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BEFORE THE ARIZONA CORPORATION COMMISSION

COMMISSIONERS

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NICK MYERS

Arizona Corporation Commission
DOCKETED
OCT 5 2023
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IN THE MATTER OF THE APPLICATION OF SUNDANCE ENERGY IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES 40-360.01 AND 40-360.06 FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING CONSTRUCTION OF A NOMINAL 600 MW NATURAL GAS-FIRED, SIMPLE CYCLE, PEAKING POWER GENERATING FACILITY IN PINAL COUNTY, SOUTHWEST OF COOLIDGE, ARIZONA.	DOCKET NO. L-00000W-00-0107 **ARIZONA PUBLIC SERVICE COMPANY'S APPLICATION TO AMEND DECISION NO. 63863 PURSUANT TO A.R.S. SECTION 40-252**

I. INTRODUCTION.

Arizona Public Service Company (APS or Company) submits this Application pursuant to A.R.S. § 40-252 to amend the Arizona Corporation Commission's (Commission) Decision No. 63863 (July 9, 2001) granting the Certificate of Environmental Compatibility (CEC) in Line Siting Case No. 107 (CEC 107). Decision

No. 63863 is attached as Exhibit A. CEC 107 authorized the construction of a 540 megawatt (MW) natural gas-fired generating facility consisting of twelve LM6000 peaking units (Sundance Plant or Plant) in two phases.[1] The ten Phase I units were constructed and placed in service in 2002, but the two remaining Phase II units were never constructed and the authorization to construct the two Phase II units expired in 2006. At the time it acquired the Plant in 2005, APS did not have a need for the Phase II units, but market conditions have changed dramatically since then. Today, like other utilities across the southwest, APS needs flexible but firm generation resources like the LM6000 units to ensure reliability and resource adequacy to address significant customer load growth, increased reliance on renewables, extreme weather, and tightening western energy markets. Therefore, APS is requesting that the Commission amend Decision No. 63863 and CEC 107 to reauthorize the construction of the two Phase II units and to modify certain other conditions in CEC 107 to eliminate outdated legacy conditions and to bring CEC 107 in line with current utility practice.

The two Phase II units will be constructed within the existing perimeter of the Sundance Plant on the power block originally designed and set aside for the Phase II units. *See* map attached as Exhibit B. The reauthorization of the two Phase II units will have minimal environmental impacts and no adverse impacts to the bulk electric system. The reauthorization of the two Phase II units is in the public interest and should be approved under A.R.S. §40-252.

This Application is supported by (i) the redlined version of CEC 107 showing proposed changes, attached hereto as Exhibit C; (ii) the Declaration of Peter Van Allen, attached hereto as Exhibit D (Van Allen Declaration); (iii) the Declaration of Jason

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[1] The Siting Statute defines a "plant" as "each separate thermal electric, nuclear or hydroelectric generating unit with a nameplate rating of one hundred megawatts or more . . .." *See* A.R.S. §40-360(9). Under the language of the statute, a utility only needs to file a CEC application for a generation facility that utilizes units carrying a nameplate rating above 100 MW per unit. Despite the language of the "plant" definition, PPL Sundance Energy LLC filed a CEC application for a new plant where each of the new units were rated less than 100 MW, and the Commission granted a CEC, thus, the Sundance Plant is governed by CEC 107; APS is seeking reauthorization to construct the two Phase II units under A.R.S. §40-252 for this reason. The addition of new units rated less than 100 MW at other plants or under other facts may allow for a different approach and may not need Commission approval.

Spitzkoff together with the Preliminary Reliability Report (Spitzkoff Declaration), attached hereto as Exhibit E; and (iv) the Declaration of Mark Turner of AECOM together with the AECOM Environmental Report (Turner Declaration), attached hereto as Exhibit F.

II. BACKGROUND.

APS owns the Sundance Plant. The Plant address is 2060 W. Sundance Road, Casa Grande, Arizona 85194, which is located in Pinal County.

1. Development of the Sundance Plant.

The Sundance Plant was originally developed by PPL Sundance Energy, LLC (PPL Sundance). CEC 107 authorized PPL Sundance to construct a natural gas-fired 540 MW generating facility consisting of twelve LM6000 combustion turbines to be constructed in two phases.[2] CEC 107 placed time restrictions on the construction of the two phases of the Plant. According to Condition No. 2:

> This authorization to construct the Sundance Energy Project facility will expire, as to Phase I (up to ten LM 6000 units for a nominal capacity of 450 MW) upon three (3) years, and, as to the final Phase (additional LM 6000 units to bring the total facility capacity to a nominal 540 MW) upon five (5) years, from the date this Certificate is approved by the Arizona Corporation Commission ("Commission") unless construction is completed to the point that the facility is capable of operating at its rated capacity, as to each Phase, by the respective expiration dates; provided, however, that prior to such expiration Applicant or its assignee may request that the Arizona Corporation Commission extend this time limitation.

Under Condition No. 2, the authorization to construct Phase I consisting of ten LM6000 units expired on July 9, 2004, and the authorization to construct Phase II consisting of the two remaining LM6000 units expired on July 9, 2006.[3]

CEC 107 also conditioned the construction of the two Phase II units on performing certain transmission studies and transmission enhancements. According to Condition No. 6, "Applicant shall not commence expansion of the Sundance Energy Project facility

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[2] *See* Exhibit A at p3, Condition 2.

[3] *Id.* at p.3, Condition No. 2.

beyond ten LM6000 units until technical studies required in condition 5.b above have been provided to the Commission and operation of such additional units shall not commence until the prerequisite transmission enhancements are in place."[4] PPL Sundance completed construction of the ten Phase I units in July 2002 for a nominal capacity of 450 MW, but it never sought to construct the two Phase II units.

2. APS's Acquisition of the Sundance Plant.

APS purchased the Sundance Plant from PPL Sundance in accordance with Decision No. 67504 (January 20, 2005).[5] APS closed on its purchase of the Plant on May 13, 2005, and CEC 107 was transferred from PPL Sundance to APS on May 13, 2005.[6] At the time APS purchased the Plant in 2005, PPL Sundance had only constructed the ten Phase I units and APS did not need the two additional peaking units authorized under CEC 107. Accordingly, APS allowed the authorization to construct the Phase II units to expire on July 9, 2006.

3. Conditions have changed since 2005 and APS now needs the Phase II units to serve Customers.

Today, Arizona is experiencing significant growth in demand for energy generation to support residential, commercial, and industrial customer load growth. At the same time, summer energy supply is tightening in the western United States, making it difficult to purchase needed MWs from the energy market.[7] These new LM6000 units, along with the solar and battery energy storage APS is adding to its resource portfolio, will help APS meet the more than 35% load growth that is expected in the next eight years.[8]

Having a variety of resources – including natural gas, nuclear, solar, energy storage and customer demand response programs – in APS's portfolio makes the system more resilient to supply chain disruptions, extreme weather and changing market conditions.

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[4] *Id.* at p.4, Condition No. 6.
[5] *See* Docket No. E-01345A-04-0407.
[6] *See* Correspondence re: Transfer of Facility Ownership and Transfer of CEC in Docket Nos. L-00000W-00-0107 and E-01345A-04-0407 (May 31, 2005).
[7] *See* Van Allen Declaration at ¶ 9.
[8] *Id.* at ¶ 11.

Further, natural gas resources provide critical capacity during peak system demand and support reliability when customers need it most. Importantly, the LM6000 units are quick starting and fast ramping – online in eight minutes, full load in under 10 minutes – making them a critical resource to respond to fluctuations in renewable energy output throughout the day. Because these LM6000 peaking units offer flexible, on-demand energy 24/7, they can provide much-needed energy during late-afternoon and evening hours when customer demand is high, creating a strong complement to renewable energy resources such as solar.[9] In short, the new units will support reliable electrical service when APS customers need it most.

The Sundance Plant is a key component of Arizona's energy infrastructure. It currently produces 420 MW, enough energy to power 67,200 Arizona homes.[10] APS plans to have the two Phase II units in service ahead of summer 2026 when APS's total load requirements are forecasted to be over 10,000 MW.[11] In short, current conditions and forecasted demand support the need for the two LM6000 units at the Sundance Plant.[12]

III. AMENDMENT OF CEC 107 UNDER A.R.S. SECTION 40-252.

Under A.R.S. § 40-252, the Commission has the authority to rescind, alter or amend any order or decision made by it.[13] Procedurally, the Commission's decision to rescind, alter or amend may be made at any time after notice to the affected corporation.[14] Substantively, to exercise its authority to rescind, alter or amend a prior decision, the Commission need only find that such action is in the public interest.[15] The modifications to CEC 107 are outlined below and are shown on the redlined version of CEC 107 attached hereto as Exhibit C.

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[9] *Id.* at ¶ 13.
[10] *Id.* at ¶ 14.
[11] *Id.*
[12] *Id.*
[13] *See* A.R.S. §40-252.
[14] *Id.*
[15] *See* Arizona Corp. Comm. v. Tucson Ins. & Bonding Agency, 3 Ariz. App. 458, 463, 415 P.2d 472, 477 (Ct. App. 1966).

1. Reauthorize Phase II units for a period of five years.

As outlined above, CEC 107 authorized the construction of twelve LM6000 units, but only ten units were constructed and placed into service. By this Application, APS respectfully requests that the Commission reauthorize the construction of the two additional LM6000 units and set a new term expiration date five years from the date the CEC amendment is approved.

The two previously authorized LM6000 units, each with 45 MW output, will be installed within the perimeter of the existing Sundance Plant, and are the same LM6000 units as those authorized by CEC 107 with minor enhancements.[16]

2. Permit the interim use of a Remedial Action Scheme, if needed, at the time the Phase II Units reach commercial operation.

The Sundance Plant is interconnected to transmission lines owned and operated by the Western Area Power Administration (WAPA). When CEC 107 was granted in 2001, the Coolidge to Rogers Line had sufficient capacity for the ten Phase I units, but there were concerns with the capacity and reliability of the Coolidge to Rogers Line with the addition of the Phase II units.[17] As a result, CEC 107 conditioned the construction of the Phase II units on performing certain transmission studies and enhancements to the Coolidge to Rogers Line.

Any interconnection into the WAPA transmission system is now governed by WAPA's publicly posted Open Access Transmission Tariff (OATT).[18] Attachment L to WAPA's OATT contains its Standard Large Generator Interconnection Procedures, including WAPA's Standard Large Generator Interconnection Agreement.[19] In conformance with WAPA's OATT, on December 23, 2022, APS filed a large generator Interconnection Request with WAPA for the two Phase II Units. Although APS

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[16] *See* Van Allen Declaration at ¶ 15.
[17] Exhibit A at p.4, Conditions 5 and 6.
[18] Available at https://www.oasis.oati.com/WAPA/WAPAdocs/WAPA-Tariff-Docs.htm.
[19] *Id.* at Attachment L, available at https://www.oasis.oati.com/WAPA/WAPAdocs/WAPA-OATT-LGIA-Effective-2023-0201.pdf.

anticipates that WAPA will initiate its Interconnection System Impact Study (SIS) in January 2024, APS remains uncertain as to when WAPA will complete its evaluation. If the study identifies transmission enhancements, the owner of the transmission line or facility will determine when any required transmission enhancements will be completed.

Therefore, earlier this year, APS commissioned a preliminary transmission impact study (Preliminary Study) that analyzed the interconnection of the two Phase II Units, which is marked as Attachment 1 to the Spitzkoff Declaration. The Preliminary Study indicated that the addition of the two 45 MW units, under certain scenarios, could lead to a transmission line loading violation on the Coolidge to Rogers 230kV transmission line, which will require certain enhancements or upgrades to address.[20] Consultation with WAPA has confirmed that the rating of the line is limited by equipment at the Coolidge substation (the point of termination of the line). Presently, it appears that upgrading the equipment at the Coolidge substation would be sufficient to mitigate this potential loading violation.[21]

When WAPA completes its SIS it may, however, require system upgrades. If system enhancements are required, APS proposes to have the option to use a Remedial Action Scheme (RAS), subject to the approval by WAPA, if the enhancements cannot be completed prior to the Phase II units being placed into service.[22] The RAS would be used on an interim basis only until any required enhancements identified in WAPA's SIS are completed. The use of a RAS under such circumstances will permit APS to construct and operate the new Phase II units while ensuring the safe and reliable operation of the bulk electric system.[23] Thus, APS requests the Commission amend CEC 107 to permit APS to use a RAS, if needed, to begin commercial operation until such time as any required transmission enhancements are constructed and operational.

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[20] *See* Spitzkoff Declaration at ¶ 9.
[21] *Id.* at ¶ 10.
[22] *Id.* at ¶ 11.
[23] *Id.* at ¶ 12.

Importantly, APS will not commence commercial operation of the Phase II units until an SIS analyzing the addition of the Phase II units to the Sundance Plant has been performed and provided to the Commission as originally required by CEC 107.[24] APS will notify the Commission when the enhancements have been completed and are operational.

In addition to amending CEC 107 to allow APS to operate the two new units using a RAS on an interim basis until any necessary transmission enhancements are constructed and operational, APS is requesting that the Commission eliminate some outdated conditions and include several new conditions, all as shown on the redlined version of CEC 107 attached as Exhibit C.

IV. MINIMAL CHANGES AND ENVIRONMENTAL IMPACTS.

1. Minimal changes to Plant for Phase II Units.

The addition of the two LM6000 units at the Sundance Plant will result in minimal changes to the design or configuration of the Sundance Plant. The two new LM6000 units are the same design as originally authorized in CEC 107 and will be constructed within the perimeter of the existing Plant on the original power block originally intended for the Phase II units. *See* Map at Exhibit B. The addition of the two Phase II LM6000 units will not result in any design changes to the Plant. The new units will be constructed on Power Block 6, as originally contemplated in the design of the Plant, and will use the existing infrastructure at the Sundance Plant.[25]

2. Minimal environmental impacts from Phase II Units.

Although the two Phase II units were originally authorized and approved under CEC 107, out of an abundance of caution, APS commissioned a restudy of the potential environmental impact of constructing the two units.[26] As detailed in the Turner Declaration and the AECOM Environmental Report attached as Exhibit F, AECOM

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[24] *Id.* at ¶ 13.

[25] *See* Van Allen Declaration at ¶ 16.

[26] *See* Turner Declaration at ¶ 4.

analyzed all of the original A.R.S. § 40-360.06 factors that the Committee and Commission analyzed in approving CEC 107.[27] In performing that analysis, AECOM concluded that constructing the additional Phase II LM6000 units authorized by CEC 107 will have no major environmental impacts.[28] The environmental analysis and findings detailed in the Turner Declaration and the AECOM Report are summarized below:

- ***Land Use.***
  As found by the Committee and the Commission in granting CEC 107 and as validated by AECOM's recent studies, the addition of two additional gas turbines within the Sundance Plant is environmentally compatible with existing and future land uses.[29]

- ***Water.***
  The Phase II units, like the existing ten Phase I units at the Plant, will use Central Arizona Project (CAP) surface water as the primary source of water, pursuant to procured water rights from the Gila River Indian Community. Although APS will pump a small amount of groundwater, the majority of the water APS pumps from the onsite well will be stored CAP water.[30]

- ***Incremental Air Emissions.***
  The addition of the two Phase II units will require a revised air quality permit for the Sundance Plant. An application for a permit revision was filed with the Pinal County Air Quality Control District on August 24, 2023, to obtain a revised Air Quality Permit (V206090.R01). The air quality permit application and supporting documentation demonstrate that incremental emissions resulting from the two Phase II units will comply with all state and federal requirements.[31] In particular, the air quality modeling analysis demonstrates the PM_{10} and $PM_{2.5}$ impacts of the two Phase II units are below the EPA Significant Impact Levels, and that the NO_2 impacts added to background air concentrations are below the National Ambient Air Quality Standards (NAAQS). Therefore, the air quality analysis demonstrates the reauthorization of the two Phase II units would not cause or contribute to a violation of the NAAQS.

  In connection with preparing its air quality permit application, APS conducted an Environmental Justice (EJ) analysis. Additional information regarding APS's EJ evaluation, conclusions, and corresponding outreach, is located in the air quality

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[27] *Id.* at ¶¶ 5-7.
[28] *Id.* at ¶ 9.
[29] *Id.* at ¶¶ 11-12.
[30] *Id.* at ¶ 13.
[31] *Id.* at ¶ 14.

permit application which is found as Exhibit B to the AECOM Environmental Report.

- ***Visual Resources.***
  Sundance is surrounded predominantly by agricultural lands with scattered residences, with the nearest residential community located approximately two miles from the Plant.[32] The Phase II units will be located within the boundaries of the Plant adjacent to an existing transmission corridor and the lines, forms, colors, textures, and scale of the Plant would be consistent with the existing infrastructure development. The Phase II units will be constructed and operated as identified in the Case No. 107 hearing and will be the same height as the existing structures. As a result, there will be minimal visual impacts resulting from the Phase II units.[33]

- ***Cultural Resources.***
  The 2023 review confirmed there are no cultural resources in the Plant and documented that the State Historical Preservation Office has determined two of the five cultural resources recorded within one mile of the power plant lack historic values and are not eligible for the Arizona Register of Historic Places (AHRP). In summary, the review documented that the construction of the Phase II units within the current boundaries of the Plant will not substantially damage or destroy any properties listed in or eligible for the ARHP.[34]

- ***Biological Resources, Scenic and Recreational Areas.***
  The Phase II units will be constructed on pre-disturbed lands that provide minimal habitat for special status species or general wildlife. Special status species would not experience long-term detrimental impacts related to the loss or alteration of vegetative cover within the Plant based on a lack of suitable habitat within the existing facilities. There will be no impacts to riparian or wetland vegetation. In sum, the potential impacts on general wildlife would be minimal.[35]

- ***Noise.***
  AECOM analyzed the anticipated noise levels resulting from the two Phase II units.[36] AECOM's analysis concludes that under maximum load operating conditions, the operation noise levels would not exceed the Pinal County Noise Ordinance guidelines. The predicted maximum increase in facility noise would be 2 dBA at nearby receptors and as such would not result in adverse effects.[37]

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[32] *Id.* at ¶ 15.
[33] *Id.* at ¶ 16.
[34] *Id.* at ¶ 18.
[35] *Id.* at ¶ 19.
[36] *Id.* at ¶ 20.
[37] *Id.* at ¶ 21.

In short, as established by the AECOM Environmental Report, the construction of two LM6000 units will cause minimal environmental impacts because the new units will be constructed on the power block originally designed for these units when the Plant was approved and constructed in 2002. Therefore, the two new units are compatible with the total environment of the area.[38]

V. PUBLIC OUTREACH AND ENGAGEMENT.

To support this Application, APS engaged in an extensive outreach effort to provide notice of its proposal to construct the two Phase II units at the Plant and to gain feedback from area residents and stakeholders.

As part of that effort, APS sent a newsletter and postcards to 875 addresses covering a 3-mile radius[39] surrounding the Sundance Plant. The newsletter outlined the addition of the new units to the Plant and explained that residents could learn more about the proposed changes to the Plant by visiting the project website or attending an in-person open house. The postcards reminded the recipients of the open house. The project website includes a virtual open house describing the proposed addition of the two new units to the Plant and provides more detailed information on the impacts to area residents.[40]

In connection with its outreach efforts, APS held an in-person open house on August 17, 2023, at the Mary C. O'Brien Elementary School in Casa Grande, Arizona. Eight people attended the open house and asked questions about the project, but no formal comments were submitted by open house attendees or from the other outreach efforts.[41] Finally, although there were no intervenors in Case No. 107, APS has notified the affected jurisdictions of this filing.

In sum, the outreach and engagement used by APS to provide the public with an understanding of the limited changes being proposed at the Plant have resulted in limited

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[38] *Id.* at ¶ 9.

[39] The 3-mile radius is consistent with the radius recommended by the EPA, which governs APS's Air Permit application.

[40] *See* Van Allen Declaration at ¶ 17.

[41] *Id.* at ¶ 18.

comments and feedback. At the time of this filing, APS is not aware of any opposition to the reauthorization of the two Phase II units.

VI. NO HEARING NECESSARY TO APPROVE AMENDMENT OF CEC 107.

APS recognizes that there are occasions when an application to amend a CEC under A.R.S. § 40-252 needs an evidentiary hearing to fully establish and consider the potential impacts of a proposed change. However, that is not the case in this instance. The units were originally authorized by CEC 107 and therefore the reauthorization of the units is not a substantial change. Further, even assuming for the sake of argument that reauthorizing the two Phase II units at this time is a substantial change, the evidence demonstrates that the construction of two LM6000 units is not a change that will result in any significant adverse impacts. Under such circumstances, the Commission has modified CECs without an evidentiary hearing.

For example, earlier this year in Decision No. 78998 (June 28, 2023)[42] the Commission approved without hearing changes requested by Morenci Water and Electric Company (MWE) for the realignment and relocation of approximately 1.5 miles of an existing single-circuit 230kV radial power line; the interconnection of the radial power line into the Copper Verde Substation; and the expansion of the Copper Verde Substation footprint to accommodate a third 345/230kV transformer and a six-position 230kV ring bus. None of these modifications had previously been contemplated or approved in the original Decision No. 62459.[43] By comparison, APS is seeking to construct two additional LM6000 units that were previously approved in PPL Sundance's original CEC and for which there is already an existing space reserved at the Sundance Plant. Much like MWE's request, APS's modifications will have minimal environmental impacts and will improve capacity and reliability with no adverse impact to the bulk electric system.

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[42] Docket No. L-00000N-99-0097.

[43] *Id.*

Another recent example is Decision No. 78388 (December 28, 2021)[44] in which the Commission approved an amendment to CEC 182 for the Chevelon Butte Wind Project to construct seven transmission structures that were taller and of a different type than those originally authorized in CEC 182. In response to the application to amend, Staff concluded that the proposed changes were substantial changes and recommended that the application be referred to the Siting Committee for an additional evidentiary hearing. The Commission, however, voted at the open meeting to approve the proposed amendment of CEC 182 without the need for further evidence or a hearing.[45]

In Decision No. 77761 (October 2, 2020),[46] the Commission approved the construction of two 0.15-mile segments of double-circuit 230kV transmission lines, two new monopole structures, and a new substation, all without an evidentiary hearing. The location for that project is in a developing area of incorporated Goodyear with a residential housing development within a half-mile of that project. In contrast, construction of the two Phase II units will occur within the boundaries of the existing Sundance Plant located in a rural area.

Another example of the Commission amending a CEC without a hearing is found in Decision No. 76795 (August 15, 2018).[47] In that case, the Commission modified, without evidentiary hearing, a CEC to authorize double-circuit structures for a one-mile portion of a previously approved single-circuit transmission line. Like the amendment approved in Decision No. 77761 discussed above, the transmission line at issue in Decision No. 76795 was located in a developed residential area -- a stark contrast to the location of the Sundance Plant discussed here.

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[44] Docket No. L-21080A-19-0171-00182.

[45] Although Decision No. 78388 includes under the "Conclusion of Law" that the matter is referred to the Siting Committee for an additional evidentiary hearing, the "Order" amends CEC 182 pursuant to A.R.S. §40-252 and the matter was *not* referred to the Siting Committee and Staff was directed to file the modifications in the Docket as ordered by the Commission. Presumably, the inclusion of the language referring the matter to the Siting Committee in the Decision was in error given what occurred at the open meeting.

[46] Docket No. L-00000D-03-0122.

[47] Docket No. L-00000CC-09-0543-00152.

Additionally, in Decision No. 74206 (December 3, 2013),[48] the Commission modified, without evidentiary hearing, an existing CEC to relocate 1,500 feet of an approved corridor and to allow a different type of structure than was approved in the original CEC.

Without citing every case that involved the approval of a CEC amendment without an evidentiary hearing, there is extensive precedent for such approval when the record establishes that the requested change has minimal impacts. Here, APS is requesting to add two LM6000 units to the Sundance Plant as originally contemplated and authorized by CEC 107. The new units will be constructed on the power block originally set aside for these units when the Plant was constructed in 2002 and construction of the two units will have little impact on the environment or the reliability of the bulk power system. As a result, the reauthorization of the two LM6000 units at the Sundance Plant should be approved as requested in this Application without an evidentiary hearing.

VII. CONCLUSION.

APS is requesting that the Commission approve the construction of two LM6000 units at the Sundance Plant as authorized by CEC 107. The Plant was originally designed and constructed to accommodate these two units, and the addition of the two units will bring the Plant to its originally authorized operating capacity. The LM6000 units offer flexible, on-demand energy 24/7 that can provide much needed energy during the late afternoon and evening hours when APS customers need it most. At the same time, the addition of the two units will have little impact on the environment or the reliability of the bulk power system. Accordingly, APS respectfully requests that the Commission amend Decision No. 63863 and CEC 107 to approve the reauthorization to construct the two Phase II units and to modify certain other conditions in CEC 107 to eliminate outdated legacy conditions, as proposed in Exhibit C, to bring CEC 107 in line with historical developments and current utility practice.

[48] Docket No. L-00000D-07-0566-00135.

RESPECTFULLY SUBMITTED this 5th day of October 2023.

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ORIGINAL and thirteen (13) copies of the foregoing filed this 5th day of October 2023, with:

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COPY of the foregoing mailed this 5th day of October 2023, to:

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Exhibit A

BEFORE THE
ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF SUNDANCE ENERGY IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES 40-360.01 AND 40-360.06 FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING CONSTRUCTION OF A NOMINAL 600 MW NATURAL GAS-FIRED, SIMPLE CYCLE, PEAKING POWER GENERATING FACILITY IN PINAL COUNTY, ARIZONA SOUTHWEST OF COOLIDGE, ARIZONA.	CASE NO. 107 DOCKET NO. L-00000W-00-0107 DECISION NO. 63883

DECISION OF THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE AND CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

Pursuant to notice given as provided by law, the Arizona Power Plant and Transmission Line Siting Committee ("Committee") held public hearings at the Coolidge High School, Coolidge, Arizona on December 4, 2000, and January 24, 2001, and in Phoenix, Arizona on March 5, 2001, and April 5, 2001, in conformance with the requirements of Arizona Revised Statutes Section 40-360, *et seq.*, for the purpose of receiving public comment and evidence, and deliberating on the Application of PPL Sundance Energy, LLC, ("Sundance Energy" or "Applicant") for a Certificate of Environmental Compatibility ("Certificate") in the above-captioned case.

Paul A. Bullis Chairman, Designee for the Arizona Attorney General, for the December 4, 2000 hearing; succeeded by

Laurie A. Woodall Chairman, Designee for the Arizona Attorney General, for the January 24, 2001 hearing and subsequent proceedings.

Steve Olea	Arizona Corporation Commission
Mark McWhirter	Arizona Department of Commerce
George Campbell	Appointed Member
Jeff Maguire	Appointed Member
Wayne Smith	Appointed Member

Sandie Smith Appointed Member

Hon. Mike Whalen Appointed Member

Jay Moyes of Moyes Storey Ltd. represented the Applicant. Staff of the Arizona Corporation Commission ("Staff") noticed their intervention as a party, and were represented by Teena Wolfe. Plumbers and Pipefitters Union Local #741 and Don't Waste Arizona, Inc. were granted intervenor status and presented testimony and exhibits during the January 24, 2001 hearing, and were jointly represented by M. David Karnas of Siegel, Bellovin & Karnas; however, at the March 5, 2001 hearing, later confirmed by written motion, said entities formally withdrew as intervenor parties and, by subsequent order of the Chairman, they were ordered withdrawn and their testimony and exhibits of January 24 rendered the status of public comment. There were no other interventions or limited appearances.

At the conclusion of the hearing and deliberations, the Committee, (i) having received and considered the Application, the appearances of Applicant and each of the intervenors; the evidence, testimony and exhibits (including Applicant's March 29, 2001 Supplement to the Application) presented by Applicant and the intervenors, respectively; and the public comments; (ii) being advised of the legal requirements of Arizona Revised Statutes Sections 40-360 to 40-360.13; (iii) upon consideration of the factors identified in Arizona Revised Statutes Section 40-360.06; and (iv) in accordance with A.A.C. R14-3-213, upon motion duly made and seconded, voted to make the following findings and to grant Applicant the following Certificate of Environmental Compatibility:

The Committee finds that the record contains substantial clear and convincing evidence regarding the need for an adequate, economical and reliable supply of electric power within the State of Arizona, and how Applicant's proposed Sundance Energy Project would contribute towards satisfaction of such need without causing material adverse impact to the environment.

PPL Sundance Energy, LLC, and its assignee(s), are hereby granted this Certificate of Environmental Compatibility authorizing construction of a natural gas-fired nominal 540 MW generating facility, consisting of twelve LM6000 units, together with related infrastructure, which shall be located in Pinal County, approximately one quarter mile north of Randolph Road and one

quarter mile west of Tweedy Road, approximately 5 miles southwest of Coolidge, Arizona.

This Certificate is granted upon the following conditions:

1. The Applicant will comply with all existing applicable air and water pollution control standards and regulations, and with all existing applicable ordinances, master plans and regulations of the State of Arizona, Pinal County, the United States, and any other governmental entities having jurisdiction, including but not limited to the following:

   a. all zoning stipulations and conditions, including not limited to landscaping and dust control requirements and/or approvals;

   b. all applicable air quality control standards, approvals, permit conditions and requirements of the Pinal County Air Quality Control District and/or other State or Federal agencies having jurisdiction, and the applicant shall install and operate selective catalytic reduction at the level determined by the Pinal County Air Quality Control District;

   c. all applicable water use and/or disposal requirements of the Arizona Department of Water Resources, Pinal Active Management Area Management Plan(s) and the Arizona Department of Environmental Quality regulations;

   d. all applicable noise control standards, and during normal operations the Project shall not exceed applicable (i) HUD or EPA residential noise guidelines or (ii) OSHA worker safety noise standards;

   e. all applicable regulations and permits governing storage and handling of chemicals.

2. This authorization to construct the Sundance Energy Project facility will expire, as to Phase I (up to ten LM 6000 units for a nominal capacity of 450 MW) upon three (3) years, and, as to the final Phase (additional LM 6000 units to bring the total facility capacity to a nominal 540 MW) upon five (5) years, from the date this Certificate is approved by the Arizona Corporation Commission ("Commission") unless construction is completed to the point that the facility is capable of operating at its rated capacity, as to each Phase, by the respective expiration dates; provided,

however, that prior to such expiration Applicant or its assignee may request tha Arizona Corporation Commission extend this time limitation.

3. Applicant's Project will have three (3) transmission lines emanating from its power plant's transmission switchyard and interconnecting with the existing transmission system. This plant interconnection must satisfy the single contingency outage criteria (N – 1) without reliance on remedial action such as generator unit tripping or load shedding. Staff has concluded based upon studies completed and reviewed that for the first Phase of up to ten LM 6000 units and 450 MW, if three lines are built and conditions 4, 5 and 6 below are met, this condition 3 is satisfied.

4. The necessary modifications to clearances of the undercrossing lines shall be completed so that the existing Coolidge to Rogers 230 kV transmission line has a normal rating of at least 352 MW accompanied by a 30 minute emergency rating of 110% of normal rating, prior to commercial operation of ten LM6000 units with a total rating of 450 MW.

5. Applicant shall participate in good faith in the Central Arizona Transmission Study, to identify and encourage expedient implementation of transmission enhancements necessary to:

   a. resolve any exposure to the Coolidge to Rogers transmission line loading in excess of normal ratings due to single contingency line outages; and

   b. accommodate expansion of the Sundance Energy Project facility beyond the Phase I limit of ten LM6000 units and 450 MW.

6. Applicant shall not commence expansion of the Sundance Energy Project facility beyond ten LM6000 units until technical studies required in condition 5.b above have been provided to the Commission and operation of such additional units shall not commence until the prerequisite transmission enhancements are in place.

7. Applicant will submit to the Commission an interconnection agreement with the transmission provider with whom it is interconnecting.

8. Applicant or its affiliate company will become a member of the Western States Coordinating Council ("WSCC") (or it successor) and file an executed copy of its WSCC Reliability Management System ("RMS") Generator Agreement with the Commission.

9. Applicant will use reasonable efforts to become a member of the Southwest Reserve Sharing Group (or its successor) if commercially reasonable, thereby making Applicant's units available for reserve sharing purposes, subject to competitive pricing.

GRANTED this 11th day of April, 2001.

ARIZONA POWER PLANT AND
TRANSMISSION LINE SITING COMMITTEE

By Laurie A. Woodall
Laurie A. Woodall, Chairman

BEFORE THE
ARIZONA CORPORATION COMMISSION

Having considered the factors identified in A.R.S. Section 40-360.06, and balanced, in the broad public interest, the need for an adequate, economical and reliable supply of electric power with the desire to minimize the effect thereof on the environment and ecology of this state, the Commission finds, concludes and orders that the Certificate of Environmental Compatibility be affirmed and approved with the additional conditions set forth below.

IT IS THEREFORE ORDERED that the Certificate of Environmental Compatibility granted to PPL Sundance Energy LLC by the Arizona Power Plant and Transmission Line Siting Committee on April 11, 2001 is hereby affirmed and approved with the additional conditions 10 through 16 set forth below.

10. Condition 1(b) above is amended by inserting, after the words "selective catalytic reduction" the words "and catalytic oxidation technology". Condition 1(b) above is further amended by inserting, after the words "Pinal County Air Quality Control District" the words "and approved by EPA Region IX". In addition, a new subsection (c) is added to Condition 1 above as follows:

    c. If during the first 20 years of commercial operation of this Project (i) an air quality permit is issued in EPA Region IX requiring a simple cycle combustion turbine generator located in an area having the same designation at that time (attainment or nonattainment) as the Project site to control NOx emissions to a level between 5.0 ppm and 2.5 ppm, and (ii) the Commission or the Applicant has determined that use of the technology required to comply with such lower standard would be economically feasible for this Project, then within 24 months of such determination Applicant shall install and operate control technology to control NOx emissions at this Project to such lower standard.

    and the existing subsections c, d, and e are renumbered to be subsections d, e, and f, respectively.

11. Applicant shall make commercially reasonable efforts to execute wholesale power sales to credit worthy Arizona load-serving entities serving Arizona load and to marketers providing service to those Arizona load serving entities.

12. The project shall not set any combustion turbine on its foundation until the Federal Record of Decision has been published by Western Area Power Administration approving construction of the transmission facilities interconnecting the Project to the grid.

13. The Applicant shall file deed restrictions limiting the use of its property to non-residential uses.

    Applicant shall erect and maintain a sign of not less than 4 feet by 8 feet dimensions, advising:

1- that the site has been approved for the construction of a 540 megawatt generating facility; and
2- the expected date of completion of the facility.

In the event that the Project requires an extension of the term of this certificate prior to completion of construction, Applicant shall use reasonable means to directly notify all landowners and residents within a one mile radius of the Project Facilities of the time and place of the proceeding in which the Commission shall consider such request for extension.

14. Where feasible, Applicant shall make reasonable efforts to invite, and shall give full consideration to, bids from qualified local and in-state construction contractors for construction of the Project.

15. In the event that the lateral gas line proposed in the application is constructed off the Applicant's property, Applicant shall make a contribution to the Arizona Pipeline Safety Revolving Fund in the amount of $20,000.

16. The authority to construct facilities granted by this Commission Decision shall be revoked and the associated Certificate rendered null and void in its entirety without further order of the Commission, if the Applicant, its successor(s) or assignee(s):

1- Legally challenges any condition herein, OR
2- Fails to comply with any condition herein.

IT IS FURTHER ORDERED that this Decision shall become effective immediately.
BY ORDER OF THE ARIZONA CORPORATION COMMISSION

Chairman Commissioner Commissioner

In Witness Hereof, I Brian C. McNeil, Executive Secretary of the Arizona Corporation Commission, set my hand and Cause the official seal of this Commission To be affixed, this 9TH day of July, 2001.

By: _____
Brian C. McNeil
Executive Secretary

Dissent: _____

Exhibit A

Pursuant to A.A.C. R14-3-204,
the ORIGINAL and 25 copies
filed this _____ day of June, 2001, with:

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

COPY of the foregoing mailed
this _____ day of June, 2001, to:

Jay I. Moyes, Esq.
MOYES STOREY
3003 North Central, Suite 1250
Phoenix, Arizona 85012
Attorney for Application

_____
Angela L. Bennett

Exhibit B

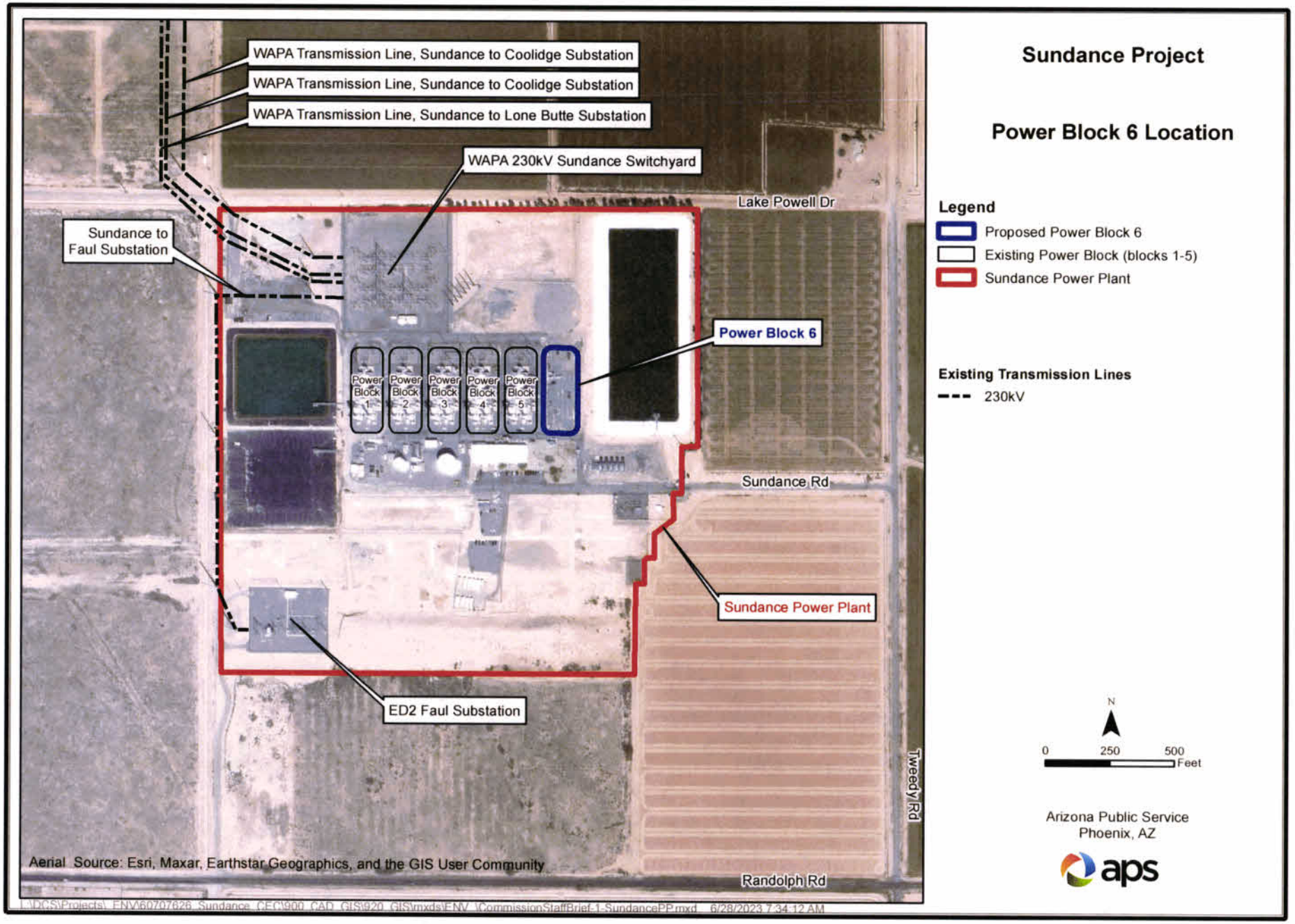

WAPA Transmission Line, Sundance to Coolidge Substation
WAPA Transmission Line, Sundance to Coolidge Substation
WAPA Transmission Line, Sundance to Lone Butte Substation
WAPA 230kV Sundance Switchyard
Lake Powell Dr
Sundance to Faul Substation
Power Block 6
Power Block 1
Power Block 2
Power Block 3
Power Block 4
Power Block 5
Sundance Rd
Sundance Power Plant
ED2 Faul Substation
Tweedy Rd
Randolph Rd
Aerial Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
Sundance Project
Power Block 6 Location
Legend
Proposed Power Block 6
Existing Power Block (blocks 1-5)
Sundance Power Plant
Existing Transmission Lines
230kV
N
0
250
500
Feet
Arizona Public Service
Phoenix, AZ
aps

Exhibit C

REDLINE SHOWING PROPOSED CHANGES

BEFORE THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

IN THE MATTER OF THE APPLICATION OF SUNDANCE ENERGY IN CONFORMANCE WITH THE REQUIREMENTS OF ARIZONA REVISED STATUTES 40-360.01 AND 40-360.06 FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AUTHORIZING CONSTRUCTION OF A NOMINAL 600 MW NATURAL GAS-FIRED, SIMPLE CYCLE, PEAKING POWER GENERATING FACILITY IN PINAL COUNTY, ARIZONA SOUTHWEST OF COOLIDGE, ARIZONA.	CASE NO. 107 DOCKET NO. L-00000W-00-0107 DECISION NO. 63863

DECISION OF THE ARIZONA POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE AND CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

Pursuant to notice given as provided by law, the Arizona Power Plant and Transmission Line Siting Committee ("Committee") held public hearings at the Coolidge High School, Coolidge, Arizona on December 4, 2000, and January 24, 2001, and in Phoenix, Arizona on March 5, 2001, and April 5, 2001, in conformance with the requirements of Arizona Revised Statutes Section 40-360, et seq., for the purpose of receiving public comment and evidence, and deliberating on the Application of PPL Sundance Energy, LLC, ("Sundance Energy" or "Applicant") for a Certificate of Environmental Compatibility ("CEC~~ertificate~~") in the above-captioned case ("CEC 107").

Paul A. Bullis Chairman, Designee for the Arizona Attorney General, for the December 4, 2000 hearing; succeeded by

Laurie A. Woodall Chairman, Designee for the Arizona Attorney General, for the January 24, 2001 hearing and subsequent proceedings.

Steve Olea	Arizona Corporation Commission
Mark McWhirter	Arizona Department of Commerce
George Campbell	Appointed Member

Jeff Maguire	Appointed Member
Wayne Smith	Appointed Member
Sandie Smith	Appointed Member
Hon. Mike Whalen	Appointed Member

Jay Moyes of Moyes Storey Ltd. represented the Application. Staff of the Arizona Corporation Commission ("Staff") notified their intervention as a party and were represented by Teena Wolfe. Plumbers and Pipefitters Union Local #741 and Don't Waste Arizona, Inc. were granted intervenor status and presented testimony and exhibits during the January 24, 2001 hearing, and were jointly represented by M. David Karnas of Siegel, Bellovin & Karnas; however, at the March 5, 2001 hearing, later confirmed by written motion, said entities formally withdrew as intervenor parties and, by subsequent order of the Chairman, they were ordered withdrawn and their testimony and exhibits of January 24 rendered the status of public comment. There were no other interventions or limited appearances.

At the conclusion of the hearing and deliberations, the Committee, (i) having received and considered the Application, the appearances of Applicant and each of the intervenors; the evidence, testimony and exhibits (including Applicant's March 29, 2001 Supplement to the Application) presented by Applicant and the intervenors, respectively; and the public comments; (ii) being advised of the legal requirements of Arizona Revised Statutes Section 40-360 to 40-360.13; (iii) upon consideration of the factors identified in Arizona Revised Statutes Section 40-360.06; and (iv) in accordance with A.A.C. R14-3-213, upon motion duly made and seconded, voted to make the following findings and to grant Applicant the following Certificate of Environmental Compatibility:

The Committee finds that the record contains substantial clear and convincing evidence regarding the need for an adequate, economical and reliable supply of electric power within the State of Arizona, and how Applicant's proposed Sundance Energy Project would contribute towards satisfaction of such need without causing material adverse impact to the environment.

PPL Sundance Energy, LLC, and its assignee(s), are hereby granted this Certificate of

Environmental Compatibility authorizing construction of a natural gas-fired nominal 540 MW generating facility, consisting of twelve LM6000 units, together with related infrastructure, which shall be constructed in two phases with the first ten LM6000 units being authorized as the Phase I Units and the remaining two LM6000 units being authorized as the Phase II Units upon the satisfaction of certain additional conditions including the completion of certain transmission enhancements as described below ("Sundance Project" or "Project"). The Sundance Project is located in Pinal County, approximately one quarter mile north of Randolph Road and one quarter mile west of Tweedy Road, approximately 5 miles southwest of Coolidge, Arizona.

This Certificate is granted upon the following conditions:

1. The Applicant will comply with all existing applicable air and water pollution control standards and regulations, and with all existing applicable ordinances, master plans and regulations of the State of Arizona, Pinal County, the United States, and any other governmental entities having jurisdiction, including but not limited to the following:

   a. All zoning stipulations and conditions, including not limited to landscaping and dust control requirements and/or approvals;

   b. All applicable air quality control standards, approvals, permit conditions and requirements of the Pinal County Air Quality Control District and/or other State or Federal agencies having jurisdiction, and the applicant shall install and operate selective catalytic reduction at the level determined by the Pinal County Air Quality Control District;

   c. All applicable water use and/or disposal requirements of the Arizona Department of Water Resources, Pinal Active Management Area Management Plan(s) and the Arizona Department of Environmental Quality regulations;

   d. All applicable noise control standards, and during normal operations the Project shall not exceed applicable (i) HUD or EPA residential noise guidelines or (ii) OSHA worker safety noise standards; and

   e. All applicable regulations and permits governing storage and handling of chemicals.

2. Applicant constructed the ten LM6000 Phase I Units within the time period originally authorized by the Committee, and those Phase I Units have been in commercial operation since 2002. The authorization to construct the two additional LM6000 Phase II Units that were originally authorized by CEC 107, but were never constructed, shall be reauthorized by this amended CEC. The reauthorization to construct the Phase II Units shall expire five (5) years from the date this amended CEC is approved by the Arizona Corporation Commission ("Commission"); ~~This authorization to construct the Sundance Energy Project facility will expire as to Phase I (up to ten LM6000 units for a nominal capacity of 450 MW) upon three (3) years., and, as to the final Phase (additional LM6000 units to bring the total facility capacity to a nominal 540 MW) upon five (5) years, from the date this Certificate is approved by the Arizona Corporation Commission ("Commission") unless construction is completed to the point that the facility is capable of operating at its rated capacity, as to each Phase, by the respective expiration dates;~~ provided however, that prior to such expiration Applicant or its assignee may request the Commission extend this time limitation as provided in Condition 9 below.

