generator step-up transformers;
 - c. Any bus duct connectors or cables from the 12.5 kV/13.8 kV switchgear to new generators and to low side of the step-up transformer;
 - d. The short overhead lines or conductors on the 161 kV side with their configuration between the generator step-up transformers high side and the switchyard 161 kV bus; and
 - e. The buses, breakers, disconnect switches in the 161 kV switchyard with their configuration including transmission outlets and their respective ratings.
47. Please provide a legible physical layout drawing of the SEP switchyard showing all major equipment and transmission line outlet(s) with proper labelling.
48. Please provide pre and post-project electrical one-line diagrams of Western's Blythe 161 kV substation for interconnection of the proposed 161 kV Gen-Tie line from the SEP switchyard. The diagrams should show all the breakers, buses, disconnect switches with their configuration and their respective ratings.
49. Please provide physical layout drawings (plan view) for the pre and post-project Western 161kV Blythe substation.
50. Please provide a physical layout drawing showing distinctly the route and width of the right-of-way (ROW) of the proposed 1,132-ft 161 kV line between the SEP switchyard and Western Blythe 161 kV substation. Also mention if the ROW will be through private or public property. Describe how the route was selected and discuss any alternate routes considered.
51. Please provide a list of any new or updated federal, state, regional or local laws, ordinances, regulations and standards applicable for transmission and describe their purpose during planning, construction and operation of the proposed SEP project.

BACKGROUND

The Western System Impact Study (SIS) Report of April 29, 2015 is preliminary and incomplete. The SIS shows potential violations on neighboring systems including Voltage issue on the Metropolitan Water District (MWD) system and a thermal overload on SCE's Julian Hinds to Mirage 230 kV line. These potential impacts on neighboring systems require consultations with MWD and SCE and could result in the need for further studies.

The project owner has not decided on whether they will interconnect with Western as a Network Resource (Capacity) or as an Energy Resource. The project impacts and mitigation would be different depending on whether or not they interconnect as a capacity or energy only resource.

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52. Please provide written comments from SCE and MWD discussing potential impacts and any required mitigation on their systems for the SEP interconnection.
53. If SCE or MWD requires further study of the potential impacts on their systems, please submit their study reports.
54. Please submit the final Western SIS Report and the Facility Study Report.
55. Where the Western SIS Report, Facilities Study Report comments/ studies from SCE or MWD identify mitigation options for transmission system impacts, please describe the selected mitigation.

BACKGROUND

CEQA requires environmental analysis of any downstream facilities required to mitigate transmission system reliability impacts of the SEP.

DATA REQUEST

56. If it is determined that mitigation measures could have significant environmental impacts, please provide an analysis of environmental impacts for installing any downstream facilities required for transmission impacts and necessary mitigation measures. Staff can provide a template for the analysis.

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Technical Area: Visual Resources
Author: Jeff Juarez

BACKGROUND

Section 3.12 – Visual Resources of the Petition to Amend (PTA) indicates the heights of the proposed HRSG stack and HRSG (140 feet tall and 120 feet tall, respectively) and the height of the two licensed HRSGs (93 feet). The petition states, “The cooling tower will remain approximately the same size as analyzed for BEP II. While the Sonoran Energy Project contains some features taller than those approved for the original Blythe Energy Project Phase II, such features will appear within an objectively smaller development area within the 76-acre site” (p. 3-142). However, the PTA does not include complete dimensions (height, width/diameter, length) of the proposed major structural features, nor does it provide, for comparison purposes, dimensions of the licensed features that would be increased or decreased in size under this PTA.

The elevation drawings (Figures 2-3a, 2-3b) submitted in the PTA indicate the heights of some of the proposed structures and buildings, but a complete set of dimensions are not provided, nor are the features labeled.

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57. Please prepare and submit a figure indicating the dimensions (height, width or diameter, and length) of the proposed major structures and buildings that are equal to or greater than 40 feet tall.
58. For comparative purposes, please also include the major structure and building dimensions of the two previously licensed projects (2005 and 2012).