~~3. Applicant's Project will have three (3) transmission lines emanating from its power plant's transmission switchyard and interconnecting with the existing transmission system. This plant interconnection must satisfy the single contingency outage criteria (N – 1) without reliance on remedial action such as generator unit tripping or load shedding. Staff has concluded based upon studies completed aiewed that for the first Phase of up to ten LM 6000 units and 450 MW, if three lines are built and conditions 4, 5 and 6 below are met, this condition 3 is satisfied.~~

~~4. The necessary modifications to clearances of the undercrossing lines shall be completed so that the existing Coolidge to Rogers 230kV transmission line has a normal rating of at least 352 MW accompanied by a 30 minute emergency rating of 110% of normal rating, prior to commercial operation of ten LM6000 units with a total rating of 450MW.~~

~~5. Applicant shall participate in good faith in the Central Arizona Transmission Study to identify and encourage expedient implementation of transmission enhancements necessary to:~~

~~a. resolve any exposure to the Coolidge to Rogers transmission line loading in excess of normal ratings due to single contingency line outages; and~~

~~b. accommodate expansion of the Sundance Energy Project facility beyond the Phase I limit of ten LM6000 units and 450 MW.~~

~~3~~6. Applicant shall not commence commercial operation~~expansion~~ of the Phase II Units~~Sundance Energy Project facility beyond ten LM6000 units~~ until: (1) a system impact study ("SIS") analyzing the addition of the Phase II Units to the Sundance Project ~~technical studies required in condition 5.b above have been~~ is provided to the Commission ~~and operation of such additional units shall not commence until the prerequisite transmission enhancements are in place.~~, and~~.~~ (2) any ~~and~~ transmission enhancements or mitigation required by the SIS ("Enhancements") are constructed and operational; provided, however, that Applicant is authorized to commence commercial operation of the Phase II Units pending completion of the Enhancements by utilizing a Remedial Action Scheme ("RAS") provided the RAS is authorized by the appropriate transmission authorities and such operation ensures the safe and reliable operation of the bulk electric system. Applicant shall notify the Commission when the Enhancements have been completed and are operational.

~~4~~7. Applicant will submit to the Commission an interconnection agreement with the transmission provider with whom it is interconnecting.

~~8. Applicant or its affiliate company will become a member of the Western States Coordinating Council ("WSCC") (or its successor) and file an executed copy of its WSCC Reliability Management System ("RMS") Generator Agreement with the Commission.~~

59. Applicant will use reasonable efforts to become a member of the Southwest Reserve Sharing Group (or its successor) if commercially reasonable, thereby making Applicant's units available for reserve sharing purposes, subject to competitive pricing.

GRANTED this 11th day of April, 2001.

ARIZONA POWER PLANT AND
TRANSMISSION LINE SITING COMMITTEE

By: Laurie A. Woodall, Chairman

[ORIGINAL 2001 AMENDMENTS OF CEC 107 BY THE COMMISSION]

BEFORE THE
ARIZONA CORPORATION COMMISSION

Having considered the factors identified in A.R.S. Section 40-360.06, and balanced, in the broad public interest, the need for an adequate, economical and reliable supply of electric power with the desire to minimize the effect thereof ono the environment and ecology of this state, the Commission finds, concludes and orders that the Certificate of Environmental Compatibility be affirmed and approved with the additional conditions set forth below.

IT IS THEREFORE ORDERED that the Certificate of Environmental Compatibility granted to PPL Sundance Energy LLC by the Arizona Power Plant and Transmission Line Committee on April 11, 2001 is hereby affirmed and approved with the additional conditions 10 through 16 set forth below:

6.~~10.~~ Condition 1(b) above is amended by inserting, after the words "selective catalytic reduction" the words "and catalytic oxidation technology". Condition 1(b) above is further amended by inserting, after the words "Pinal County Air Quality Control District" the words "and approved by EPA Region IX". ~~In addition, a new subsection (c) is added to Condition 1 above as follows:c. If during the first 20 years of commercial operation of this Project (i) an air quality permit is issued in EPA Region IX requiring a simple cycle combustion turbine generator located in an area having the same designation at that time (attainment or nonattainment) as the Project site to control NOx emissions to a level between 5.0 ppm and 2.5 ppm, and (ii) the Commission or the Applicant has determined that use of the technology required to comply with such lower standard would be economically feasible for this Project, then within 24 months of such determination Applicant shall install and operate control technology to control NOx emissions at this Project to such lower standard.~~

~~and the existing subsections c, d, and e are renumbered to be subsections d, e, and f, respectively.~~

~~11. Applicant shall make commercially reasonable efforts to execute wholesale power sales to credit worthy Arizona load serving entities serving Arizona load and to marketers providing service to those Arizona load serving entities.~~

~~12. The project shall not set any combustion turbine on its foundation until the Federal Record of Decision has been published by Western Area Power Administration approving construction of the transmission facilities interconnecting the Project to the grid.~~

7. ~~13. The Applicant shall file deed restrictions limiting the use of its property to non-residential uses.~~

Applicant shall erect and maintain a sign of not less than 4 feet by 8 feet dimensions advising:

1- That the site has been approved for the construction of an additional 90 megawatts ~~540 megawatt~~ of generating capacity~~facility~~; and

2- The expected date of completion of the facility.

~~In the event that the Project requires an extension of the term of this certificate prior to completion of construction, Applicant shall use reasonable means to directly notify all landowners and residents within a one-mile radius of the Project Facilities of the time and place of the proceeding in which the Commission shall consider such request for extension.~~

8~~14~~. Where feasible, Applicant shall make reasonable efforts to invite, and shall give full consideration to, bids from qualified local and in-state construction contractors for construction of the Project.

~~15. In the event that the lateral gas line proposed in the application is constructed off the Applicant's property, Applicant shall make a contribution to the Arizona Pipeline Safety Revolving Fund in the amount of $20,000.~~

~~16. The authority to construct facilities granted by this Commission Decision shall be revoked and the associated Certificate rendered null and void in its entirety without further order of the Comission, if the Applicant, its successor(s) or assignees(s):~~

~~1 Legally challenges any condition herein, OR~~

~~2 Fails to comply with any condition herein.~~

~~16. If the applicant, its successors) or assignee(s), after notice and hearing, is found to have failed to comply with any condition herein, the Commission shall impose appropriate sanctions up to and including revocation of the authority to construct facilities granted by the Commission, which would result in the CEC being rendered null and void in its entirety.~~

Condition No. 16 as Subsequently Modified by Decision No. 67504 (Jan. 20, 2005):

~~16. If the applicant, its successors) or assignee(s), after notice and hearing, is found to have failed to comply with any condition herein, the Commission shall impose appropriate sanctions up to and including revocation of the authority to construct facilities granted by the Commission, which would result in the CEC being rendered null and void in its entirety.~~

IT IS FURTHER ORDERED that this Decision shall become effective immediately.

BY ORDER OF THE ARIZONA CORPORATION COMMISSION

Chairman Commissioner Commissioner

In Witness Hereof, I Brian C. McNeil, Executive Secretary of the Arizona Corporation Commission, set my hand and Cause the official seal of this Commission To be affixed, this 9th day of July, 2001.

By:_____
Brian C. McNeil
Executive Secretary

Dissent:_____

Pursuant to A.A.C. R14-3-204,
the ORIGINAL and 25 copies
filed this ____ day of June, 2001, with:

Docket Control
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

COPY of the foregoing mailed
this ____ day of June, 2001, to:

Jay I. Moyes, Esq.
MOYES STOREY
3003 North Central, Suite 1250
Phoenix, Arizona 85012
Attorney for Application

_____
Angela L. Bennett

APS Proposed New Conditions

9. In the event that the Sundance Project requires an extension of the term(s) of this Certificate prior to completion of construction, the Applicant shall file such time extension request at least one hundred and eighty (180) days prior to the expiration of the Certificate. The Applicant shall use reasonable means to promptly notify the City of Coolidge, City of Casa Grande, City of Eloy, the Pinal County Board of Supervisors, and all other cities and towns within a three (3) mile radius of the Project, and all landowners and residents within a three (3) mile radius of the Project, all persons who made public comment at this proceeding who provided a mailing or email address, and all parties to this proceeding. The notification provided will include the request and the date, time, and place of the hearing or open meetings during which the Commission will consider the request for extension. Notification shall be no more than three (3) business days after the Applicant is made aware of the hearing date or the open meeting date. [Modified Case No. 218]

10. Any transfer or assignment of this Certificate shall require the assignee or successor to assume all responsibilities of the Applicant listed in this Certificate and its conditions in writing as required by A.R.S. § 40-360.08(A) and R14-3-213(F) of the Arizona Administrative Code. [Case No. 169]

11. If human remains and/or funerary objects are encountered on private land during the course of any ground-disturbing activities related to the construction of the Project, Applicant shall cease work on the affected area of the Project and notify the Director of the Arizona State Museum as required by A.R.S. § 41-865. [Case No. 169]

12. Applicant, after consultation with the State Historic Preservation Office and applicable Native American Tribes, will arrange for a qualified archaeologist to implement further pre-construction archaeological testing and to monitor all ground clearing and disturbing construction activities that may affect historical or cultural sites that are listed, or eligible for listing, on the Arizona Register of Historic Places. In the event a listed or listing-

eligible site is discovered, the Applicant will ensure that approved mitigation measures are implemented according to a treatment plan developed in consultation with the State Historic Preservation Office. Applicant shall share results of any archaeological work and findings with the appropriate Native American tribes. [Case No. 169]

13. Applicant shall provide copies of this Certificate to all affected governmental entities such as the City of Coolidge, City of Casa Grande, City of Eloy, and Pinal County Board of Supervisors. Additionally, Applicant shall also provide copies of this Certificate to the Arizona State Historic Preservation Office. [Modified Case No. 169]

14. Before construction commences on the Sundance Project, Applicant shall provide known homebuilders and developers who are building upon or developing land within a half-mile of the Project with a written description of the Project. The written description shall identify the location of the Project and contain a pictorial depiction of the Project. Applicant shall also encourage the developers and homebuilders to include this information in their disclosure statements. [Case No. 169]

15. Applicant will follow the most current Western Electricity Coordinating Council/ North American Electric Reliability Corporation planning standards, as approved by the Federal Energy Regulatory Commission and National Electrical Safety Code construction standards. [Case No. 169]

16. Applicant shall submit a compliance-certification letter annually, identifying progress made with respect to each condition contained in the Certificate, including which conditions have been met. Each letter shall be submitted to the Arizona Corporation Commission Docket Control commencing on December 1, 2024. Attached to each certification letter shall be documentation explaining how compliance with each condition was achieved. Copies of each letter, along with the corresponding documentation, shall be submitted to the Arizona Attorney General and the Governor's Office of Energy Policy. The requirement for the compliance certification letter shall expire on the date the Sundance Project is placed into operation. [Case No. 169]

Exhibit D

EXHIBIT D
TO APPLICATION TO AMEND COMMISSION DECISION NO. 63863

DECLARATION OF PETER VAN ALLEN IN SUPPORT OF APPLICATION TO AMEND DECISION NO. 63863 PURSUANT TO A.R.S. SECTION 40-252

1. I, Peter Van Allen, make this declaration in support of the *Application to Amend Decision No. 63863 pursuant to A.R.S. Section 40-252* (the "Application") filed by Arizona Public Service Company (APS).

2. I am a Project Manager for APS.

3. I have personal knowledge of the facts set forth herein in this Declaration.

4. The Arizona Corporation Commission (Commission) issued the Certificate of Environmental Compatibility in Decision No. 63863 on July 9, 2001, for the Sundance Energy Project (CEC 107) in Pinal County (Sundance Plant or Plant).

5. On January 20, 2005, in Decision No. 67504, the Commission approved APS and PPL Sundance's Joint Application for the purchase by APS of the Sundance Power Plant and associated assets.

6. CEC 107 authorized construction of a 540 MW simple-cycle plant consisting of twelve LM6000 units to be constructed in two phases within certain time limitations.

7. Phase I consisted of ten LM6000 units, and these units have been in-service since May 2002.

8. Phase II consisted of two remaining LM6000 units. The two Phase II units were never constructed and the term to construct the Phase II units expired on July 9, 2006.

9. Arizona is experiencing significant growth in demand for energy generation to support load growth. At the same time, summer energy supply is tightening in the western United States, making it difficult to purchase needed MWs from the energy market.

10. Although it did not have a need for the Phase II units in the early 2000's, APS needs flexible but firm generation resources like the LM6000 units to ensure system reliability and capacity and therefore is seeking reauthorization to construct the Phase II units at the Sundance Plant.

EXHIBIT D
TO APPLICATION TO AMEND COMMISSION DECISION NO. 63863

11. The new LM6000 units, along with the solar and battery energy storage APS is adding to its portfolio, will help APS meet the more than 35% load growth that is expected in the next eight years.

12. Having a variety of resources, including natural gas, nuclear, solar, energy storage and customer demand response programs, in APS's portfolio makes the system more resilient to supply chain disruptions, extreme weather and market conditions. Natural gas resources provide critical capacity during peak system demand and support.

13. The LM6000 units are quick starting and fast ramping – online in 8 minutes, full load in under 10 minutes – making them a critical resource to respond to fluctuations in renewable energy output throughout the day. The new LM6000 units will support reliable electrical service during the late afternoon and evening hours when customer demand is high, creating a strong complement to renewable energy resources such as solar.

14. The Sundance Plant is a key component of Arizona's energy infrastructure, currently producing enough energy to power 67,200 Arizona homes. APS plans to have the two Phase II units in service ahead of summer 2026 when APS's total load requirements are forecasted to be over 10,000 MW. Current conditions and forecasted demand support the need for the two LM6000 units.

15. The two previously authorized LM6000 units, each with 45 MW output, will be installed within the perimeter of the existing Sundance Plant, and are the same LM6000 units as those authorized by CEC 107 with minor enhancements.

16. The addition of the two Phase II LM6000 units will not result in any design changes to the Plant. The new units will be constructed on Power Block 6 as originally contemplated in the design of the Plant and will utilize the existing infrastructure at the Sundance Plant.

17. APS engaged in an extensive outreach effort to gain feedback from area residents and stakeholders concerning the plans to construct the Phase II units at the Plant. APS sent a newsletter and postcard to 875 addresses covering a 3-mile radius surrounding the Sundance Plant, which outlined the addition of the new units to the Plant and introduced

the project website and in-person open house. The project website includes a virtual open house describing the proposed addition of the two new units to the Plant and provides more detailed information on the impacts to area residents.

18. APS held an in-person open house on August 17, 2023, at the Mary C. O'Brien Elementary School in Casa Grande, Arizona. Eight people attended the open house and asked questions about the project, but no formal comments were submitted by open house attendees or from the other outreach efforts.

19. Although there were no intervenors in the original CEC case, notice of this Application was provided to affected jurisdictions including Pinal County.

I declare that the foregoing is true and correct to the best of my knowledge, information, and belief.

Signed this 3rd day of October, 2023.

/s/ Peter Van Allen
Peter Van Allen
Senior Project Manager

Exhibit E

EXHIBIT E
TO APPLICATION TO AMEND COMMISSION DECISION NO. 63863

DECLARATION OF JASON SPITZKOFF IN SUPPORT OF APPLICATION TO AMEND DECISION NO. 63863 PURSUANT TO A.R.S. SECTION 40-252

1. I, Jason Spitzkoff, make this declaration in support of the *Application to Amend Decision No. 63863 pursuant to A.R.S. Section 40-252* (the "Application") on behalf of Arizona Public Service Company (APS).

2. I am the Manager for Transmission Planning and Engineering, Transmission Contracts and Services, and Facility Siting for APS.

3. I have personal knowledge of the facts set forth in this Declaration.

4. APS plans to add two previously authorized GE LM6000 units, each with 45 MW output, at the Sundance Power Plant (Sundance Plant or Plant).

5. The Sundance Plant interconnects to the grid through 230kV transmission lines owned and operated by the Western Area Power Administration (WAPA).

6. The two Phase II units will be located within the perimeter of the Plant and will interconnect to the grid using the same WAPA system that currently serves the Plant.

7. On December 23, 2022, APS filed a large generator Interconnection Request with WAPA for the two Phase II Units.

8. Although APS anticipates that WAPA will initiate its Interconnection System Impact Study (SIS) in January 2024, APS remains uncertain as to when WAPA will complete its evaluation. If the study identifies transmission enhancements, it is undetermined when any required transmission enhancements will be completed.

9. In the interim, APS commissioned a preliminary transmission impact study (Preliminary Study) that analyzed the interconnection of the two Phase II units to the WAPA system, attached hereto as Attachment 1. The Preliminary Study identified that the addition of the Phase II units, under certain scenarios, could lead to loading violations on the Coolidge-Rogers 230kV transmission line which will require certain enhancements or upgrades to address.

EXHIBIT E
TO APPLICATION TO AMEND COMMISSION DECISION NO. 63863

10. Consultation with WAPA confirmed that the rating of the Coolidge-Rogers line is limited by equipment at the Coolidge substation (the point of termination of the line). At this point, it appears that upgrading the equipment at the Coolidge substation would be sufficient to mitigate this potential loading violation.

11. APS plans to explore the use of a Remedial Action Scheme (RAS), subject to the approval by WAPA: (1) if the WAPA SIS identifies transmission enhancements; and (2) if the transmission enhancements cannot be completed prior to the Phase II units being placed in-service. The RAS will be used, if needed, on an interim basis until any required transmission enhancements are completed.

12. The interim use of a RAS will permit APS to construct and operate the new Phase II units while ensuring the safe and reliable operation of the bulk electric system.

13. APS will not commence commercial operation of the Phase II Units until an SIS analyzing the addition of the Phase II units to the Sundance Plant has been performed and provided to the Commission, as originally required by CEC 107.

I declare that the foregoing is true and correct to the best of my knowledge, information, and belief.

Signed this 3rd day of October 2023.

/s/ Jason Spitzkoff
Jason Spitzkoff
Manager for Transmission Planning and Engineering, Transmission Contracts and Services, and Facility Siting

Attachment 1
to
Exhibit E

1898 & CO.
PART OF BURNS & MCDONNELL

Sundance Gas Generation Addition – Reliability Analysis

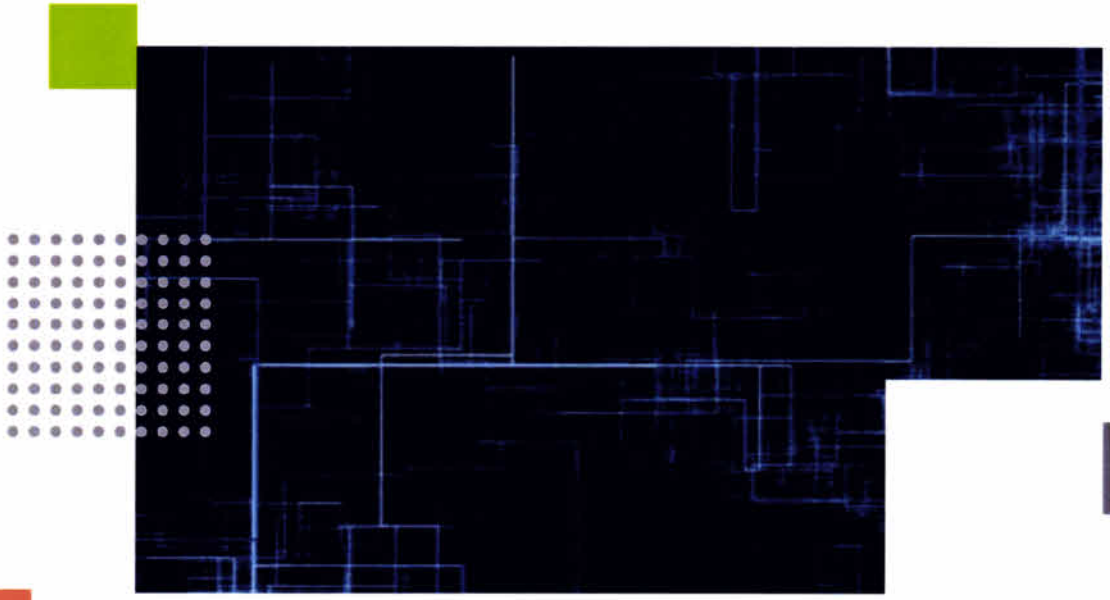
aps

Arizona Public Service Co.

Sundance: Gas Generation Addition - Reliability Analysis

Project No. 150904

Revision 1
8/20/2023



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1.0 SUNDANCE: RELIABILITY ANALYSIS

1.1 Introduction

1898 & Co. was retained by Arizona Public Service Company ("APS") to evaluate the reliability impacts of the addition of 90 MW Of additional generation capacity at the existing Sundance facility. The objective of the Study was to determine transmission impacts to the surrounding system from the additional MW injection, on top of maximum available generation capacity, at Sundance.

The Study was performed using PowerGEM's Transmission Adequacy & Reliability Assessment ("TARA") software. Study was performed on Base case and Cluster model provided by APS. Base case model did not include speculative generation from the active generation interconnection queue. Cluster model was developed to include speculative generators from the active generation interconnection queue. Both, Base and Cluster models, were developed by APS.

Summary of models provided and scenarios evaluated are summarized in the table below:

Model Provided	Scenario Evaluated
Base Model: *'27HS_AZCC_8-5-22.sav'*	Up to 90 MW injection at Sundance
Cluster Model: *'Saguaromit1d_soPhx20S_RESTUDY_05_25HS-G1_ca.sav'*	Up to 90 MW injection at Sundance

The following model adjustments were made to the base and cluster models:

- Dispatch of all existing Sundance generators were adjusted to dispatch at their modeled maximum MW level. Generators modeled at Arlington, Mesquite, and Harquahala were offset to make up for the generation adjustment.

The following study methodology was implemented to perform the injection analysis:

- Generators modeled at Arlington, Mesquite, and Harquahala were used as the SINK to offset any MW injection at the generation site being evaluated
- Injection was performed till the identified maximum injection level while noting all triggered transmission limitations by the transfer
- Rating of the Coolidge – Rogers WAPA 230 kV transmission line is updated from 282 MVA to 373 MVA since the transmission line through-path is known to be limited by jumpers at Coolidge substation. Once the jumpers are upgrades, the transmission line will be limited by a conductor rating of 373 MVA
- All facilities 69 kV and above in APS and SRP were monitored for overloads
- Single contingency events across all of APS and all Tier 1 neighbors were studied
- A distribution factor of 3% was used to filter out transmission overloads not attributable to the injection being studied
- Identified transmission overloads were reported only once for the earliest level of injection. Subsequent transfer levels that caused an overload on the same element are not reported

1.2 Results Summary

1.2.1 Base Case Analysis

Table below summarizes the injection level at which a new transmission element overload. Please note that there might be additional elements already exceeding their rated capacity before any injection, details of which can be found in the next section.

Site	Voltage Level	Additional Injection Capacity (MW)
Sundance	230	>90 MW*

1.2.2 Sundance Cluster Model Analysis

Table below summarizes the injection level at which a new transmission element overload. Please note that there might be additional elements already exceeding their rated capacity before any injection, details of which can be found in the next section.

Site	Voltage Level	Additional Injection Capacity (MW)
Sundance	230 kV	>90 MW*

* Rating of the Coolidge – Rogers WAPA 230 kV transmission line is updated from 282 MVA to 373 MVA since the transmission line through-path is known to be limited by jumpers at Coolidge substation. Once the jumpers are upgrades, the transmission line will be limited by a conductor rating of 373 MVA

1.3 Detailed Results

1.3.1 Base Case Analysis

Site	Voltage	Comment	Existing Violations		New Violations		
			Monitored Element	Contingent Element	Monitored Element	Contingent Element	MW Transfer
					N/A	N/A	N/A

1.3.2 Custer Model Analysis

Site	Voltage	Comment	Existing Violations		New Violations		
			Monitored Element	Contingent Element	Monitored Element	Contingent Element	MW Transfer
Sundance	230 kV	Injection at 14910 Sundance 230 kV up to 90 MW	19068 TESTTRAK 230 19055 LONE BUT 230 1 1	15219 KNOX 230 14226 SNTAROSA 230 1 1			

1898 & CO℠

PART OF BURNS McDONNELL

1850 N Central Ave

Phoenix, AZ

Exhibit F

EXHIBIT F
TO APPLICATION TO AMEND COMMISSION DECISION NO. 63863

DECLARATION OF MARK TURNER IN SUPPORT OF APPLICATION TO AMEND DECISION NO. 63863 PURSUANT TO A.R.S. SECTION 40-252

1. I, Mark Turner, make this declaration in support of the *Application to Amend Decision No. 63863 pursuant to A.R.S. Section 40-252* (the "Application") filed by Arizona Public Service Company (APS).

2. I am employed by AECOM Technical Services Inc. (AECOM) as a Senior Environmental Planner. My business address is 7720 North 16th Street, Suite 100, Phoenix, Arizona 85020.

3. I have personal knowledge of the facts and matters set forth in this Declaration.

4. AECOM was engaged by APS to analyze the environmental impacts associated with the addition of two previously authorized (Phase II) LM6000 units at the Sundance Power Plant (Sundance Plant or Plant).

5. The written report summarizing the environmental studies and analyses performed by AECOM concerning the Phase II units is attached hereto as Attachment 1 (AECOM Report or Report).

6. I have reviewed the environmental studies prepared for the Certificate of Environmental Compatibility (CEC) obtained for the Sundance Plant in Line Siting Case No. 107.

7. AECOM analyzed the environmental impact of constructing the two previously authorized Phase II units at the Plant under the same factors that were considered in the original CEC application in Case No. 107.

8. I have conducted and supervised the environmental analyses to evaluate the environmental impacts associated with the addition of the two Phase II LM6000 units. The environmental analyses include review of aerial photography, maps, photographic simulations, prior studies and field surveys, and jurisdictional plans for the area. [See Report, Appendices B and C]

9. As summarized below and more fully detailed in the AECOM Report, the environmental impacts resulting from the construction of the Phase II units at the Plant would be minimal given the nature of the change and its footprint within the existing Plant.

Project Location.

10. The Sundance Plant, a natural gas-fired electricity generating facility, is located at 2060 W. Sundance Road in Pinal County, approximately four miles southwest of downtown Coolidge, Arizona. [See Report; Figure 1]

Land Use.

11. The Phase II units will be constructed within the existing Plant boundaries at the same power block that was originally set aside for these units when the Plant was originally designed and constructed.

12. The zoning designation surrounding the Sundance Plant has changed since the Plant's construction, but it allows for similar uses and developments as the original General Rural (GR) designation. Between 2001 and 2023, 97 percent of the land use around the Sundance Plant has not changed, with just over a one percent increase in urbanization and land development.

Water.

13. The Phase II units, like the existing ten Phase I units at the Plant, will use Central Arizona Project (CAP) surface water as the primary source of water, which is procured water rights from the Gila River Indian Community. Although APS will pump a small amount of groundwater, the majority of the water APS pumps from the onsite well will be stored CAP water.

Incremental Air Emissions.

14. APS filed an application for a permit revision with the Pinal County Air Quality Controlled District on August 24, 2023, to obtain a revised Air Quality Permit (V206090.R01). The air permit application and supporting documentation demonstrate that incremental emissions resulting from the two Phase II units will comply with all state and federal requirements. In particular, the air quality modeling analysis demonstrates the

PM10 and PM2.5 impacts of the two Phase II units are below the EPA Significant Impact Levels, and that the NO2 impacts added to background air concentrations are below the National Ambient Air Quality Standards (NAAQS). Therefore, the air quality analysis demonstrates the reauthorization of the two Phase II units would not cause or contribute to a violation of the NAAQS. [See Exhibit B-1 in Report]

Visual Resources.

15. The Sundance Plant is surrounded predominantly by agricultural lands with scattered residences, with the nearest residential community located approximately 2 miles from the Plant.

16. As depicted in the visual simulations contained in the Report, the construction of the Phase II units is not anticipated to impact general views in the area or views of the high sensitivity viewers in residential neighborhoods. The Phase II units will be located within the boundaries of the Plant adjacent to an existing transmission corridor and the lines, forms, colors, textures, and scale of the Plant would be consistent with the existing infrastructure development. The Phase II units will be constructed and operated as identified in the Case No. 107 hearing and will be the same height as the existing structures. As a result, there will be minimal visual impacts resulting from the Phase II units.

Cultural Resources.

17. The 2023 cultural resource assessment prepared to support the Application confirmed no cultural resources have been recorded within the perimeter of the Sundance Plant. The review also documented that prior cultural resource surveys had covered approximately 35 percent of area within one mile of the power plant and recorded five cultural resources.

18. The 2023 review confirmed there are no cultural resources within the Plant and documented that the SHPO has determined two of the five cultural resources recorded within one mile of the Plant lack historic values and are not eligible for the Arizona Register of Historic Places (ARHP). In summary, the review documented that the construction of

the Phase II units within the current boundaries of the Plant will not substantially damage or destroy any properties listed in or eligible for the ARHP.

Biological Resources.

19. No species protected under the Endangered Species Act are present or would utilize resources in the vicinity of the Plant. No impacts to native vegetation are anticipated by the construction or operation of the Phase II units as the land was converted into industrial uses two decades ago. The Phase II units will be constructed on pre-disturbed lands that provide minimal habitat for special status species or general wildlife. Special status species would not experience long-term detrimental impacts related to the loss or alteration of vegetative cover within the Plant, based on a lack of suitable habitat within the existing Plant. There will be no impacts to riparian or wetland vegetation. In sum, the potential impacts on general wildlife would be minimal.

Noise Analysis.

20. The nearest residential receptor to the Sundance Plant is an isolated residence with buildings located approximately 500 feet to the northwest in an area that is zoned GR (rural) and restricted by the 65/60 dBA Day/Night limits defined in the Pinal County Noise Ordinance. Baseline sound pressure level (SPL) measurements were recorded from Thursday, May 25, 2023, to Friday, May 26, 2023. Four long-term (LT) SPL measurements were recorded to establish and characterize the existing ambient noise environment at representative noise-sensitive land uses in the Plant vicinity.

21. Ambient noise levels generated by the Phase II units are not expected to increase by more than 2 dBA at any location. A change in sound level of 3 dBA is generally considered to be the smallest change in noise levels that is perceptible outside of a laboratory environment. Therefore, the predicted maximum increase in facility noise of up to 2 dBA at nearby receptors would not result in adverse effects to the surrounding areas. The operation of the Phase II units will not increase noise levels to detectible levels.

Conclusion.

22. It is my expert opinion that the addition of the Phase II units to the Sundance Plant will have minimal environmental impacts and is environmentally compatible with

the total environment of the area given that they occur within the power plant boundaries. The proposed Phase II units will not substantially diminish views from residences or the local traveling public, nor increase noise levels to detectible levels.

I declare that the foregoing is true and correct to the best of my knowledge, information, and belief.

Signed this 3rd day of October, 2023.

/s/ Mark Turner
Mark Turner
Senior Environmental Planner
AECOM

Attachment 1
to
Exhibit F

Exhibit F Attachment 1

AECOM Imagine it. Delivered.

Sundance Power Plant
CEC 107 Amendment Project

Environmental Narrative Report for
Application to Amend Arizona Corporation Commission Decision No. 63863,
Granting a Certificate of Environmental Compatibility in Case No.107

Arizona Public Service Company

August 26, 2023

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Figures

Tables

1. Introduction

Arizona Corporation Commission (ACC) Case No. 107, Docket No. L-00000W-00-0107 with Decision No. 63863, dated July 9, 2001, approved a Certificate of Environmental Compatibility (CEC) for the Sundance Energy Project granted by the Arizona Power Plant and Transmission Line Siting Committee. The approved CEC (CEC 107) authorized the construction and operation of the power plant, gas line, and associated transmission lines. Condition 2 of CEC 107 authorized the construction in two phases, with both phases required to be completed within five years of approval.

Arizona Public Service Company (APS) purchased the Sundance Power Plant in 2005 but did not construct the second phase of the power plant within the five-year schedule specified by the CEC. Therefore, APS is requesting an amendment to modify CEC 107 to construct and operate two gas turbines and associated infrastructure that comprise Unit 6 at Sundance Power Plant (Project).

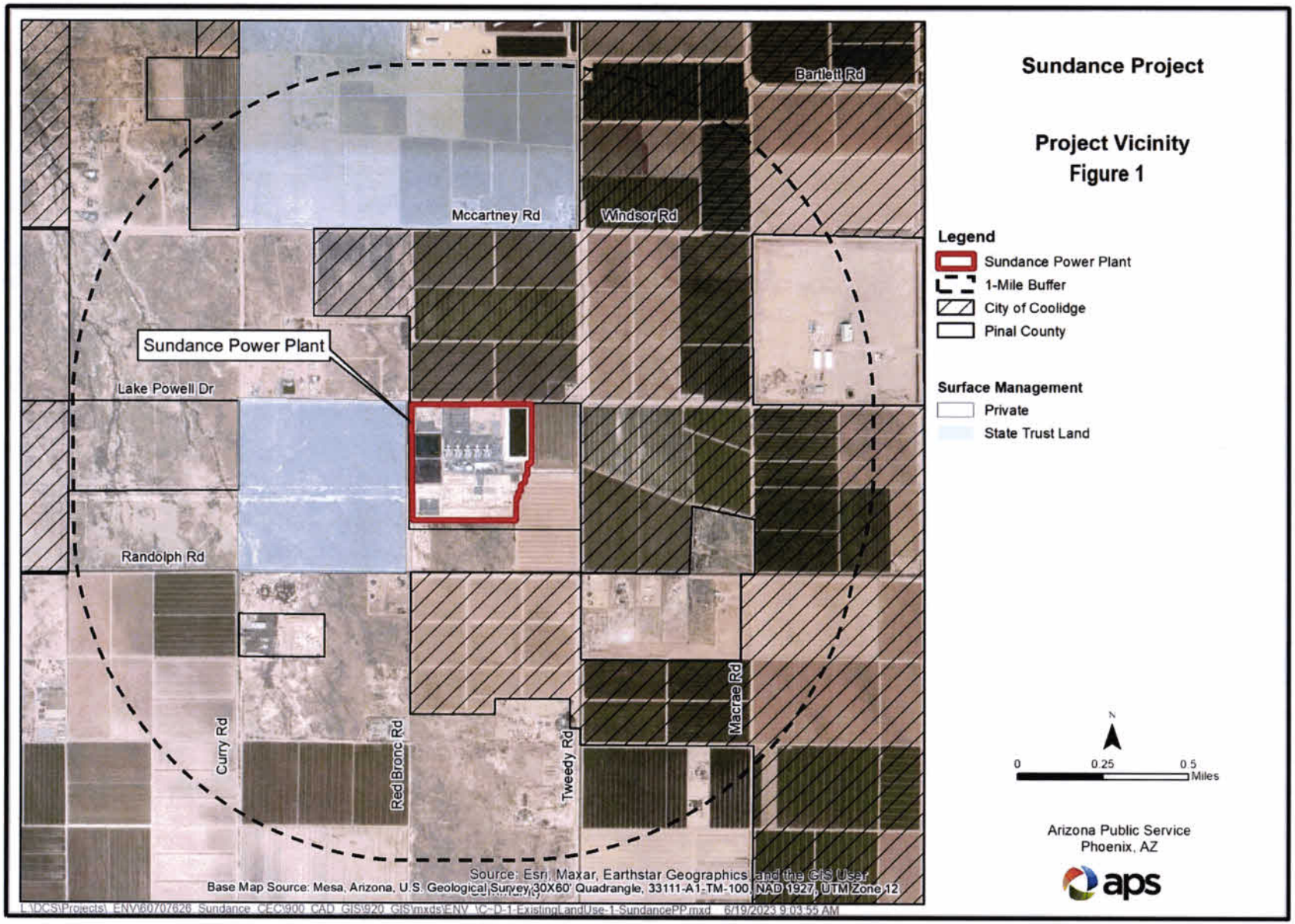
In support of the CEC amendment request, AECOM conducted an environmental review for the project. This review consisted of:

- review and summary of prior information submitted for the approved powerplant and associated facilities;
- review of new information, including spatial and non-spatial data, related to the construction and operation of the proposed Project; and
- compatibility analysis of the proposed Project with existing and future land uses and conformance to the Pinal County Comprehensive Plan, City of Casa Grande 2030 General Plan, and the City of Coolidge 2025 General Plan.

2. Project Location and Description

2.1 Location

The APS Sundance Power Plant (Sundance) is a natural gas-fired electricity generating facility located at 2060 W. Sundance Road in Pinal County, approximately four miles southwest of downtown Coolidge, Arizona (Project Site; **Figure 1**). Sundance is within Section 2 of Township 6 South, Range 7 East, Gila-Salt River Principal Meridian, as depicted on the Coolidge, Arizona, United States (US) Geological Survey 7.5-minute topographic quadrangle.


Sundance Project
Project Vicinity
Figure 1
Legend
Sundance Power Plant
1-Mile Buffer
City of Coolidge
Pinal County
Surface Management
Private
State Trust Land
Bartlett Rd
Mccartney Rd
Windsor Rd
Sundance Power Plant
Lake Powell Dr
Randolph Rd
Curry Rd
Red Bronc Rd
Tweedy Rd
Macrae Rd
N
0
0.25
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Miles
Arizona Public Service
Phoenix, AZ
aps
Source: Esri, Maxar, Earthstar Geographics, and the GIS User
Base Map Source: Mesa, Arizona, U.S. Geological Survey 30X60' Quadrangle, 33111-A1-TM-100, NAD 1927, UTM Zone 12
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2.2 Project Description

Sundance currently includes 10 General Electric Model LM6000 SPRINT (SPRayINTercooling) simple cycle combustion turbines (CT) arranged into five power blocks. These CTs were originally constructed in 2001 and currently produce 420 megawatts (MW). APS proposes to maximize the existing infrastructure at Sundance by adding two new General Electric Model LM6000PC aeroderivative simple cycle CTs, identified as Units 11 and 12, which will add an additional 90 MW.

2.3 Existing Power Plant

Sundance is currently a 450 megawatt (MW) natural gas-fired, simple cycle, peaking generating facility with supporting infrastructure, including an administration building, warehouse storage, an inlet air cooling system, water treatment and storage facilities, gas conditioning equipment, and on-site access roads. The generating facility occupies less than 40-acres of a large 300-acre property owned by APS. The primary water source for Sundance is provided by Central Arizona Project (CAP) Colorado River, supplemented by local groundwater. Natural gas is supplied from an El Paso gas line that extends from the east to the west through the middle of the Project Site.

Gas Turbines: The LM6000 combustion turbines are two-shaft gas turbine engines derived from the core of the CF6-80C2 engine, which is General Electric Company's high thrust, high efficiency aircraft engine. The existing units have emission control systems installed Selected Catalytic Reduction (SCR)/Carbon monoxide (CO) catalysts. The LM6000 combustion turbines each generate approximately 45 MW and include SPRINT systems, which enhance the efficiency and output of LM6000 gas turbine engines by spraying micro droplets of atomized water into the interstage air stream between the low-pressure compressors and the high-pressure compressors. The water is atomized by eight stage bleed air and special nozzles to a droplet diameter of less than 20 microns. As the droplets evaporate, the air temperature is reduced and the mass flow is increased. This results in greater power output and better fuel efficiency. The turbines are housed in a metal enclosure to protect the units from the elements and for noise reduction.

Air Intake System: The air intake system provides filtered air to the combustion turbine compressors. The intake system is mounted above the combustion turbine and is equipped with a self-cleaning filter system to clean particulates from the air. An inlet air fogging system is used to enhance gas turbine performance at the high local ambient air temperatures. The fogging system sprays a fine mist of water into the combustion air stream within the inlet air filter house. The fogging system is used to reduce the temperature of the inlet air, increase the mass flow to the combustion turbines, and results in increased electrical output and improved fuel efficiency for the units.

Exhaust Gas System: Exhaust gases from the turbines discharge directly into the atmosphere. Each exhaust stack features continuous emissions monitors and test connections for performance monitoring.

Generators for the Gas Turbines: The generators for the gas turbines are two-pole, LM6000 units that are air cooled. Indirect cooling is provided for the stator winding, and direct cooling for the rotor winding of the "F Frame" units. "F Frame" turbines are single-casing, single shaft machines that have a common rotor. The turbines sit on a horizontal axis with the cold ends (compressor ends) attached to the generators. The primary cooling circuit for the "F Frame" units is a closed loop design. The cooling medium at the generator outlet is cooled in a secondary cooling circuit. The coolers are mounted on one side of the stator frame.

Switchyard and Electrical Plant: The generators are arranged in pairs for the LM6000 units, with two generators connected to one generator step-up transformer. There is a separate generator step-up transformer for each of the "F Frame" units. The gas turbine sets are connected to the high-voltage switchyard via the generator leads and the generator step-up transformer. A unit breaker is provided in the switchyard to connect the unit to the grid. Each generator step-up transformer is connected to the grid through its own substation position. Each generator has a 13.8 kilovolt (kV) generator breaker, which is used for synchronizing the unit. A 13.8kV auxiliary power switchgear bus distributes auxiliary power to the 13.8kV to 480-volt unit auxiliary transformers and balance of facility transformers. The 13.8kV auxiliary power switchgear has two sources of power and two main breakers. Each source is from a tap between the 13.8kV generator breaker and the generator step up transformer connected to the two units. All facility auxiliaries are able to be supplied from either source.

Fuel Systems: High pressure natural gas is supplied to the facility from the El Paso natural gas pipelines. From the metering station, it is piped to the gas conditioning and compressor equipment skids. The gas conditioning skids filter gas particulates and drop out moisture contained in the gas. Natural gas for the Frame UFA combustion turbines is delivered at line 550 pounds per square in gauge (psig). Gas compressors increase the natural gas supply pressure for the LM6000 combustion turbines to approximately 750 psig.

Water Systems: All combustion turbine units also require demineralized water for inlet air fogging. Raw supply water is held in a regulatory storage pond (approximately 5 acres) sized to account for anticipated interruptions in water delivery. Raw water is pretreated for Total Dissolved Solids (TDS) removal by an on-site Reverse Osmosis (RO) system, then completely demineralized using vendor-supplied portable demineralization trailers. Pretreatment byproduct water is blended with the existing farm irrigation water supply and used for irrigation of crops and/or pasture on the existing fields on the Project Site. The demineralization trailers are taken off-site for regeneration and disposal of spent resins

and chemicals. A tank stores a reserve of demineralized water for use by the generator units. Fire protection water is supplied from wells located on site.

Water Treatment: The water treatment consists of an on-site RO pretreatment system and leased demineralization trailers to supply completely demineralized water. The byproduct from the RO unit is blended with CAP irrigation water to reduce TDS. Clean water from the oil separator is also blended with the RO discharge. The diluted byproduct is then used for irrigation of existing fields on the Project Site. The leased demineralizer trailers are taken off-site for regeneration and all waste products are disposed off-site per applicable regulations.

2.4 Proposed Sundance Plant

New power plant components would be constructed within the existing power plant facility as depicted in the visual simulations in **Appendix A**. The new components include two LM6000 generator units with emission control systems installed SCR/CO catalysts, a water tank, a turbine chiller building, and a well head building. The new generators would be arranged in a pair, with one generator connected to each low voltage winding of a 3-winding generator step-up transformer. To stay within short circuit current ratings and continuous current ratings of the 13.8kV switchgear generator breakers, each generator would be connected to a separate low voltage transformer winding.

The two new generator units would be cooled by water-to-air (fin fan) coolers provided by the combustion turbine supplier. These are closed loop systems using a water-glycol cooling medium. Demineralized water would be utilized for the SPRINT power augmentation system of the LM6000 generators. Water and gas for the new unit would be provided using the existing infrastructure.

2.5 Study Area

The environmental review analysis area (Study Area) for the proposed CEC amendment includes areas within one mile of Sundance. Land use, air quality, environmental justice analysis, and visual assessments have broader study areas for analysis to properly assess any potential environmental impacts (**Table 1**). Prior CEC application data was reviewed to the extent relevant.

Table 1. Environmental Resource Study Area Boundaries

Environmental Resource	Study Area Boundary
Land Use	CEC guidance states a two-mile buffer around project features.
Air Quality Permit - Environmental Protection Agency (EPA) Review	EPA recommends a three-mile notification area around project features as part of air quality permit review with public involvement.
Biology	One-mile surrounding project features. United States Fish and Wildlife Service (USFWS) and Arizona Game and Fish Department (AZGFD) databases provide three-mile buffers around project features.

Environmental Resource	Study Area Boundary
Cultural Resources	One-mile surrounding project features.
Visual and Scenic Resources	One-mile surrounding project features. Within one mile of project, visual simulations are created. Analysis of visual and scenic resources may have discussions that go beyond one mile as local topography and conditions merit further analysis area being included due to proximity of recreational or scenic-valued resources in the project vicinity.
Noise Analysis	One-mile surrounding project features.
Public Outreach for CEC	Typically, one-mile buffer around project features is required by CEC for siting studies. However, if that boundary bisects an established community or neighborhood, analysis is extended to capture the remaining portions of that grouping. For Sundance a three-mile outreach boundary was utilized to mirror the EPA Air Quality Permit review boundary.

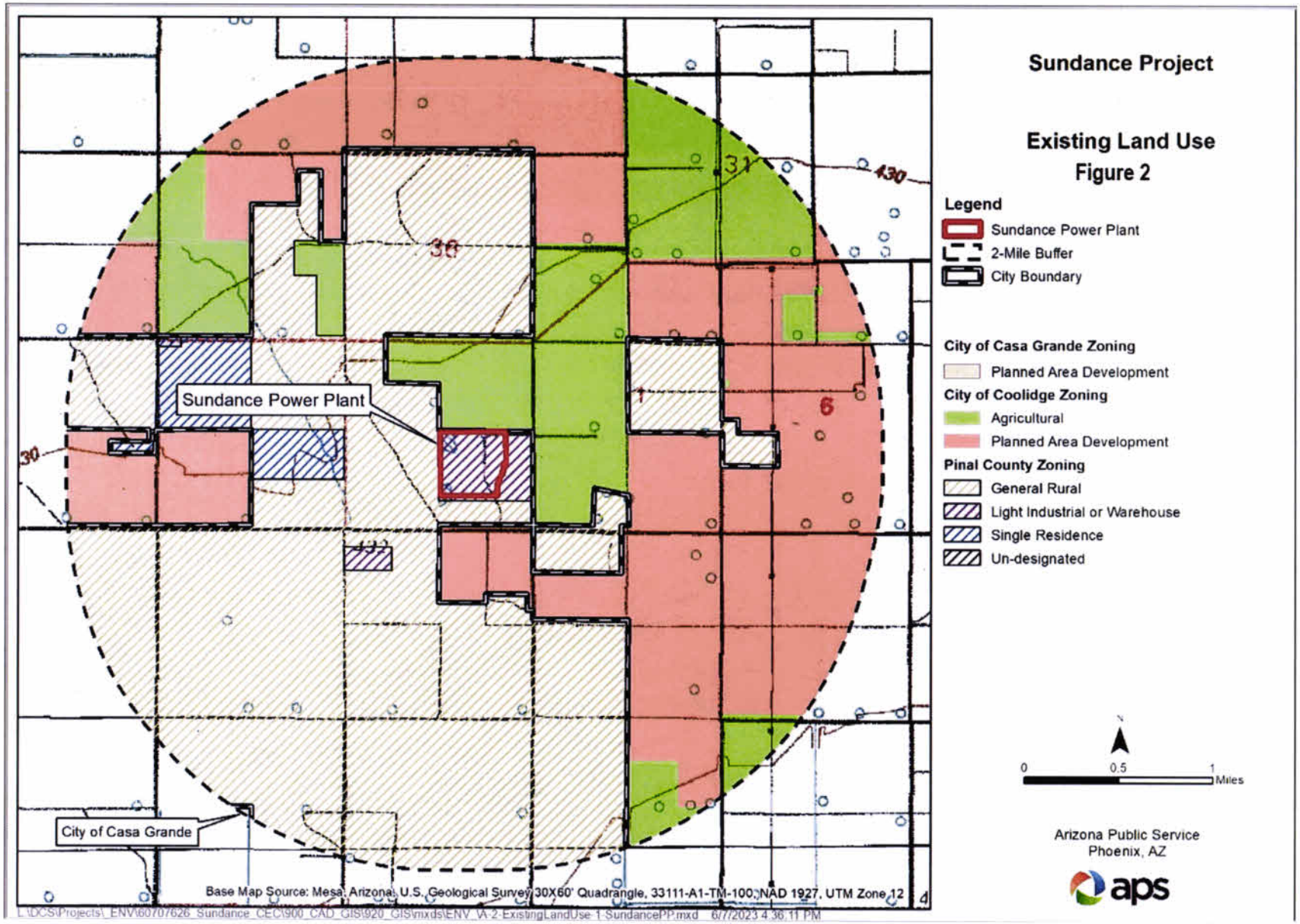
3. Resource Review and Analysis of Impacts

3.1 Land Use

The analysis boundaries for land use assessment include Sundance and the adjacent area as noted in **Figure 2.** Land use analysis was completed using a two-mile buffer around Sundance. Much of the land within the Study Area is privately owned and managed. The Study Area is within Pinal County, Arizona, including portions of the city limits of Casa Grande and Coolidge.

Current Land Use Information

The zoning designation of the Study Area has changed since Sundance's construction, but it allows for similar uses and developments as the original General Rural (GR) designation. Within two miles of Sundance, Pinal County land is currently zoned as GR, Single Residential, Light Industrial, and Un-designated (Pinal County 2023). Scattered residential structures have been built to the north, south, east and west of Sundance since its inception, but no large-scale subdivisions have been built nearby. Both the City of Coolidge and City of Casa Grande own land within the Study Area. All land within Casa Grande city limits within the Study Area is designated as a Planned Area of Development (City of Casa Grande 2021). Of the land in the Study Area that falls in Coolidge city limits, roughly half is zoned agricultural, while the other half is listed as a Planned Area of Development (City of Coolidge 2014) (**see Figure 2**).


Sundance Project
Existing Land Use
Figure 2
Legend
Sundance Power Plant
2-Mile Buffer
City Boundary
City of Casa Grande Zoning
Planned Area Development
City of Coolidge Zoning
Agricultural
Planned Area Development
Pinal County Zoning
General Rural
Light Industrial or Warehouse
Single Residence
Un-designated
Sundance Power Plant
City of Casa Grande
0
0.5
1
Miles
Arizona Public Service
Phoenix, AZ
aps
Base Map Source: Mesa, Arizona; U.S. Geological Survey 30X60' Quadrangle, 33111-A1-TM-100, NAD 1927, UTM Zone 12
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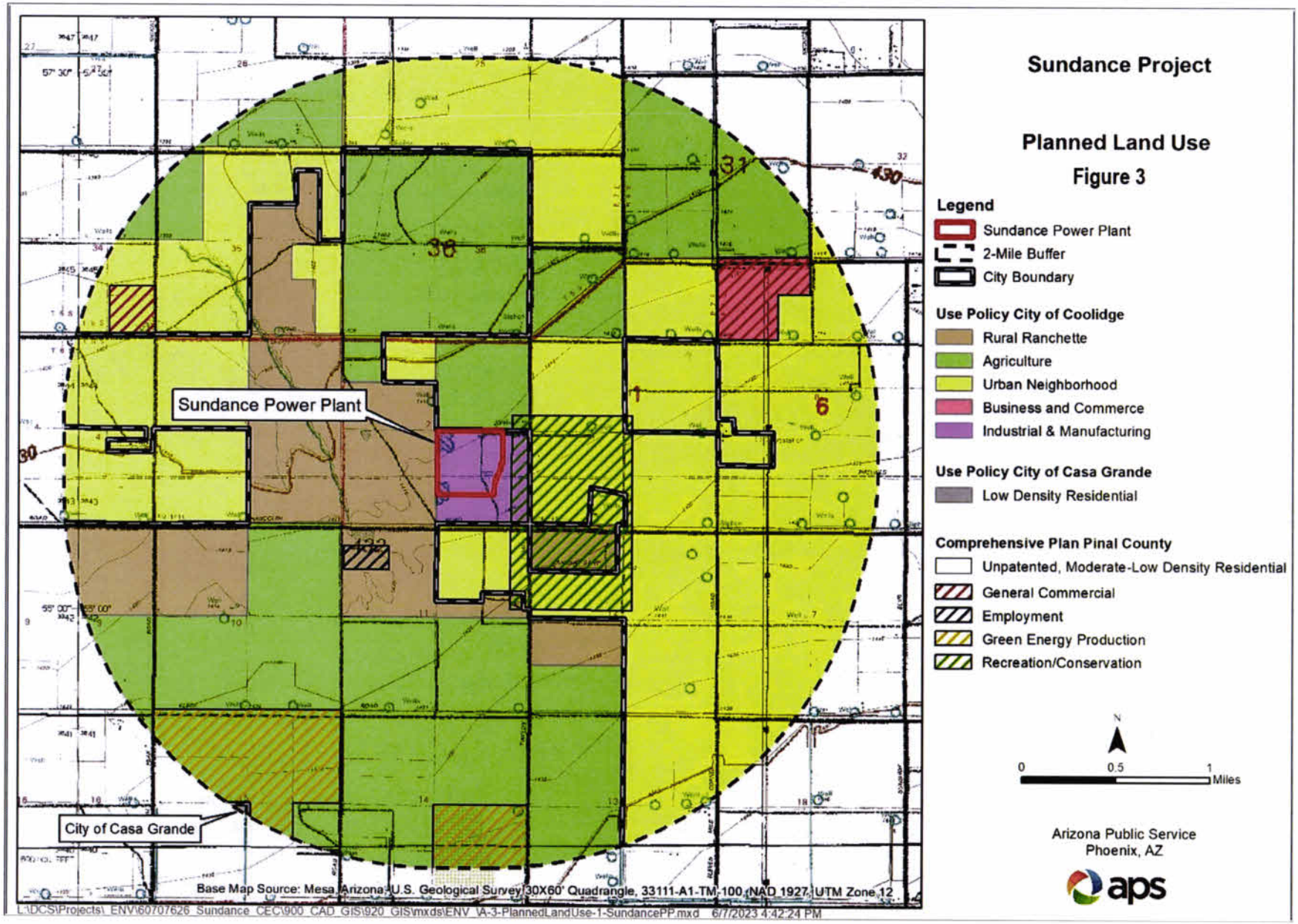
Future Land Use Information

Identification of future land use within the Study Area included review of the land use policy plans within the Pinal County Comprehensive Plan, City of Casa Grande 2030 General Plan, and the City of Coolidge 2025 General Plan.

Pinal County's future land use for the Study Area includes increasing the density of residential and commercial areas, as well as designating areas for green energy production and recreation/conservation (Pinal County 2019). The City of Casa Grande's Planned Area of Development within the Study Area will maintain low density residential zoning, which is compatible to the current land use designation (City of Casa Grande 2021). The City of Coolidge's plan for the land within the Study Area is to increase urbanization and commercial and manufacturing/industry zoning. The City of Coolidge will maintain some areas for agriculture and low-density residential zoning in the form of rural ranchettes (City of Coolidge 2014) (**Figure 3**).

Land Use Analysis Conclusion

The proposed Project would be within the existing Sundance power plant. Between 2001 and 2019, 97 percent of the land use around Sundance has not changed, with just over a 1 percent increase in urbanization and land development (USGS 2019). Pinal County's future land use for the Study Area and Project vicinity includes increasing residential and commercial density and designating areas for green energy production and recreation and conservation (Pinal County 2019).


Sundance Project
Planned Land Use
Figure 3
Legend
Sundance Power Plant
2-Mile Buffer
City Boundary
Use Policy City of Coolidge
Rural Ranchette
Agriculture
Urban Neighborhood
Business and Commerce
Industrial & Manufacturing
Use Policy City of Casa Grande
Low Density Residential
Comprehensive Plan Pinal County
Unpatented, Moderate-Low Density Residential
General Commercial
Employment
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Arizona Public Service
Phoenix, AZ
aps

3.2 Scenic and Visual Resources

Sundance is surrounded predominantly by agricultural lands with some residential communities and scattered residences. There are no ephemeral washes or natural drainage features within the Project setting. Most topography surrounding the Project Site can be characterized as relatively flat with expansive views. Expansive views allow for the surrounding mountain ranges to be seen during normal conditions. The Sacaton Mountains are approximately five miles to the northwest, the Picacho Mountains are approximately 18 miles to the southeast, and numerous mountain ranges are more than 30 miles to the northeast. Higher densities of shrubs are found along washes and canals. The Study Area for scenic, recreation, and visual assessments is one mile, with more expansive discussions for visual impact assessments.

Prior Visual Resources Information (2003)

The production of visual simulations was a key component of the visual analysis conducted for the Project. The visual simulations were used to verify potential impact levels and provide the public and agencies an opportunity to review the magnitude of change associated with the proposed project facilities. The original CEC application determined that most visual impacts on scenic quality and sensitive viewers were categorized as low to moderate. Low impacts were expected on viewers along major roadways and from residences within background (two to three miles) and middle ground (0.25 to two miles) distance zones.

Current Visual Resources Information

The Study Area generally consists of irrigated agricultural parcels, undeveloped lands, several rural manufacturing facilities, and scattered residential homes. Inventory data for visual resources were collected from aerial photography and field evaluation, and focused on landscape character, determination of scenic quality, identification of sensitive viewers, and viewing conditions (e.g., distance zones, viewer orientation, and screening).

Existing residential neighborhoods are typically considered to be of high sensitivity. There are numerous low-density single-family homes and three medium density residential developments within the Study Area. The medium-density residential developments are located at Woodruff Lane and Curry Road, Signal Peak Road and Warren Drive, and Randolph Road and La Palma Road. The existing power plant and electrical infrastructure are visible from the existing residential neighborhoods, but do not significantly hinder the expansive views of the surrounding mountains.

Daytime and nighttime visual simulations were prepared from multiple key observation points, including within 0.25 mile of Sundance where residences are located and from several miles away from the closest portion of two other residential communities (**Appendix A**).

Visual Resources Analysis and Conclusion

Existing conditions within the Study Area generally include expansive views of flat irrigated agricultural parcels and dispersed residential neighborhoods with mountain ranges in the distance. Transmission lines follow most of the major roadways. Sundance is visible from throughout the Study Area, but it does not significantly hinder the expansive views of the surrounding mountain ranges. Construction of the two additional units is not anticipated to impact general views in the area or views of the high sensitivity viewers in residential neighborhoods. Despite the close proximity of generally high sensitivity and recreational viewers, the lines, forms, colors, textures, and scale of the Project features would be consistent of the existing infrastructure development.

3.3 Cultural Resources

ACC rules of Practice and Procedure (Title 14, Chapter 3) stipulate that CEC applications must "describe any historic sites and structures or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facility will have thereon." A cultural resource assessment was conducted to address that requirement.

Prior Cultural Resources Information (2003)

An intensive cultural resources survey conducted in conjunction with the original application for CEC 107 found no cultural resources within the site selected for the power plant. That survey did record a prehistoric artifact scatter, designated AZ AA:22:199(ASM), approximately 100 feet south of the power plant site. Construction of the power plant did not disturb that site or any other historic sites and structures or archaeological sites.

Current Cultural Resources Information

The cultural resource assessment prepared to support the proposed amendment of CEC 107 confirmed no cultural resources have been recorded in the Sundance power plant. The review also documented that prior cultural resource surveys had covered approximately 35 percent of area within one mile of the power plant and recorded five cultural resources.

Two of the recorded cultural resources are scatters of precontact Hohokam artifacts. The closest of those is the site the original survey found approximately 100 feet south of the power plant. The State Historic Preservation Officer (SHPO) determined that site lacks significance and is not eligible for inclusion in the Arizona Register of Historic Places (ARHP). The mapped location of the other Hohokam artifact scatter is approximately one-half mile from the power plant. No archaeologist has inspected that site since its original recording in 1985 and the SHPO has not evaluated its eligibility for the ARHP.

The three other cultural resources recorded within one mile of Sundance are of historic age. One is a section line road (Tweedy Road), and the SHPO determined the road is not eligible for the ARHP. The other two recorded cultural resources are concrete-lined

irrigation ditches, and one also is associated with a capped water well, concrete foundation for a pump, and a trash pit. The SHPO has not evaluated the ARHP eligibility of those two sites, but the recorders evaluated them as ineligible.

Cultural Resources Analysis and Conclusion

The review confirmed there are no cultural resources in the power plant and documented that the SHPO has determined two of the five cultural resources recorded within 1 mile of the power plant lack historic values and are not eligible for the ARHP. The SHPO has not evaluated the ARHP eligibility of the other three cultural resources, but the proximity impacts of the proposed Project, due to factors such as visual changes or increased noise, would not adversely impact the potential of those cultural resources to yield information or other historically significant characteristics those cultural resources might have. In summary, the review documented that the proposed addition of a sixth power block within the current limits of the Sundance power plant would not substantially damage or destroy any properties listed in or eligible for the ARHP.

APS provided a copy of the cultural resource assessment to the SHPO and will respond to any comments.

3.4 Biological Resources

ACC Rules of Practice and Procedure (Title 14, Chapter 3) stipulate that CEC applications must "describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitat for rare and endangered species [and] describe the biological wealth or species involved and state the effects, if any, the proposed facility will have thereon." The CEC application also must "list the fish, wildlife, plant life and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, the proposed facilities will have thereon." In addition, any right-of-way that might be acquired across lands owned by the state or county and local governments would be subject to the provisions of the Native Plant Law (ARS §§ 3-901 through 3-934), requiring avoidance or salvage of specific plant species.

Prior Biological Resources Information (2003)

The original CEC application stated that the habitats at the Project Site and its adjoining areas are not suitable for any listed species as protected under Endangered Species Act, Migratory Bird Treaty Act, or the Bald and Golden Eagle Recovery Act.

Current Biological Resources Information

The Project Site is within the Lower Colorado River Valley subdivision of the Sonoran Desert scrub vegetation biome (Brown 1994). Vegetation in the Study Area is dominated by human-altered landscape and mostly devoid of natural vegetation and desert ephemeral washes.

The list of special status species considered in the biological resources analysis was developed from the following sources: (1) federally listed, proposed, and candidate species for Pinal County provided by the USFWS; (2) a list of sensitive species provided by the AGFD Heritage Data Management System; and (3) The Native Plant Law (enforced by the Arizona Department of Agriculture). The potential for the occurrence of special status species in the Study Area was evaluated based on (1) existing information, (2) qualitative comparisons between known habitat requirements for each species and biotic and abiotic conditions found on the Project Site, and (3) experiences from similar evaluations conducted by AECOM biologists.

The USFWS Information for Planning and Consultation (IPaC) identified two federally listed and protected species that may have the potential to occur within the Study Area (**Table 2**). The federal IPaC did not list any critical habitats, National Wildlife Refuge Lands, or fish hatcheries in the study area, but it did identify possible freshwater pond wetlands near Sundance (USFWS 2023). These potential wetland areas are identified on National Wetlands Inventory maps but are not regulated under the Clean Water Act.

Biological Resources Analysis and Conclusion

The expansion of Sundance would occur on pre-disturbed lands that provide minimal habitat for special status species. Special status species would not experience long-term detrimental impacts related to the loss or alteration of vegetative cover within the Project Site based on a lack of suitable habitat in areas within the existing facilities. There are some suitable and unaffected habitats in the open desert areas in the vicinity of the proposed Project, but the expansion of Sundance is not anticipated to impact those surrounding areas; thus, not impacting the species that inhabit them.

Table 2. Endangered Species Act Species Potentially Occurring in the Analysis Area

Species	Status	Habitat Requirements	Habitat Suitability
INSECTS			
Monarch Butterfly *Danaus plexippus*	ESA-C	Breeding and migratory monarch butterfly populations occur throughout Arizona habitats include riparian areas, native desert habitats and urban habitats concentrated on parks. Abundance of milkweed is critical for this species. Additional plant species monarchs are known to utilize include dogbane, alfalfa, thistles, seep willow, sunflowers, groundsel, and clovers (Morris et al. 2015).	**No suitable habitat** in study area. Although the evaporation ponds could provide the necessary water during the summer months, suitable plant species most associated with the Monarch butterfly are not prevalent in the study area.
BIRDS			
Yellow-billed Cuckoo *Coccyzus americanus*	ESA-LT	This bird utilizes large contiguous patches of multi layered riparian habitat, such as cottonwood-willow gallery forests along rivers and streams below 6,600 feet (AGFD 2021).	**No suitable habitat** in study area. Suitable habitat for this species is not present in the study area. While water can be present at the site, the highly modified evaporation ponds do not provide the necessary riparian vegetation.

Species	Status	Habitat Requirements	Habitat Suitability

NOTES: ESA = Endangered Species Act; C = Candidate; LT = Listed Threatened

3.5 Noise Analysis

Current Noise Setting

The EPA has published guidance that specifically addresses issues of community noise (EPA 1974). This guidance, commonly referred to as the "levels document," contains goals for noise levels affecting residential land use of day-night sound level (Ldn) ≤ 55 A-weighted decibels (dBA) for exterior levels and Ldn ≤ 45 dBA for interior levels. The U.S. Department of Housing and Urban Development (HUD) Noise Guidebook, Chapter 2 Section 51.101(a)(8), also recommends that exterior areas of frequent human use follow the EPA guideline of 55 dBA Ldn (HUD 2009). Therefore, in the absence of a quantified noise threshold from local regulations, 55 dBA Ldn would be considered a guidance-based threshold for determining potential noise impacts at noise-sensitive receivers like residences.

The Project Site and nearest noise-sensitive receptors are wholly within Pinal County, Arizona. The receptor at 3964 North Tweedy Road is within the incorporated boundary for the City of Coolidge. The City of Coolidge Noise Ordinance does not stipulate sound level limits and, therefore, the Pinal County Noise Ordinance is used to evaluate noise impacts at this (and all other) receptors.

The Pinal County Noise Ordinance defines limits for noise received by neighboring receptors based on the receiving land use and time of day. Applicable noise thresholds for the zones in the vicinity of the project are included in **Table 3**.

Table 32. Pinal County Noise Thresholds

Zone	Time of Day	Noise Limits (Leq, dBA)*
CI-B, CI-2 (Industrial)	7:00 AM to 10:00 PM	70
	10:00 PM to 7:00 AM	65
GR (Rural)	7:00 AM to 9:00 PM	65
	9:00 PM to 7:00 AM	60

NOTES: Leq = equivalent sound level; dBA = weighted decibels

*Pinal County noise limits are evaluated on the basis of a 2-minute Leq measurement.

Source: Pinal County Code of Ordinances, Title 10, Chapter 2

The nearest residential receptor to the Project Site is approximately 500 feet to the northwest in an area that is zoned GR (rural) and restricted by the 65/60 dBA Day/Night limits defined in the Pinal County Noise Ordinance. There are no residential zoned parcels within approximately 5,000 feet of the Project Site.

Noise Modeling for Sixth Power Block

Baseline sound pressure level (SPL) measurements were recorded from Thursday, May 25, 2023, to Friday, May 26, 2023. Four long-term (LT) SPL measurements were recorded to establish and characterize the existing ambient noise environment at

representative noise-sensitive land uses in the Project vicinity. An AECOM field investigator set up each of the four LT noise monitors and performed pre-measurement instrument calibration checks prior to monitoring start. These LT monitors were secured to existing fixed man-made or natural features and left unattended until revisited by the investigator to check instrument function, remaining onboard memory, and battery life.

Table 4 presents a summary of acoustical metrics representing the measured SPL as indexed by measurement locations.

Table 4. Long-Term Noise Survey Summary

Measurement Location	Nearest NSR	Total Duration of Collected Data (hours)	Daytime Hourly Sound Level Range (Leq, dBA)	Nighttime Hourly Sound Level Range (Leq, dBA)
LT 1	4776 North Red Bronc Ln.	24	65-74	55-66
LT 2	4789 North Tweedy Rd.	24	57-62	48-64
LT 3	2480 West Lake Powell Dr.	22*	45-57	38-50
LT 4	3964 North Tweedy Rd.	24	45-56	44-53

NOTES: Leq = equivalent sound level; dBA = weighted decibels
Daytime: 7:00 AM to 10:00 PM; Nighttime: 10:00 PM to 7:00 AM
*Measurement location LT 3 suffered a power failure and only 22 hours of data were recorded.

Predicted aggregate Project operation noise levels at the nearest residential receptors for studied operational Scenarios A and B are shown in **Table 5**.

Table 53. Predicted Operation Noise Levels

Receiver ID	Receiver Address	Land Use Type	Predicted Operation Noise Levels (Leq, dBA)	Relative Increase (dB)
R-01	4776 North Red Bronc Ln.	Residential	Scenario A 47 Scenario B 48	+0*
R-02	4789 North Tweedy Rd.	Residential	Scenario A 45 Scenario B 47	+2
R-03	2480 West Lake Powell Dr.	Residential	Scenario A 56 Scenario B 57	+0*
R-04	3964 North Tweedy Rd.	Residential	Scenario A 52 Scenario B 54	+2

NOTES: Leq = equivalent sound level; dBA = weighted decibels
*Decibel values presented in this table are rounded to the nearest whole decibel. Therefore, arithmetic calculations may be inconsistent with expectations.

Figure 4 and **Figure 5** display modeled operation noise contours superimposed upon aerial imagery of the Project Site and its surroundings. Note that the Project-attributed noise contours appearing in contour figures do not include the acoustical contribution of the existing outdoor sound environment.

Project Noise Effects Conclusions

Under maximum load operating conditions, **Table 5** shows that aggregate Project operation noise levels would not exceed the Pinal County Noise Ordinance guidelines for

either scenario (existing or future). Maximum load operation is expected to be atypical, and, as shown by **Table 3**, the current noise contribution from the facility does not significantly affect the ambient noise environment. **Table 5** shows that ambient noise levels generated by facility operation are not expected to increase by more than 2 dBA at any location, with the greatest increases occurring at receptor locations R-02 and R-04. A change in sound level of 3 dBA is generally considered to be the smallest change in noise levels that is perceptible outside of a laboratory environment. Therefore, the predicted maximum increase in facility noise of up to 2 dBA at nearby receptors would not result in adverse effects to the surrounding areas.

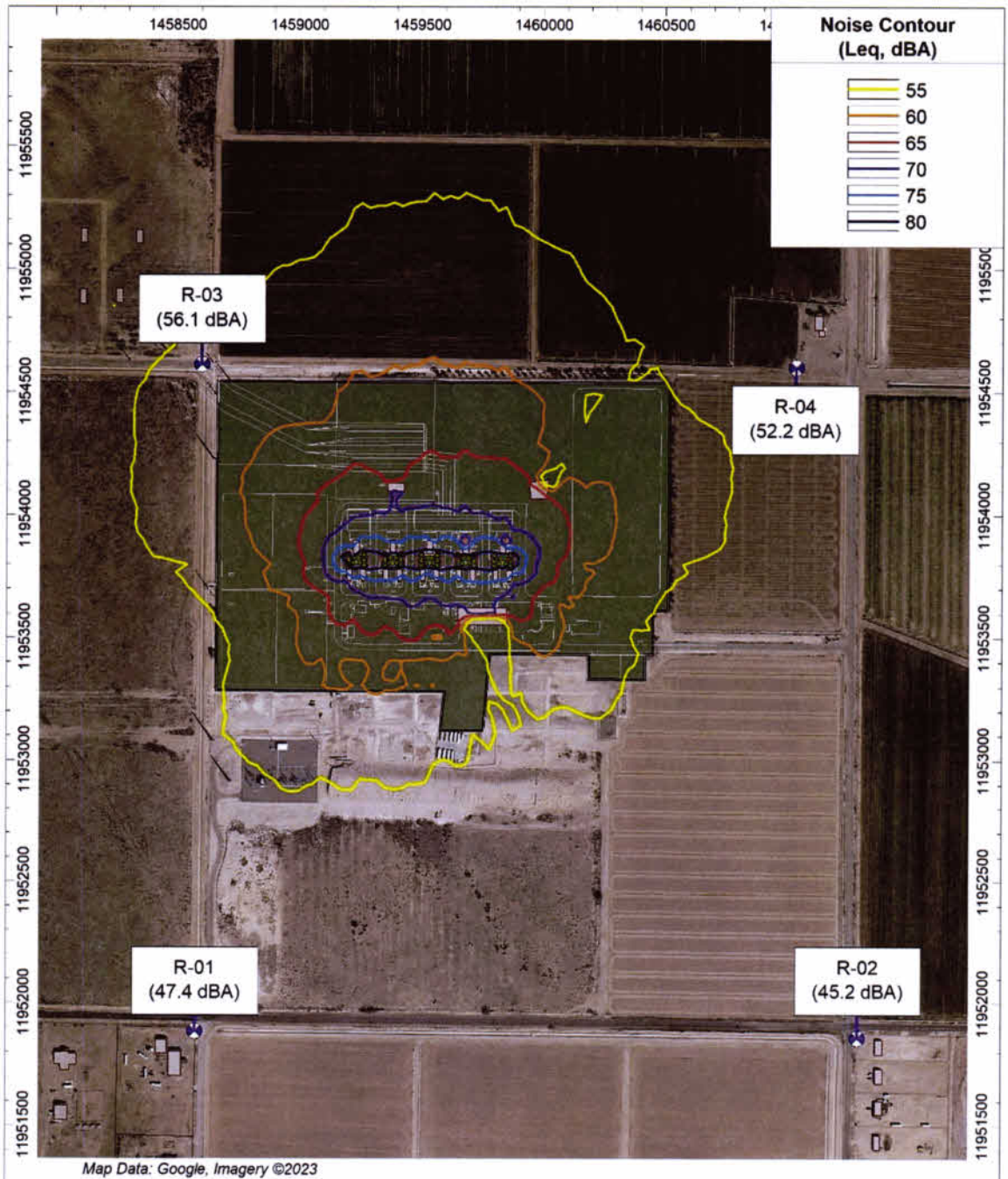
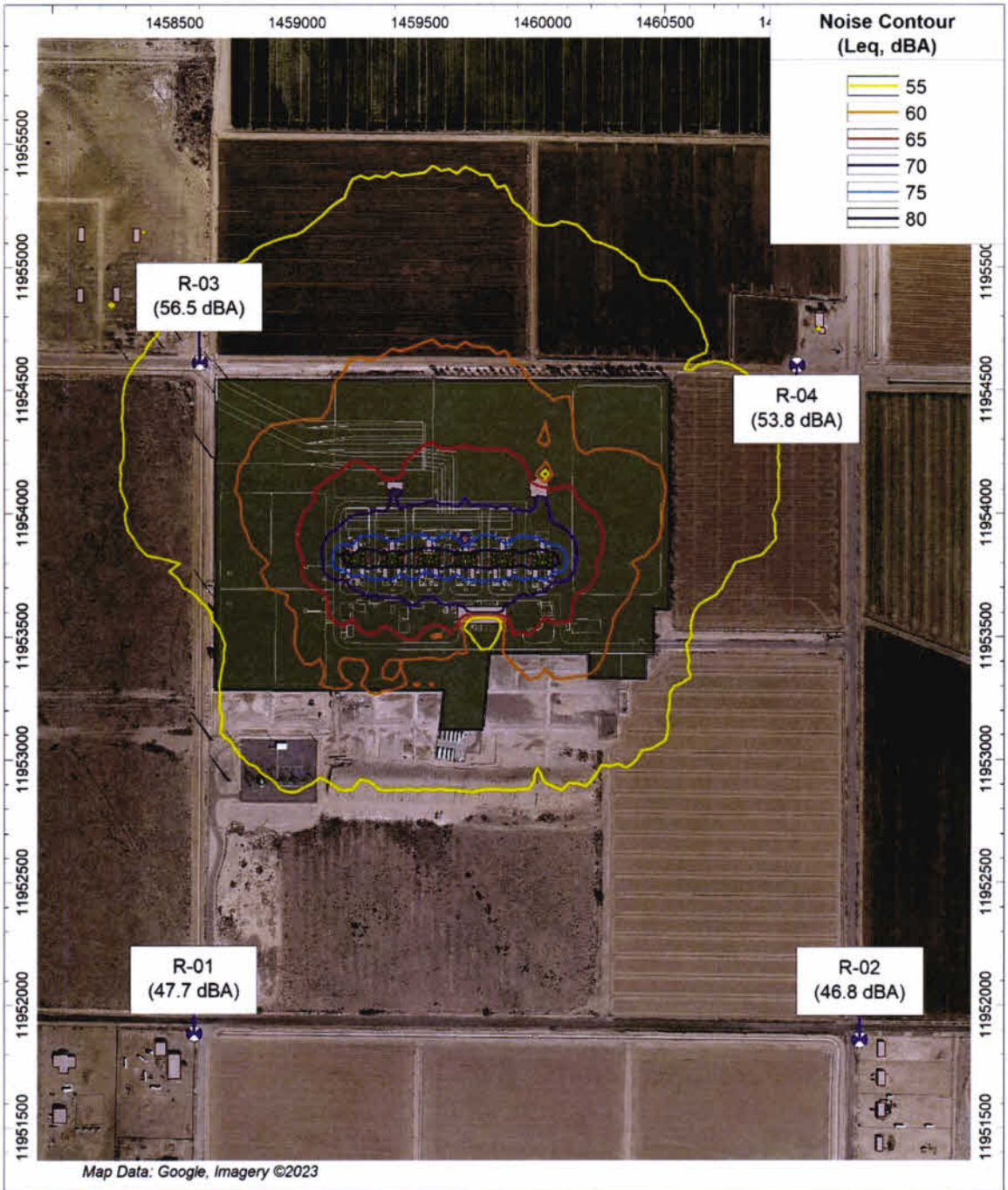


Figure 4
Predicted Operational Noise Levels



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Date Created: 7/03/2023

Created by: GH

Figure 5

Predicted Operational Noise Levels
Proposed Project - Scenario B

AECOM Delivering a better world
Acoustics & Noise Control Practice

APS Sundance Power Plant Expansion Project
Coolidge, AZ

3.6 Air Permitting and Analysis

Current Air Permit

Sundance is a natural gas-fired electric generating facility permitted as a Class I major stationary source under Pinal County Code § 3-3-203 and Arizona Administrative Code AAC R18- 2-401 and operates under Pinal County Permit No. V20690.R01. Sundance currently consists of ten General Electric Model LM6000 SPRINT simple cycle CTs arranged into five power blocks.

APS is proposing to expand Sundance by adding two General Electric Model LM6000PC aeroderivative simple cycle CTs with SPRINT performance augmentation, identified as Units 11 and 12. These new CTs would also be equipped with air pollution control equipment including selective catalytic reduction for control of nitrogen oxides (NO_x) emissions and oxidation catalysts for control of carbon monoxide and volatile organic compound emissions.

A Title V Permit Significant Revision Application (the "Application") was prepared to obtain a revised Air Quality Permit (V206090.R01). The Application and supporting documentation demonstrate that emissions would comply with all state and federal applicable requirements. The following paragraphs are a summary from the Application. The full Application is included as **Exhibit B-1**.

Air Quality Analysis

Air quality analysis determined that with all twelve units in operation at Sundance would be below the major source New Source Review (NSR) thresholds, including Prevention of Significant Deterioration and Non-Attainment Area New Source Review by limiting air emissions and operations through the use of natural gas, capacity factor, and air pollution control equipment of the two proposed CTs. Based on the proposed operating and emission limits in the Application, the only pollutants with potential emissions which exceed the minor NSR permitting exemption thresholds in AAC R18-2-101(101) are particulate matter less than 10 microns (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and NO_x emissions. Therefore, the Project will be subject to the Minor NSR program for those three (3) pollutants.

The requirements of the minor NSR program include applying reasonably available control technology to the emissions units or conduct an ambient air quality assessment. Therefore, an ambient air quality assessment was conducted for the Project emissions of NO_x, PM_{10} and $PM_{2.5}$ using the EPA's atmospheric dispersion modeling system. The analysis was conducted in accordance with EPA and Arizona Department of Environmental Quality (ADEQ) modeling guidelines to demonstrate the potential air quality impacts associated with the Project emissions are below the National Ambient Air Quality Standards (NAAQS). The NAAQS were developed by the EPA, and adopted by

ADEQ, and were designed to protect the health and welfare of the public including sensitive populations such as asthmatics, children, and the elderly.

Environmental Justice (EJ)

APS conducted an EJ analysis as part of the Air Permit Application for this project. EJ is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The EJ evaluation examined the demographic and environmental conditions within the three-mile radius, known as the "study area," around the Sundance Power Plant (SPP), in Pinal County, and compared those demographic and environmental conditions to the County, and to the State of Arizona. This analysis did not identify any potentially significant adverse or disproportionate impacts to the community within the study area. Additional information regarding APS's Environmental Justice evaluation, conclusions, and corresponding outreach are contained in a copy of the Air Permit Application in **Exhibit B.**

Air Quality Conclusions

As detailed in the Air Permit Application, the air quality modeling analysis demonstrates the PM_{10} and $PM_{2.5}$ impacts of the Project are below the EPA Significant Impact Levels (which are set well below the NAAQS), and that the NO_2 impacts added to background air concentrations are below the NAAQS. Therefore, the analysis demonstrates the Project would not cause or contribute to a violation of the NAAQS.

The Sundance air quality permit is reviewed by Pinal County Air Quality Control District and the EPA to ensure the Project would comply with all applicable requirements and any potential air quality impacts would remain within established guidelines to protect public health.

4. Summary of Environmental Compatibility

In conclusion, the addition of two gas turbines and associated infrastructure to expand Sundance to full capacity as originally designed would have no major environmental impacts. The new utility components would be of the same design as discussed in the original CEC application. The new turbines (becoming power block six with units 11 and 12) would be within an existing utility right-of-way on private land that is industrial zoned.

The Project would not remove any native vegetation and would not impact any special status species. There are no scenic or recreational resources within the Study Area; therefore, no impacts are anticipated. The existing Project Site is visible from residential areas and the traveling public within three miles of Sundance. As depicted in daytime and nighttime photographic simulations in **Appendix A**, these additional infrastructure

components are compatible with the existing facility and would not become a distraction. Construction of the sixth power block and associated infrastructure is not anticipated to impact general views in the area or views from the high sensitivity viewers in the residential neighborhoods.

There is little potential for Sundance to affect any unrecorded historic sites and historic structures, or archaeological sites. In accordance with the conditions of the original CEC, APS would coordinate with the SHPO to determine if additional cultural resource studies are warranted.

Under maximum load operating conditions, the Project operation noise levels would not exceed the Pinal County Noise Ordinance guidelines. A change in sound level of 3 dBA is generally considered to be the smallest change in noise levels that is perceptible outside of a laboratory environment. Therefore, the predicted maximum increase in facility noise of up to 2 dBA at nearby receptors would not result in adverse effects.

The Sundance air quality permit is reviewed by Pinal County Air Quality Control District and the EPA to ensure the Project would comply with all applicable requirements and any potential air quality impacts would remain within established guidelines to protect public health. Additional information regarding APS's Environmental Justice evaluation, conclusions, and corresponding outreach are contained in a copy of the Air Permit Application in **Exhibit B.**

As approved with the original CEC, and validated with current studies, the addition of two additional gas turbines and associated infrastructure within Sundance power plant is environmentally compatible with existing and future land uses and any environmental resource impacts are not significant.

5. References

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Appendix A – Daytime and Nighttime Visual Simulations

VISUAL DAY SIMULATION

Simulación visual diurna

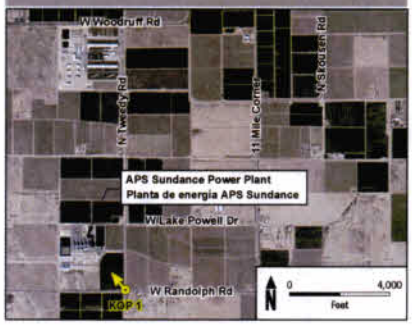
Key Observation Point 1

Punto de observación clave 1

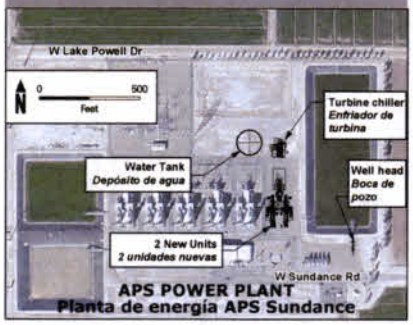
Existing | *Existente*

Simulation | *Simulación*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL DAY SIMULATION

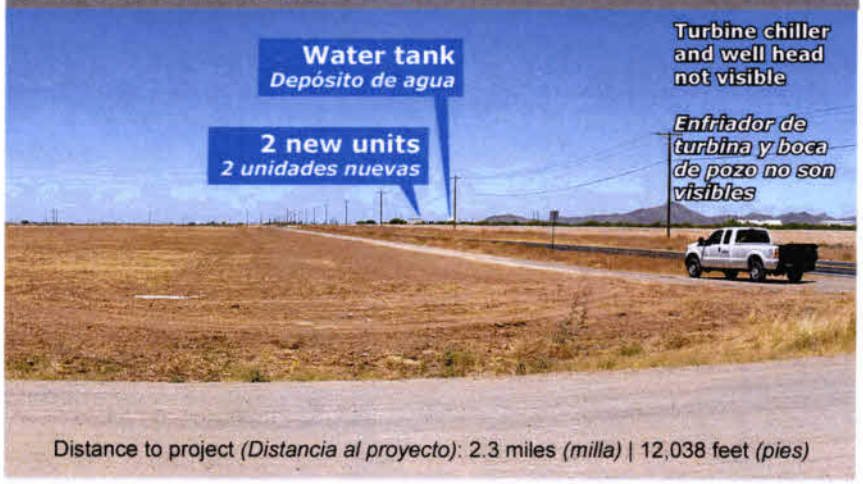
Simulación visual diurna

Key Observation Point 2

Punto de observación clave 2

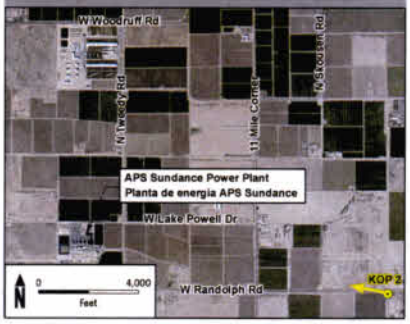
Existing | *Existente*

Simulation | *Simulación*

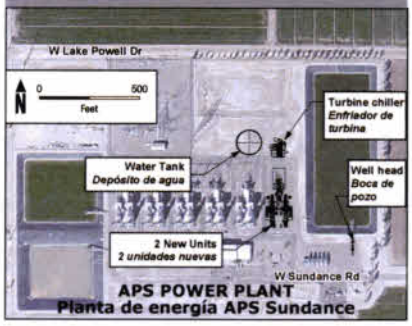


Distance to project *(Distancia al proyecto)*: 2.3 miles *(milla)* | 12,038 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL DAY SIMULATION

Simulación visual diurna

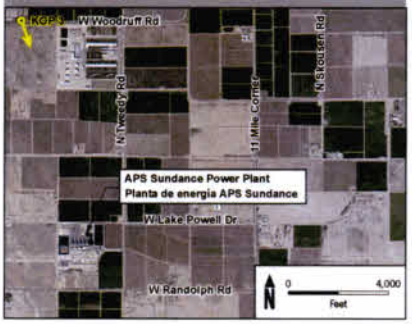
Key Observation Point 3

Punto de observación clave 3

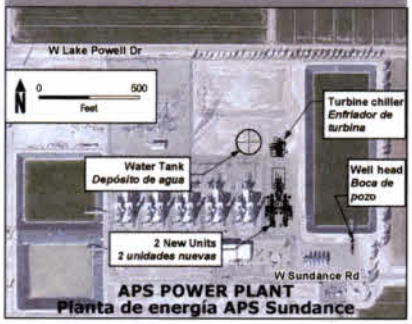
Existing | *Existente*

Simulation | *Simulación*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL DAY SIMULATION

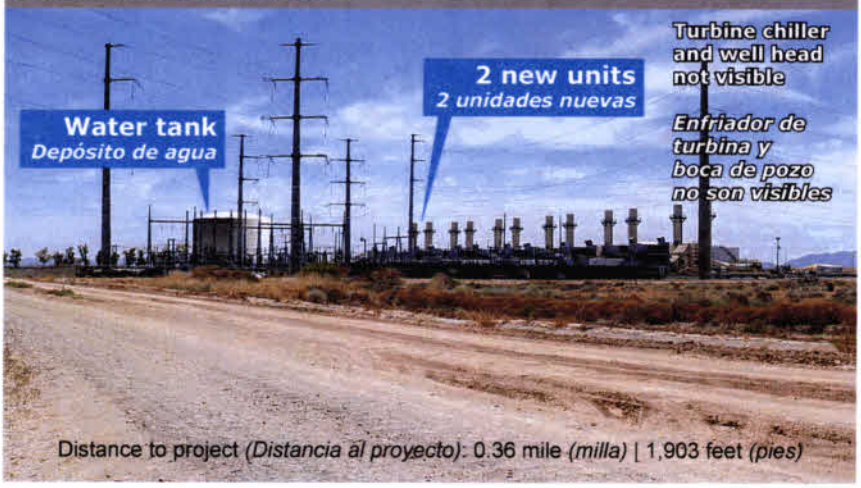
Simulación visual diurna

Key Observation Point 4

Punto de observación clave 4

Existing | *Existente*

Simulation | *Simulación*



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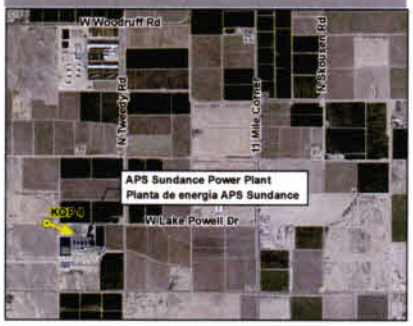
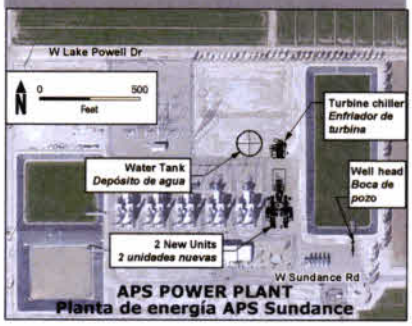
Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL DAY SIMULATION

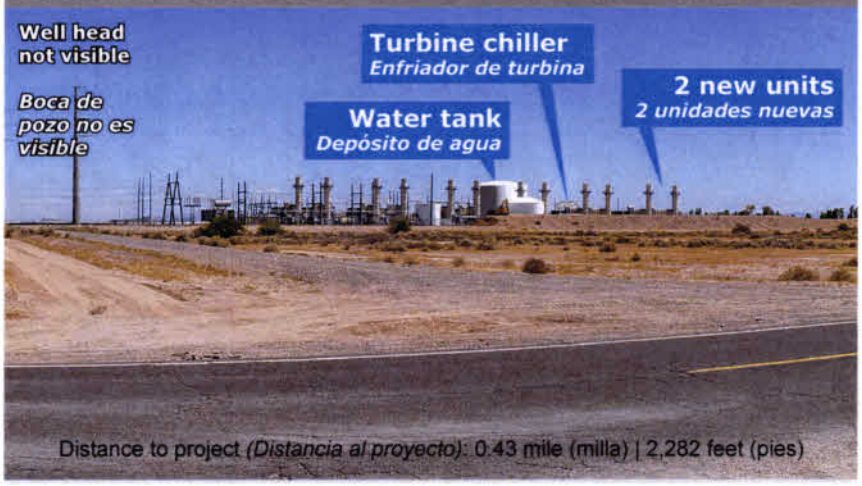
Simulación visual diurna

Key Observation Point 5

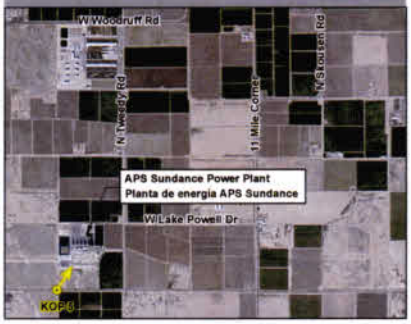
Punto de observación clave 5

Existing | *Existente*

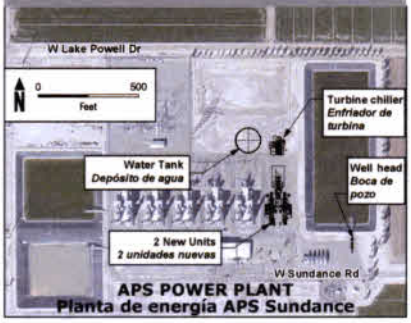
Simulation | *Simulación*



Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL NIGHT SIMULATION

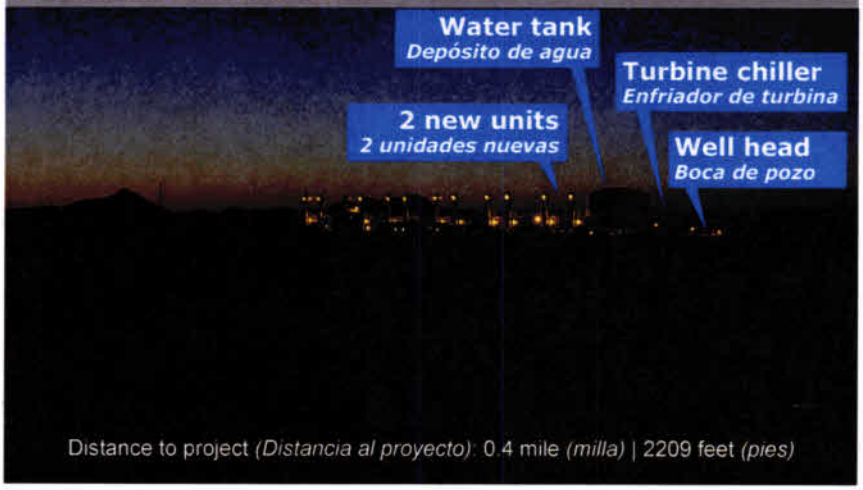
Simulación visual nocturna

Key Observation Point 1

Punto de observación clave 1

Existing | *Existente*

Simulation | *Simulación*



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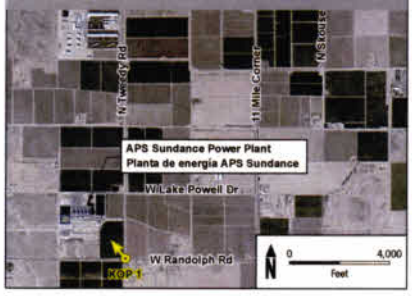
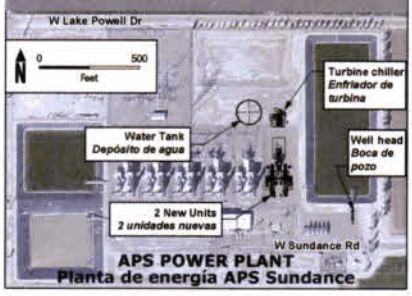
Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL NIGHT SIMULATION

Simulación visual nocturna

Key Observation Point 2

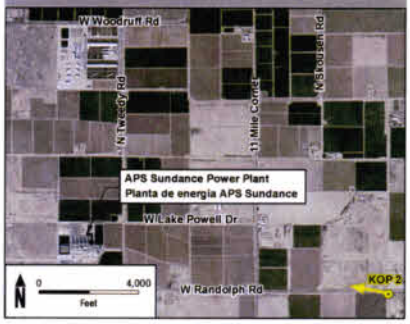
Punto de observación clave 2

Existing | *Existente*

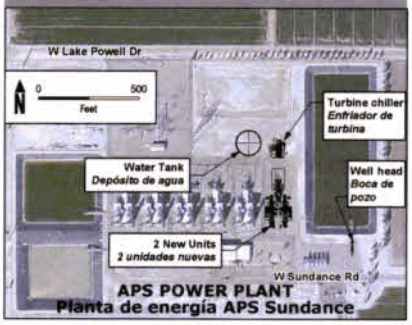
Simulation | *Simulación*

Distance to project *(Distancia al proyecto)*: 2.3 miles *(milla)* | 12,038 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL NIGHT SIMULATION

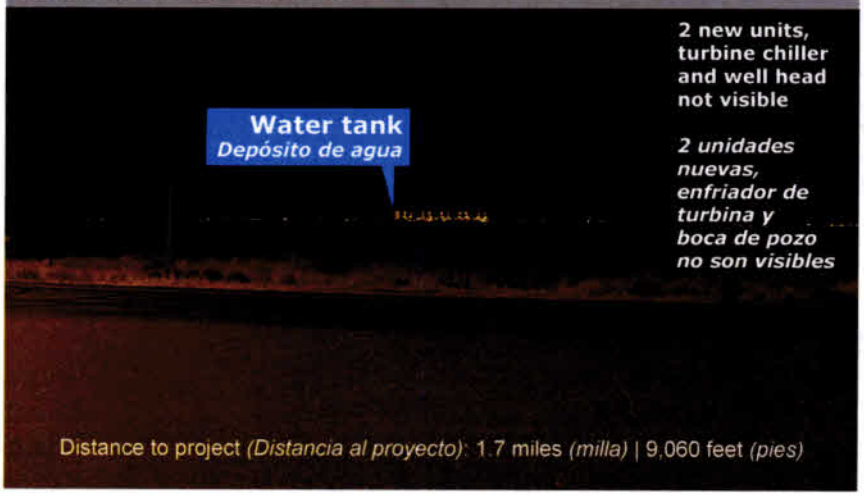
Simulación visual nocturna

Key Observation Point 3

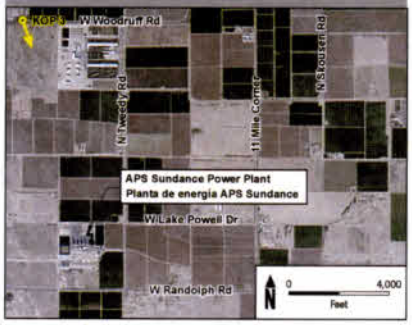
Punto de observación clave 3

Existing | *Existente*

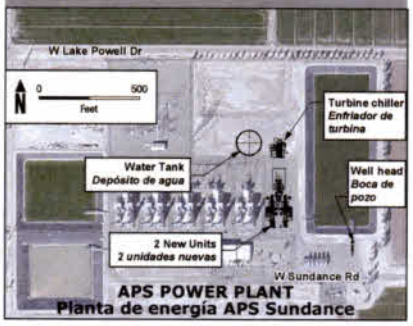
Simulation | *Simulación*



Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL NIGHT SIMULATION

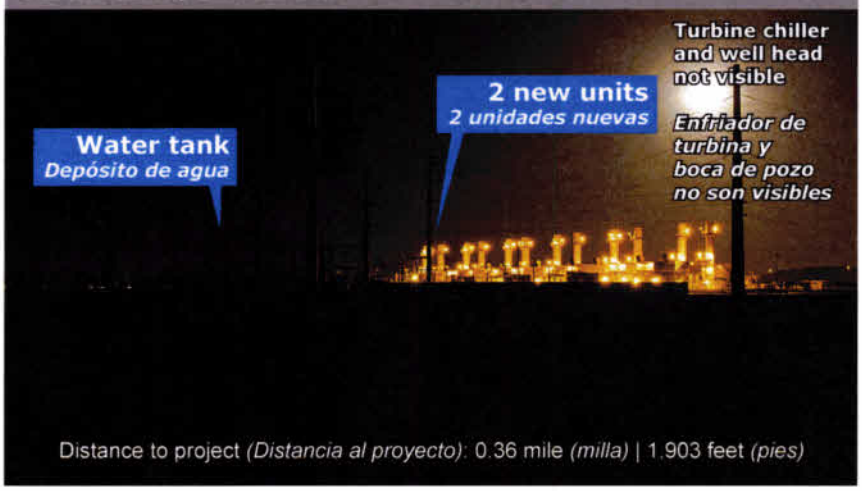
Simulación visual nocturna

Key Observation Point 4

Punto de observación clave 4

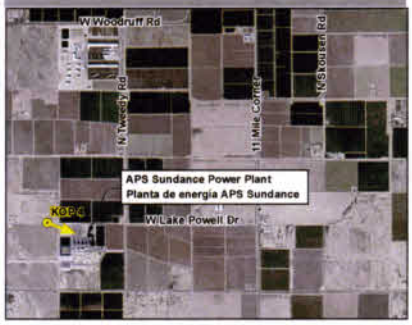
Existing | *Existente*

Simulation | *Simulación*

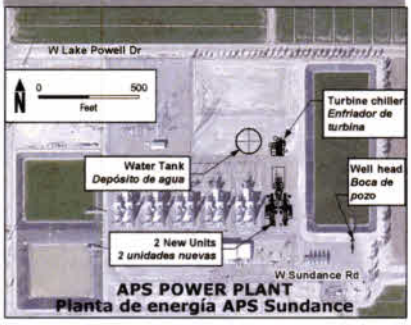


Distance to project *(Distancia al proyecto)*: 0.36 mile *(milla)* | 1,903 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL NIGHT SIMULATION

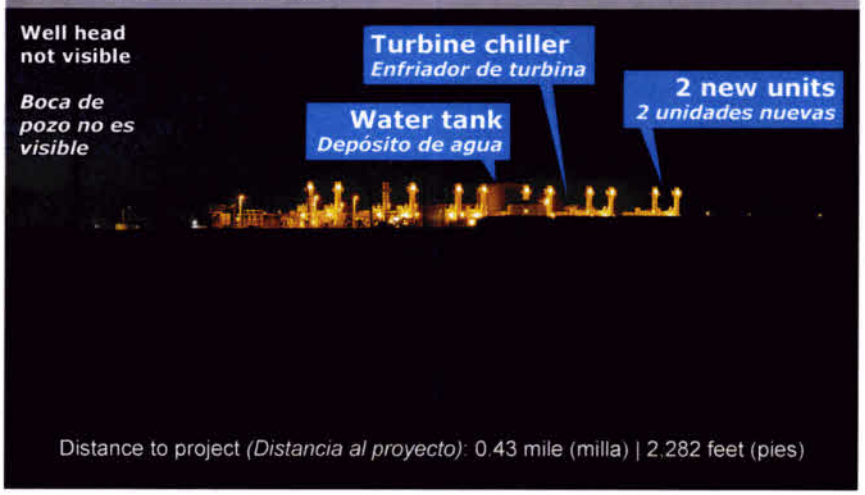
Simulación visual nocturna

Key Observation Point 5

Punto de observación clave 5

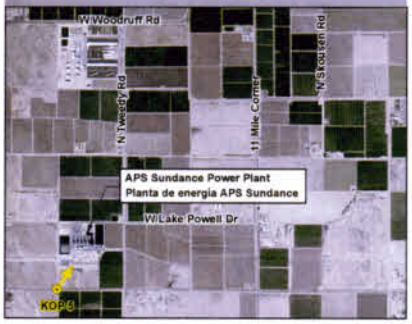
Existing | *Existente*

Simulation | *Simulación*

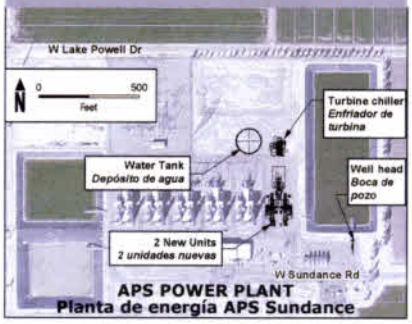


Distance to project *(Distancia al proyecto)*: 0.43 mile (milla) | 2,282 feet (pies)

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

Exhibit A

Location and Land Use Information

In accordance with A.A.C. R14-3-219 Applicant provides the following location maps and land use information:

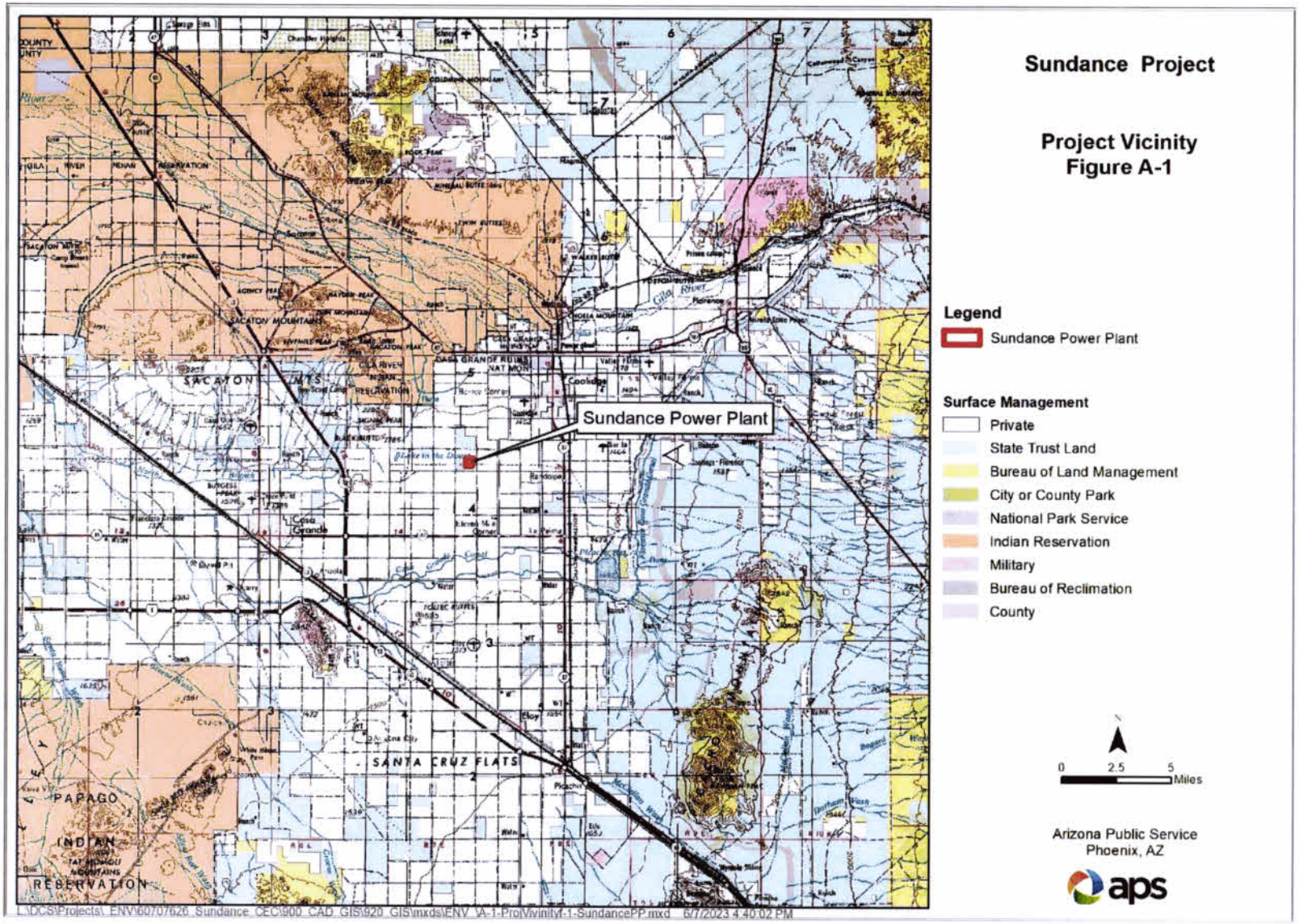
1. *"Where commercially available, a topographic map, 1:250,000 scale, showing the proposed plant site and the adjacent area within 20 miles thereof. If application is made for alternative plant sites, all sites may be shown on the same map, if practicable, designated by applicant's order of preference."*
2. *"Where commercially available, a topographic map, 1:62,500 scale, of each proposed plant site, showing the area within two miles thereof. The general land use plan within this area shall be shown on the map, which shall also show the areas of jurisdiction affected and any boundaries between such areas of jurisdiction. If the general land use plan is uniform throughout the area depicted, it may be described in the legend in lieu of an overlay."*
3. *"Where commercially available, a topographic map, 1:250,000 scale, showing any proposed transmission line route of more than 50 miles in length and the adjacent area. For routes of less than 50 miles in length, use a scale of 1 :62,500. If application is made for alternative transmission line routes, all routes may be shown on the same map, if practicable, designated by applicant's order of preference."*
4. *"Where commercially available, a topographic map, 1:62,500 scale, of each proposed transmission line route of more than 50 miles in length showing that portion of the route within two miles of any subdivided area. The general land use plan within the area shall be shown on a 1 :62,500 map required for Exhibit A-3, and for the map required by this Exhibit A-4, which shall also show the areas of jurisdiction affected and any boundaries between such areas of jurisdiction. If the general land use plan is uniform throughout the area depicted, it may be described in the legend in lieu of an overlay."*

Land Use

For the purposes of the APS Sundance Power Plant CEC amendment, this Exhibit analyzes the land use impacts of the APS Sundance Power Plant Project (Project) which includes an addition of a sixth power block with two additional GE LM6000 turbines. Each turbine has a nameplate capacity of 45 MW. The original CEC authorized construction of six power blocks, but only five were completed and the original CEC to build the sixth one has expired. Prior CEC application data was reviewed to the relevant extent.

The study area boundaries for the land use and environmental justice review of the Project includes the APS Sundance power plant and adjacent area as noted in **Figure A-1**. Land use analysis was completed using a two-mile buffer around the power plant, while the environmental justice review used a five-mile buffer due to the constraints of the EJScreen tool (EPA 2023). Much of the land within the analysis area is privately owned and managed. The analysis area is within Pinal County with parts of the city limits of Casa Grande and Coolidge.

Figure A-1: Project Vicinity Map



The following is a discussion of the land use considerations and an analysis of existing and future uses relevant to the Sundance project. The analysis is based on the most recently available data from various local and regional plans relevant to the study area and GIS databases including:

- City of Coolidge 2025 General Plan (CC 2014)
- City of Casa Grande 2030 Comprehensive Plan (CCG 2021)
- Pinal County Comprehensive Plan (PC 2019)
- Pinal County Zoning Ordinance (PC 2023)
- State of Arizona Land Resource Information System (ASLD 2023)
- U.S. Geological Survey (USGS) National Land Cover Database (NLCD) (USGS 2019)
- Federal Emergency Management Agency (FEMA) GIS database (FEMA 2023)

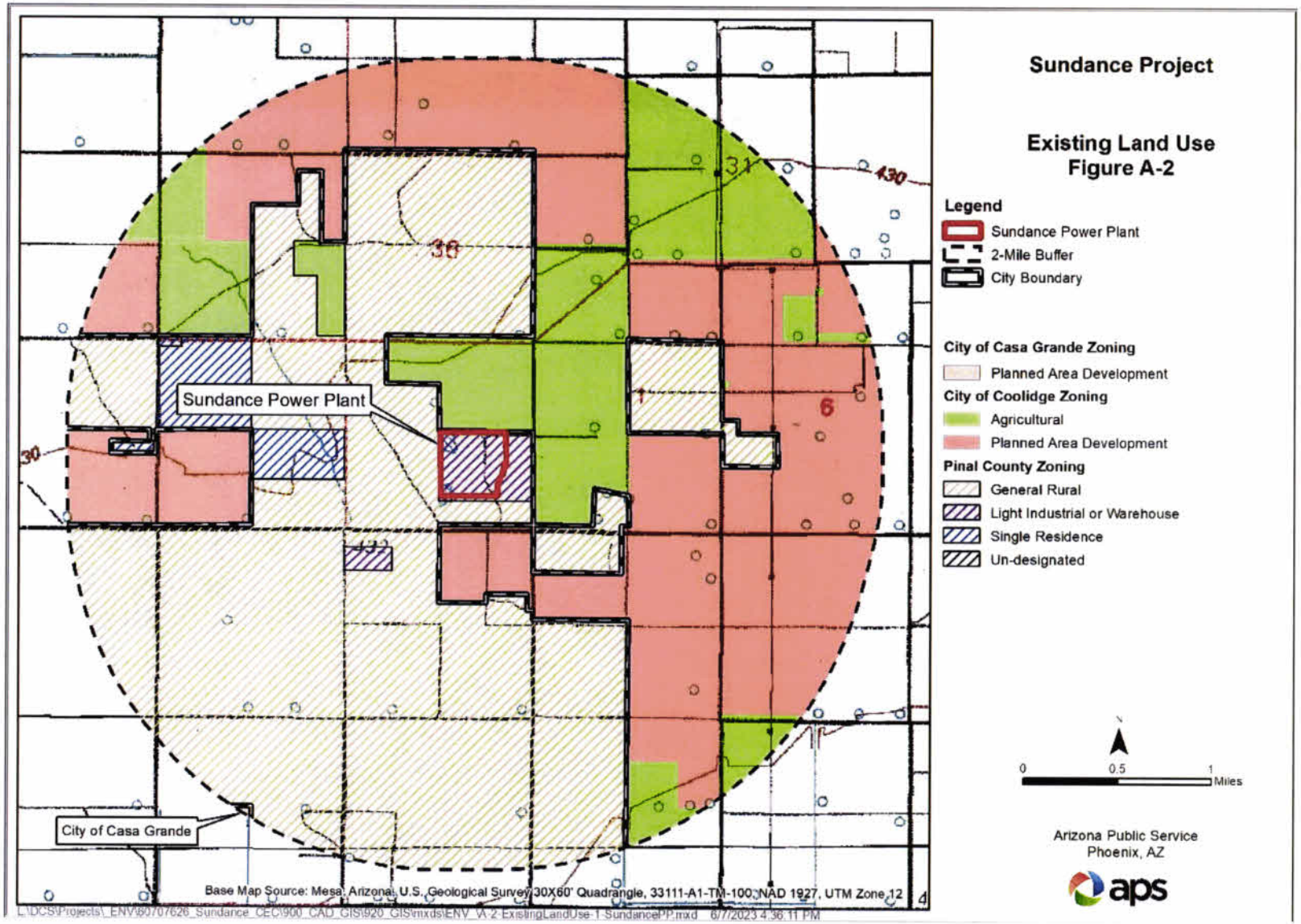
Prior Land Usage

The Sundance power plant is in Section 2 of Township 6 Range 7 of the Coolidge, Arizona, U.S. Geological Survey 7.5-minute topographic quadrangle. The land that the power plant was built on and the surrounding area was originally zoned as General Rural (GR) by Pinal County, which allowed for agricultural, public and quasi-public, and single residential home uses (PC 2023). The land was designated private land, owned by the PPL Sundance Energy, LLC. Surrounding the power plant was more private land, as well as state trust land. Most of the surrounding land was desert/scrubland and agricultural fields.

Current Land Usage

The zoning of the study area around the power plant has changed since construction, but it has allowed for similar usage as the original GR designation. Within two miles of the power plant, Pinal County land is currently zoned as GR, Single Residential, Light Industrial, and Un-designated (PC 2023). Scattered residential structures have been built in all directions from the power plant since its inception, but no large-scale subdivisions have been built nearby. The entire analysis area is FEMA-designated as an area of minimal flood hazard (*Zone X*) (FEMA 2023). Both the City of Coolidge and the City of Casa Grande have land within the analysis area. All land within Casa Grande city limits that also falls within the analysis area is designated as a Planned Area of Development (CCG 2021). Of the land in the analysis area that falls in Coolidge city limits, about half is zoned as agricultural land while the other half is listed as a planned area of development (CC 2014) (**Figure A-2**).

Figure A-2: Existing Land Use



Land within a two-mile radius is split between state trust land and private land, with most of the land being private (ASLD 2023). Current land cover is split between barren land, cultivated crops, developed land, herbaceous cover, open water, and shrub/scrubland (**Table A-1**). Between 2001 and 2019, 97% of the land cover around the power plant has not changed, with just over a 1% increase in urbanization/land development (USGS 2019).

Table A-1: Land Cover and Ownership within Two-mile Radii of the Sundance Power Plant

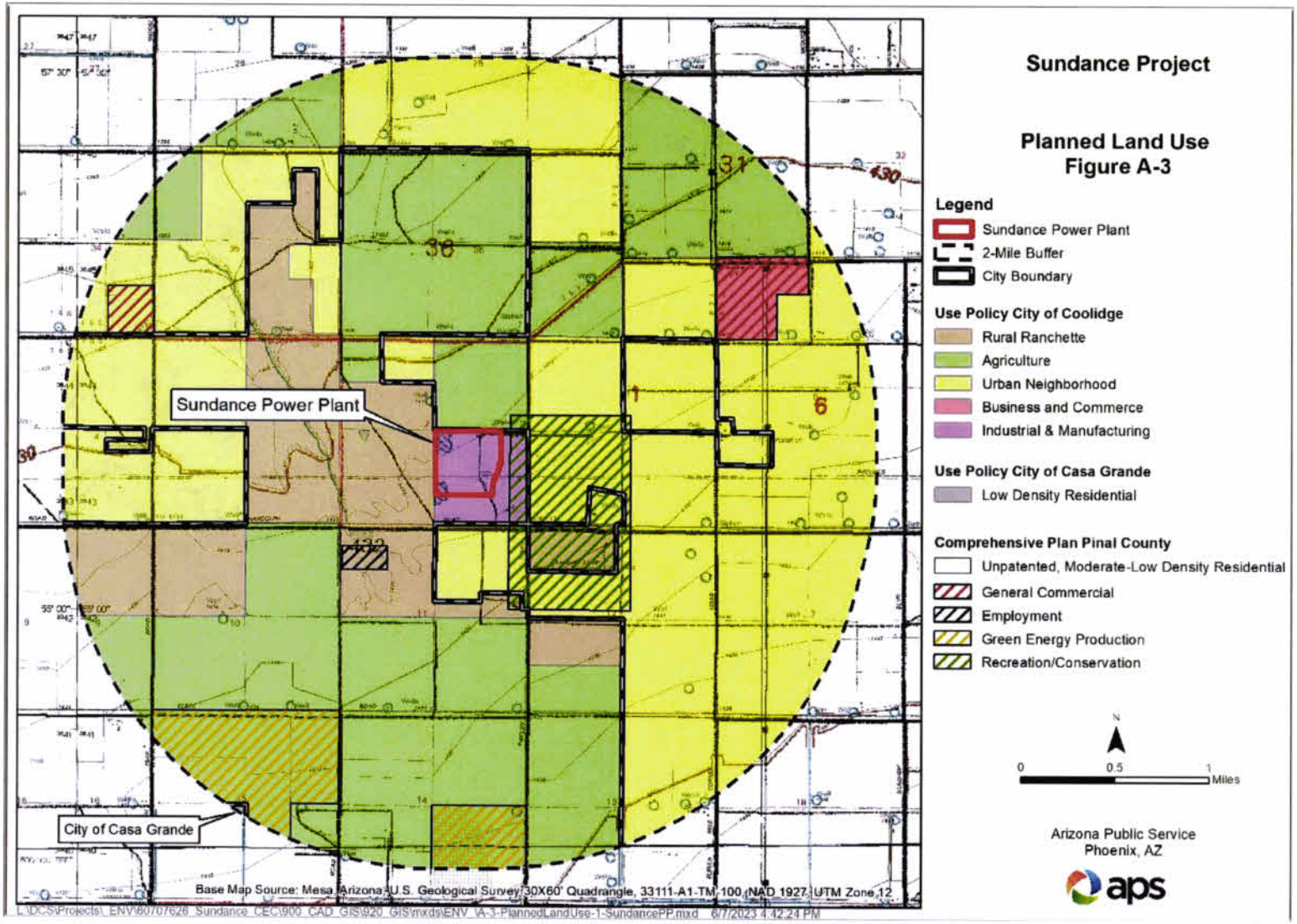
Category	Two Mile Radius
Current Land Cover	
Barren Land	0.7%
Cultivated Crops	67.5%
Developed Land	6.9%
Herbaceous	8.8%
Open Water	0.1%
Shrub/Scrub	16.0%
Current Land Ownership	
Private Land	91.3%
State Trust Land	8.7%
Land Usage Changes (2001-2019)	
No Change	97.7%
Increases in Urban Cover	1.0%
Table Sources: ASLD 2023 and USGS 2019	

Future Land Usage

Identification of future land use within the study area included review of the land use policy plans within the Pinal County Comprehensive Plan, City of Casa Grande 2030 General Plan, and the City of Coolidge 2025 General Plan.

Pinal County's future land use for the study area include increasing the density of residential and commercial areas, as well designating areas for green energy production and recreation/conservation (PC 2019). For the City of Casa Grande's Planned Area of Development within the study area, they are planning on maintaining low density of residential structures, which is similar to the current land use (CCG 2021). The City of Coolidge's plan for the land within the study area is to increase the urbanization of the area. In addition to more urbanized neighborhoods, they also plan for increases in business and commercial properties as well as manufacturing/industry, although they do plan on maintaining some area for agriculture and low density residential in the form of rural ranchettes (CC 2014) (**Figure A-3**).

Figure A-3: Planned Land Use



References

Arizona State Land Department (ASLD). 2023. Arizona State Land Department Resources Information System (ALRIS). Accessed at https://land.az.gov/ (Accessed April 18, 2023)

City of Casa Grande (CCG). 2021. City of Casa Grande 2030 Comprehensive Plan. City of Casa Grande Planning & Development. Accessed at https://www.casagrandeaz.gov/234/2030-Casa-Grande-General-Plan (Accessed June 7, 2023)

City of Coolidge (CC). 2014. City of Coolidge 2025 General Plan. City of Coolidge Development Services. Accessed at https://www.coolidgeaz.com/generalplan (Accessed June 7, 2023)

Federal Emergency Management Agency (FEMA). 2023. Federal Emergency Management Agency National Flood Hazard Layer (NFHL). Accessed at https://www.fema.gov/flood-maps/national-flood-hazard-layer (Accessed June 7, 2023)

Pinal County (PC). 2019. Pinal County Comprehensive Plan. Pinal County Planning and Zoning Commission. Accessed at https://www.pinal.gov/228/Comprehensive-Plan (Accessed June 7, 2023)

Pinal County (PC). 2023. Pinal Counting Zoning Ordinance. Pinal County Planning Office. Accessed at https://www.pinal.gov/226/Planning (Accessed June 7, 2023)

PPL Sundance Energy, LLC. 2000. Application for a Certificate of Environmental Compatibility. Prepared for State of Arizona Power Plant and Transmission Line Siting Committee.

US Geological Survey (USGS). 2019. 2019 National Land Cover Database. Accessed at https://www.usgs.gov/centers/eros/science/national-land-cover-database (Accessed June 19, 2023)

Exhibit B

Environmental Reports

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

Attach any environmental studies which applicant has made or obtained in connection with the proposed site(s) or route(s). If an environmental report has been prepared for any federal agency or if a federal agency has prepared an environmental statement pursuant to Section 102 of the National Environmental Policy Act a copy shall be included as part of this exhibit.

Air Quality Permit

The Sundance Project prepared a Title V Permit Significant Revision Application to obtain an update Air Quality Permit (V206090.R01). The report concludes that emissions will be well below allowable standards. The following paragraphs are a summary from that report. **The full report is included as Exhibit B-1.**

The Sundance Power Plant is a Class I major stationary source of air pollutants operating within guidelines of Pinal County Code § 3-3-203 and Arizona Administrative Code AAC R18-2-401 and operates under Permit No. V20690.R01. The Sundance Power Plant is a Class I, major stationary source for Non-Attainment Area New Source Review (NANSR) with respect to PM_{10}, and for all other Prevention of Significant Deterioration (PSD) regulated pollutants.

A Title V Permit Significant Revision is required and includes for the operation of the two addition new gas turbines into Permit No V20690.R01. Air quality modeling analysis demonstrates that the PM_{10} and $PM_{2.5}$ impacts from the proposed project are below the Significant Impact Levels (SILs), and that the NO_x impacts added to background air concentrations are below the National Ambient Air Quality Standards (NAAQS).

Based on the proposed operating and emission limits in this application, the Sundance Project will exceed the permitting exemption thresholds only for PM_{10}, $PM_{2.5}$, and NO_x emissions. Therefore, this Project will be subject to the Minor New Source Review (NRS) program only for those three (3) pollutants. The requirements of the minor NSR program include the requirement to apply reasonably available control technology (RACT) to the emissions units **OR** conduct an ambient air quality assessment.

Therefore, the project will not cause or contribute to a violation of the NAAQS. The Sundance Power Plant air quality permit is reviewed by Pinal County Air Quality Control District and the U.S. Environmental Protection Agency to ensure the project remains in established guidelines to protect public health.

APS conducted an EJ analysis as part of the Air Permit Application for the Sundance project. Environmental Justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. The EJ evaluation examined the demographic and environmental conditions within the three-mile radius, known as the "study area," around the Sundance Power Plant, in Pinal County, and compared those demographic and environmental conditions to the County, and to the State of Arizona. This analysis did not identify any potentially significant adverse or disproportionate impacts to the community within the study area. For additional information regarding APS's Environmental Justice evaluation, conclusions, and corresponding outreach, please see a copy of the Air Quality Permit Application attached as Exhibit B-1.

Transmission System Study

The Sundance Project required a Transmission System Study to be prepared. **The full report is included in Exhibit B-2.**

Exhibit B-1
Sundance Power Plant
Title V Permit
Significant Revision
Application Permit No.
V20690.R01

Sundance Power Plant

Title V Permit
Significant Revision Application
Permit No. V20690.R01

Sundance Expansion Project.

August 2023

Prepared for:

Arizona Public Service
400 North 5th Street
Phoenix, Arizona 85004

Prepared By:

RTP ENVIRONMENTAL ASSOCIATES INC.
AIR • WATER • SOLID WASTE CONSULTANTS
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Table of Contents

Tables

Figures

Attachments

Chapter 1. Executive Summary.

The Arizona Public Service (APS) Sundance Power Plant (SPP) is a natural gas-fired electric generating facility located at 2060 West Sundance Road, Casa Grande in west Pinal County. The SPP is a Class I major stationary source under Pinal County Code § 3-3-203 and Arizona Administrative Code AAC R18-2-401 and operates under Permit No. V20690.R01. The SPP currently consists of ten (10) General Electric Model LM6000 SPRINT simple cycle combustion turbines (CT) arranged into five (5) power blocks. These CTs were originally constructed in 2001.

APS is proposing to expand the SPP by adding two General Electric Model LM6000PC aeroderivative simple cycle combustion turbines (CTs) with spray intercooling (SPRINT) performance augmentation, identified as Units 11 and 12. These new CTs will also be equipped with selective catalytic reduction (SCR) for nitrogen oxides (NO_x) control and oxidation catalysts for CO and VOC control. This document is a Title V significant permit revision application for the proposed expansion project.

With this permit revision application, APS is proposing emission and operating limits which will limit the potential emissions for both of the new CTs combined below the thresholds that trigger major New Source Review (NSR), including the Prevention of Significant Deterioration (PSD) and Non-Attainment Area New Source Review (NANSR) significant increase levels. Based on the proposed limits in this application, the only pollutants with potential emissions which exceed the minor NSR permitting exemption thresholds in Arizona Administrative Code (AAC) R18-2-101(101) are nitrogen oxides (NO_x), particulate matter (PM) less than 10 microns (PM_{10}), and $PM_{2.5}$. An air quality modeling analysis has been performed for these pollutants and is included with this application. This modeling analysis demonstrates that the PM_{10} and $PM_{2.5}$ impacts from the proposed project are below the Significant Impact Levels (SILs), and that the NO_2 impacts added to background air concentrations are below the National Ambient Air Quality Standards (NAAQS). Therefore, the project will not cause or contribute to a violation of the NAAQS.

This permit revision application includes a detailed description of the proposed Sundance Expansion Project and proposed emission and operating limits for the new CTs. The potential emissions based on the proposed emissions and operating limits are calculated and compared to regulatory applicability thresholds. Other applicable regulations, including New Source Performance Standards, National Emission Standards for Hazardous Air Pollutants, and the Acid Rain Program are also included in this application. New permit conditions are proposed, and a Compliance Certification is included. An Environmental Justice analysis is also included for the proposed project.

Chapter 2. Proposed Permit Conditions.

With this Title V significant revision application, Arizona Public Service requests the following emission limits be incorporated into Permit No. V20690.R01 for the construction and operation of two (2) new General Electric Model LM6000PC aeroderivative simple cycle combustion turbines (CTs) with spray intercooling (SPRINT) performance augmentation, identified as Units 11 and 12.

2.1 Voluntary Emission and Operating Limits.

The following voluntary emission and operating limits are designed to limit the potential emissions for both of the proposed new GE LM6000PC combustion turbines combined below the federal New Source Review and Prevention of Significant Deterioration (PSD) significant increase levels.

2.1.1 Emission Limits.

1. Other than during periods of start-up, warm-up, shut-down, and malfunction, the Permittee shall not cause to be discharged into the atmosphere from the Unit 11 and 12 gas turbine systems during normal CT operations any gases which contain:
    a. Nitrogen oxides (NO_x) emissions in excess of 5.0 ppmvd corrected to 15 percent oxygen, based on a rolling, 24-operating hour average.
    b. Carbon monoxide (CO) emissions in excess of 15.0 ppmvd corrected to 15 percent oxygen, based on a rolling, 24-operating hour average.
    c. PM_{10} or $PM_{2.5}$ emissions in excess of 7.0 lbs/hr.
    d. VOC emissions in excess of 4.5 lbs/hr.
    e. Visible emissions in excess of 40% opacity, as measured by Reference Method 9.
2. Carbon monoxide (CO) emissions may not exceed 44.7 tons in any rolling 12-month period for all periods of operation, including startup and shutdown.
3. Nitrogen oxides (NO_x) emissions may not exceed 24.9 tons in any rolling 12-month period for all periods of operation, including startup and shutdown.
4. PM_{10} or $PM_{2.5}$ emissions may not exceed 9.4 tons in any rolling 12-month period for all periods of operation, including startup and shutdown.

2.1.2 Operating Limits.

1. The total heat input to the Units 11 and 12 gas turbine systems combined may not exceed 1,236,000 MMBtu in any rolling 12-month period.

2.1.3 Initial Compliance Demonstration Requirements.

1. Within 60-days after achieving maximum production rate of each CT Units 11 and 12 but no later than 180 days after the initial start-up of each CT, the Permittee shall conduct performance test using standard test methods as specified below or equivalent methods as approved by the District. These tests shall be performed at the maximum practical production rate of each unit. The performance tests shall include:

   a. Nitrogen oxides (NO_x) emissions: 40 CFR Part 60, App. A-4, Ref. Method 7E.

   b. Carbon monoxide (CO) emissions: 40 CFR Part 60, App. A-4, Ref. Method 10.

   c. PM_{10}, $PM_{2.5}$ emissions: 40 CFR Part 60, App. A-3, Ref. Method 5 and 40 CFR Part 51 App. M, Ref. Method 202.

2.1.4 Monitoring and Compliance Demonstration Requirements.

1. The Permittee shall install, calibrate, maintain, and operate continuous emissions monitoring systems (CEMS) for the measurement of carbon monoxide (CO) emissions on Units 11 and 12. Monitoring equipment shall be installed and operated in accordance with a plan submitted to the District by the permittee.

2. The Permittee shall install, calibrate, maintain, and operate continuous emissions monitoring systems (CEMS) for the measurement of nitrogen oxides (NO_x) on Units 11 and 12. Monitoring equipment shall be installed and operated in accordance with the requirements in 40 CFR Part 75 and pursuant to a plan submitted to the District by the permittee.

3. The Permittee shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of fuel (natural gas) used in Units 11 and 12. The monitoring systems shall be installed and operated in accordance with the requirements in 40 CFR Part 75, Appendix D and pursuant to a plan submitted to the District by the permittee.

4. The permittee shall calculate the monthly and 12-month total PM_{10} and $PM_{2.5}$ emissions for Units 11 and 12 using the following equations to demonstrate compliance with the PM_{10} or $PM_{2.5}$ emission limit of 9.4 tons in any rolling 12-month period for all periods of operation, including startup and shutdown.

$$E_{mo} = \frac{HI_{U11\&U12} \times ER_{PM10/PM2.5}}{2{,}000}$$

Where, E_{mo} = Monthly total $PM_{10}/PM_{2.5}$ emissions for Units 11 and 12 combined, tons

$HI_{U11\&U12}$ = Monthly total heat input for Units 11 and 12 combined, MMBtu

$ER_{PM10/PM2.5}$ = Highest $PM_{10}/PM_{2.5}$ emission rate for either Unit 11 or 12 from the two most recent compliance emission tests, lb/MMBtu

$$E_{12-mo} = \sum_{i=1}^{12} E_{mo-i}$$

Where, $E_{12\text{-}mo}$ = 12-month total $PM_{10}/PM_{2.5}$ emissions for Units 11 and 12 combined, tons

$E_{mo\text{-}i}$ = Monthly total $PM_{10}/PM_{2.5}$ emissions for Units 11 and 12 combined for month *i*, tons

2.2 Standards of Performance for Stationary Combustion Turbines, 40 CFR 60, Subpart KKKK.

1. Nitrogen oxides (NO_x) emissions may not exceed:
    a. 25 ppm at 15 percent O_2 or 1.2 lb/MWh based on a 4-hour rolling average when a valid NO_x emission rate is obtained for at least 3 of the 4 hours,
    b. 25 ppm at 15 percent O_2 or 1.2 lb/MWh based on a 30-operating day rolling average, and
    c. 96 ppm at 15 percent O_2 or 4.7 lb/MWh when operating at less than 75 percent of peak load, or when operating at temperatures less than 0 °F.
2. Sulfur dioxide (SO_2) emissions may not exceed:
    a. 0.90 pounds of SO_2 per megawatt-hour of gross output or
    b. 0.060 lb SO_2/mmBtu heat input.
3. Install, certify, and operate a NO_x continuous emissions monitoring system (NO_x CEMS) in accordance with 40 CFR Part 75 Appendix A. (40 CFR §§ 60.4335(b) and 60.4345(a))

2.3 Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units, 40 CFR 60 Subpart TTTT.

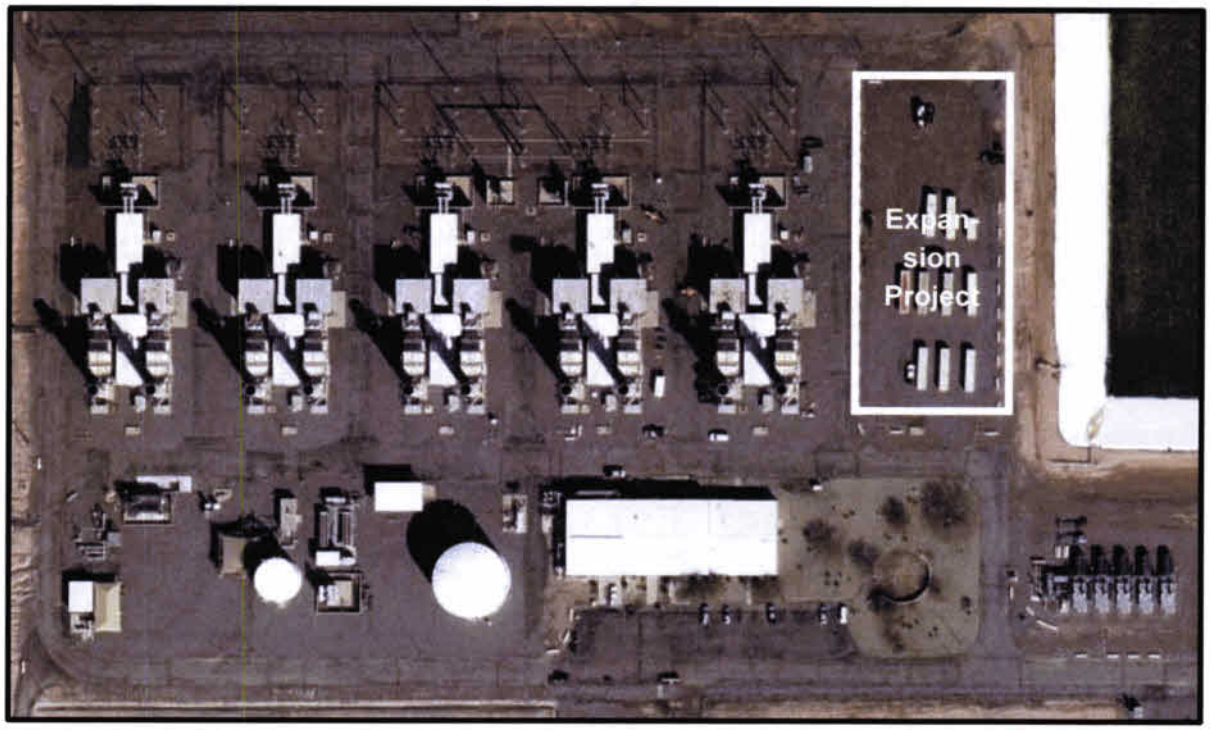
1. Carbon dioxide (CO_2) emissions may not exceed 120 lb/MMBtu of heat input as determined by the procedures in 40 CFR § 60.5525.

Chapter 3. Sundance Power Plant Expansion Project Description.

3.1 Existing Plant Description.

The Arizona Public Service (APS) Sundance Power Plant – Casa Grande (SPP) is a natural gas-fired electric generating facility with a total nominal capacity of 450 megawatts (MW) located at 2060 West Sundance Road, Casa Grande in west Pinal County. The SPP is a Class I major stationary source under Pinal County Code § 3-3-203 and Arizona Administrative Code AAC R18-2-401 and operates under Permit No. V20690.R01. The SPP consists of ten (10) General Electric Model LM6000 SPRINT simple cycle combustion turbines (CT) arranged into five (5) power blocks. These CTs were originally constructed in 2001. Each CT has a nameplate electric generating capacity of 45 MW and a nominal heat input capacity at base load conditions of 446 mmBtu/hr based on the higher heating value (HHV) of natural gas. Each CT is limited by the permit to 7,500 hours of operation including startup and shutdown, and up to 1,000 startup events in each 12-month rolling period. Each CT is equipped with advanced air quality control systems, including water injection for nitrogen oxides (NO_x) control, selective catalytic reduction (SCR) for additional NO_x control, and oxidation catalyst systems for carbon monoxide (CO) and volatile organic compound (VOC) control. An aerial image of the SPP showing the arrangement of the five (5) power blocks and ten (10) existing CTGs is shown in Figure 4-1.

FIGURE 4-1. Aerial image of the Sundance Power Plant showing the ten (10) combustion turbines and the location for the Expansion Project.



3.2 Expansion Project.

The Sundance Power Plant Expansion Project will involve the installation of two (2) General Electric Model LM6000PC aeroderivative simple cycle combustion turbines (CTs) with the spray intercooling (SPRINT) performance augmentation. These CT units will be identified as Units 11 and 12. Each CT will have a maximum nominal electric output of 49.6 MW and a maximum nominal natural gas fuel flow of 424.3 mmBtu/hr (LHV), equal to 467 mmBtu/hr (HHV) at 45 °F and 100% relative humidity. These CTs will be very similar to the existing CTs and, like the existing CTs, will also be equipped with water injection and selective catalytic reduction (SCR) for NO_x control and oxidation catalysts for CO and VOC control.

3.2.1 General Electric Model LM6000PC Units.

The General Electric (GE) Model LM6000PC simple cycle combustion or gas turbines (CT) are aeroderivative CTs coupled to an electric generator to produce electric power. A gas turbine is an internal combustion system which uses air as a working fluid to produce mechanical power and consists of an air inlet system, a compressor section, a combustion section, and a power section. The compressor section includes an air filter, noise silencer, and a multistage axial compressor. During operation, ambient air is drawn into the compressor section. The air is compressed and heated by the combustion of fuel in the combustor section. The expansion of the high pressure, high temperature gas expands through the turbine blades which rotate the turbine shaft in the power section of the turbine, and the rotating shaft powers the electric generator.

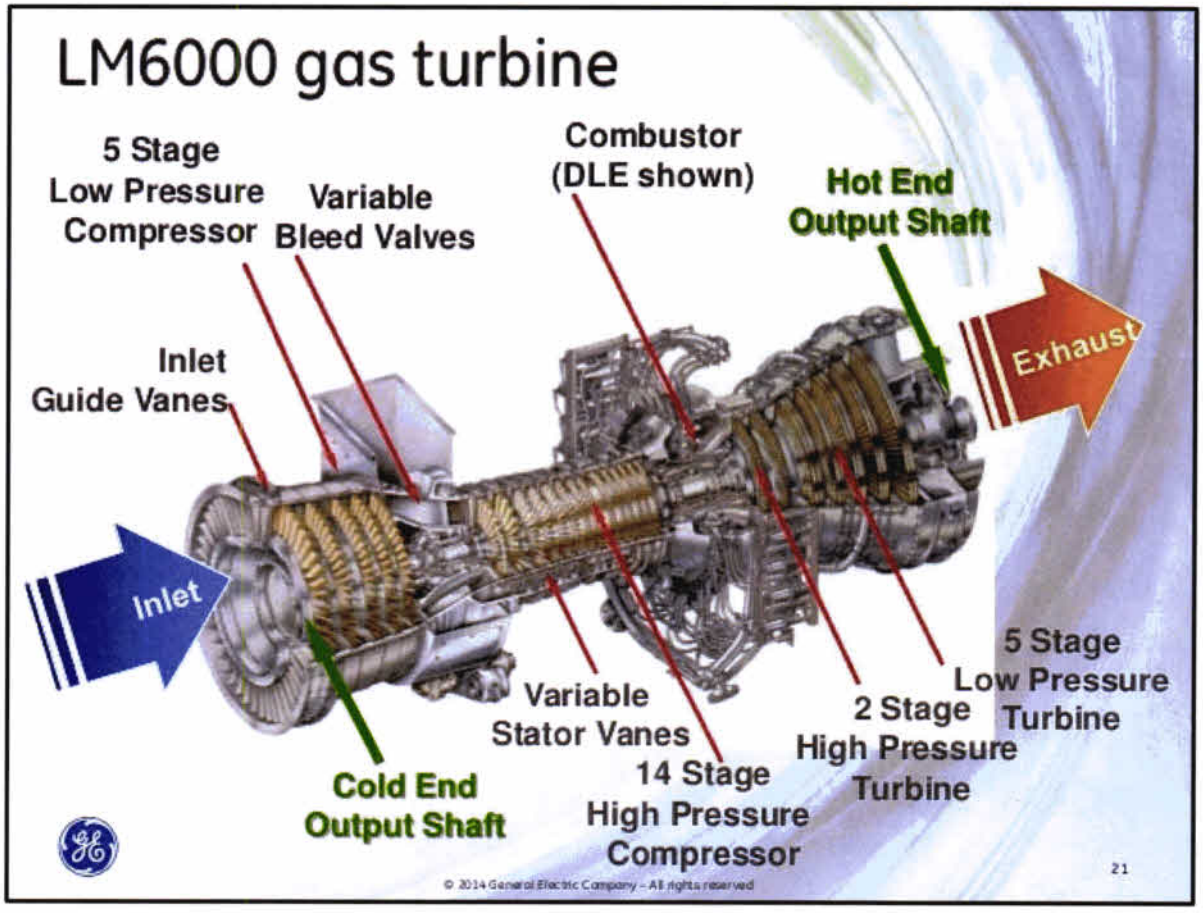
The LM6000PC CTs are aeroderivative units based on turbine designs in the aviation industry. This aeroderivative design is capable of fast starts and fast ramping to full electric output capacity. Figure 3-1 is a process flow diagram for the LM6000 CTs. These CTs will be equipped with inlet air filters which remove dust and particulate matter from the inlet air. During hot weather, the filtered air may also be cooled by passing through an inlet air evaporative cooling system. During cold weather, the filtered air may be heated by use of a radiative heating system that is part of the anti-icing system. This system utilizes a glycol and water solution as the working fluid that is heated by induction heaters. The filtered air is drawn into the compressor section of the gas turbine where the air is compressed. The air temperature rises adiabatically along with the increase in pressure. These CTs are also equipped with spray intercooling or SPRINT, which injects demineralized water into the low-pressure compressor. This water flow increases the mass flow of gases through the turbines and results in higher electric power output.

The hot, compressed air flows to the combustion section of the CT where high-pressure natural gas is injected into the turbine and the air/fuel mixture is ignited. Water is also injected into the combustion section of the CT which reduces flame temperatures and reduces thermal NO_x formation. The combustion gases pass through the power or expansion section of the turbine which consists of blades attached to a rotating shaft, and fixed blades or "buckets". The expanding gases cause the blades and shaft to rotate. The power section of the turbine extracts energy from the hot compressed gases which cools and reduces the pressure of the exhaust gases. The power section of the turbine produces the power to drive the electric generator.

Each CT and generator will be enclosed in a metal acoustical enclosure which will also contain accessory equipment. The CTs will be equipped with the following equipment:

- Inlet air filters
- Inlet air chillers
- Metal acoustical enclosure to reduce sound emissions
- Duplex shell and tube lube oil coolers for the turbine and generator
- Annular standard combustor combustion system
- Water injection system for NO_x control
- Compressor wash system to clean compressor blades
- Fire detection and protection system
- Hydraulic starting system
- Compressor variable bleed valve vent to prevent compressor surge in off-design operation.

FIGURE 3-2. Process flow diagram of a GE Model LM6000 simple cycle combustion turbine (from GE Company).



3.2.2 Post Combustion Air Quality Control Systems.

The combustion gases exit each CT at approximately 760 to 1,100 °F. The exhaust gases will then pass through two post combustion air quality control systems, including oxidation catalysts for the control of carbon monoxide (CO) and volatile organic compounds (VOC), and selective catalytic reduction (SCR) systems for the control of nitrogen oxides (NO_x) emissions. To enable the use of SCR for the proposed CTs, an air injection system is included. This system supplies tempering air to the exhaust of the turbine section to reduce the exhaust gas temperature to approximately 800 °F at the SCR inlet.

For natural gas-fired gas turbines applications, CO and VOC emission may be controlled using oxidation catalysts installed as a post combustion control system. A typical oxidation catalyst is a rhodium or platinum (noble metal) catalyst on an alumina support material. The catalyst is typically installed in a reactor with flue gas inlet and outlet distribution plates. CO and VOC react with oxygen (O_2) in the presence of the catalyst to form carbon dioxide (CO_2) and water (H_2O). Oxidation catalysts have the potential to achieve a 90% reduction in uncontrolled CO emissions at steady state operation. VOC reduction capabilities are expected to be less.

Chapter 4. Air Emissions Analysis.

Potential emissions for these new LM6000PC CTs are based on the use of water injection and selective catalytic reduction (SCR) for nitrogen oxides (NO_x) control and oxidation catalysts for CO and VOC control. The following are the major bases in this emissions analysis:

1. Maximum design nominal fuel flow of 424.3 mmBtu/hr (LHV), equal to 467 mmBtu/hr (HHV) at 45 °F and 100% relative humidity.
2. Post oxidation catalyst CO emission rate of 15.0 ppmdv at 15% O_2, equal to 0.0335 lb/mmBtu.
3. Post SCR NO_x emission rate of 5.0 ppmdv at 15% O_2, equal to 0.0184 lb NO_x/mmBtu.
4. VOC emissions are based on an emission limit of 4.5 pounds per hour, equal to 0.0096 lb/mmBtu at 100% load. This rate is more than 4 times higher than the emission factor for uncontrolled natural gas-fired turbines from the U.S. EPA's *AP-42, Compilation of Air Pollutant Emission Factors*, Table 3.1-2a.
5. PM emissions are based on a proposed emission rate of 7.0 pounds per hour, equal to 0.015 lb/mmBtu at 100% load. An emission rate of 0.015 lb/mmBtu is 120% of the highest 3-run average test results for four compliance emission tests conducted on the existing Sundance LM6000 CTs. Note that the total plus condensable PM emission factor for uncontrolled natural gas-fired turbines from the U.S. EPA's *AP-42, Compilation of Air Pollutant Emission Factors*, Table 3.1-2a is 0.0066 lb/mmBtu.
6. All filterable plus condensable PM_{10} emissions are also assumed to be $PM_{2.5}$ emissions.
7. Startup/shutdown emissions data for CO, NO_x, and VOC emissions are from General Electric and include the combined emissions for one startup and one shutdown.
8. Startup/shutdown emissions for PM are based on a maximum startup heat input of 200 mmBtu, a shutdown heat input of 33.7 mmBtu, and a PM emission rate of 0.015 lb/mmBtu.

4.1 Normal Operation.

The maximum PSD regulated pollutant emission rates for each LM6000PC CT during normal operation and with controls are summarized in Table 4-1. The maximum pollutant emission rates for each LM6000PC CT during normal operation and without controls are summarized in Table 4-2. Please note that the potential VOC emissions are based on an emission limit of 4.5 lb/hr, equal to 0.0096 lb/mmBtu. This rate is more than 4 times higher than the emission factor for uncontrolled natural gas-fired turbines from the U.S. EPA's *AP-42, Compilation of Air Pollutant Emission Factors*, Table 3.1-2a.

TABLE 4-1. Maximum potential emission rates with controls for each LM6000PC CT during normal operation.

Pollutant		Heat Input	Emission Rate		
		mmBtu/hr	lb/mmBtu	ppm @ 15% O_2	lb/hr
Carbon Monoxide	CO	467	0.0335	15.0	15.64
Nitrogen Oxides	NO_x	467	0.0184	5.0	8.60
Particulate Matter	PM	467	0.015		7.0
Particulate Matter	PM_{10}	467	0.015		7.0
Particulate Matter	$PM_{2.5}$	467	0.015		7.0
Sulfur Dioxide	SO_2	467	0.0006		0.28
Vol. Org. Compounds	VOC	467	0.0096		4.50
Sulfuric Acid Mist	H_2SO_4	467	0.000046		0.021
Fluorides (F)	F	467	0.0000		0.000
Lead	Pb	467	0.0000005		0.0002
Carbon Dioxide	CO_2	467	117.0		54,628
Greenhouse Gases	CO_2e	467	117.1		54,684

Footnotes

1. CO and NO_x emissions during normal operation are calculated based on concentrations of 15 and 5 parts per million, dry volume basis (ppmdv) corrected to 15% excess oxygen according to the following equations from 40 CFR Part 60, Appendix A, Reference Method 19, Eq. 19-1 and 40 CFR Part 75, Appendix F, Eq. F-5:

$$E_{NOx} = K_{NOx}\, C_d\, F_d\, \frac{20.9}{20.9 - \%O_{2d}} \qquad E_{CO} = K_{CO}\, C_d\, F_d\, \frac{20.9}{20.9 - \%O_{2d}}$$

Where, E = Pollutant emission rate, lb/mmBtu
C_d = Pollutant concentration during unit operation, parts per million, dry volume basis
F_d = 8,710 dscf/mmBtu for natural gas
$\%O_2$ = Oxygen concentration, percent by volume, dry basis, = 15%
K_{CO} = 7.237×10^{-8} lb/dscf-ppm CO
K_{NOx} = 1.194×10^{-7} lb/dscf-ppm NO_x

2. PM emissions are based on a proposed emission rate of 7.0 pounds per hour, equal to 0.015 lb/mmBtu at 100% load. An emission rate of 0.015 lb/mmBtu is 120% of the highest 3-run average test results for four compliance emission tests conducted on the existing Sundance LM6000 CTs.
3. All filterable plus condensable PM_{10} emissions are also assumed to be $PM_{2.5}$ emissions.
4. Sulfur dioxide (SO_2) emissions are based on the emission factor for the combustion of pipeline natural gas from the Acid Rain Program in 40 CFR Part 75 of 0.0006 lb SO_2/mmBtu.
5. VOC emissions are based on an emission limit of 4.5 lb/hr, equal to 0.0096 lb/mmBtu. This rate is more than 4 times higher than the emission factor for uncontrolled natural gas-fired turbines from the U.S. EPA's *AP-42, Compilation of Air Pollutant Emission Factors*, Table 3.1-2a.
6. Lead (Pb) emissions are based on the emission factor from the U.S. EPA's *AP-42*, Table 1.4-2.
7. The emission factors for greenhouse gases including CO_2, N_2O and CH_4 are from 40 CFR 98, Tables C-1 and C-2. The CO_2e factors are from 40 CFR 98, Subpart A, Table A-1.

TABLE 4-2. Maximum potential emission rates WITHOUT controls for each LM6000PC CT during normal operation.

Pollutant		Heat Input	Emission Rate		
		mmBtu/hr	lb/mmBtu	ppm @ 15% O_2	lb/hr
Carbon Monoxide	CO	467	0.082	37	38.06
Nitrogen Oxides	NO_x	467	0.320	87	149.64
Particulate Matter	PM	467	0.015		7.01
Particulate Matter	PM_{10}	467	0.015		7.01
Particulate Matter	$PM_{2.5}$	467	0.015		7.01
Sulfur Dioxide	SO_2	467	0.0006		0.28
Vol. Org. Compounds	VOC	467	0.0096		4.50
Sulfuric Acid Mist	H_2SO_4	467	0.000046		0.021
Fluorides (F)	F	467	0.0000		0.000
Lead	Pb	467	0.0000005		0.0002
Carbon Dioxide	CO_2	467	117.0		54,628
Greenhouse Gases	CO_2e	467	117.1		54,684

Footnotes

1. CO and NO_x emission factors are for uncontrolled natural gas-fired turbines from the U.S. EPA's *AP-42, Compilation of Air Pollutant Emission Factors*, Table 3.1-1.
2. PM emissions are based on a proposed emission rate of 7.0 pounds per hour, equal to 0.015 lb/mmBtu at 100% load. An emission rate of 0.015 lb/mmBtu is 120% of the highest 3-run average test results for four compliance emission tests conducted on the existing Sundance LM6000 CTs.\.
3. All filterable plus condensable PM_{10} emissions are also assumed to be $PM_{2.5}$ emissions.
4. Sulfur dioxide (SO_2) emissions are based on the emission factor for the combustion of pipeline natural gas from the Acid Rain Program in 40 CFR Part 75 of 0.0006 lb SO_2/mmBtu.
5. VOC emissions are based on an emission limit of 4.5 lb/hr, equal to 0.0096 lb/mmBtu. This rate is more than 4 times higher than the emission factor for uncontrolled natural gas-fired turbines from the U.S. EPA's *AP-42, Compilation of Air Pollutant Emission Factors*, Table 3.1-2a.
6. Lead (Pb) emissions are based on the emission factor from the U.S. EPA's *AP-42*, Table 1.4-2.
7. The emission factors for greenhouse gases including CO_2, N_2O and CH_4 are from 40 CFR 98, Tables C-1 and C-2. The CO_2e factors are from 40 CFR 98, Subpart A, Table A-1.

4.2 Startup and Shutdown Emissions.

The combustion turbine air pollution control systems including the SCR and oxidation catalyst systems are not operational during periods of startup and shutdown (SU/SD) because the exhaust gas temperatures are too low for these systems to function as designed. In addition, water injection used to control NO_x emissions cannot be used during startup because injecting water too soon can impact the combustion turbine flame stability and combustion dynamics, and it may also increase CO emissions. As a result, CO, NO_x, and VOC emissions may be elevated during periods of startup and shutdown. However, the emission rates for PM, PM_{10}, and $PM_{2.5}$ emissions, as well as SO_2, sulfuric acid mist, lead (Pb), CO_2, and GHG emissions, expressed in pounds per million Btu of heat input (lb/mmBtu), are NOT elevated during periods of startup and shutdown.

Table 4-3 is a summary of the startup and shutdown duration, the expected fuel consumption, expressed as mmBtu, and the PSD regulated air pollutant emissions. As noted above, the emission rates for PM, PM_{10}, and $PM_{2.5}$ emissions, as well as SO_2, sulfuric acid mist, lead (Pb), CO_2, and GHG emissions, expressed in pounds per million Btu of heat input (lb/mmBtu), are NOT elevated during periods of startup and shutdown. Therefore, the highest mass emission rate for these pollutants, expressed in pounds per hour, occur during normal operation at 100% of the rated capacity of the CTs. Further, the total mass emissions of PM, PM_{10}, $PM_{2.5}$, SO_2, sulfuric acid mist, lead (Pb), CO_2, and GHG emissions, expressed in tons per year, can be accumulated based only on heat input and the respective pollutant emission rate, expressed in lb/mmBtu.

TABLE 4-3. Maximum potential emission rates with controls for each LM6000PC CT during startup and shutdown.

Pollutant		Startup			Shutdown			TOTAL SU/SD EMISSIONS	
		Duration	Heat Input	Emissions	Duration	Heat Input	Emissions		
		minutes	mmBtu	lb	minutes	mmBtu	lb	lb/mmBtu	lb/event
Carbon Monoxide	CO	30	199.6	15.7	9	33.7	16.6	0.138	32.3
Nitrogen Oxides	NO_x	30	199.6	14.3	9	33.7	3.9	0.078	18.2
Part. Matter	PM	30	199.6	2.99	9	33.7	0.51	0.015	3.5
Part. Matter	PM_{10}	30	199.6	2.99	9	33.7	0.51	0.015	3.5
Part. Matter	$PM_{2.5}$	30	199.6	2.99	9	33.7	0.51	0.015	3.5
Sulfur Dioxide	SO_2	30	199.6	0.1	9	33.7	0.02	0.0006	0.1
Vol. Org. Cmpds	VOC	30	199.6	1.8	9	33.7	0.9	0.012	2.7
Sulf. Acid Mist	H_2SO_4	30	199.6	0.0	9	33.7	0.00	0.000	0.0
Fluorides (F)	F	30	199.6	0.0	9	33.7	0.00	0.000	0.0
Lead	Pb	30	199.6	0.0	9	33.7	0.00	0.000	0.0
Carbon Dioxide	CO_2	30	199.6	23,348.4	9	33.7	3,942.1	117.0	27,290.5
Greenhouse Gas	CO_2e	30	199.6	23,372.5	9	33.7	3,946.2	117.1	27,318.7

4.3 Proposed Voluntary Emission Limits and Potential to Emit.

With this application, APS is proposing the following emission limits which are designed to limit the potential emissions for both of the new GE LM6000PC combustion turbines below the federal New Source Review and Prevention of Significant Deterioration (PSD) significant increase levels.

1. Other than during periods of start-up, warm-up, shut-down, and malfunction, the Permittee shall not cause to be discharged into the atmosphere from the Units 11 and 12 gas turbine systems during normal CT operations any gases which contain:
    a. Nitrogen oxides (NO_x) emissions in excess of 5.0 ppmvd corrected to 15 percent oxygen, based on a rolling, 24-operating hour average.
    b. Carbon monoxide (CO) emissions in excess of 15.0 ppmvd corrected to 15 percent oxygen, based on a rolling, 24-operating hour average.
    c. PM, PM_{10}, or $PM_{2.5}$ emissions in excess of 7.0 lbs/hr.
    d. VOC emissions in excess of 4.5 lbs/hr.
    e. Visible emissions in excess of 40% opacity, as measured by Method 9.
2. Carbon monoxide (CO) emissions may not exceed 44.7 tons in any rolling 12-month period for all periods of operation, including startup and shutdown.
3. Nitrogen oxides (NO_x) emissions may not exceed 24.9 tons in any rolling 12-month period for all periods of operation, including startup and shutdown.
4. PM_{10} or $PM_{2.5}$ emissions may not exceed 9.4 tons in any rolling 12-month period for all periods of operation, including startup and shutdown.
5. The total heat input to the Units 11 and 12 gas turbine systems combined may not exceed 1,236,000 MMBtu in any rolling 12-month period.

Table 4-4 is a summary of the potential emissions with controls for both of the new GE LM6000PC combustion turbines combined based on these proposed emission limits. Table 4-5 is a summary of the potential emissions **without** controls for both combustion turbines combined. Table 4-6 is a summary of the potential hazardous air pollutant (HAP) emissions for both of the new combustion turbines combined. he HAP emissions in Table 4-6 are based on uncontrolled emissions.

TABLE 4-4. Potential emissions with controls for both of the new GE LM6000PC combustion turbines combined based on the proposed emission limits in this application.

Pollutant		Each Combustion Turbine					Both Combustion Turbines Combined				
		Heat Input	Normal Operation			Startup / Shutdown	Normal Operation		Startup / Shutdown		Potential to Emit
		mmBtu/hr	lb/mmBtu	ppm @ 15% O_2	lb/hr	lb/event	mmBtu/yr	ton/yr	event/yr	ton/yr	ton/yr
Carbon Monoxide	CO	467	0.0335	15.0	15.64	32.3	1,236,000	20.70	1,460	23.58	44.3
Nitrogen Oxides	NO_x	467	0.0184	5.0	8.60	18.2	1,236,000	11.38	1,460	13.29	24.7
Particulate Matter	PM	467	0.015		7.00	3.7	1,236,000	9.26	1,460	2.72	9.3
Particulate Matter	PM_{10}	467	0.015		7.00	3.7	1,236,000	9.26	1,460	2.72	9.3
Particulate Matter	$PM_{2.5}$	467	0.015		7.00	3.7	1,236,000	9.26	1,460	2.72	9.3
Sulfur Dioxide	SO_2	467	0.0006		0.28	0.09	1,236,000	0.37	1,460	0.07	0.4
Vol. Org. Cmpds	VOC	467	0.0096		4.50	2.7	1,236,000	5.96	1,460	1.97	7.9
Sulfuric Acid Mist	H_2SO_4	467	0.000046		0.021	0.0072	1,236,000	0.03	1,460	0.01	0.0
Fluorides (F)	F	467	0.0000		0.000	0.0000	1,236,000	0.0000	1,460	0.0000	0.0
Lead	Pb	467	0.0000005		0.0002	0.0001	1,236,000	0.0003	1,460	0.0001	0.0003
Carbon Dioxide	CO_2	467	117.0		54,628	18,209	1,236,000	72,291.2	1,460	13,292.8	72,291.2
Greenhouse Gases	CO_2e	467	117.1		54,684	18,228	1,236,000	72,365.9	1,460	13,306.5	72,365.9

TABLE 4-5. Potential emissions WITHOUT controls for both of the new GE LM6000PC combustion turbines combined based on the proposed emission limits in this application.

Pollutant		Each Combustion Turbine					Both Combustion Turbines Combined				
		Heat Input	Normal Operation			Startup / Shutdown	Normal Operation		Startup / Shutdown		Potential to Emit
		mmBtu/hr	lb/mmBtu	ppm @ 15% O_2	lb/hr	lb/event	mmBtu/yr	ton/yr	event/yr	ton/yr	ton/yr
Carbon Monoxide	CO	467	0.082	36.5	38.06	32.3	1,236,000	50.37	1,460	23.58	73.9
Nitrogen Oxides	NO_x	467	0.320	87.0	149.64	18.2	1,236,000	198.02	1,460	13.29	211.3
Particulate Matter	PM	467	0.015		7.00	3.7	1,236,000	9.26	1,460		9.3
Particulate Matter	PM_{10}	467	0.015		7.00	3.7	1,236,000	9.26	1,460		9.3
Particulate Matter	$PM_{2.5}$	467	0.015		7.00	3.7	1,236,000	9.26	1,460		9.3
Sulfur Dioxide	SO_2	467	0.0006		0.28	0.09	1,236,000	0.37	1,460		0.4
Vol. Org. Cmpds	VOC	467	0.0096		4.50	2.7	1,236,000	5.96	1,460	1.97	7.9
Sulfuric Acid Mist	H_2SO_4	467	0.000046		0.021	0.0072	1,236,000	0.03	1,460		0.0
Fluorides (F)	F	467	0.0000		0.000	0.0000	1,236,000	0.0000	1,460		0.0
Lead	Pb	467	0.0000005		0.0002	0.0001	1,236,000	0.0003	1,460		0.0003
Carbon Dioxide	CO_2	467	117.0		54,628	18,209	1,236,000	72,291.2	1,460		72,291.2
Greenhouse Gases	CO_2e	467	117.1		54,684	18,228	1,236,000	72,365.9	1,460		72,365.9

TABLE 4-6. Potential hazardous air pollutant (HAP) emissions for both of the new GE LM6000PC combustion turbines combined based on the proposed emission limits in this application.

POLLUTANT	CAS No.	Emission Factor	Each Combustion Turbine		Both Combustion Turbines Combined	
		lb/mmBtu	mmBtu/hr	lb/hr	mmBtu/yr	ton/yr
Acetaldehyde	75-07-0	0.000040	467	0.0187	1,260,000	0.0252
Acrolein	107-02-8	0.000006	467	0.0030	1,260,000	0.0040
Benzene	71-43-2	0.000012	467	0.0056	1,260,000	0.0076
1,3-Butadiene	106-99-0	0.000000	467	0.0002	1,260,000	0.0003
Ethylbenzene	100-41-4	0.000032	467	0.0149	1,260,000	0.0202
Formaldehyde	50-00-0	0.000215	467	0.1006	1,260,000	0.1357
Xylene	1330-20-7	0.000064	467	0.0299	1,260,000	0.0403
Naphthalene	91-20-3	0.000001	467	0.0006	1,260,000	0.0008
PAH		0.000002	467	0.0010	1,260,000	0.0014
Propylene oxide	75-56-9	0.000029	467	0.0135	1,260,000	0.0183
Toluene	108-88-3	0.000130	467	0.0607	1,260,000	0.0819
TOTAL				**0.25**	**1,260,000**	**0.34**

Footnotes

1. The emission factors for all HAPs except formaldehyde emissions are *uncontrolled* emission factors from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42*, Volume 1: Stationary Point and Area Sources, Section 3.1, Stationary Gas Turbines for Electricity Generation.

2. Formaldehyde (CH_2O) emissions are based on the emission limit of 91 parts per billion on a dry, volume basis (ppbvd) or less at 15% O_2 for lean premix and diffusion-flame natural gas and oil-fired combustion turbines located at major sources of HAPs in accordance with the *National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines*, 40 CFR 63, Subpart YYYY.

Chapter 5. Applicable Requirements.

The Sundance Power Plant is a Class I, major stationary source under Pinal County Code § 3-3-203 and AAC R18-2-401 both for NANSR with respect to PM_{10}, and for PSD for all other PSD regulated pollutants. Under the Arizona Revised Statutes 49-402, the Arizona Department of Environmental Quality (ADEQ) has original jurisdiction over "[m]ajor sources in any county that has not received approval from the administrator for new source review under the Clean Air Act and Prevention of Significant Deterioration under the Clean Air Act." Therefore, the Pinal County Nonattainment New Source Review rules are not approved in the state implementation plan for the area, and ADEQ permitting regulations apply for major sources that are in Pinal County under a delegation agreement.

5.1 Pinal County Code § 3-1-040. Applicability and classes of permits.

In accordance with Pinal County Code, Chapter 3. Permits and Permit Revisions and § 3-1-040.A, a permit or permit revision is required for undertaking a modification of a source subject to regulation under this chapter. The term 'modification' is defined at Code § 1-3-140.85 as "[a] physical change in or change in the method of operation of a source which increases the actual emissions ... by more than an amount numerically equal to a corresponding de minimis amount. Under Code § 1-3-140.37, the term 'de minimis' is the lesser of the potential of the source to emit one ton per year or 5.5 pounds per day. From Chapter 4, the Sundance Expansion Project results in increases in emissions greater than the de minimis levels. Therefore, a permit revision under Code § 3-1-040 is required for the proposed Project. This application for a permit revision constitutes an application for approval under this provision.

5.2 Pinal County Code § 3-2-195. Significant permit revisions.

In accordance with Pinal County Code § 3-2-190 Minor permit revisions, any changes that require establishment of a permit term or condition to avoid an applicable requirement are not considered a minor permit revision and are subject to significant permit revision requirements under Code § 3-2-195. Because APS is requesting federally enforceable emission and operating limits for the proposed new CTs to keep the Sundance Expansion Project emission increases below the Permitting Exemption Thresholds under Arizona Administrative Code R18-2-101(101) and the federal New Source Review (NSR) program, a significant permit revision to the Sundance Class I Permit is required for the proposed Project. This document is an application for a significant permit revision under Code § 3-2-195.

5.3 Minor New Source Review (NSR) Air Permitting Requirements.

AAC R18-2-334. Minor New Source Review, applies to any minor NSR modification to a Class I or Class II source. "Minor NSR Modification" means "Any physical change in or change in the method of operation of an emission unit or a stationary source that ... increases the potential to emit of a regulated minor NSR pollutant by an amount greater than or equal to the permitting exemption thresholds in AAC R18-2-101(101). Based on the proposed operating and emission limits in this application (see Table 6-1), the Sundance Expansion Project will exceed the permitting exemption thresholds only for PM_{10}, $PM_{2.5}$, and

NO_x emissions. Therefore, this Project will be subject to the Minor NSR program only for those three (3) pollutants. The requirements of the minor NSR program include the requirement to apply reasonably available control technology (RACT) to the emissions units **OR** conduct an ambient air quality assessment. The requirements from R18-2-334 state:

> C. The Director shall not issue a proposed final Class I permit or permit revision or a Class II permit or permit revision subject to this Section to a person proposing to construct a new source or make a minor NSR modification unless the source or modification meets **one of the following conditions** for each regulated minor NSR pollutant subject to this Section (**emphasis added**):
>
> 1. The owner or operator elects to implement RACT.
>
> b. In the case of a minor NSR modification, the owner or operator shall implement RACT for each emissions unit that will experience an increase in the potential to emit a regulated minor NSR pollutant equal to or greater than 20% of the permitting exemption threshold.
>
> 2. An ambient air quality assessment demonstrates that emissions from the source or minor NSR modification will not interfere with attainment or maintenance of a national ambient air quality standard in any area.
>
> b. The requirements of this subsection shall be satisfied, if the results of the screening or more refined model conducted pursuant to subsection (B)(2)(a) demonstrate either of the following:
>
> i. Ambient concentrations resulting from emissions from the source or modification combined with existing concentrations of regulated minor NSR pollutants will not interfere with attainment or maintenance of a national ambient air quality standard.
>
> ii. Emissions from the source or minor modification will have an ambient impact below the significance levels as defined in R18-2-401.

This application includes an ambient air quality assessment that demonstrates that NOx, PM_{10}, and $PM_{2.5}$ emissions from the minor NSR modification will not interfere with attainment or maintenance of a national ambient air quality standard.

5.4 R18-2 Article 4. Permit requirements for new major sources and major modifications to existing major sources.

Code §§ 3-3-203 through -280 and R18-2-401 through -412 are the Nonattainment Area New Source Review (NANSR) and Prevention of Significant Deterioration (PSD) provisions applicable to new major stationary sources or projects that are major modifications for regulated NSR pollutants. The Sundance Power Plant is an existing major stationary source, as defined in the NNSR and PSD regulations, with a potential to emit greater than 100 tons per year of one or more regulated NSR pollutants that is located in Pinal County in an area that is designated as attainment for all criteria pollutants except PM_{10}. A major modification is defined in AAC R18-2-101(74) as:

74. "Major modification" is defined as follows:
    a. A major modification is any physical change in or change in the method of operation of a major source that would result in both a significant emissions increase of any regulated NSR pollutant and a significant net emissions increase of that pollutant from the stationary source.

Table 5-1 is a summary of the potential emission increases for the Sundance Expansion Project compared to the "Significant" levels in AAC R18-2-101(131). Note that in accordance with 40 CFR § 52.21(b)(49)(iv)(b), beginning January 2, 2011, greenhouse gas (GHG) emissions are subject to regulation at an existing major stationary source if the project will have a significant emissions increase of a regulated NSR pollutant other than GHG emissions and an emissions increase of 75,000 tons per year of GHG emissions. From Table 5-1, the Project will not exceed the PSD or NANSR significant levels for any regulated pollutant. Therefore, the Sundance Expansion Project is not subject to AAC R18-2 Article 4.

5.4.1 Turbine Inlet Air Chiller system (TIAC) and Project Aggregation.

Note that APS is also undertaking a separate project at the Sundance Power Plant to add a Turbine Inlet Air Chiller system (TIAC), including a four cell cooling tower and Thermal Energy Storage (TES). APS submitted a minor permit modification to incorporate this proposed change into the Sundance Power Plant Title V permit on September 2, 2022. Pinal County issued Title V Permit Revision V20690.R01 in October 2022 which authorizes the facility to install and operate this TIAC system. It is important to note the new Unit 11 and 12 CTs will be tied into the new TIAC system which is currently in construction. No changes to the TIAC system will be necessary other than tying Units 11 and 12 into the chilled water loop. The TIAC System will run the same after the new Units 11 and 12 are tied in, but the duration of the chilling capacity effective run time will be shortened from 8 hours to 6 hours.

APS believes that the Sundance Expansion Project and the TIAC Project are separate projects and should not be aggregated or combined for determining PSD and NANSR applicability. In the U.S. EPA's final action regarding PSD and NANSR: Aggregation[1]. EPA stated "[t]o be 'substantially related,' there should be an apparent interconnection—either technically or economically - between the physical and/or operational changes, or a complementary relationship whereby a change at a plant may exist and operate independently, ***however its benefit is significantly reduced without the other activity***." (***emphasis added***) The benefits of adding the inlet cooling systems to the existing combustion turbines will not be reduced in any way by the addition of the proposed new Units 11 and 12 in this application. Therefore, these projects are not technically related and are separate projects for determining PSD and NANSR applicability. With that said, even if these projects were aggregated, the emissions increase for the combined projects would still be less than the PSD and NANSR significant increase levels and would therefore not trigger PSD or NANSR review even when aggregated.

[1] Federal Register / Vol. 83, No. 221 / Thursday, November 15, 2018.

TABLE 5-1. Potential emission increases for the Sundance Expansion Project compared to the "Significant" levels in AAC R18-2-101(131), tons per year.

Pollutant		Total Project Potential to Emit	PSD/NANSR Significant Threshold	OVER?	Permitting Exemption Threshold	OVER?
Carbon Monoxide	CO	44.3	100	NO	50	NO
Nitrogen Oxides	NO_x	24.7	40	NO	20	YES
Particulate Matter	PM	9.3	25	NO	n/a	n/a
Particulate Matter	PM_{10}	9.3	15	NO	7.5	YES
Particulate Matter	$PM_{2.5}$	9.3	10	NO	5.0	YES
Sulfur Dioxide	SO_2	0.4	40	NO	20	NO
Volatile Organic Cmpds	VOC	7.9	40	NO	20	NO
Sulfuric Acid Mist	H_2SO_4	0.0	7	NO	n/a	n/a
Fluorides (F)	F	0.0	3	NO	n/a	n/a
Lead	Pb	0.0	0.6	NO	0.3	NO
Carbon Dioxide	CO_2	72,291.2	n/a	n/a	n/a	n/a
Greenhouse Gases	CO_2e	72,365.9	75,000	NO	n/a	n/a

5.5 Pinal County Code § 3-7-590 Class I permit fees.

Per Code § 3-7-590.D.2, an application fee of $1,000 is applicable for an application for a significant permit revision to a Class I permit. A check for the application fee payable to "Pinal County Air Quality Control Department" is attached to this application.

5.6 Pinal County Code § 5-23-1010 Standards of Performance for Stationary Rotating Machinery.

In accordance with Code § 5-23-990, requirements of this standard are applicable to the proposed 'stationary gas turbines' under the CT Project. For equipment with heat input less than 4,200 MMBtu per hour, maximum allowable particulate matter emissions are determined using the following equation:

$$E = 1.02*Q^{0.769}$$

Where, E = the maximum allowable particulate emissions rate in pounds-mass per hour
Q = the total heat input of all operating fuel burning units on a plant or premises in MMBtu per hour

In addition, the proposed CTs are not allowed to emit smoke for any period greater than 10 consecutive seconds which exceeds 40% opacity. Visible emissions when starting cold equipment shall be exempt from this requirement for the first 10 minutes. The proposed CTs will only use natural gas and will meet these emission standards.

5.7 Standards of Performance for Stationary Combustion Turbines, 40 CFR 60, Subpart KKKK.

In 2006, the U.S. EPA finalized the *Standards of Performance for Stationary Combustion Turbines* under 40 CFR 60, Subpart KKKK. In accordance with 40 CFR § 60.4300, combustion turbines which commenced construction, modification, or reconstruction after February 18, 2005 are subject to this subpart. The pollutants regulated under Subpart KKKK include NO_x and sulfur dioxide (SO_2). The two proposed natural gas-fired simple cycle stationary combustion turbines meet the affected facility definition under this standard. Therefore, the following NSPS requirements will apply to the proposed CTs under the Project.

5.7.1 Sulfur Dioxide (SO_2) Emissions.

The applicable new SO_2 emission standard for the CC5 CTGs under Subpart KKKK are as follows:

> **§ 60.4330 What emission limits must I meet for sulfur dioxide (SO_2)?**
>
> (a) If your turbine is located in a continental area, you must comply with either paragraph (a)(1), (a)(2), or (a)(3) of this section. If your turbine is located in Alaska, you do not have to comply with the requirements in paragraph (a) of this section until January 1, 2008.
>
> (1) You must not cause to be discharged into the atmosphere from the subject stationary combustion turbine any gases which contain SO_2 in excess of 110 nanograms per Joule (ng/J) (0.90 pounds per megawatt-hour (lb/MWh)) gross output;
>
> (2) You must not burn in the subject stationary combustion turbine any fuel which contains total potential sulfur emissions in excess of 26 ng SO_2/J (0.060 lb SO2/MMBtu) heat input. If your turbine simultaneously fires multiple fuels, each fuel must meet this requirement;

The applicable limits are 0.90 pounds of SO_2 per megawatt-hour of gross output or 0.060 lb SO_2/mmBtu heat input. The combustion of pipeline natural gas will meet this emission standard.

5.7.2 Nitrogen Oxides (NO_x) Emissions.

The NO_x emission standards under 40 CFR § 60.4320 are specified in Subpart KKKK, Table 1. The standards for new, modified, or reconstructed turbines firing natural gas and with a heat input greater than 50 mmBtu/hr and less than or equal to 850 mmBtu/hr is 25 ppm at 15 percent O_2 or 1.2 pounds per MWh of useful output. For these combustion turbines which use the mechanical and thermal energy output of the CTGs only to produce electricity, the gross useful output is the gross electrical output from the turbine/generator set.

Excerpts from Table 1 to 40 C.F.R. Part 60, Subpart KKKK: NO_X emission limits for new stationary combustion turbines.

Combustion turbine type	Combustion turbine heat input at peak load (HHV)	NO_X emission standard
New turbine firing natural gas.	Greater than 50 mmBtu/hr and less than or equal to 850 mmBtu/hr	25 ppm at 15 percent O_2 or 1.2 lb/MWh
Turbines operating at less than 75% of peak load, … and turbine operating at less than 0 °F	> 30 MW output	96 ppm at 15 percent O_2 or 4.7 lb/MWh.

APS is proposing to install a NO_x continuous emissions monitoring system (NOx CEMS) in accordance with the requirements in the federal Acid Rain Program in 40 CFR Part 75. In accordance with the Subpart KKKK requirements in 40 CFR § 60.4380 **How are excess emissions and monitor downtime defined for NOx?**, subparagraph (b), an excess emission is defined as:

> **§ 60.4380 How are excess emissions and monitor downtime defined for NO_X?**
>
> (b) For turbines using continuous emission monitoring, as described in §§ 60.4335(b) and 60.4345:
>
> (1) An excess emissions is any unit operating period in which the 4-hour or 30-day rolling average NO_X emission rate exceeds the applicable emission limit in § 60.4320. For the purposes of this subpart, a "4-hour rolling average NO_X emission rate" is the arithmetic average of the average NO_X emission rate in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given hour and the three unit operating hour average NO_X emission rates immediately preceding that unit operating hour. Calculate the rolling average if a valid NO_X emission rate is obtained for at least 3 of the 4 hours. For the purposes of this subpart, a "30-day rolling average NO_X emission rate" is the arithmetic average of all hourly NO_X emission data in ppm or ng/J (lb/MWh) measured by the continuous emission monitoring equipment for a given day and the twenty-nine unit operating days immediately preceding that unit operating day. A new 30-day average is calculated each unit operating day as the average of all hourly NO_X emissions rates for the preceding 30 unit operating days if a valid NO_X emission rate is obtained for at least 75 percent of all operating hours.

Therefore, the applicable NO_x emission limits under Subpart KKKK are:

1. 25 ppm at 15 percent O_2 or 1.2 lb/MWh based on a 4-hour rolling average when a valid NO_x emission rate is obtained for at least 3 of the 4 hours, and
2. 25 ppm at 15 percent O_2 or 1.2 lb/MWh based on a 30-operating day rolling average.
3. 96 ppm at 15 percent O_2 or 4.7 lb/MWh when operating at less than 75 percent of peak load, or when operating at temperatures less than 0 °F

The proposed voluntary NO_x emission limit of 5.0 ppmdv at 15% excess oxygen based on a rolling, 24-operating hour average is more stringent than the NO_x emissions standards under Subpart KKKK.

5.7.3 General Compliance Requirement under 40 CFR § 60.4333.

Under 40 CFR § 60.4333, the CTGs, the SCR, and the oxidation catalyst air pollution control equipment and monitoring equipment must be operated and maintained in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.

5.7.4 NO_x Monitoring Requirements under 40 CFR § 60.4335.

The compliance monitoring requirements of Subpart KKKK allows the use of NO_x monitoring methods that are required under the federal Acid Rain Program in 40 CFR Part 75. APS proposes to install and certify a NO_x continuous emission monitoring systems (NO_x CEMS) consisting of a NO_x monitor and a

diluent gas oxygen (O_2) monitor to determine the hourly NO_x emission rate in ppm corrected to 15% O_2 in accordance with the requirements of 40 CFR Part 75.

5.7.5 SO_2 Monitoring Requirements under 40 CFR § 60.4360 and § 60.4365.

Subpart KKKK also allows for several acceptable monitoring methods to demonstrate compliance with the SO_2 emission limits. To be exempted from fuel sulfur monitoring requirements, APS must demonstrate that the potential sulfur emissions expressed as SO_2 are less than 0.060 lb/mmBtu for continental US areas. The demonstration can be made by providing information from a current, valid purchase contract, tariff sheet or transportation contract for the fuel, specifying that the total sulfur content for natural gas use is 20 grains of sulfur or less per 100 standard cubic feet. The demonstration can also be made using representative fuel sampling data which show that the sulfur content does not exceed 0.060 lb SO_2/mmBtu. The fuel sampling data specified in 40 CFR Part 75, Appendix D, section 2.3.1.4 or 2.3.2.4 may be used to make this demonstration under Subpart KKKK.

5.7.6 Performance Tests under 40 CFR § 60.4400.

Initial performance testing is required in accordance with 40 CFR §60.8. Subsequent performance tests must be conducted on an annual basis. As described in §60.4405, the NO_x CEMS RATA tests may be used as the initial NO_x performance test. The SO_2 performance test may be a fuel analysis of the natural gas, performed by the operator, fuel vendor, or other qualified agency. The required test methods are detailed in 40 CFR §60.4415.

5.7.7 Reporting Requirements under 40 CFR § 60.4375.

For each affected unit required to continuously monitor parameters or emissions, or to periodically determine the fuel sulfur content under this subpart, reports of excess emissions and monitor downtime must be submitted in accordance with 40 CFR § 60.7(c). Excess emissions must be reported for all periods of unit operation, including start-up, shutdown, and malfunction. Paragraphs § 60.4380 and § 60.4385 describe how excess emissions are defined for Subpart KKKK.

For each affected unit that conducts annual performance tests in accordance with § 60.4340(a), a written report of the results of each performance test must be submitted before the close of business on the 60th day following the completion of the performance test.

5.8 Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units, 40 CFR 60 Subpart TTTT.

These CTGs may also be subject to the *Standards of Performance for Greenhouse Gas Emissions for Electric Generating Units*, 40 CFR 60 Subpart TTTT. The applicable carbon dioxide (CO_2) requirement in Subpart TTTT, Table 2 are summarized below.

Affected EGU	CO_2 Emission standard
Newly constructed or reconstructed stationary combustion turbine that supplies its design efficiency or 50 percent, whichever is less, times its potential electric output or less as net-electric sales on either a 12-operating month or a 3-year rolling average basis and combusts more than 90% natural gas on a heat input basis on a 12-operating-month rolling average basis	50 kg CO_2 per gigajoule (GJ) of heat input (120 lb CO_2/MMBtu).
Newly constructed and reconstructed stationary combustion turbine that combusts 90% or less natural gas on a heat input basis on a 12-operating-month rolling average basis	50 kg CO_2/GJ of heat input (120 lb/MMBtu) to 69 kg CO_2/GJ of heat input (160 lb/MMBtu) as determined by the procedures in § 60.5525.

However, the CO_2 emissions standards in 40 CFR 60.5520(d)(1) states:

> (1) Stationary combustion turbines that are only permitted to burn fuels with a consistent chemical composition (i.e., uniform fuels) that result in a consistent emission rate of 160 lb CO_2/MMBtu or less are not subject to any monitoring or reporting requirements under this subpart. **These fuels include, but are not limited to, natural gas, methane, butane, butylene, ethane, ethylene, propane, naphtha, propylene, jet fuel kerosene, No. 1 fuel oil, No. 2 fuel oil, and biodiesel.** Stationary combustion turbines qualifying under this paragraph are only required to maintain purchase records for permitted fuels.

Therefore, while these CTGs are subject to the standards in 40 CFR 60 Subpart TTTT, in accordance with 40 CFR 60.5520(d)(1), there would be no monitoring or reporting requirements for either natural gas or diesel fuel oil-fired CTGs under Subpart TTTT.

5.9 Acid Rain Program.

In accordance with the applicability requirements of the Acid Rain Program in 40 CFR § 72.6(a)(3)(i), a *utility unit* that is a *new unit* shall be an affected unit:

> **§ 72.6 Applicability.**
>
> (a) Each of the following units shall be an affected unit, and any source that includes such a unit shall be an affected source, subject to the requirements of the Acid Rain Program:
>
> (3) A utility unit, except a unit under paragraph (b) of this section, that:
>
> (i) Is a new unit;

Under 40 CFR § 72.2, "utility unit" and "new unit" mean:

> *Utility unit means a unit owned or operated by a utility:*
>
> *(1) That serves a generator in any State that produces electricity for sale, or*
>
> *(2) That during 1985, served a generator in any State that produced electricity for sale.*
>
> *New unit* means a unit that commences commercial operation on or after November 15, 1990, including any such unit that serves a generator with a nameplate capacity of 25 MWe or less or that is a simple combustion turbine.

Since these CTGs would produce electricity for sale, they are "utility units". The definition of "new unit" includes a unit that commences commercial operation on or after November 15, 1990, including a simple combustion turbine. "Simple combustion turbines" and "Unit" are subsequently defined as:

> *Simple combustion turbine* means a unit that is a rotary engine driven by a gas under pressure that is created by the combustion of any fuel. This term includes combined cycle units without auxiliary firing. This term excludes combined cycle units with auxiliary firing, unless the unit did not use the auxiliary firing from 1985 through 1987 and does not use auxiliary firing at any time after November 15, 1990.
>
> *Unit* means a fossil fuel-fired combustion device.

These CTGs would be fossil fuel-fired combustion devices that commences commercial operation on or after November 15, 1990. These new CTGs would also be simple combustion turbine devices, and they are also utility units. Therefore, these new CTGs would be affected units under the Acid Rain Program. APS will submit an Acid Rain Permit application to EPA and provide a copy to PCAQD.

5.10 National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines 40 CFR Part 63, Subpart YYYY.

The *National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines*, 40 CFR Part 63, Subpart YYYY apply to new and existing combustion sources located at a major source of hazardous air pollutants (HAPs). Table 5-2 is a summary of the total potential HAP emissions for the Sundance Power Plant. From Table 5-2, the total potential HAP emissions for all twelve (12) combustion turbines combined based on continuous operation for 8,760 hours per year are less than the major source threshold levels of 10 tons per year for any single HAP, and 25 tons per year for all HAPs combined. Therefore, the Sundance Power Plant is an area source of HAPs, and the requirements of 40 CFR Part 63 Subpart YYYY do not apply to this Project.

TABLE 5-2. Potential hazardous air pollutant (HAP) emissions for the Sundance Power Plant based on the continuous operation of all twelve CTs combined.

POLLUTANT	CAS No.	Emission Factor	Each Combustion Turbine		Twelve (12) Combustion Turbines Combined	
		lb/mmBtu	mmBtu/hr	lb/hr	hour/year	ton/yr
Acetaldehyde	75-07-0	0.000040	467	0.0187	105,120	0.98
Acrolein	107-02-8	0.000006	467	0.0030	105,120	0.16
Benzene	71-43-2	0.000012	467	0.0056	105,120	0.29
1,3-Butadiene	106-99-0	0.000000	467	0.0002	105,120	0.01
Ethylbenzene	100-41-4	0.000032	467	0.0149	105,120	0.79
Formaldehyde	50-00-0	0.000215	467	0.1006	105,120	5.29
Xylene	1330-20-7	0.000064	467	0.0299	105,120	1.57
Naphthalene	91-20-3	0.000001	467	0.0006	105,120	0.03
PAH		0.000002	467	0.0010	105,120	0.05
Propylene oxide	75-56-9	0.000029	467	0.0135	105,120	0.71
Toluene	108-88-3	0.000130	467	0.0607	105,120	3.19
TOTAL				**0.25**	105,120	13.08

Footnotes

1. The emission factors for all HAPs except formaldehyde emissions are *uncontrolled* emission factors from the U.S. EPA's *Compilation of Air Pollutant Emission Factors, AP-42*, Volume 1: Stationary Point and Area Sources, Section 3.1, Stationary Gas Turbines for Electricity Generation.

2. Formaldehyde (CH_2O) emissions are based on the emission limit of 91 parts per billion (ppbvd) or less at 15% O_2 for lean premix and diffusion-flame natural gas and oil-fired combustion turbines located at major sources of HAPs in accordance with the *National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines*, 40 CFR 63, Subpart YYYY.

5.11 40 CFR 64 – Compliance Assurance Monitoring.

The Compliance Assurance Monitoring (CAM) program is codified in 40 CFR Part 64. CAM plan requirements apply to any pollutant specific emissions unit with uncontrolled potential emissions above the major source threshold of 100 tons per year that uses a control device to achieve compliance with an emission limitation or standard. Uncontrolled NO_X and CO emissions for the two simple cycle CTs exceed this threshold. APS is proposing to use CEMS for monitoring NO_X and CO emissions from the proposed units. Therefore, in accordance with 40 CFR § 64.2(b)(1)(vi), CAM plan requirements do not apply for NOx and CO emissions from the proposed units.

Chapter 6. Ambient Air Quality Assessment.

Appendix B of this application includes the ambient air quality assessment modeling protocol and report. The report demonstrates that for the minor-NSR triggered pollutants PM_{10} and $PM_{2.5}$, the maximum Project impacts are below the Significant Impact Levels (SILs). For the minor-NSR triggered pollutant NO_2, the maximum Project impact when added to the background air quality concentration is below the NAAQS. Therefore, the Project will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS.

Chapter 7. Environmental Justice.

7.1 Purpose.

The purpose of this Environmental Justice (EJ) evaluation is to identify any "*potential EJ concerns*," defined by United States Environmental Protection Agency (EPA) as "the actual or potential lack of fair treatment or meaningful involvement of minority populations, low-income populations, tribes, and indigenous peoples…[including] disproportionate impacts on minority populations, low-income populations, and/or indigenous peoples that may exist prior to or that may be created by the proposed" Sundance Expansion Project.[2]

7.2 EPA's Definition of Environmental Justice.

The EPA defines EJ as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. An environmental justice analysis accomplishes two important policy objectives: (1) it addresses the principle of fair treatment by further evaluating adverse and disproportionate impacts and identifying ways to prevent or mitigate such impacts; and (2) it addresses the principle of meaningful involvement by fostering enhanced community engagement in the permitting decision.

7.3 Overview of EPA's Environmental Justice Guidance.

APS's evaluation and actions are generally consistent with EPA and other federal agency guidance on EJ, including:

- EPA, Environmental Justice Website (https://www.epa.gov/environmentaljustice)
- EPA, EJ in Air Permitting - Principles for Addressing Environmental Justice Concerns in Air Permitting (Dec. 22, 2022, https://www.epa.gov/caa-permitting/ej-air-permitting-principles-addressing-environmental-justice-concerns-air)
- EPA, Clean Air Power Sector Programs, Power Plants and Neighboring Communities (https://www.epa.gov/power-sector/power-plants-and-neighboring-communities)
- EPA, EJ Screen: Environmental Justice Screening and Mapping Tool, How to Interpret EJScreen Data (https://www.epa.gov/ejscreen/how-interpret-ejscreen-data#:~:text=For%20early%20applications%20of%20EJScreen,potential%20candidate%20for%20further%20review)

- Federal Interagency Working Group on Environmental Justice & NEPA Committee, Promising Practices for EJ Methodologies in NEPA Reviews (March 2016, https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf)
- EPA, EPA Activities To Promote Environmental Justice in the Permit Application Process, 78 Fed. Reg. 27220, 27227 (May 9, 2013, https://www.federalregister.gov/documents/2013/05/09/2013-10945/epa-activities-to-promote-environmental-justice-in-the-permit-application-process)
- EPA, Technical Guidance for Assessing Environmental Justice in Regulatory Analysis (June 2016, https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf)

Apart from recent guidance issued in December 2022, EPA has issued little guidance or methodologies for air permit *applicants* to follow in conducting EJ evaluations; rather, EPA's EJ guidance is largely focused on actions the *agency* must undertake to ensure a robust consideration of "potential EJ concerns." Nonetheless, EPA's suite of guidance documents provides a general framework for how air permit applicants could approach EJ analyses.

7.3.1 Step One: Define the Study Area.

EPA's guidance suggests that applicants should define a "study area" that comprises a three (3) mile radius around the project site, for EJ evaluation purposes. EJ Screening Report for the Clean Power Plan."[3]

7.3.2 Step Two: Evaluate the Study Area Utilizing EPA's EJScreen Tool.

EPA's guidance emphasizes the utilization of EPA's EJScreen tool (EJScreen).[4] EJScreen is "EPA's environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators."[5] Users identify a defined study area within the tool and the tool then provides demographic, socioeconomic and environmental information for that area.

EJScreen provides four sets of data for the study area, including:

- Thirteen (13) Environmental Indicators;
- Thirteen (13) Environmental Index scores that combine each Environmental Indicator with two (2) demographic factors (income and people of color);
- Seven (7) Socioeconomic Indicators designed to identify disadvantaged communities; and

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[3] EPA, Power Plants and Neighboring Communities (epa.gov)

[4] EPA, EJ Screening Tool (epa.gov)

[5] EPA, What Is EJScreen? (epa.gov)

- Supplemental Index score that averages five (5) Socioeconomic Indicators with the Environmental Indicator to quantify community-level vulnerabilities.

7.3.3 Step Three: Identify Potentially Adverse or Disproportionate Impacts within the Study Area.

EPA defines "disproportionate impacts" as differences in impacts or risks that are "extensive enough that they may merit Agency action." EPA further states that the higher the average differences between the potentially affected study area communities and the comparison group (in our case, the county and state populations) the greater the potential for a disproportionate adverse impact.

EPAs guidance provides that a study area with any of the 13 EJ Index Scores at or above the 80th percentile nationally should be considered as a potential candidate for further EJ review due to potential adverse or disproportionate impacts[6]. It is important to note that exceeding this screening level does not automatically confer EJ status for a community, but rather is a starting point that identifies potential areas of concern.

7.3.4 Step Four: Ensure Meaningful Involvement of Potentially Impacted Community Members.

If a community is identified as adversely and disproportionately impacted in steps one through three, EPA's guidance instructs that these communities be afforded the opportunity for "meaningful involvement" in agency decision-making. EPA defines "meaningful involvement" as comprising four elements:

1. Potentially affected populations have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health;
2. The population's contribution can influence EPA's decisions;
3. The concerns of all participants involved are considered in the decision-making process; and
4. EPA will seek out and facilitate the involvement of populations potentially affected by EPA's decisions.[7]

[6] EPA, How To Interpret EJScreen Data (epa.gov)

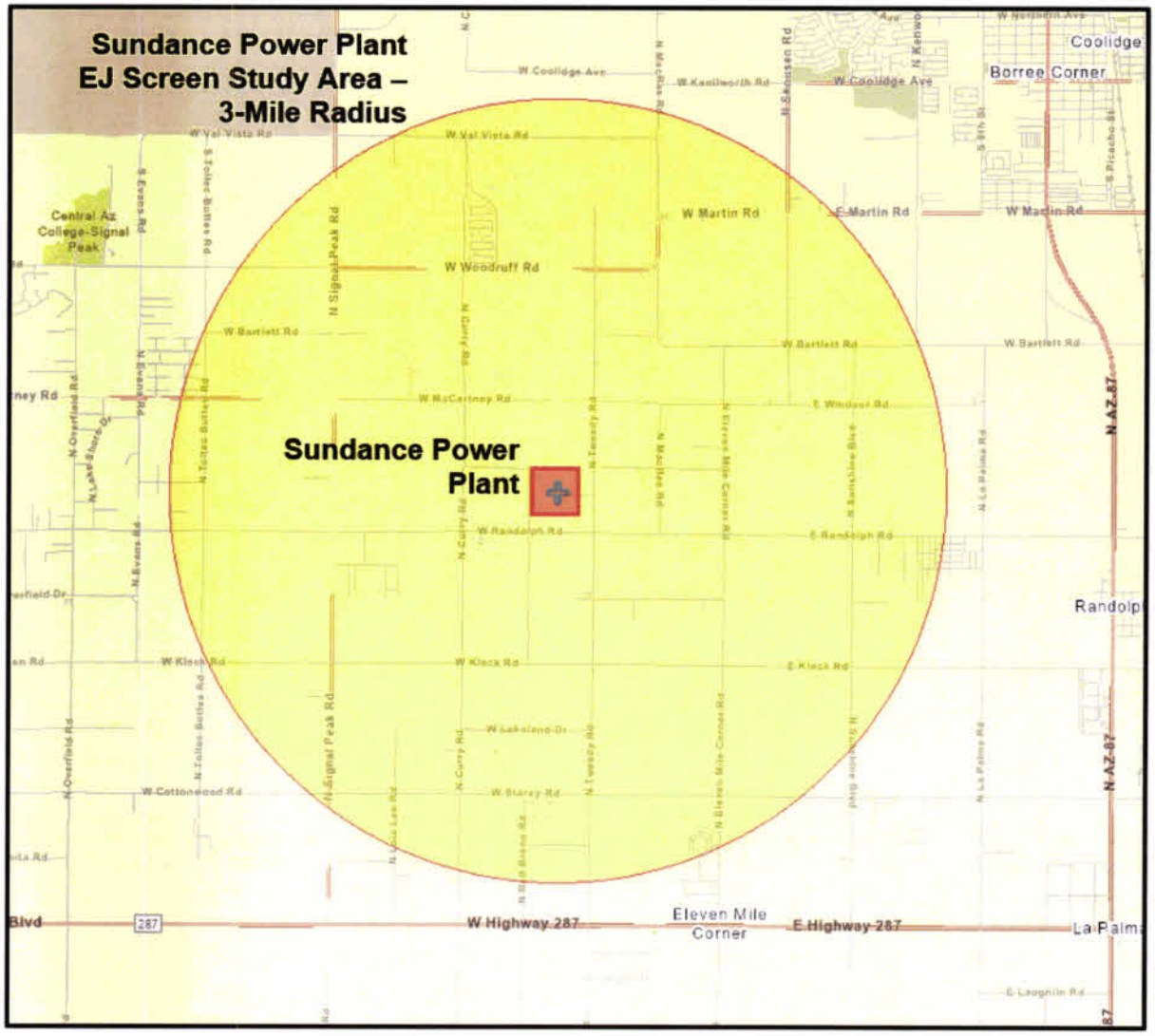
[7] EPA, Technical Guidance for Assessing Environmental Justice in Regulatory Actions (June 2016)

7.4 Environmental Justice Analysis Step One: Define the Study Area

The Sundance Power Plant (SPP) is located at 2060 West Sundance Road, Casa Grande, Arizona, in west Pinal County. The site is located in an area designated as attainment or maintenance for all criteria air pollutants, except for particulate matter less than 10 microns in size (PM_{10}). The area is classified as nonattainment for the PM_{10} standard.

For purposes of this EJ analysis, APS utilized EPA's recommended three-mile radius in considering the potential for adverse and disproportionate impacts (see Figure 7-1). For purposes of notifying and engaging the affected communities, APS has expanded this radius to include any neighborhoods that are bifurcated by the three-mile radius.

FIGURE 7-1. Environmental Justice "Study Area" for the Sundance Power Plant.



7.5 Environmental Justice Analysis Step Two: Evaluate the Study Area Utilizing EPA's EJScreen Tool.

7.5.1 Demographics.

There is little guidance around how to assess or value differences between the study area and the broader communities, state and nation — there are no defined thresholds for what constitutes a meaningful difference. The Federal Interagency Working Group on Environmental Justice and NEPA Committee's guidance document *Promising Practices for EJ Methodologies in NEPA Reviews* provides some insights into how to define "minority communities" and when differentials may be significant:

- A population is identified as "minority" if the minority population exceeds 50 percent of the study area; and
- A difference between the study area and the broader reference community is "meaningfully greater" if it is "ten or twenty percent greater than the reference community."[8]

In accordance with EJ guidance, this analysis will identify the study area as a "minority community" if the population is 50% or greater minority; and we flag any parameters in which the study area's demographics differ from Pinal County, or the State of Arizona by a factor of 10% or more.

For example, if a census tract classifies 35% of the population as low income but the county consists of 30% low income, the census tract would exceed the county average by 16.7% and thus be flagged as a potential area of concern. For this report, census data from the 2020 Census, American Community Survey, were used. The U.S. Census Bureau standard for the margin of error (MOE) is at the 90% confidence level.

Table 7-1 is a summary of the EJ screening socioeconomic factors from EPA's EJScreen mapping tool. In this analysis, the **bolded and blue** data for the area within a three-mile radius of the SPP—referred to as the "study area"—indicate a difference greater than 10% for the study area when compared to Pinal County. The **bolded and orange** data indicate a difference greater than 10% for the study area when compared to the State of Arizona.

From Table 7-1, the study area had a higher percentage of individuals with low income, a higher unemployment rate, a higher rate of limited English speaking, and a higher population over age 64, as compared to Pinal County. However, the study area had a lower percentage of individuals with less than a high school education, and a lower percentage of the population under age 5.

From Table 7-1, the study area exceeded the above thresholds for three (3) socioeconomic factors when compared to the State of Arizona, including Unemployment Rate, Limited English Speaking, and Population over age 64.

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[8]Federal Interagency Working Group on Environmental Justice and NEPA Committee, Promising Practices for EJ Methodologies in NEPA Reviews (Mar. 2016).

TABLE 7-1. Summary of the environmental justice screening socioeconomic factors from EJScreen.

Selected Variable	Study Area	Pinal County	State Average	State Percentile
Demographic Index	39%	37%	38%	58%
People of Color	42%	45%	44%	54%
Low Income	35%	**31%**	32%	60%
Unemployment Rate	11%	**6%**	**6%**	84%
Limited English Speaking	5%	**2%**	**4%**	74%
Less Than High School Education	11%	**12%**	12%	61%
Population Under Age 5	5%	**6%**	5%	53%
Population Over Age 64	22%	**20%**	**19%**	70%

Footnotes

Source: U.S. Census Bureau, American Community Survey (ACS 2021) 2017 – 2021 5-year Summary (EJScreen)
All **bolded and orange** data indicate a difference greater than 10% when comparing the study area to the state.
All **bolded and blue** data indicate a difference greater than 10% when comparing the study area to the county.

7.5.2 Ethnicity and Race.

7.5.2.1 Regional Setting.

Table 7-2 is a summary of the 2021 U.S. Census Bureau data for Pinal County, the State of Arizona, and the study area around the SPP. From Table 7-2, Arizona's population totals 7,276,316 individuals. The three most populous racial groups across the state are: White 77.6%; Hispanic or Latino (of any race) 32.2%; and Two or More Races 20.1%.

Pinal County has a total population of 420,625 individuals. Similar to the state as a whole, the three most common racial groups within the county are: White (73%); Hispanic or Latino (of any race) (31%); and two or more races (10%). In the composition of the three most populous racial groups, Pinal County and the State of Arizona are similar. In Table 7-2, the **bolded and orange** data indicate a difference greater than 10% when comparing the study area to the State of Arizona. The Black or African American, Asian, Native Hawaiian and Other Pacific Islander, Some Other Race, and Two or More Race populations all varied by more than 10% from the state, and all of these populations are less than the state averages.

7.5.2.2 Local Setting.

The total population within the study area of the SPP is 1,387 individuals. Within this area, the largest population is White (at 77% and 1,068 individuals), followed by Hispanic of any race (at 30% and 416 individuals).

In Table 7-2, the **bolded and blue** data for the study area indicate a difference greater than 10% when compared to Pinal County. The Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and Two or More Race populations all varied by more than 10% from the county, and, like the state as a whole, all of these populations are less than the county (and state) averages.

TABLE 7-2. Summary of the U.S. Census Bureau data by race for Pinal County, the State of Arizona, and the study area around the Sundance Power Plant.

Ethnicity and Race	Study Area		Pinal County		Arizona	
	Number	Percent	Number	Percent	Number	Percent
Total Population	1,387	100.0%	420,625	100.0%	7,276,316	100.0%
White	1,068	77.0%	307,056	73.0%	5,645,464	77.6%
Black or African American	42	3.0%	21,031	**5.0%**	326,638	**4.5%**
American Indian or Alaska Native	55	4.0%	21,031	**5.0%**	294,658	4.0%
Asian	14	1.0%	8,413	**2.0%**	245,285	**3.4%**
Native Hawaiian and Other Pacific Islander	0	0.0%	1,683	**0.4%**	12,432	**0.2%**
Some other Race	83	6.0%	25,238	**6.0%**	693,486	**9.5%**
Two or More Races	111	8.0%	42,063	**10.0%**	1,462,148	**20.1%**
Total Hispanic Population (of any race)	416	30.0%	130,394	31.0%	2,351,124	32.3%

Footnotes

Source: U.S. Census Bureau, American Community Survey (ACS) 2017 – 2021 (EJScreen).

All **bolded and orange** data indicate a difference greater than 10% when compared to the state.

All **bolded and blue** data indicate a difference greater than 10% when compared to the county.

7.5.3 Age and Sex.

7.5.3.1 Regional Setting.

According to the U.S. Census Bureau data summarized in Table 7-3, Arizona has a total population of 7,276,316 individuals, with almost 80% of the population older than 18 years of age, and almost 20% of the population 65 years and older. Pinal County has a total population of 420,625 individuals, with 77% of the population older than 18 years of age and 20.5% of the population 65 years and older. Pinal County's population is similar in age to the state as a whole, except that Pinal County has a slightly larger percentage of the population 65 years and older. The composition of both Pinal County and the study area are similar to the state as a whole with respect to sex.

7.5.3.2 Local Setting.

From Table 7-3, the study area has a slightly smaller percentage of individuals less than 18 years of age when compared to both the county and the state, with a slightly smaller population in ages ranging from 0 - 4. Both the study area and Pinal County also have a slightly higher population of those aged 65 and older as compared to the state as a whole. With respect to sex, while the local population percentages do not vary by more than 10% from state or local populations, the local area does have a higher male population than the state or Pinal County populations.

TABLE 7-3. Summary of the U.S. Census Bureau data by age and sex for Pinal County, the State of Arizona, and the study area around the Sundance Power Plant.

Age and Sex	Study Area		Pinal County		Arizona	
	Number	Percent	Number	Percent	Number	Percent
Total Population	1,387	100.0%	420,625	100.0%	7,276,316	100.0%
Male	735	53.0%	218,725	52.0%	3,629,620	49.9%
Female	652	47.0%	201,900	48.0%	3,646,696	50.1%
Population Age 0-4	69	5.0%	25,238	**6.0%**	402,255	**5.5%**
Population Age 0-17	291	21.0%	96,744	23.0%	1,614,284	22.2%
Population Age 18+	1,096	79.0%	323,881	77.0%	5,662,032	77.8%
Population Age 65+	305	22.0%	84,125	**20.0%**	1,333,985	**18.3%**

Footnotes

Source: U.S. Census Bureau, American Community Survey (ACS) 2017 – 2021 (EJScreen).

All **bolded and orange** data indicate a difference greater than 10% when compared to the state.

All **bolded and blue** data indicate a difference greater than 10% when compared to the county.

7.5.4 Household Income and Poverty.

7.5.4.1 Regional Setting.

As set forth in the U.S. Census Bureau data in Table 7-4, the State of Arizona has a per capita income of $36,295 and a total Low Income population of 32%. Pinal County has a per capita income of $29,284 and a total Low Income population of 31%. The per capita income for Pinal County is more than 10% less than the State of Arizona.

7.5.4.2 Local Setting.

From Table 7-4, the study area has a total population of 1,387 individuals and a Household Income Base of 401 households. The data indicate an average of 3.5 persons per household, which is more than 10% higher than the state and county averages. The percentage of Low Income population in the study area are similar to the state average but is more than 10% greater than the county average. The per capita income in the study area is also less than both Pinal County and the State of Arizona by more than 10%.

TABLE 7-4. Summary of the U.S. Census Bureau household income data for the State of Arizona, Pinal County, and the study area around the Sundance Power Plant.

Age and Sex	Study Area		Pinal County		Arizona	
	Number	Percent	Number	Percent	Number	Percent
Total Population	1,387	100.0%	420,625	100.0%	7,276,316	100.0%
Per Capita Income	$26,080		**$29,284**		**$36,295**	
Household Income Base	401	100.0%	148,435	100.0%	2,817,723	100.0%
Individuals per Household	3.5		**2.8**		**2.6**	
Low Income		35.0%		**31.0%**		32.0%

Footnotes

Source: U.S. Census Bureau, American Community Survey (ACS) 2017 – 2021 (EJScreen).

All **bolded and orange** data indicate a difference greater than 10% when compared to the state.

All **bolded and blue** data indicate a difference greater than 10% when compared to the county.

7.5.5 Limited English Proficiency.

7.5.5.1 Regional Setting.

As depicted in the U.S. Census Bureau data summarized in Table 7-5, 79% of the population older than four (4) years of age in Pinal County spoke only English. Within Pinal County, 3% of the population speak English "less than well." Table 7-6 is a summary of data for the language spoken at home in Pinal County from the U.S. Census Bureau, American Community Survey (ACS) 2021 Dataset. This data indicates that less than 3% of the population of Pinal County speaks a language other than English or Spanish.

7.5.5.2 Local Setting.

As set forth in Table 7-5, 78% of the population within the study area speaks only English, as compared to 79% for Pinal County and 74% for the State of Arizona. Furthermore, only 5.6% of the population within the study area speaks English "less than very well." Pinal County also has relatively high English proficiency, with only 6.1% of the population who speak English "less than very well." The U.S. Census Bureau English proficiency data for the study area generally indicates that the population has a similar or slightly better English proficiency level as compared to Pinal County.

TABLE 7-5. Summary of the U.S. Census Bureau English proficiency data for Pinal County and the study area radius around the Sundance Power Plant.

English Proficiency Levels	Study Area		Pinal County		Arizona	
	Number	Percent	Number	Percent	Number	Percent
Total Population	1,387	100%	420,625	100%	6,874,061	100%
Speak only English	1,082	78.0%	332,881	79.1%	5,082,748	74%
Non-English at Home1+2+3+4	305	22.0%	88,331	21.0%	1,791,313	**26%**
1 Spanish	277	20.0%	71,506	**17.0%**	1,367,229	20%
2 Other Asian and Pacific Island	0	0.0%	0	0.0%	116,480	**2%**
3 Other Indo-European	14	1.0%	4,206	1.0%	11,798	**0%**
4 Other and Unspecified	14	1.0%	4,206	1.0%	295,806	**4%**

Footnotes

Source: U.S. Census Bureau, American Community Survey (ACS) 2017 – 2021 (EJScreen).

All **bolded and orange** data indicate a difference greater than 10% when compared to the state.

All **bolded and blue** data indicate a difference greater than 10% when compared to the county.

TABLE 7-6. Summary of the U.S. Census Bureau Breakdown of Limited English Speaking data for Pinal County.

Label	Study Area	Pinal County	Arizona
SPEAK A LANGUAGE OTHER THAN ENGLISH			
Spanish	100%[9]	**83%**	76%
Other Indo-European languages	0%	**7%**	1%
Asian and Pacific Island languages	0%	**8%**	13%
Other languages	0%	**3%**	10%

Footnotes

Source: U.S. Census Bureau, American Community Survey (ACS) 2021 Dataset ACSST1Y2021.

7.5.6 Health.

The University of Wisconsin Population Health Institute, in collaboration with the Robert Wood Johnson Foundation, maintains a County Health Rankings system for all states in the United States. These ranking measures two elements: "Health Outcomes" and "Health Factors."[10]

The "Health Outcomes" data represent the *current* health of a county's residents, in terms of length and quality of life. They reflect the physical and mental well-being of residents through measures representing the length and quality of life typically experienced in the community. Pinal County ranks 2nd of 15 Arizona counties for Health Outcomes. Figure 7-2 shows the 2023 Health Outcomes ranks for the counties in Arizona.

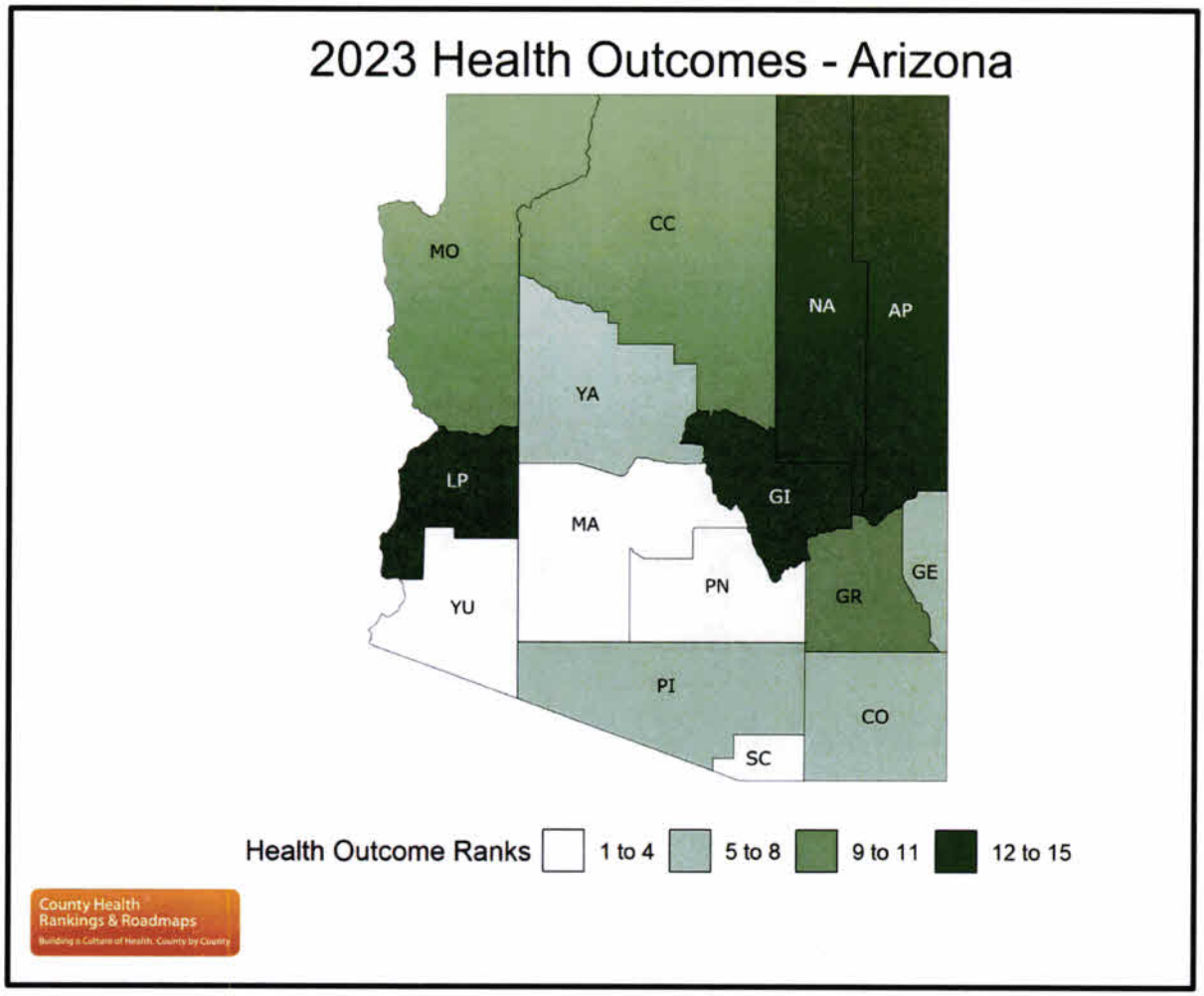
The "Health Factors" data represent those things that can be modified to improve the length and quality of life for residents; they are predictors of how healthy a community may become in the future. The four Health Factors considered in the model include Health Behaviors, Clinical Care, Social & Economic Factors, and Physical Environment. Pinal County ranks 7th of 15 Arizona counties for Health Factors. Figure 7-3 shows the 2023 Health Factors ranks for the counties in Arizona.

These data indicate that residents in Pinal County enjoy better Health Outcomes than residents in most other Arizona counties and have moderate opportunities to continue to improve Health Factors that can extend and enhance the quality of life.

[9] In other words, of the 5.6% of the population in the study area that speaks English "less than very well," essentially 100% of them speak Spanish.

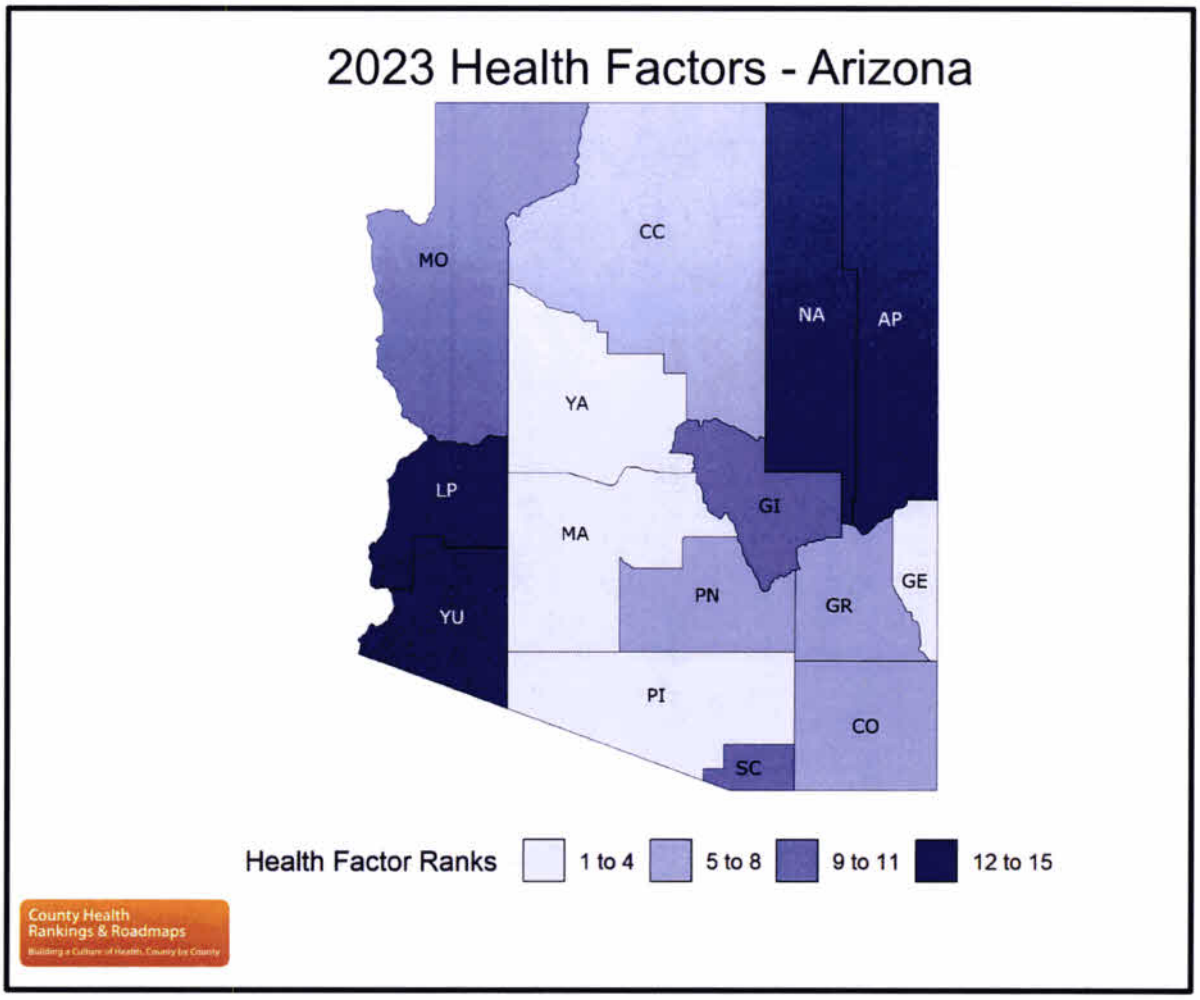
[10] University of Wisconsin Population Health Institute | County Health Rankings

FIGURE 7-2. Year 2023 Health Outcome ranks for Arizona counties.



Source: University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation, available at https://www.countyhealthrankings.org/explore-health-rankings/arizona/data-and-resources.

FIGURE 7-3. Year 2023 Health Factors ranks Arizona counties.



Source: University of Wisconsin Population Health Institute and the Robert Wood Johnson Foundation, available at https://www.countyhealthrankings.org/explore-health-rankings/arizona/data-and-resources.

7.5.7 Environmental Indicators.

The EPA EJScreen tool was used to evaluate the Environmental Indicators and the Environmental Indices for the study area. The Environmental Indicators quantify proximity to and the numbers of certain types of potential sources of exposure to environmental pollutants. EJScreen calculates the Environmental Index by using the Environmental Indicator percentile for a block group, as defined by the U.S. Census Bureau, multiplied by the Demographic Index for the block group. The EPA EJScreen Demographic Index refers to people within the socioeconomic groups outlined in Table 7-1. Per the screening guidance[11], any Environmental Indicator over the 80th percentile is a candidate for further review. The following EJ indicators were evaluated for the study area:

- Particulate Matter 2.5
- Ozone
- Diesel Particulate Matter
- Air Toxics Cancer Risks
- Air Toxics Respiratory Hazard Index
- Toxic Releases to Air
- Traffic Proximity
- Lead Paint
- Superfund Proximity
- RMP Facility Proximity
- Hazardous Waste Proximity
- Underground Storage Tanks
- Wastewater Discharge

Table 7-7 summarizes the EJ indicators frfom EJScreen which were evaluated for the study area.

[11]U.S. EPA, EJScreen Tool | US EPA

TABLE 7-7. Pollution and Sources Environmental Indicators from EJScreen.

Selected Variable	Study Area	State Average	Percentile in State	National Average	Percentile in Nation
Particulate Matter < 2.5µm ($\mu g/m^3$)	5.74	5.87	39%	8.08	6%
Ozone (ppb)	64.8	66.1	39%	61.6	74%
Diesel Particulate Matter ($\mu g/m^3$)	0.116	0.278	23%	0.261	21%
Air Toxics Cancer Risk* (lifetime risk per million)	20	32	6%	28	3%
Air Toxics Respiratory Hazard Index*	0.30	0.31	30%	0.31	31%
Toxic Releases to Air	24	2,800	16%	4,600	13%
Traffic Proximity (daily traffic count/distance to road)	7.1	190	7%	210	14%
Lead Paint (% Pre-1960 Housing)	0.025	0.089	59%	0.3	20%
Superfund Proximity (site count/km distance)	0.023	0.077	16%	0.13	21%
RMP Facility Proximity (facility count/km distance)	0.076	0.38	26%	0.43	20%
Hazardous Waste Proximity (facility count/km distance)	0.25	0.71	55%	1.9	40%
Underground Storage Tanks (count/km^2)	0.099	1.7	34%	3.9	28%
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.8	5.8	80%	22	91%

Source: EPA, EJ Screening Tool 2.2

Particulate Matter 2.5 ($PM_{2.5}$). EPA defines particulate matter as solid particles and liquid droplets found in the air.[12] Particulate matter 2.5 ("$PM_{2.5}$") comprises inhalable particles with a diameter less than 2.5 micrometers. According to EPA's EJScreen tool, $PM_{2.5}$ measures 5.74 $\mu g/m^3$ within the study area around the plant. In comparison, the average $PM_{2.5}$ value for the State of Arizona is 5.87 $\mu g/m^3$; the average $PM_{2.5}$ value across the nation is 8.08 $\mu g/m^3$. The study area is at the 39th percentile for the state (slightly better than average) and the 6th percentile for the nation (significantly better). For the $PM_{2.5}$ EJ Index, the study area is at the 55th percentile for the state and the 14th percentile for the nation, meaning the $PM_{2.5}$ air quality for people within the study area is slightly worse compared to the rest of the state and much better (i.e., lower) than the average compared to the nation.

Ozone. The ozone (O_3) variable refers to the average annual top 10 daily maximum 8-hour concentrations of ozone in the air. The study area has a value of 64.8 parts per billion (ppb) for ozone. In comparison, the average value for the state is 66.1 ppb, and the average value nationally is 61.6 ppb. The study area is at the 39th percentile for the state and 74th percentile for the nation, meaning the ozone exposure in the study area is lower than the average in the state but higher than much of the rest of the country. For the ozone EJ Index, the study area is at the 55th percentile for the state and the 76th percentile for the nation, meaning that the ozone exposure to people within the study area was about average with the rest of the state and higher than the rest of the country.

Diesel Particulate Matter (PM). The Diesel PM variable describes the amount of diesel particulate matter in the air. The study area has a value of 0.116 $\mu g/m^3$; the average value for the state is 0.278 $\mu g/m^3$; and the average value for the nation is 0.261 $\mu g/m^3$. The study area is in the 23rd percentile for the state and the 21st percentile for the nation, meaning there is less diesel PM in the air compared to both the state and the country. For the Diesel Particulate Matter EJ Index, the study area is at the 38th percentile for the state and the 39th percentile for the nation, meaning that exposure to diesel particulate matter is below both the state and national average.

Air Toxics Cancer Risk. The Air Toxics Cancer Risk variable refers to the lifetime cancer risk from inhaling toxic air contaminants. The study area has a value of 20 for the Air Toxics Cancer Risk variable, measured as a lifetime risk per one million population. In comparison, the average state value is 32, and the average national value is 28. The study area is in the 6th percentile for the state and the 3rd percentile for the nation, meaning that the risk for getting cancer from inhaling toxic air contaminants is significantly lower in the study area than in both the state and the country. For the Air Toxics Cancer Risk EJ Index, the study area is at the 23rd percentile for the state and the 28th percentile for the nation. This also indicates that the risk of getting cancer from inhaling toxic air contaminants by people within the study area is lower than the rest of the state and is also below the average of the country.

Air Toxics Respiratory Hazard Index. The Air Toxics Respiratory Hazard Index (HI) measures the ratio of exposure concentrations of toxics in the air to the health-based reference concentrations set by EPA. The study area has a value of 0.3 (unitless index) for the Air Toxics HI variable. In comparison, the average

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[12] Environmental Protection Agency | EPA Particulate Matter PM Basics

value for the state is 0.31, and the average value nationally is also 0.31. The study area is at the 30th percentile for the state and the 31st percentile nationally, meaning that exposure to high concentrations of air toxins is lower in the study area compared to the state and nation. For the Air Toxics Respiratory HI EJ Index, the study area is at the 53rd percentile for the state and the 59th percentile for the nation, indicating that air toxics exposure is equal to or slightly higher than the state and national averages.

Toxic Releases to Air. The Toxics Releases to Air indicator quantifies relative potential human health impacts of certain chemicals included on the list of toxic chemicals from the Emergency Planning and Community Right-to-Know Act (EPCRA), based on the amount released by facilities. The study area has a value of 24 (unitless score) for the Toxic Releases to Air score. In comparison, the average score for the state is 2,800, and the average score nationally is 4,600. The study area is at the 16th percentile for the state and the 13th percentile nationally, meaning there are significantly fewer toxic releases to the ambient air in the study area than in both the state and the nation. For the Toxic Releases to Air EJ Index, the study area is at the 30th percentile for the State and the 24th percentile nationally, meaning toxic chemical releases is lower in the study area than both the state and national averages.

Traffic Proximity. The Traffic Proximity indicator quantifies the volume of vehicles at major roads within 500 meters divided by the distance to the road. The study area has a value of 7.1 (unitless score) for Traffic Proximity. In comparison, the average score for the state is 190, and the average score nationally is 210. The study area is at the 7th percentile for the state and the 14th percentile nationally, meaning there are significantly fewer vehicles within 500 meters in the study area than both the state and the nation. For the Traffic Proximity EJ Index, the study area is at the 14th percentile for the state and the 27th percentile nationally, meaning the exposure within the EPA EJScreen demographic index to traffic is much lower than the average for both state and the country.

Lead Paint (% Pre-1960 Housing). The lead paint indicator is simply the percentage of occupied housing units built before 1960. This is a surrogate for the potential prevalence of lead paint. The study area has a value of 0.025% Lead Paint %. In comparison the average score for the state is 0.089% which puts the study area value in the 59th percentile for the state. The national average lead paint indicator value is 0.3% for nation, placing the study area in the 20th percentile nationally. The study area is slightly above the median value for the state but is much less than the national average for potential lead paint exposure.

Superfund Proximity. The Superfund proximity indicator is reflective of the total count of sites proposed and listed (final) on the National Priorities List (NPL). This is calculated by assigning distance-weighted scores for those NPL sites within 5 km. The value for the study area is 0.023 sites/km distance. The state average score is 0.077 which places the study area in the 16th percentile for the state. The national Superfund proximity indicator score is 0.13 which places the study area in the 21st percentile nationally, meaning that the study area is well below the state and national levels.

RMP Facility Proximity. The RMP (Risk Management Plan) facility proximity reflects the total count of active RMP facilities within 5 km. This is calculated by assigning distance weighted scores from active sites in EPA's Facility Registry Services (FRS) website. The study area value is 0.076 sites/km distance. The state value is 0.38 which puts the study area in the 26th percentile for the state. On a national level, the

RMP facility proximity value is 0.43, putting the study area at the 20th percentile nationally. Therefore, the study area is below the median for both the state and nation for facilities that have risk management plans.

Hazardous Waste Proximity. The Hazardous Waste Proximity indicator reflects the total count of hazardous waste facilities in each block group within 5 km of the average resident. This is calculated by assigning distance-weighted scores of hazardous waste facilities (Resource Conservation and Recovery Act handlers that are either operating Treatment, Storage, and Disposal Facilities (TSDFs) or hazardous waste Large Quantity Generator (LGQs)). The study area value for hazardous waste proximity is 0.25 facilities/km distance. When compared to the state value of 0.71, the study area is in the 55th percentile. The national Hazardous Waste Proximity indicator value is 1.9, putting the Study Area in the 40th percentile.

Underground Storage Tanks. The Underground Storage Tanks (UST) indicator quantifies the relative risk of being affected by a leaking underground storage tank (LUST). This is calculated by adding the number of LUSTs (multiplied by 7.7) and the number of USTs within 1500 ft of a block group. The value of the study area is 0.099 UST/km^2. This value is much less than the average value for the state of 1.7 and far below the national average of 3.9. This puts the study area in the 34th and 28th percentile for the state and national average, respectively. Therefore, the study area is much less likely to have leaking underground storage tanks than in the state or nation.

Wastewater Discharge. The wastewater discharge indicator quantifies a block group's relative risk of exposure to pollutants in downstream water bodies. This is calculated from the Discharge Monitoring Report and RSEI model using a toxicity-weighted concentration in stream reach segments within 500 meters. The study area value of 0.8 is in the 80th percentile for the state which has an average value of 5.8. From a national perspective, it is in the 91st percentile where the national average is 22. This means that although it is high compared to the median value it is still well below the average for both the state and national levels. Significantly, wastewater discharge is the only Environmental Indicator score that exceeds EPA's established 80% threshold triggering further review.

7.5.8 Local Sensitive Receptors.

EPA's EJ guidance suggests that sensitive receptors include, but are not limited to, hospitals, schools, daycare facilities, elderly housing and convalescent facilities[13]. These are areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. For instance, children and the elderly may have a higher risk of developing asthma from elevated levels of certain air pollutants than healthy individuals between the ages of 18 and 64. Extra care must be taken when dealing with pollutants in close proximity to areas recognized as sensitive receptors.

The only sensitive public receptor identified within the study area is the Mary C. O' Brien Elementary School, located at 1400 N. Eleven Mile Corner Road, Casa Grande, AZ.

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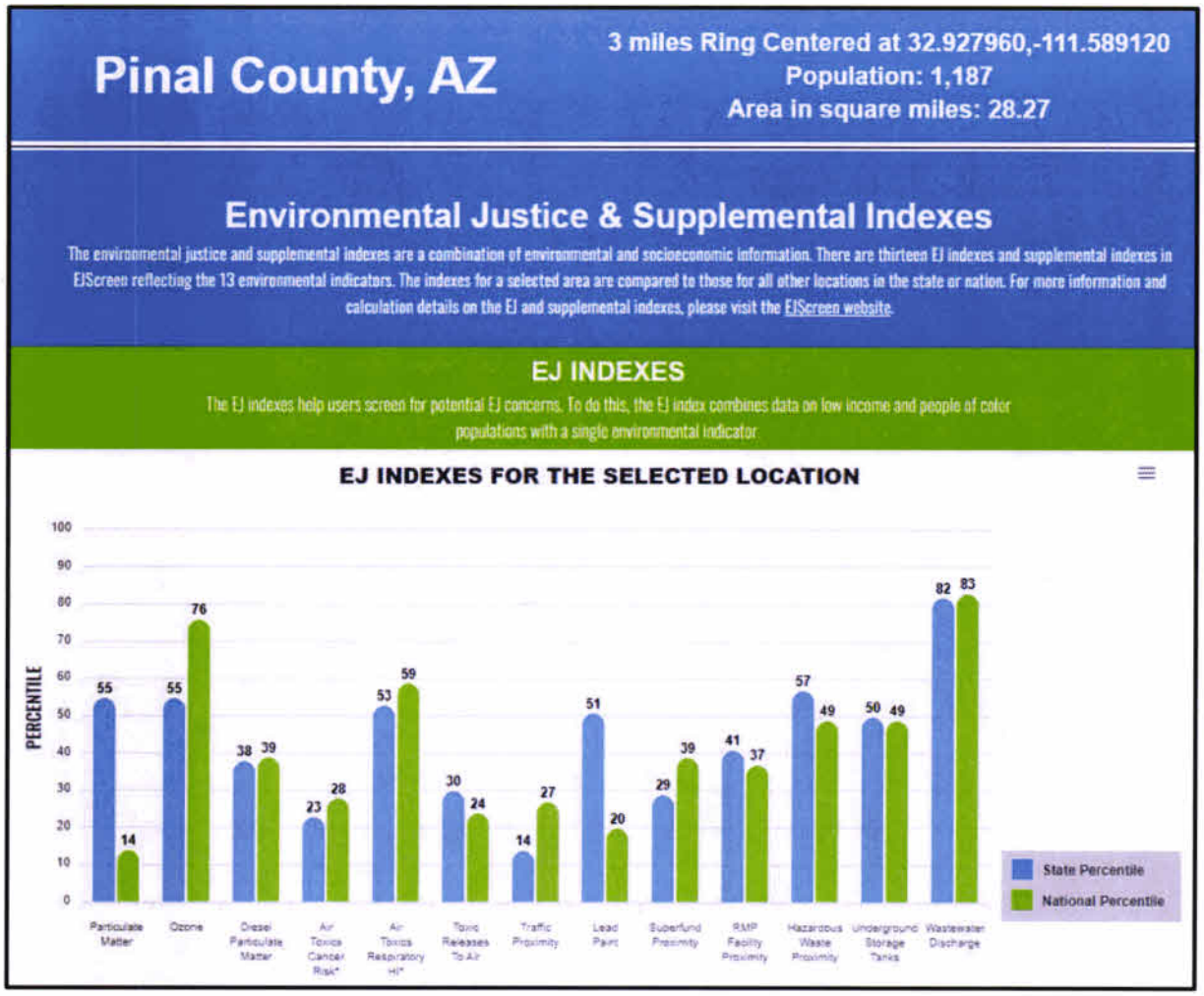
[13] Environmental Protection Agency | Environmental Issues of Concern for Urban Communities: Resources

7.5.9 Step Three: Identify Potentially Adverse or Disproportionate Impacts within the Study Area.

Figure 7-4 depicts EPA's EJScreen "EJ Index" results for the study area. As previously noted, the EJ Index is an amalgam of the specific Environmental Indicator and two Demographic Indicators (low income and people of color).

FIGURE 7-4. EJ Index results for the Sundance Power Plant Study Area.



From Figure 7-4, each of the thirteen (13) EJ Indexes for the study area are below EPA's 80th percentile flag for further scrutiny except for wastewater discharge, which exceeds the 80th percentile (relative to both the state and nationally). Ozone scores near—but below—the 80th percentile in comparison to state and national averages. All other indicators are below the 60th percentile relative both to the state and the nation.

The present application is for an air permit amendment and is unrelated to and has no impact on wastewater at the plant or in the study area. Indeed, there are no relevant applicable requirements that could be inserted into this air permit that would mitigate or address concerns related to wastewater discharges; wastewater is outside the purview of this application.

Based upon a review of all of the information in Steps one through three, APS was unable to identify a community with potentially adverse or disproportionate impacts that would result from the proposed modification to the Sundance facility.

7.5.10 Step Four: Ensure Meaningful Involvement of Potentially Impacted Community Members.

Although APS did not identify a community with potentially adverse or disproportionate impacts, the spirit of environmental justice is to ensure the fair treatment and meaningful involvement of all communities. APS is working to ensure potentially affected populations have an appropriate opportunity to participate in decisions about our proposed activity and has listened to the concerns of all participants involved.

The following is a brief overview of the Communications Outreach that has been conducted to date.

7.5.11 Communication and Public Outreach.

The Sundance Power Plant (SPP) is a Title V major source and operates under Title V Permit No. V20690.R01. APS is seeking a significant revision to this Permit to construct and operate two additional combustion turbines with selective catalytic reduction (SCR) and oxidation catalyst air quality control systems. Pinal County Rule 3-1-107(A)(2) requires the Pinal County Control Officer to provide public notice, an opportunity for public comment, and an opportunity for a hearing before issuing or denying a significant permit revision. This requirement to provide public notice, an opportunity for public comment, and an opportunity for a hearing will help to facilitate meaningful community engagement before this permit revision is approved.

APS has already commenced and will continue to conduct community outreach for this permit application, to ensure that potentially impacted community members and businesses have an opportunity to better understand the project and its anticipated impacts, to ask questions, and to voice any concerns. Within three miles of the SPP (the study area), 5% of the population are limited English speakers, of which 100% of those speak Spanish. Therefore, APS will ensure that a Spanish translator and Spanish translation materials are made available to the community as part of its public outreach.

To provide information about the project and ample opportunity for the community to provide comment, APS has provided, and will continue to provide, a variety of engagement opportunities and an in-person open house event, as follows:

- Mailed 875 newsletters to the homes and businesses within the study area on June 23, 2023, informing community members about the project and inviting them to the in-person and virtual open houses. The newsletter is in both English and Spanish.

- Mailed 875 postcards to the homes and businesses within the study area on August 3, 2023, reminding them of the in-person open house and the availability of the virtual open house option.
- Held an in-person open house for community members on August 17, 2023 from 4 – 8 pm at the Mary C. O'Brien Elementary School. The timing of the event was chosen to provide a long enough window to accommodate varying work and family schedules. The location was chosen because it is within the study area, a sensitive receptor location, and a common location for community gatherings. Informational materials were provided in Spanish and English. Project representatives (including a Spanish-speaking representative) attended in person to listen to comments and concerns and answer questions.
- A virtual open house (apssundanceproject.com) was made available to the public, commencing on August 4, 2023 and continuing through September 13, 2023, with informational materials in English and Spanish, and an opportunity to leave comments, concerns, or questions. This provides an opportunity for those who could not attend the in-person open house an alternative option for learning more and engaging with comments or questions.
- All project materials contain an email address (apssundanceproject@aps.com), a phone number ((800) 484-1358), and a project web address (apssundanceproject.com) for community members who wish to engage and communicate with project staff. These channels of communication were monitored, and responses were provided in a timely manner.
- Geotargeted social media ads were placed to inform community members and businesses about the project and the open house options (virtual and in-person) the first two weeks of August.

In addition, APS met with the following public officials and external stakeholders between May 29 and June 2, 2023 to share information about the project and to solicit additional input regarding potential community engagement:

- Steve Miller, Pinal County Supervisor; and Leo Lew, Pinal County Manager
- Jon Thompson, City of Coolidge Mayor; and Jacque Hendrie-Henry, City of Coolidge Vice Mayor
- Tom Bagnall, Eric Daniels, Steve Hudson, Adriana Saavedra, Tatiana Murrieta, City of Coolidge Council Members
- Blaise Caudill, Energy Policy Advisor, Office of the Governor, Katie Hobbs
- Sen. TJ Shope, Sen. Sine Kerr, Rep. Keith Seaman, Rep. Teresa Martinez, Rep. Gail Griffin, Arizona State Legislators
- Ken Robbins, General Manager, ED-2
- Lisa Raymond, Principal, Mary C. O'Brien Elementary School

Initial feedback from the public officials was supportive of the project, and many asked to be informed about community events and public notices related to the project. In addition, several public officials requested that we listen to feedback from residents who live near the plant. Through the open houses, in-person and virtual, community members were able to ask questions and provide comments regarding the project. Nearby community members were notified in advance via newsletter, postcard, and geotargeted

social media ads of an in person open house that took place on Aug 17, 2023, from 4pm – 8pm at Mary C O'Brien Elementary School. APS subject matter experts (SMEs) and representatives engaged with the eight community members that participated in the in-person open house. The community members asked questions of the APS SMEs and reviewed the project materials focusing on environmental studies and plant impacts. All questions raised by the attending community members were addressed that evening and no further follow-up was required or requested of the APS project team. Members of the community were notified that they can still provide further comments via the virtual open house or during the CEC and air permit comment period. APS will continue to monitor input from community members and as additional community input is gathered, APS will supplement the permit record for this application.

7.6 Conclusions.

Environmental Justice (EJ) is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This EJ evaluation examined the demographic and environmental conditions within the three-mile radius, known as the "study area," around the Sundance Power Plant, in Pinal County, and compared those demographic and environmental conditions to the County, the State of Arizona, and to the nation as a whole. This analysis did not identify any potentially significant adverse or disproportionate impacts to the community within the study area.

Even though APS did not find adverse or disproportionate impacts to the community, APS has worked to ensure that there was and will continue to be meaningful involvement, engagement and dialogue with the community around SPP. This analysis found that the local population within the study area has a Limited English Speaking Proficiency more than 10% higher than Pinal County, and the census data indicates that Spanish is the predominant language spoken by these individuals. Therefore, APS has ensured that outreach includes translated materials and translation services at the in-person and virtual open houses. In addition, Low Income and Unemployment indicators in the study area were more than 10% greater than the county and the state. Even though those values are below the 80th percentile for the county and the state, APS has responded by providing multiple forms of outreach to accommodate schedules and language preferences, actively seeking the community's input on the project. This provided the community with the opportunity to meaningfully engage with APS on this project; and the only sensitive receptor, the Mary C. O' Brien Elementary School, has been a centralized location for in person community outreach. This outreach was guided by the social demographics based on the EJ analysis and feedback from elected officials and community leaders with whom APS engaged with prior to developing its public engagement strategy. Any additional feedback received after the filing of this permit application may be added to supplement this record. SPP employs people from across the state with very specific technical skills, and 29% of those employed at the facility are from Pinal County.

It is important to note the following limitations to the data and evaluation: The census data used has inherent measurement of error (MOE) and in some cases may be outdated due to the most recent data coming from 2021 and community profiles have likely evolved over the past two years.

Appendix A.

Pinal County Air Quality Department Forms.

Pinal County Air Quality Control District

P.O. Box 987 – Florence, AZ 85132 P-(520) 866-6929 F-(520) 866-6967

PINAL COUNTY
WIDE OPEN OPPORTUNITY

Permit Application

(As required by A.R.S. §49-480, and Chapter 3, Article I, Pinal County Air Quality Control District Code of Regulations)

1. Permit to be issued to: Arizona Public Service Company
   (Name and legal status (e.g. corporation or proprietorship) or organization that is to receive permit)
2. Mailing Address: 400 North 5th Street, Mail Stop 9303
   City: Phoenix State: Arizona Zip: 85004
   Billing Address (if different from above):
   City: State: Zip:
3. Plant Name (if different from above): Sundance Power Plant
4. Name(s) of Owner or Operator: Arizona Public Service Company
   Phone:
5. Plant/Site Manager: Phone: Fax:
6. Contact Person: Mark Hajduk Phone: (602) 250-3394 Fax:
   Email Address: Mark.Hajduk@aps.com
7. Equipment/Plant Location or Proposed Location Address: 2060 West Sundance Road
   City: Casa Grande Zip: 85194-9139 Parcel #: 401-01-006F
   Section/Township/Range: SECTION 02 TOWNSHIP 06S RANGE 07E SUBSEC N
   Latitude/Longitude: 32.928, -111.589 Elevation:
8. General Nature of Business: Natural Gas-Fired Electric Power Generation
   North American Industry Classification System: 221112
9. Type of Organization
   - [x] Corporation — State of Incorporation: Arizona
   - [ ] Arizona Limited Liability
   - [ ] Government Entity — Government Facility Code:
   - [ ] Individual Owner
   - [ ] Partnership
   - [ ] Other (Specify):

10. Permit Application Basis: (Check all that apply)

☐ New Source ☑ Permit Revision ☐ Administrative Change
☐ Renewal of Existing Permit
☐ Portable Source ☐ General Permit ☐ Permit Transfer

For renewal or modification, include existing permit number: V20690.R01

Date of Commencement of Construction or Modification: January 1, 2024

Is any of the equipment to be leased to another individual or entity? ☐ Yes ☑ No

11. If necessary to preserve this source's status as a less-than-major source, the undersigned agrees that the permit or this source ***SHOULD*** ☑ ***SHOULD NOT*** ☐ include Federally Enforceable Provisions in accord with Code §3-1-084.

12. The undersigned states and certifies that, based on information and belief formed after reasonable inquiry, the statements and information in this document and supporting materials are true, accurate and complete. To the extent that this application pertains to an assignment of an existing permit, the undersigned further agrees to comply with and accept each and every obligation associated with that existing permit. *Knowingly presenting a false certification constitutes a criminal offense under A.R.S. §13-2704.*

13. The undersigned applicant states that he/she currently has, or at the time construction and/or operation begins will have, legal authority to enter upon and use the premises upon which this source will be operated.

14. Attach a description of the process to be permitted or revised including a list of equipment, capacities, MSDS sheets and anticipated production or throughput.

15. For new sources, an application filing deposit fee must be included with the application.

Signature of Responsible Official of Organization

Stephen Worthington

Typed or Printed Name of Signer

Plant Manager Generation — Official Title of Signer

August 24 2023 — Date

Appendix B.

Air Quality Modeling Protocol and Report.

AIR MODELING PROTOCOL AND REPORT FOR THE PROPOSED EXPANSION OF THE APS SUNDANCE POWER PLANT

Prepared for:

Arizona Public Service
400 North 5th Street
Phoenix, AZ 85004

Prepared by:

RTP Environmental Associates, Inc.
304-A West Millbrook Road
Raleigh, North Carolina 27609

June 2023

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1.0 INTRODUCTION

This document is a combined air quality modeling protocol and report for the proposed expansion of the Arizona Public Service (APS) Sundance Power Plant (SPP) in Pinal County, Arizona. APS is planning to add two GE LM6000PC natural gas-fired combustion turbine generators (CTGs) at SPP. APS is proposing emission and operating limits which will limit the potential emissions from both new CTGs combined to less than the thresholds that trigger major New Source Review (NSR), including the Prevention of Significant Deterioration (PSD) and Non-attainment Area (NAA) significant increase levels. The proposed potential emissions will also be below the minor-NSR permitting exemption thresholds in Arizona Administrative Code (AAC) R18-2-101(101), except for the pollutants NO_2, PM_{10}, and $PM_{2.5}$; therefore, minor-NSR review is triggered for these three pollutants.

Projects subject to the minor NSR program at AAC R18-2-334 shall comply with one of the following requirements for the minor-NSR triggered pollutants: implement Reasonably Available Control Technology (RACT) or perform an ambient air quality assessment that demonstrates emissions from the project will not interfere with attainment or maintenance of a National Ambient Air Quality Standard (NAAQS). Even though the proposed combustion turbines are natural gas-fired and equipped with pollution control systems that would meet RACT requirements, APS has elected to perform an air quality modeling analysis for the three minor-NSR triggered pollutants NO_2, PM_{10}, and $PM_{2.5}$.

The air quality modeling procedures conform with requirements in the U.S. Environmental Protection Agency's (EPA) Guideline on Air Quality Models, the Arizona Department of Environmental Quality (ADEQ) Air Dispersion Modeling Guidelines for Arizona Air Quality Permits, and ADEQ's Minor NSR Guidance document (December 3, 2015).

2.0 PROJECT DESCRIPTION

SPP is currently permitted under a Class I Title V operating permit No. V20690.R01. The Sundance Power Plant is a 450 MW(e) natural gas-fired power plant consisting of five power blocks. Each power block consists of two General Electric Model LM6000PC aeroderivative simple cycle CTGs equipped with Selective Catalytic Reduction (SCR) for NO_X control and oxidation catalysts (OC) for carbon monoxide (CO) and volatile organic compound (VOC) control.

APS is planning an expansion project to add a sixth power block consisting of two additional natural gas-fired GE LM6000PC CTGs which will also be equipped with SCR and OC air quality control systems. These CTGs are identified as Units 11 and 12. The LM6000PC CTGs are aeroderivative units based on turbine designs in the aviation industry. This aeroderivative design is capable of fast starts and fast ramping to full electric output capacity. These CTGs will be equipped with inlet air filters which remove dust and particulate matter from the inlet air. During hot weather, the filtered air may also be cooled by passing through an inlet air evaporative cooling system. Each CTG will be enclosed in a metal acoustical enclosure which will also contain accessory equipment. The exhaust gases from the turbine will be discharged from stacks with a height of 85 ft above ground level and a diameter of 10 ft (identical to the existing stacks at SPP).

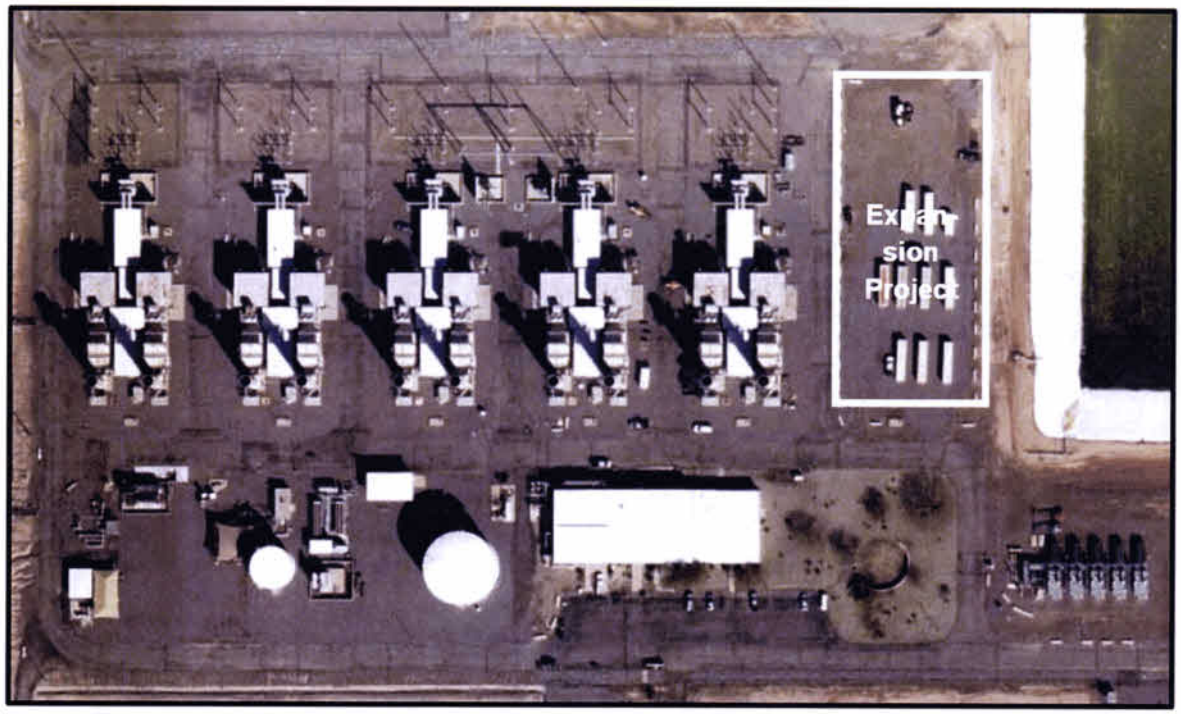
3.0 SITE DESCRIPTION

The Sundance Generating Station is in Pinal County, approximately 8 kilometers southwest of Coolidge, Arizona. The approximate Universal Transverse Mercator (UTM) coordinates of the facility are 444,900 meters east and 3,643,500 meters north (UTM Zone 12, NAD 83). The facility is approximately 433 m (1420 ft) above mean sea level. Figure 1 shows the general location of the facility. Figure 2 shows the facility layout.

The portion of Pinal County where the facility is located is classified as attainment or unclassified for all criteria pollutants other than PM_{10}, for which the area is classified as nonattainment.

Figure 1. General Location of the APS Sundance Power Plant

Figure 2. Layout of the APS Sundance Power Plant



4.0 MODEL SELECTION AND MODEL INPUT

4.1 Model Selection

The latest version of the AMS/EPA Regulatory Model (AERMOD, Version 21112) was used for conducting the air quality modeling analyses. AERMOD is a Gaussian plume dispersion model that is based on planetary boundary layer principles for characterizing atmospheric stability. The model evaluates the non-Gaussian vertical behavior of plumes during convective conditions with the probability density function and the superposition of several Gaussian plumes. AERMOD is a modeling system with three components: AERMAP is the terrain preprocessor program, AERMET is the meteorological data preprocessor and AERMOD includes the dispersion modeling algorithms. The model also can incorporate building wake effects and calculate concentrations within the cavity recirculation zone. All model options will be selected as recommended in the EPA and ADEQ modeling guidelines.

4.2 Control Options and Land Use

AERMOD will be run in the regulatory default mode with the default rural dispersion coefficients. The use of rural dispersion coefficients is supported by the Land Use Procedure consistent with subsection 7.2.1.1.b.i of the EPA Modeling Guidelines and Section 5.1 of the AERMOD Implementation Guide. The USGS 2016 National Land Cover Data ("NLCD") within 3km of the site were converted to Auer 1978 land use types and evaluated in Figure 3. It was determined that the land use in the vicinity of the facility is predominantly rural as defined by Auer (less than 50% of the area is classified as urban). Only the red and dark red regions in Figure 3 (NLCD categories 23 and 24) are considered urban. The potential for urban heat island affects, which are regional in character, was considered and determined not to be of concern.

Figure 3. Land Use within Three Kilometers (3km Radius Shown)

4.3 Source Data

Source Characterization

The new turbines will exhaust to 85 ft tall stacks with a 10 ft diameter opening. The turbines were therefore modeled as point sources in AERMOD. The point sources do not have rain caps nor do they release horizontally. All source locations will be based upon a NAD83, UTM Zone 12 projection. Refer to Attachment A for source emission and stack parameter data.

Good Engineering Practice Stack Height Analysis

A Good Engineering Practice (GEP) stack height evaluation will be conducted to determine appropriate building dimensions to include in the model and to calculate the GEP formula stack height used to justify stack height credit for stacks to be constructed in excess of 65m. Procedures to be used will be in accordance with those described in the EPA Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations-Revised). GEP formula stack height, as defined in §3-1-177(B) of the PCAQCD Regulations, is expressed as GEP = H_b + 1.5L, where H_b is the building height and L is the lesser of the building height or maximum projected width. Building/structure locations will be determined from facility plot plans and aerial photos. The structure locations and heights will be input to the EPA's Building Profile Input Program (BPIP-PRIME) computer program to calculate the direction-specific building dimensions needed for AERMOD.

4.4 Monitored Background Data

Pursuant to ADEQ Modeling Guidelines and the ADEQ Minor NSR Guidance documents, background pollutant concentrations must be included in NAAQS modeling for minor NSR analyses only if the project impacts are greater than the Significant Impact Levels (SILs). As will be shown later in this report, the project impacts for PM_{10} and $PM_{2.5}$ are less than the applicable SILs. Therefore, there is no need to identify background PM_{10} and $PM_{2.5}$ concentration data. The project 1-hr NO_2 impacts are greater than the applicable SIL, therefore background NO_2 data is required for the NAAQS analysis. Background concentrations are intended to account for sources not explicitly included in the modeling. The background concentrations are added to the modeled concentrations to assess NAAQS compliance.

In Arizona, ambient NO_2 monitoring is conducted by several governmental agencies. ADEQ operates the JLG Supersite NO_2 monitor to measure air quality in the central core of the Phoenix metropolitan area. The surrounding area is primarily residential neighborhoods, with I-17 approximately 1.6 km to the west. Maricopa County operates five NO_2 monitoring stations in the Phoenix area with monitoring objectives ranging from upwind background data (Buckeye station) to central city monitoring to roadway source monitoring (Thirty-third station). Pima County currently operates 3 NO_2 monitoring sites in the Tucson area. Table 1 presents data from these NO_2 monitoring sites. The most recent 3-year averages of the 98^{th} percentile 1-hr and the annual mean NO_2 concentrations from stations with complete data for 2020-2022 are presented, sorted from highest to lowest background values. Table 1 also lists the ADEQ recommended 26.3 µg/m3 1-hour background NO_2 concentration from Alamo Lake for areas where local anthropogenic NO_X sources are negligible.

Table 1. Background NO_2 Concentrations (µg/m3)

Site Name	Agency	City	Site ID	3-yr Ave 1-hr 98th Percentile	3-yr Ave Annual Mean
Thirty-third	Maricopa	Phoenix	40134020	110.9	48.1
Central Phoenix	Maricopa	Phoenix	40133002	99.6	29.0
JLG Supersite	ADEQ	Phoenix	40139997	92.7	24.6
West Phoenix	Maricopa	Phoenix	40130019	89.0	26.3
22nd - Craycroft	Pima	Tucson	40191011	70.2	14.3
Buckeye	Maricopa	Buckeye	40134011	63.9	15.2
Children's Park	Pima	Tucson	40191028	57.0	13.1
Alamo Lake	ADEQ	La Paz	N/A	26.3	N/A

The Thirty-third monitoring site is a "near roadway" monitor which focuses on microscale elevated NO_2 concentrations, and therefore is not representative of the background concentrations near the SPP project site. The next 3 stations in Table 1 are all located in the Phoenix urban area with numerous NO_2 emission sources, therefore these data sets are not representative of the rural setting at the project site. The background values measured in Tucson are lower than those measured in Phoenix, although the Tucson data are still from urban locations that are not representative of the SPP rural location. The Alamo Lake 1-hr background value is the most representative background data for the rural location of the SPP.

Section 6.3 of this report discusses the NO_2 NAAQS modeling analysis and how the NO_2 background data listed in Table 1 was used.

4.5 Receptor Data

Modeled receptors are placed in all areas considered as "ambient air" pursuant to 40 CFR §50.1(e) and §1-3-140 of the PCAQCD Regulations. Ambient air is defined as that portion of the atmosphere, external to buildings, to which the general public has access.

The receptor grid consists of multiple Cartesian grids, as well as receptors spaced at 25m intervals along the facility fence line. The first Cartesian grid extends to approximately 1km from the fence in all directions, with a receptor density of 100 m. The next grid extends from 1km to 3km with a receptor density of 200 m. The next grid extends from 3km to 5km with a receptor density of 400 m. The next grid extends from 5km to 10km with a receptor density of 500 m. The next grid extends from 10km to 20km with a receptor density of 1000 m. The final grid extends from 20km to 50km with a receptor density of 2000 m. These cartesian grids were supplemented by a 100-meter dense grid in the elevated terrain that exists to the northwest of the facility. Figure 4 presents a close-in view of the receptor grid, and Figure 5 presents a larger scale view.

Receptor elevations and hill height scale factors were calculated with AERMAP (18081). The elevation data were obtained from the USGS 1 arc second National Elevation Data (NED) obtained from the USGS. Locations were based upon a NAD83, UTM Zone 12 projection.

4.6 NO_2 Conversion Technique

The Tier 2 Ambient Ratio Method (ARM2) was employed with the EPA recommended minimum and maximum ambient NO_2/NO_X ratios of 0.5 and 0.9, respectively.

Figure 4. APS Sundance Receptor Grid – Close in View

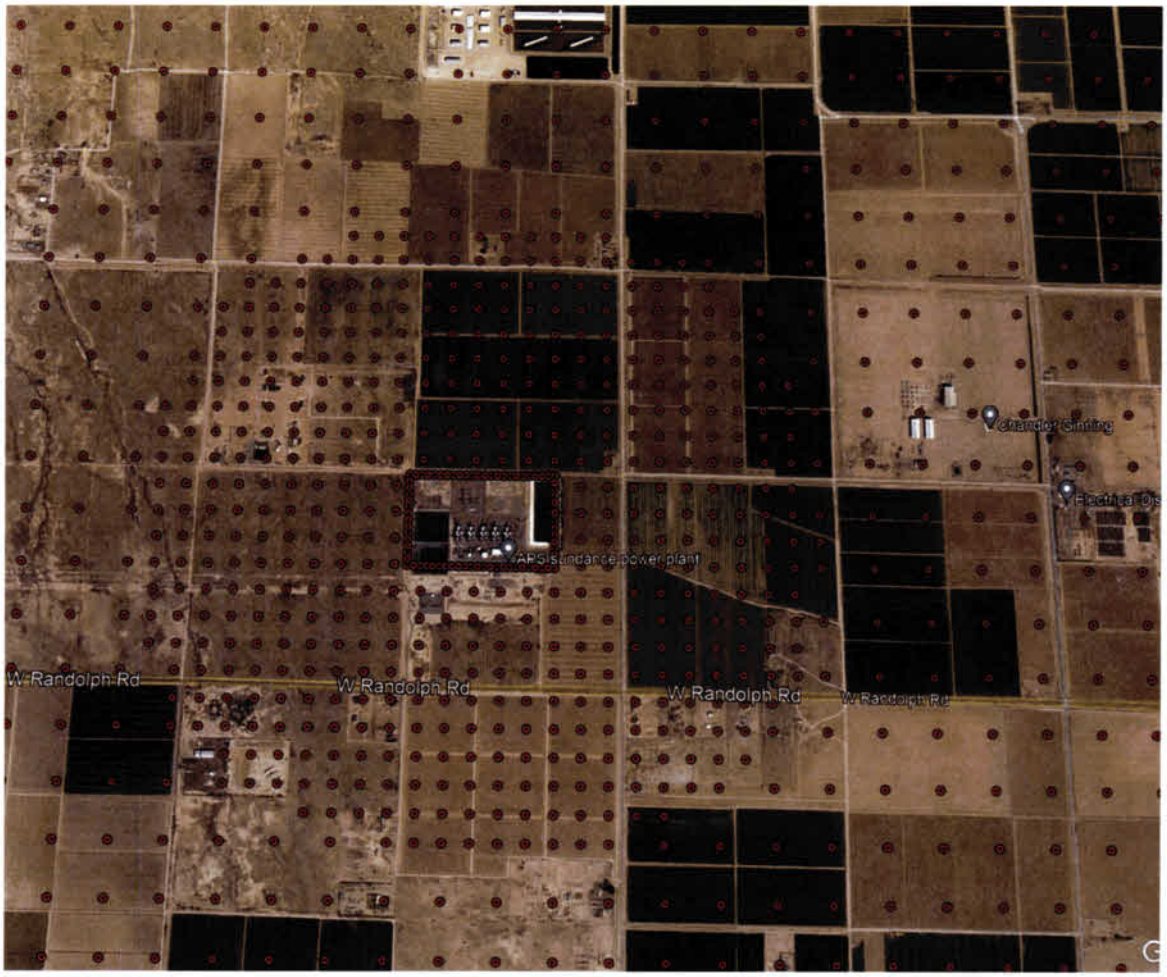
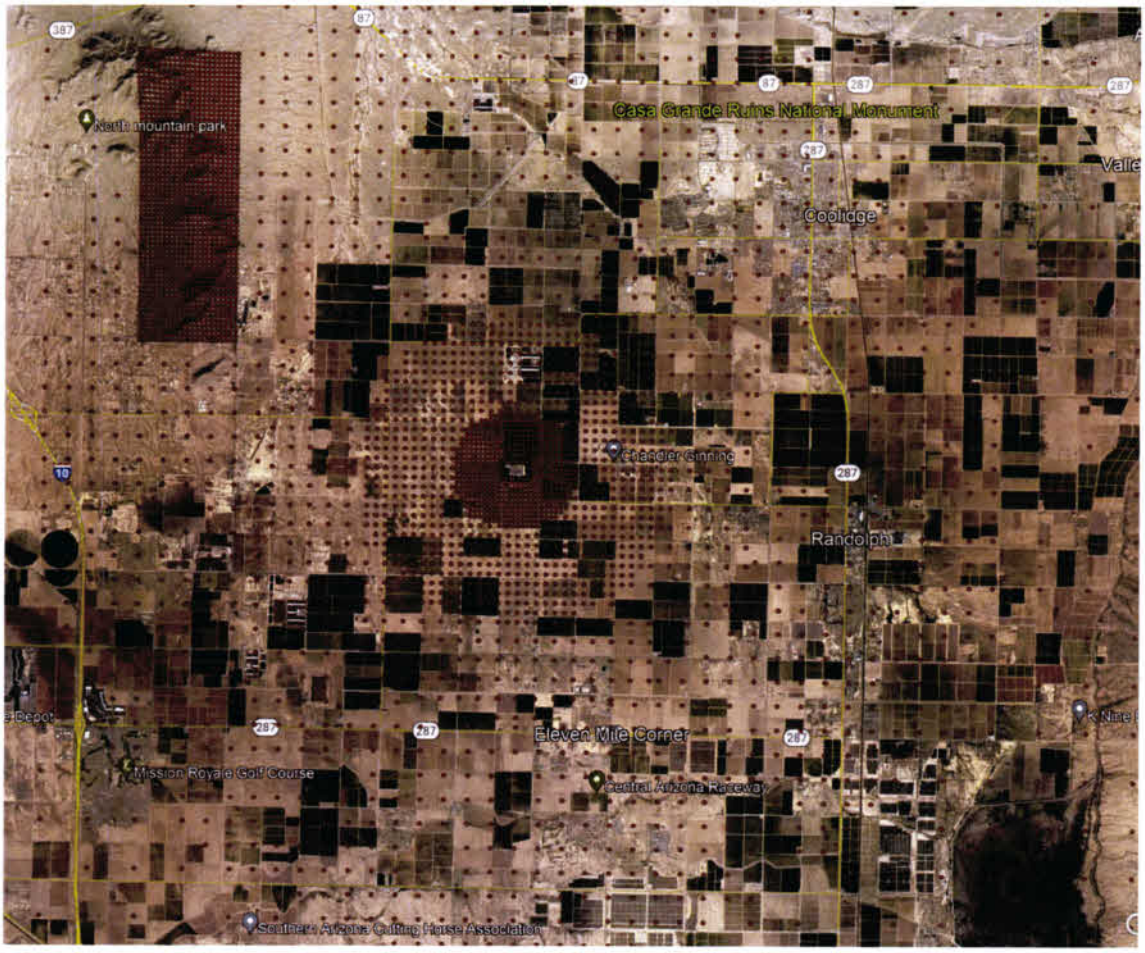


Figure 5. APS Sundance Receptor Grid

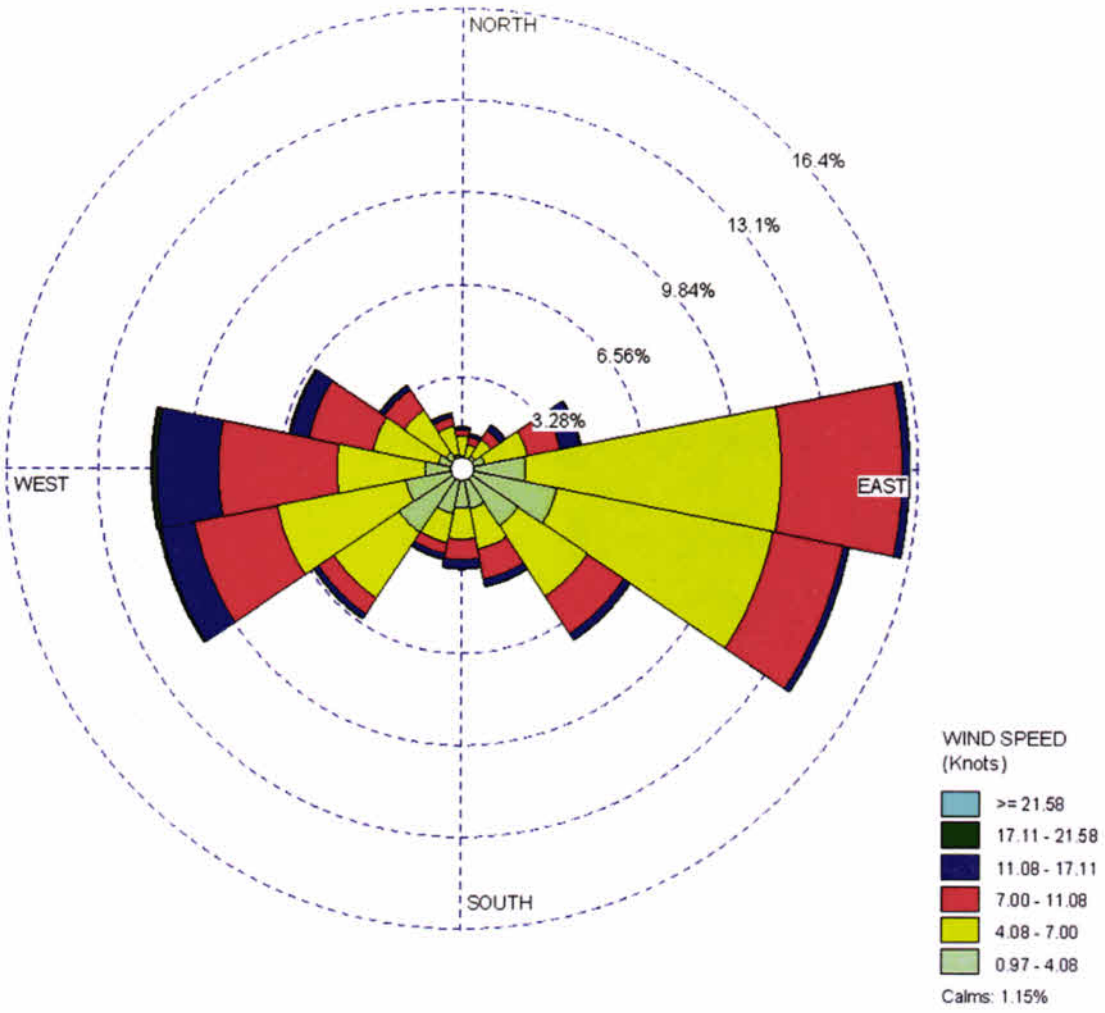


4.7 Meteorological Data

There are four criteria in EPA's Modeling Guideline for assessing whether meteorological data are representative of the study area. These criteria include: 1) proximity of the meteorological station to the area under consideration, 2) the complexity of the terrain, 3) the exposure of the meteorological site, and 4) the period of time during which the data are collected. The Phoenix Sky Harbor data have been evaluated relative to these criteria and determined to be representative of the SPP study area. Sky Harbor is located approximately 75km to the northwest of the SPP facility. Both Sky Harbor and the SPP site are in open, flat valley floors that range between 1,100 and 1,400 feet in elevation. At both locations, the nearest terrain features are located approximately 7km distant, which would not affect wind direction and thus alter the dispersion patterns experienced at each location. The Sky Harbor meteorological tower is free of any obstructions as it is a National Weather Service 1st Order Station that must meet specific site and exposure standards. Finally, the most current five-year dataset as processed by ADEQ was used in the analysis. Therefore, the Phoenix data adequately represent the meteorological conditions experienced at the SPP project site. It should be noted that Pinal County has previously approved the use of this data set for other modeling analyses in the vicinity of the SPP.

The data was processed by ADEQ using AERMET version 22112. To address issues with model overprediction due to underprediction of the surface friction velocity (u*) during light wind, stable conditions, EPA integrated the ADJ_U* option into the AERMET processor. ADEQ used the ADJ_U* option in processing the data. ADEQ also employed 1-minute data using the AERMINUTE processor with a 0.5 m/sec wind speed threshold to minimize the number of calm wind conditions encountered when using Automated Surface Observing System (ASOS) data. Figure 6 presents the wind rose for the Sky Harbor data set.

Figure 6. Windrose Data (2017-2021)



5.0 MODELING METHODOLOGY

5.1 Pollutants Subject to Review

The criteria pollutants with emissions in excess of the minor-NSR permitting thresholds that were evaluated in this modeling analysis are NO_2, PM_{10}, and $PM_{2.5}$.

5.2 Load/Operating Conditions and Facility Design

The turbine emission rates and stack parameters vary with the numerous combinations of operating load and ambient temperature. A load screening analysis was therefore performed to determine the operating conditions that result in the highest modeled impacts. Rather than model each of the potential combinations of operating load and ambient temperature, a simplified and conservative analysis was performed by modeling the "worst-case" minimum stack temperature and flow rate for 100%, 75%, 50%, and startup/shutdown operating loads across all the ambient temperature conditions. Because emissions are generally directly related to heat input rates, the emissions used for the reduced load scenarios were normalized relative to the 100% load emissions based on the relative heat input rate. The startup/shutdown load simulation used the peak hourly emissions which occur during startup (emissions included startup rates for the first 30 minutes and 100% load rates for the remaining 30 minutes of the hour). Attachment A presents the load screening data used in the analysis.

5.3 Significant Impact Analysis

An air quality modeling analysis is typically conducted in two steps: an initial or "significant impact analysis", followed, if necessary, by a refined or "cumulative" NAAQS analysis. In the significant impacts analysis, the maximum model predicted impacts are compared to the pollutant specific SILs as listed in Table 2. Pollutants with impacts that exceed the significant impact levels would then be evaluated for NAAQS compliance in a refined analysis.

Table 2. PSD Class II Significant Impact Levels

Pollutant	Averaging Time	PSD Class II Significant Impact Levels (µg/m³)
NO_2	2-hour	7.5
	Annual	1.0
$PM_{2.5}$	24-hour	1.2
	Annual	0.2
PM_{10}	24-hour	5

5.4 Modeling for HAPs Sources – Learning Sites Policy

ADEQ has established the Learning Sites Policy to ensure that children at learning sites are protected from criteria air pollutants as well as hazardous air pollutants (HAPs). Learning sites consist of all existing public schools, charter schools, and private schools at the K-12 level, and all planned sites for schools approved by the Arizona School Facilities Board. Any facility located within 2 miles of a learning site is subject to the policy and must submit a modeling analysis to demonstrate compliance with the NAAQS and acute/chronic ambient air concentrations for listed air toxics. The closest schools to the SPP are the Mary C O'Brien Elementary School and the West Elementary School. Both schools are located in excess of 2.7 miles from the SPP facility. Therefore, no additional modeling will be conducted pursuant to the Learning Sites Policy.

5.5 Secondary $PM_{2.5}$ Impact Analysis

On February 10, 2020, the EPA issued draft guidance for assessing ozone and fine particulate matter modeling. The guidance addresses both primary and secondary $PM_{2.5}$ impacts. Primary $PM_{2.5}$ impacts refer to the impacts due to direct emissions of $PM_{2.5}$. Secondary impacts refer to the $PM_{2.5}$ impacts attributable to nitrates and sulfates formed due to precursor NO_2 and SO_2 emissions. The EPA outlines four cases for assessing the primary and secondary $PM_{2.5}$ impacts. The appropriate case to use

depends on the magnitude of direct $PM_{2.5}$ and precursor NO_2 and SO_2 emissions. Case 1 is applicable if the emissions increase of both direct $PM_{2.5}$ and secondary NO_2 and SO_2 emissions are below the PSD significant emission rates (SER). This is the case that is applicable to the SPP project, and under EPA guidance a secondary $PM_{2.5}$ impact analysis is not required.

6.0 MODEL RESULTS AND CONCLUSIONS

This section presents the results of the modeling simulations. AERMOD input and output files, including BPIP-PRIME files, are provided electronically for agency review.

6.1 Load Analysis Results

The results of the load analysis can be found in Attachment A. The start-up load condition was found to cause the highest impacts for all averaging periods. The emissions and stack parameters associated with this load condition were therefore used in the remainder of the analysis. In effect, these emission inputs treat the turbines as if they were constantly in startup mode for 8,760 hours per year. Clearly this is not a realistic operating scenario but is a very conservative modeling assumption.

6.2 Significant Impact Analysis Results

Table 3 presents the results of the significant impacts analysis. All modeled pollutants and averaging intervals were below the respective SIL values, except for the 1-hr NO_2 impacts. Therefore, a NAAQS analysis was performed for the 1-hr NO_2 impacts.

Table 3. Significant Impact Analysis Results

Pollutant	Avg Period	Maximum Modeled Impact - ($\mu g/m^3$)	PSD Significant Impact Level ($\mu g/m^3$)	Exceeds SIL?
NO_2	1-hr	17.2	7.5	Yes
	Annual	0.31	1.0	No
$PM_{2.5}$	24-hr	0.56	1.2	No
	Annual	0.11	0.2	No
PM_{10}	24-hr	0.7	5	No

6.3 NAAQS Analysis Results

For pollutants/averaging intervals with project impacts above the SIL, ADEQ's Minor NSR Guidance document requires that the applicant demonstrate that the ambient concentrations resulting from the source or modification combined with representative background concentrations of regulated minor NSR pollutants will not cause the violation of NAAQS. Since the project is a minor modification consisting of two new combustion turbines, only the emissions from the modification (i.e., the two new turbines) must be modeled when performing the NAAQS analysis. However, APS has elected to model the emissions from the entire facility to ensure that there are no NAAQS violations in the project area. The same worst-case startup emission scenario was used for the existing ten turbines as well as the two new turbines. Again, this is an extremely worst-case scenario, as these emission inputs treat all twelve turbines as if they were constantly in startup mode for 8,760 hours per year.

Table 4 presents the results of the 1-hr NO_2 NAAQS analysis. The maximum modeled design concentration is added to two different background values from Section 4.4 of this report. The most representative background concentration is the Alamo Lake value, which results in a total impact of 56% of the 1-hr NO_2 NAAQS. However, even if the Central Phoenix high background value is added to the maximum modeled concentration as a worst-case analysis, the total impact is still below the NAAQS.

Therefore, this ambient air quality assessment demonstrates that emissions from the SPP minor NSR modification will not interfere with attainment or maintenance of a NAAQS.

Table 4. 1-Hr NO_2 NAAQS Analysis Results

Maximum Modeled Design Concentration (µg/m3)	Background Concentration (µg/m3)	Total Concentration (µg/m3)	Percentage of NAAQS of 188 µg/m3
78.8	26.3 (Alamo Lake)	105	56%
78.8	99.6 (Central PHX)	178	95%

Attachment A

Emission and Stack Data

Modeled Stack Parameters and Emission Rates

Source Description	Easting (X)	Northing (Y)	Base Elevation	Stack Height	Temperature	Exit Velocity	Stack Diameter	PM10	PM25	NOx
	(m)	(m)	(m)	(ft)	(°F)	(fps)	(ft)	(lb/hr)	(lb/hr)	(lb/hr)
New Unit 11 - SUSD	445,054	3,643,295	433	85	656.0	81	10.0	6.5	6.5	18.6
New Unit 12 - SUSD	445,071	3,643,295	433	85	656.0	81	10.0	6.5	6.5	18.6

Coordinates are UTM Zone 12, NAD 83

Load Screening Data and Modeling Results

Startup/Shutdown Emission Calculations

Event	Duration min	HI MMBtu-HHV	Nox lb	Calc PM lb
Normal Ops - Max Hourly Rate	60	467	8.60	7.0
Startup - Stack	30	199.6	14.3	3.0
Shutdown-Stack	9	33.7	3.9	0.5
Total for a Starup Hour	60	433.1	18.6	6.5
Total for a Shutdown Hour	99	430.7	11.2	6.5

Load Scenarios - Emission and Stack Data

Scenario	Heat Input MMBtu/hr	Temp F	Exit Vel fps	Flow rate acfm	PM10 and PM25 lb/hr	NOx lb/hr
100% Load	467	767	105.2	495822	7.00	8.60
75% Load	385	712	91.9	433132	5.78	7.08
50% Load	288	656	81.0	381840	4.32	5.30
Startup/shutdown	433	656	81.0	381840	6.50	18.60

Modeling Results for single CTG (in units of ug/m3, based on H1H model concentrations)

Scenario	PM10 24hr	PM2.5 24hr	PM2.5 Annual	NO2 1-hr	NO2 Annual
100% Load	0.30	0.24	0.045	3.5	0.056
75% Load	0.28	0.22	0.043	3.3	0.053
50% Load	0.24	0.19	0.037	2.7	0.045
Startup/shutdown	**0.36**	**0.28**	**0.055**	**9.6**	**0.158**

Appendix C.

Environmental Justice EJScreen Data for the Sundance Power Plant Expansion Project.

EPA

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Pinal County, AZ

3 miles Ring around the Area
Population: 1,387
Area in square miles: 29.77

COMMUNITY INFORMATION

Low income: 35 percent	People of color: 42 percent	Less than high school education: 11 percent	Limited English households: 5 percent
Unemployment: 11 percent	Persons with disabilities: 25 percent	Male: 53 percent	Female: 47 percent
78 years Average life expectancy	$26,080 Per capita income	Number of households: 401	Owner occupied: 72 percent

BREAKDOWN BY RACE

White: 77%	Black: 3%	Asian: 1%	Hispanic: 30%
American Indian: 4%	Hawaiian/Pacific Islander: 0%	Other race: 6%	Two or more races: 8%

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	78%
Spanish	20%
Other Indo-European	1%
Other and Unspecified	1%
Total Non-English	22%

BREAKDOWN BY AGE

From Ages 1 to 4	5%
From Ages 1 to 18	21%
From Ages 18 and up	79%
From Ages 65 and up	22%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	100%
Speak Other Indo-European Languages	0%
Speak Asian-Pacific Island Languages	0%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic popultion can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

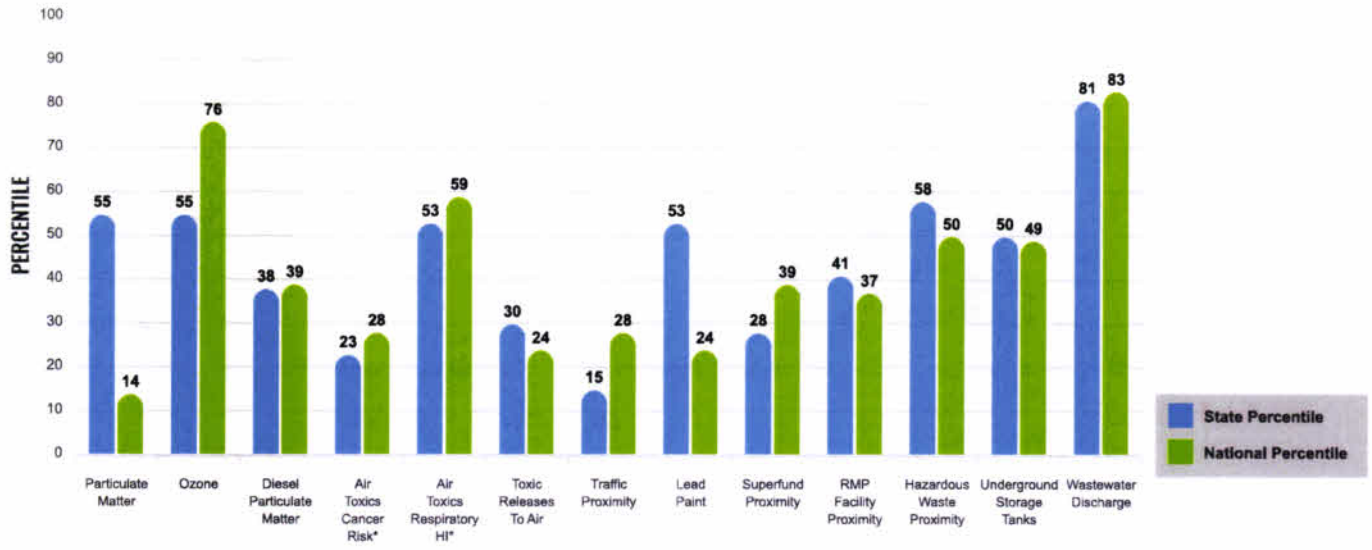
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

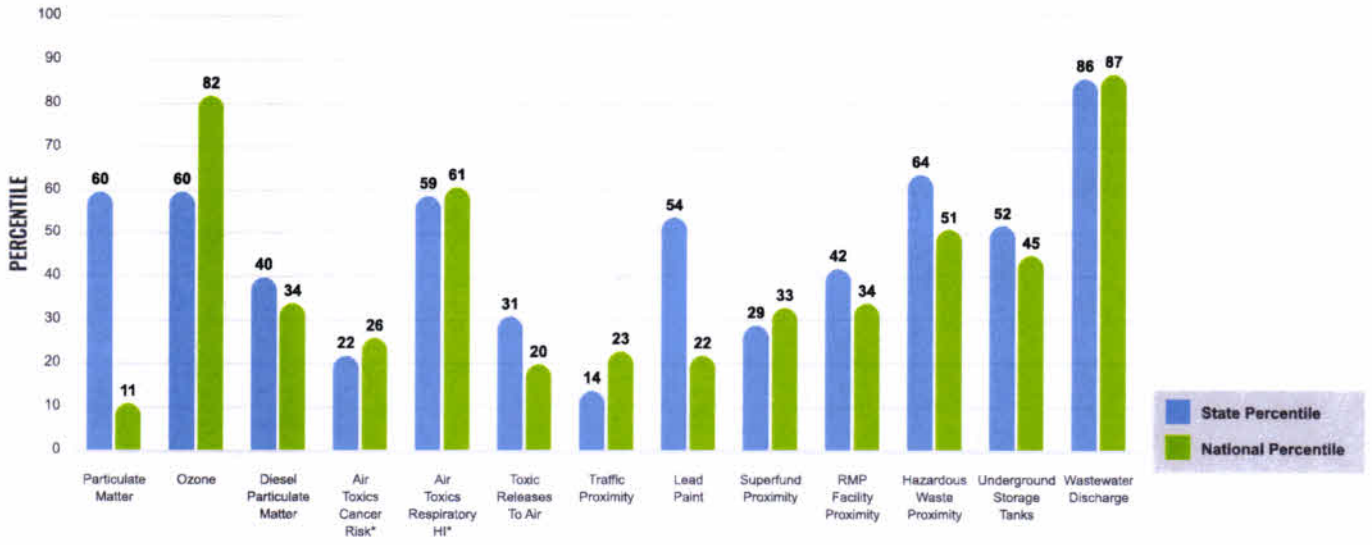
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for 3 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter ($\mu g/m^3$)	5.74	5.87	39	8.08	6
Ozone (ppb)	64.8	66.1	39	61.6	73
Diesel Particulate Matter ($\mu g/m^3$)	0.116	0.278	23	0.261	21
Air Toxics Cancer Risk* (lifetime risk per million)	20	32	6	28	3
Air Toxics Respiratory HI*	0.3	0.31	30	0.31	31
Toxic Releases to Air	23	2,800	16	4,600	12
Traffic Proximity (daily traffic count/distance to road)	7.5	190	8	210	14
Lead Paint (% Pre-1960 Housing)	0.025	0.089	59	0.3	20
Superfund Proximity (site count/km distance)	0.023	0.077	16	0.13	21
RMP Facility Proximity (facility count/km distance)	0.076	0.38	26	0.43	20
Hazardous Waste Proximity (facility count/km distance)	0.25	0.71	55	1.9	40
Underground Storage Tanks (count/km^2)	0.099	1.7	34	3.9	28
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.8	5.8	80	22	91
SOCIOECONOMIC INDICATORS					
Demographic Index	39%	38%	58	35%	63
Supplemental Demographic Index	16%	14%	66	14%	67
People of Color	42%	44%	54	39%	60
Low Income	35%	32%	60	31%	63
Unemployment Rate	11%	6%	84	6%	84
Limited English Speaking Households	5%	4%	74	5%	74
Less Than High School Education	11%	12%	61	12%	60
Under Age 5	5%	5%	53	6%	53
Over Age 64	22%	20%	70	17%	74
Low Life Expectancy	20%	19%	57	20%	57

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund 0
Hazardous Waste, Treatment, Storage, and Disposal Facilities 0
Water Dischargers 1
Air Pollution 2
Brownfields 0
Toxic Release Inventory 1

Other community features within defined area:

Schools 1
Hospitals 0
Places of Worship 0

Other environmental data:

Air Non-attainment ..... Yes
Impaired Waters ..... No

Selected location contains American Indian Reservation Lands* ..... No
Selected location contains a "Justice40 (CEJST)" disadvantaged community ..... Yes
Selected location contains an EPA IRA disadvantaged community ..... Yes

Report for 3 miles Ring around the Area

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	20%	19%	57	20%	57
Heart Disease	8	6	81	6.1	84
Asthma	11.1	10.6	74	10	81
Cancer	7.1	6.1	73	6.1	72
Persons with Disabilities	23.5%	13.9%	90	13.4%	93

CLIMATE INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	17%	6%	89	12%	81
Wildfire Risk	61%	48%	52	14%	87

CRITICAL SERVICE GAPS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	22%	13%	80	14%	77
Lack of Health Insurance	11%	10%	61	9%	71
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	No	N/A	N/A	N/A	N/A

Footnotes

Report for 3 miles Ring around the Area

Exhibit B-2
Sundance Gas Generation Addition-
Reliability Analysis

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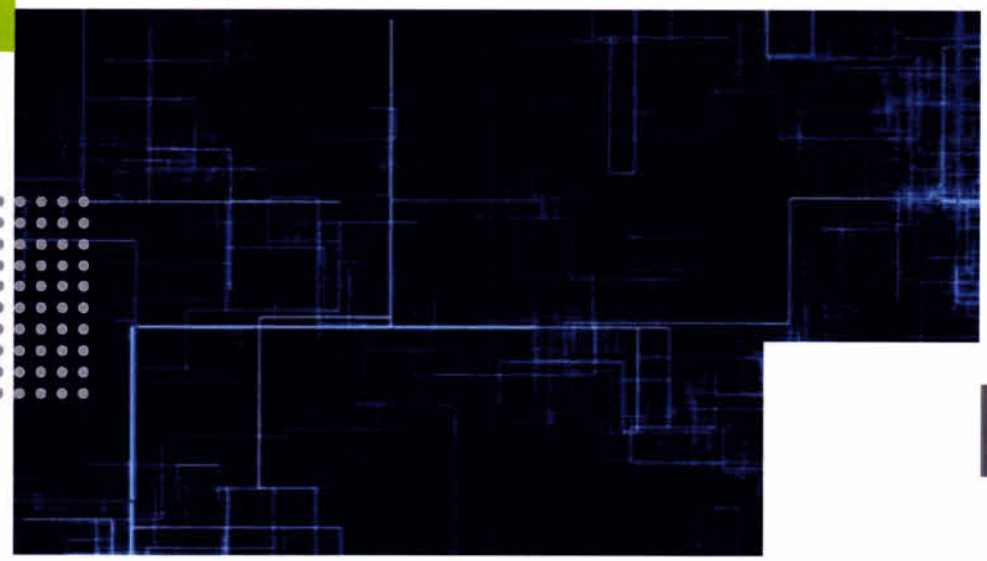
Sundance Gas Generation Addition – Reliability Analysis

aps

Arizona Public Service Co.

Sundance: Gas Generation Addition - Reliability Analysis
Project No. 150904

Revision 1
8/20/2023



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1.0 SUNDANCE: RELIABILITY ANALYSIS

1.1 Introduction

1898 & Co. was retained by Arizona Public Service Company ("APS") to evaluate the reliability impacts of the addition of 90 MW Of additional generation capacity at the existing Sundance facility. The objective of the Study was to determine transmission impacts to the surrounding system from the additional MW injection, on top of maximum available generation capacity, at Sundance.

The Study was performed using PowerGEM's Transmission Adequacy & Reliability Assessment ("TARA") software. Study was performed on Base case and Cluster model provided by APS. Base case model did not include speculative generation from the active generation interconnection queue. Cluster model was developed to include speculative generators from the active generation interconnection queue. Both, Base and Cluster models, were developed by APS.

Summary of models provided and scenarios evaluated are summarized in the table below:

Model Provided	Scenario Evaluated
Base Model: *'27HS_AZCC_8-5-22.sav'*	Up to 90 MW injection at Sundance
Cluster Model: *'Saguaromit1d_soPhx20S_RESTUDY_05_25HS-G1_ca.sav'*	Up to 90 MW injection at Sundance

The following model adjustments were made to the base and cluster models:

- Dispatch of all existing Sundance generators were adjusted to dispatch at their modeled maximum MW level. Generators modeled at Arlington, Mesquite, and Harquahala were offset to make up for the generation adjustment.

The following study methodology was implemented to perform the injection analysis:

- Generators modeled at Arlington, Mesquite, and Harquahala were used as the SINK to offset any MW injection at the generation site being evaluated
- Injection was performed up to 90 MW of additional capacity at Sundance
- Rating of the Coolidge - Rogers WAPA 230 kV transmission line is updated from 282 MVA to 373 MVA since the transmission line through-path is known to be limited by jumpers at Coolidge substation. Once the jumpers are upgrades, the transmission line will be limited by a conductor rating of 373 MVA
- All facilities 69 kV and above in APS and Tier 1 neighbors were monitored for overloads. The Tier 1 neighbors include SRP, TEP, AEPCO, SDG&E, WAPA, PNM, IID, SCE, LADWP, and PACE
- Single contingency events across all of APS and Tier 1 neighbors were studied. The Tier 1 neighbors include SRP, TEP, AEPCO, SDG&E, WAPA, PNM, IID, SCE, LADWP, and PACE
- A distribution factor of 3% was used to filter out transmission overloads not attributable to the injection being studied
- Identified transmission overloads were reported only once for the earliest level of injection. Subsequent transfer levels that caused an overload on the same element are not reported

1.2 Results Summary

1.2.1 Base Case Analysis

Table below summarizes the transmission limitations seen for an additional injection of up to 90 MW at Sundance 230 kV. Study indicates that an injection of 90 MW did not trigger any additional transmission upgrades.

Site	Voltage Level	Transmission Constraints Triggered*
Sundance	230 kV	None

1.2.2 Sundance Cluster Model Analysis

Table below summarizes the transmission limitations seen for an additional injection of up to 90 MW at Sundance 230 kV. Study indicates that an injection of 90 MW did not trigger any additional transmission upgrades.

There was a transmission violation existing on the system even before the start of the analysis. For this reason, the violation was deemed as not attributable to the injection at Sundance.

Site	Voltage Level	Transmission Constraints Triggered*
Sundance	230 kV	None

* Rating of the Coolidge - Rogers WAPA 230 kV transmission line is updated from 282 MVA to 373 MVA since the transmission line through-path is known to be limited by jumpers at Coolidge substation. Once the jumpers are upgrades, the transmission line will be limited by a conductor rating of 373 MVA

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1850 N Central Ave

Phoenix, AZ

Exhibit C
Areas of Biological Wealth

As stated in Arizona Corporation Commission Rules of Practice and Procedure R-14-3-219:

"Describe any areas in the vicinity of the proposed site or route which are unique because of biological wealth or because they are habitats for rare or endangered species. Describe the biological wealth or species involved and state effects, if any, the proposed facilities will have thereon."

Overview

For the purposes of amending the Certificate of Environmental Compatibility (CEC) Decision No. 107, this Exhibit analyzes biological wealth resources and impacts related to the construction and operation of the sixth power block expansion of the Sundance Power Plant, including two additional GE LM6000 turbines with each turbine having a nameplate capacity of 45 MW, collectively called the Project. The study area boundaries for the environmental review of the proposed Project includes areas within one mile of the Project site (**Figure C-1)**.

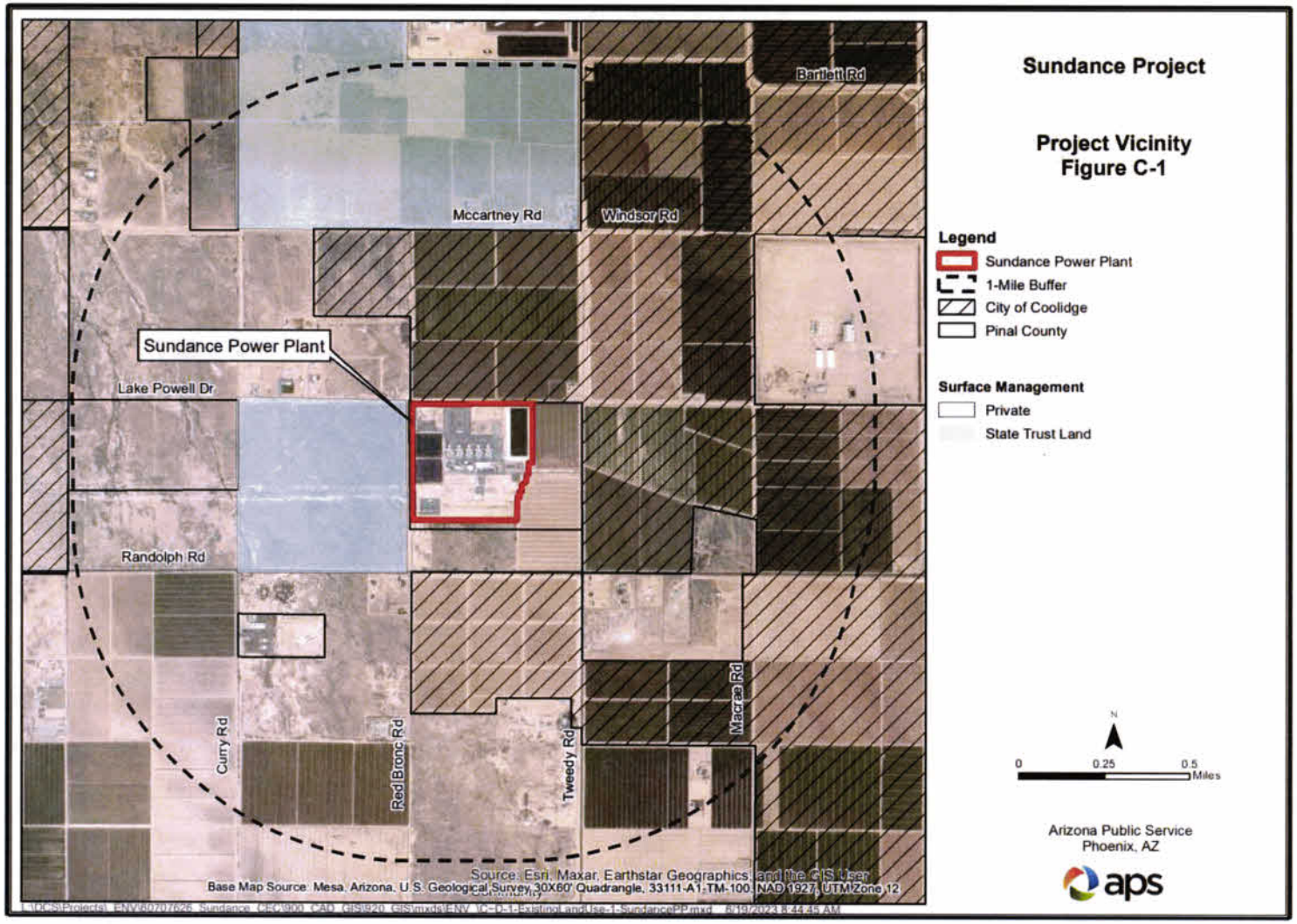
This report (Exhibit C) addresses species protected by federal and state laws and policies (i.e., endangered and threatened species) because of their conservation status. This report also addresses whether any areas protected (i.e., wildlife movement corridors) for conservation purposes are present in the study area. Federal and State databases used to review the Project do not return results based strictly on a one-mile radius; therefore, this report addresses the results of those database queries for a three-mile buffer around the project site and discusses whether identified species or their habitat or other protected areas may be present or affected by the Project.

The elevation at the Sundance Power Station is approximately 1,400 feet above mean sea level. The topography of the surrounding area is flat ground with the prominent land cover classes being agricultural fields, low-impact urbanization for residential areas, and open desert. The City of Coolidge is located approximately three miles northeast and the North Mountains are located approximately six and a half miles northwest from the Project. The study area can be found on the Gila-Salt River Principal Meridian, Arizona, U.S. Geological Survey 7.5-minute topographic quadrangle. The study area is within Section 2 of Township 6 South, Range 7 East.

The study area is in the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biome (Brown 1994, USGS 2023). The Lower Colorado River Valley subdivision is characterized by high temperatures and low precipitation and is the most arid subdivision of the Sonoran Desert. All project feature and ground disturbances are located within the existing footprint of the Sundance Power Plant, meaning the area is highly developed with little native desert components remaining.

Special status plant and wildlife species are subject to regulations under the authority of federal and state government agencies. Special status species include those species that are listed by the U.S. Fish and Wildlife Service (USFWS) as federal endangered, threatened, proposed, or candidate species under the Endangered Species Act of 1973 (ESA), Section 4, as amended; protected under the Migratory Bird Treaty Act of 1918 (MBTA); protected as Birds of Conservation Concern (BCC); listed as Species of Greatest Conservation Need (SGCN) by the Arizona Game and Fish Department (AGFD); or are protected under the Arizona Native Plant Law (ANPL) administered by the Arizona Department of Agriculture (AZDA). Descriptions of special status species are listed below:

- Endangered species (federal) are those species in danger of extinction throughout all or a significant portion of their range.
- Threatened species (federal) are those species likely to become endangered in the foreseeable future.
- Proposed species (federal) are those species recommended for listing under Section 4 of the ESA.


Sundance Project
Project Vicinity
Figure C-1
Legend
Sundance Power Plant
1-Mile Buffer
City of Coolidge
Pinal County
Surface Management
Private
State Trust Land
Bartlett Rd
Mccartney Rd
Windsor Rd
Sundance Power Plant
Lake Powell Dr
Randolph Rd
Curry Rd
Red Bronc Rd
Tweedy Rd
Macrae Rd
N
0
0.25
0.5
Miles
Arizona Public Service
Phoenix, AZ
aps
Source: Esri, Maxar, Earthstar Geographics, and the GIS User
Base Map Source: Mesa, Arizona, U.S. Geological Survey 30X60' Quadrangle, 33111-A1, TM-100, NAD 1927, UTM Zone 12

- Candidate species (federal) are those species for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species are not protected under the ESA, but for purposes of this report will be discussed in the same manner as threatened or endangered species.
- USFWS Species of Concern is an informal term that refers to those species that the USFWS believes may need concentrated conservation actions. Conservation actions, such as monitoring, vary depending on the health of the populations and degree and types of threats. USFWS Species of Concern receive no legal protection under the ESA and the use of the term does not necessarily mean that the species will eventually be proposed for listing as a threatened or endangered species.
- AGFD SGCN are species determined to be vulnerable in at least one of the following eight criteria: extirpated from Arizona; federal or state status; declining status; disjunct status; demographic status; concentration status; fragmentation status; and distribution status, as described by the AGFD's listing of SGCN in the State Wildlife Action Plan.
- Certain bird species are protected under the MBTA (1918), the Bald and Golden Eagle Protection Act (BGEPA) (1940), 50 C.F.R Sec. 10.12 and 16 U.S.C. Sec. 668(a). Any person or organization who plans to conduct activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implanting appropriate conservation measures. USFWS lists BCC and provides a list of their breeding seasons and probability of presence for a defined study area in the Information for Planning and Conservation (IPaC) report.
- ANPL (ARS § 3-901 to 3-916) is administered by the AZDA, which manages native plant resources and impacts to protected native plant species. ANPL-listed plants include four protection categories: Highly Safeguarded, Salvage Restricted, Salvage Assessed, and Harvest Restricted. Landowners have the right to destroy or remove native plants growing on their land, but at least 60 days prior to the destruction of any protected native plants, landowners are required to notify the AZDA. At the time of the notification the landowner can state if they would allow salvage companies an opportunity to salvage the plants or if they intend to destroy the plants. Removal of protected native plants from the site would require tags/permits from AZDA. The landowner is allowed to transplant healthy native trees within the site without a permit or notification.

Biological Resources Information

Data were gathered from the USFWS Information for Planning and Consultation tool (IPaC) (USFWS 2023) and AZGFD online Environmental Review Tool (ERT) (AZGFD 2023) to develop a list of special status species that could occur within the study area (Appendix A). In summary, the USFWS IPaC identified two (2) federally listed and protected species that may have the potential to occur in the area of the Sundance Power Plant (**Table C-1**). Two (2) Birds of Conservation Concern (BCC) were also identified in the study area (**Table C-2**). The federal IPaC did not list any critical habitat or National Wildlife Refuge Lands or fish hatcheries in the study area, but it did identify possible freshwater pond (PUBHx) NWI wetlands at the power plant. These potential wetland areas called out on NWI maps were constructed as part of the power plant and are not regulated under the Clean Water Act. The AZGFD ERT identified forty-five (45) special status species that may have the potential to occur in within the study area (**Table C-3**). No field surveys were performed to validate desktop analysis.

Table C-1: Endangered Species Act (ESA) Species Potentially Occurring in the Study Area

Species	Status	Habitat Requirements	Habitat Suitability
INSECTS			
Monarch Butterfly *Danaus plexippus*	ESA-C	Breeding and migratory monarch butterfly populations occur throughout Arizona habitats include riparian areas, native desert habitats and urban habitats concentrated on parks. Abundance of milkweed is critical for this species. Additional plant species monarchs are known to utilize include dogbane, alfalfa, thistles, seep willow, sunflowers, groundsel, and clovers (Morris et al 2015).	**No suitable habitat** in study area. Although the evaporation ponds could provide the necessary water during the summer months, suitable plant species most commonly associated with Monarch butterfly are not prevalent in the study area.
BIRDS			
Yellow-billed Cuckoo *Coccyzus americanus*	ESA-LT	This bird utilizes large contiguous patches of multi layered riparian habitat, such as cottonwood-willow gallery forests along rivers and streams below 6,600 feet (AGFD 2021)	**No suitable habitat.** Suitable habitat for this species is not present in the study area. While water can be present at the site, the highly modified evaporation ponds do not provide the necessary riparian vegetation.

NOTES: Agency or Law: ESA = Endangered Species Act;
Status Definitions: **ESA:** LE = listed endangered; LT = listed threatened; C = candidate

Table C-2. Birds of Conservation Concern (BCC) Potentially Occurring in the Study Area

Species	Breeding Season	Habitat Requirements	Habitat Suitability
Bendire's Thrasher *Toxostoma bendirei*	March 15 – July 31	This bird utilizes a variety of desert habitats with large shrubs, cacti and open ground. In lower elevations, occurs in desert grasslands and shrubland (NatureServe 2023a).	**No suitable habitat.** There is no native vegetation present large enough to serve as suitable habitat. There is Sonoran desertscrub community nearby that provide marginal habitat qualities for transient individuals.
Gila Woodpecker *Melanerpes uropygialis*	April 1 – August 31	This bird breeds throughout arid regions of the southwestern U.S. In Arizona, it is found in deserts with saguaro and other large cacti. Population density is positively correlated with large saguaro and flat landscapes (NatureServe 2023b).	**No suitable habitat.** There is no native vegetation present large enough to serve as suitable habitat. There is Sonoran desertscrub community nearby that provide marginal habitat qualities for transient individuals.

Table C-3. Species of Concern and SGCN Potentially Occurring in the Study Area*

Species	Common Name	FWS SC[1]	AGFD SGCN[2,3]	Potential to Occur
Birds				
Anthus spragueii	Sprague's Pipit	SC	2	Yes. Known to be found in agricultural fields and flat desert areas during winter.
Artemisiospiza nevadensis	Sagebrush Sparrow		2	No. Found in foothills with dense sagebrush or chaparral vegetation.
Athene cunicularia hypugaea	Western Burrowing Owl	SC	2	Yes. Known to be found near agriculture fields and along the edges of urban development.
Auriparus flaviceps	Verdin		2	Yes. Requires mesquite and creosote bush with branches higher than 0.5 m (NatureServe 2023c), which is supported in the surrounding desert.
Botaurus lentiginosus	American Bittern		2	No. Requires marshlands and meadows with significant surface water.
Buteo regalis	Ferruginous Hawk	SC	2	Yes. While they nest in scrublands and woodlands, they have the potential to hunt across agricultural fields and open desert.
Buteo swainsoni	Swainson's Hawk		2	Yes. Known to nest along agricultural fields and developed areas.
Calcarius ornatus	Chestnut-collared Longspur		2	No. Found in dense shortgrass and long grass prairies.
Calypte costae	Costa's Hummingbird		2	Yes. Requires native vegetation such as Sonoran desertscrub communities found in the surrounding area.
Campylorhynchus brunneicapillus	Cactus Wren		2	No. Requires tall native vegetation for nesting such as saguaro cactus and mesquite trees.
Catharus ustulatus	Swainson's Thrush		2	No. Found in coniferous forests and highland willow stands. Lowland inhabitants are limited to riparian woodlands.
Charadrius montanus	Mountain Plover	SC	2	No. Found at higher elevations.
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)		2	No. Require dense riparian vegetation.
Colaptes chrysoides	Gilded Flicker		2	No. Found in tall vegetation (cottonwood, willow, ironwood,

Species	Common Name	FWS SC[1]	AGFD SGCN[2,3]	Potential to Occur
				saguaro) stands (NatureServe 2023d).
Columbina inca	Inca Dove		2	Yes. Found in urbanized areas near man-made structures.
Cynanthus latirostris	Broad-billed Hummingbird		2	No. Typically found in oak woodlands or streamside habitats.
Empidonax wrightii	Gray Flycatcher		2	No. Require sagebrush or pinyon-juniper communities.
Falco mexicanus	Prairie Falcon		2	Yes. They winter and hunt across agricultural fields and open desert.
Falco peregrinus anatum	American Peregrine Falcon		2	No. They require cliff faces or tall urban structures for nesting.
Falco sparverius	American Kestrel		2	Yes. Often found in open agricultural lands like the ones surrounding the power plant.
Icterus bullockii	Bullock's Oriole		2	No. Prefer woodland and riparian habitats. Rarely found away from tall, woody vegetation.
Lanius ludovicianus	Loggerhead Shrike	SC	2	Yes. Can hunt in agricultural fields.
Megascops kennicottii	Western Screech-owl		2	No. Found in tall, wooded areas or xeric landscapes with tall vegetation.
Melanerpes uropygialis	Gila Woodpecker		2	No. Require Saguaro cactus/other tall vegetation nearby for nesting.
Melospiza lincolnii	Lincoln's Sparrow		2	No. Require dense vegetation for foraging.
Parabuteo unicinctus	Harris's Hawk		2	No. Found in vegetated mesquite and cactus deserts or riparian woodlands.
Passerculus sandwichensis	Savannah Sparrow		2	Yes. Can be found in open areas and agricultural fields.
Pooecetes gramineus	Vesper Sparrow		2	Yes. Can be found in open areas and agricultural fields.
Spizella breweri	Brewer's Sparrow		2	Yes. Can be found in open areas and agricultural fields during the winter.
Toxostoma bendirei	Bendire's Thrasher		2	Yes. Found near agricultural fields where it can forage along the ground.
Mammals				
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	1	No. Require forested edges for foraging.

Species	Common Name	FWS SC[1]	AGFD SGCN[2,3]	Potential to Occur
Eumops perotis californicus	Greater Western Bonneted Bat		2	No. Require nearby cliff edges for roosting.
Lasiurus blossevillii	Western Red Bat		2	Not likely to occur. Although could forage around lights near the power plant, often avoids buildings and developed areas.
Lasiurus cinereus	Hoary Bat		2	No. Prefer deciduous and coniferous woodlands.
Lasiurus xanthinus	Western Yellow Bat		2	No. Typically roost in tall vegetation usually associated with upland woodlands and riparian areas.
Lepus alleni	Antelope Jackrabbit		2	Yes. Can inhabit desert scrubland and agricultural areas.
Macrotus californicus	California Leaf-nosed Bat	SC	2	Yes. Will roost and forage in desert scrubland.
Myotis velifer	Cave Myotis	SC	2	Yes. Will roost in caves/mines/crevices within desertscrub communities.
Myotis yumanensis	Yuma Myotis	SC	2	No. Associated with cliff edges and areas where large colonies can roost.
Nyctinomops femorosaccus	Pocketed Free-tailed Bat		2	No. Roost high on cliff faces and in rocky crevices.
Tadarida brasiliensis	Brazilian Free-tailed Bat		2	Yes. Can roost in abandoned buildings in rural areas and hunt insects along agricultural fields and desert edges.
Reptiles				
Chilomeniscus stramineus	Variable Sandsnake		2	No. Impacted by agricultural development and found in sandy creosote habitat.
Gopherus morafkai	Sonoran Desert Tortoise	CCA	1	Not likely to occur. Prefers upland habitats of the Sonoran desert scrub.
Amphibians				
Incilius alvarius	Sonoran Desert Toad		2	Yes. While unlikely, they can be found near agricultural fields and open desert during monsoon season.
Lithobates yavapaiensis	Lowland Leopard Frog	SC	2	No. Found in permanent water sources in desert grasslands.

[1] BGA= Bald and Golden Eagle Protection Act, SC= species of concern, CCA= Candidate Conservation Agreement

[2] SGCN= Species of Greatest Conservation Need

Species	Common Name	FWS SC[1]	AGFD SGCN[2 3]	Potential to Occur

[3] AGFD vulnerability categories= Extirpated from Arizona: Federal or State status: Declining status; Disjunct status; Demographic status, Concentration status; and Distribution Status

1=Vulnerability in at least one of the seven categories and matches one of the following: federally listed endangered or threatened under ESA; recently delisted from ESA and requires monitoring; covered under conservation agreement/CCA/CCAA/Conservation Strategy and Assessment; or closed season species under AZGFD Commission Orders 40, 41, 42, or 43

2=Vulnerability in at least of the seven categories, but no additional criteria from Tier 1

3=Unknown status species in at least one of seven categories

*Habitat requirements were reviewed using Arizona Game and Fish Department's *Arizona's Natural Heritage Program* species abstracts. https://www.azgfd.com/wildlife-conservation/on-the-ground-conservation/cooperative-programs/az-natural-heritage-program/. May 19, 2023. Additional references were found for species not available within those abstracts.

Analysis

Sundance Power Plant Expansion Study Area

Landcover in the Sundance Power Plant study area is comprised of an existing urbanized power plant surrounded by agricultural fields, scattered residential properties, and open desert. The project footprint is within the existing power plant developed property that retains minimal natural vegetation and would be unlikely to attract or support special status species. Potential impacts to special status species would not occur or are anticipated to be low, short-term in duration and would be mostly limited to effects from construction activities such as noise and light. Expansion and operation of the Sundance Power Plant is not expected to result in a measurable decline to special status species nor result in a change in the species' management status.

Conclusion

Expansion of the existing power plant within the proposed power plant property would occur on pre-disturbed lands that provide minimal habitat for special status species. Special status species would not experience long-term detrimental impacts related to the loss or alteration of vegetative cover within the powerplant based on a lack of suitable habitat in areas that may be impacted by the proposed Project. While there are some other suitable and unaffected habitats in the open desert areas in the vicinity of the proposed Project, the expansion of the power plant is not anticipated to impact those surrounding areas; thus, not impacting the species that use them.

References

Arizona Game and Fish Department (AZGFD). 2023. Online Environmental Review. http://www.azgfd.gov (accessed May 2023).

_____. 2021. Yellow-billed cuckoo (*Coccyzus americanus*). Unpublished abstract compiled and edited by the Heritage Data Management System, Arizona Game and Fish Department, Phoenix, AZ. 7pp.

Morris, Gail M., C Kline & S.M. Morris. 2015. Journal of Lepidopterists' Society 69(2), pp 91-107.

NatureServe. 2023a. *Toxostoma bendirei* Bendire's Thrasher. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105855/Toxostoma_bendirei

_____. 2023b. *Melanerpes uropygialis* Gila Woodpecker. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105515/Melanerpes_uropygialis

_____. 2023c. *Auriparus flaviceps* Verdin. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.102704/Auriparus_flaviceps

_____. 2023d. *Colaptes chrysoides* Gilded Flicker. https://explorer.natureserve.org/Taxon/ELEMENT_GLOBAL.2.105351/Colaptes_chrysoides

U.S. Fish and Wildlife Service (USFWS). 2023. Information for Planning and Conservation (IPaC) Threatened and endangered species. (Accessed May 2023).

APPENDIX A
USWFS IPAC and AZGFD ERT

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
Phone: (602) 242-0210 Fax: (602) 242-2513

In Reply Refer To:
Project Code: 2023-0083955
Project Name: Sundance Power Plant Sixth Power Block Expansion

May 19, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:
The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that may occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.
If the Federal action agency determines that listed species or critical habitat may be affected by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a proposed species or may adversely modify proposed critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 et seq.). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (Athene cunicularia hypugaea). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see https:// www.fws.gov/law/bald-and-golden-eagle-protection-act and https://www.fws.gov/program/eagle-management).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: https://www.fws.gov/program/migratory-bird-permit. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at https://www.fws.gov/media/recommended-best- practices-communication-tower-design-siting-construction-operation.

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit this link or visit https://www.fws.gov/program/national- wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or John_Nystedt@fws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (Gopherus morafkai) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (https://www.azgfd.com/wildlife/planning/projevalprogram/).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely,
/s/

Heather Whitlaw
Field Supervisor
Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

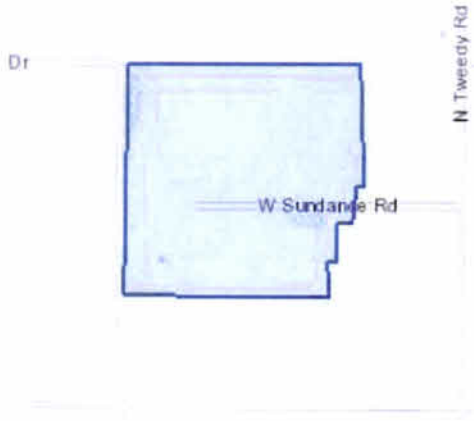
Arizona Ecological Services Field Office
9828 North 31st Ave
#c3
Phoenix, AZ 85051-2517
(602) 242-0210

PROJECT SUMMARY

Project Code: 2023-0083955
Project Name: Sundance Power Plant Sixth Power Block Expansion
Project Type: Power Gen - Natural Gas
Project Description: APS is proposing an upgrade the Sundance gas turbine power plant to include a sixth power block with two additional GE LM6000 turbines.
Each turbine has a nameplate capacity of 45MW.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@32.92932165,-111.58953475484645,14z



Counties: Pinal County, Arizona

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.
Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.
IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.
See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

BIRDS

NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus	Threatened

Population: Western U.S. DPS
There is final critical habitat for this species. Your location does not overlap the critical habitat.
Species profile: https://ecos.fws.gov/ecp/species/3911

INSECTS

NAME	STATUS
Monarch Butterfly Danaus plexippus	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.
For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bendire's Thrasher *Toxostoma bendirei* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9435	Breeds Mar 15 to Jul 31
Gila Woodpecker *Melanerpes uropygialis* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/5960	Breeds Apr 1 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.
Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.
How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ( )

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ( )

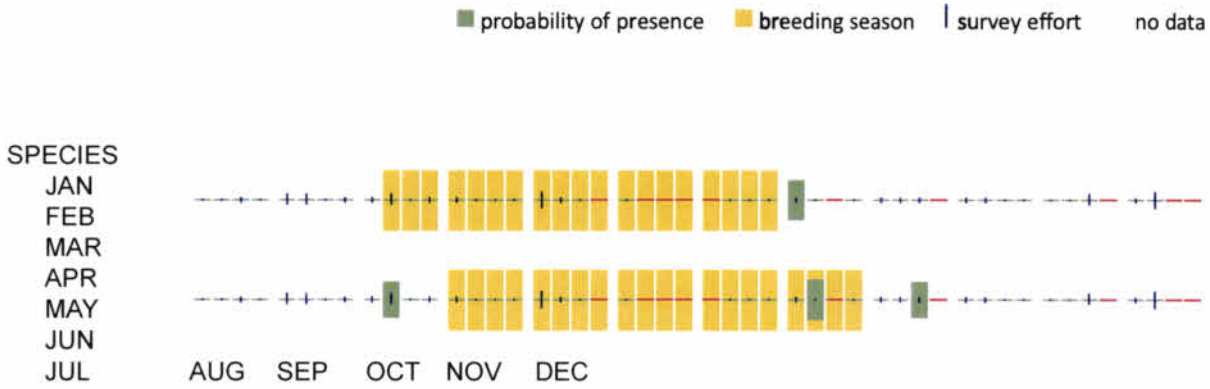
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data ( )

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bendire's Thrasher
BCC Rangewide (CON)

Gila Woodpecker BCC - BCR

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/ collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/ documents/nationwide-standard-conservation-measures.pdf

MIGRATORY BIRDS FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be

advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review.

Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

WETLANDS

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.
For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.
Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set.
We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER

POND • PUBHx

IPAC USER CONTACT INFORMATION

Agency:	Arizona Power Authority
Name:	Michael Gilboy
Address:	333 E Wetmore Road
Address Line 2:	Suite 400
City:	Tucson
State:	AZ
Zip:	85705
Email	michael.gilboy@aecom.com
Phone:	9285923438

Arizona Environmental Online Review Tool Report

Arizona Game and Fish Department Mission
To conserve Arizona's diverse wildlife resources and manage for safe, compatible outdoor recreation opportunities for current and future generations.

Project Name:

Sundance Power Plant Sixth Power Block

Project Description:

APS is proposing an upgrade the Sundance gas turbine power plant to include a sixth power block with two additional GE LM6000 turbines. Each turbine has a nameplate capacity of 45MW.

Project Type:

Energy Storage/Production/Transfer, Energy Production (generation), gas power plant (expansion/modification)

Contact Person:

Michael Gilboy

Organization:

AECOM

On Behalf Of:

APS

Project ID:

HGIS-19283

Please review the entire report for project type and/or species recommendations for the location information entered. Please retain a copy for future reference.

Disclaimer:

1. This Environmental Review is based on the project study area that was entered. The report must be updated if the project study area, location, or the type of project changes.
2. This is a preliminary environmental screening tool. It is not a substitute for the potential knowledge gained by having a biologist conduct a field survey of the project area. This review is also not intended to replace environmental consultation (including federal consultation under the Endangered Species Act), land use permitting, or the Departments review of site-specific projects.
3. The Departments Heritage Data Management System (HDMS) data is not intended to include potential distribution of special status species. Arizona is large and diverse with plants, animals, and environmental conditions that are ever changing. Consequently, many areas may contain species that biologists do not know about or species previously noted in a particular area may no longer occur there. HDMS data contains information about species occurrences that have actually been reported to the Department. Not all of Arizona has been surveyed for special status species, and surveys that have been conducted have varied greatly in scope and intensity. Such surveys may reveal previously undocumented population of species of special concern.
4. Arizona Wildlife Conservation Strategy (AWCS), specifically Species of Greatest Conservation Need (SGCN), represent potential species distribution models for the State of Arizona which are subject to ongoing change, modification and refinement. The status of a wildlife resource can change quickly, and the availability of new data will necessitate a refined assessment.

Locations Accuracy Disclaimer:

Recommendations Disclaimer:

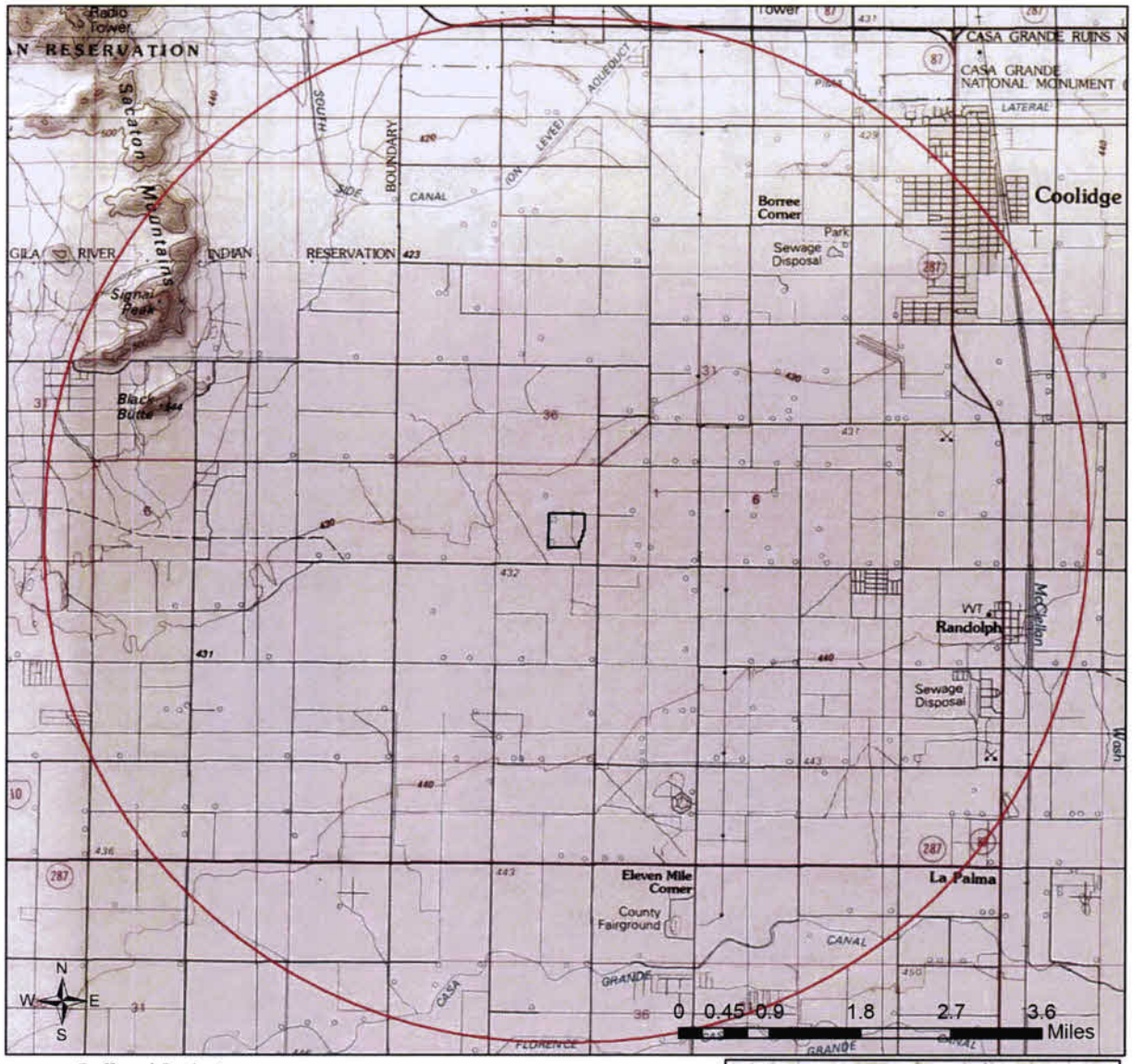
1. The Department is interested in the conservation of all fish and wildlife resources, including those species listed in this report and those that may have not been documented within the project vicinity as well as other game and nongame wildlife.
2. Recommendations have been made by the Department, under authority of Arizona Revised Statutes Title 5 (Amusements and Sports), 17 (Game and Fish), and 28 (Transportation).
3. Potential impacts to fish and wildlife resources may be minimized or avoided by the recommendations generated from information submitted for your proposed project. These recommendations are preliminary in scope, designed to provide early considerations on all species of wildlife.
4. Making this information directly available does not substitute for the Department's review of project proposals, and should not decrease our opportunity to review and evaluate additional project information and/or new project proposals.
5. Further coordination with the Department requires the submittal of this Environmental Review Report with a cover letter and project plans or documentation that includes project narrative, acreage to be impacted, how construction or project activity(s) are to be accomplished, and project locality information (including site map). Once AGFD had received the information, please allow 30 days for completion of project reviews. Send requests to:

   Project Evaluation Program, Habitat Branch
   Arizona Game and Fish Department PEP@azgfd.gov

Exhibit C

Sundance Power Plant Sixth Power Block

USA Topo Basemap With Locator Map



Buffered Project Boundary

Project Boundary

Project Size (acres): 74.82

Lat/Long (DD): 32.9282 / -111.5897

County(s): Pinal

AGFD Region(s): Mesa

Township/Range(s): T6S, R7E

USGS Quad(s): COOLIDGE

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

Sundance Power Plant Sixth Power Block

Web Map As Submitted By User

Buffered Project Boundary

Project Boundary

Project Size (acres): 74.82

Lat/Long (DD): 32.9282 / -111.5897

County(s): Pinal

AGFD Region(s): Mesa

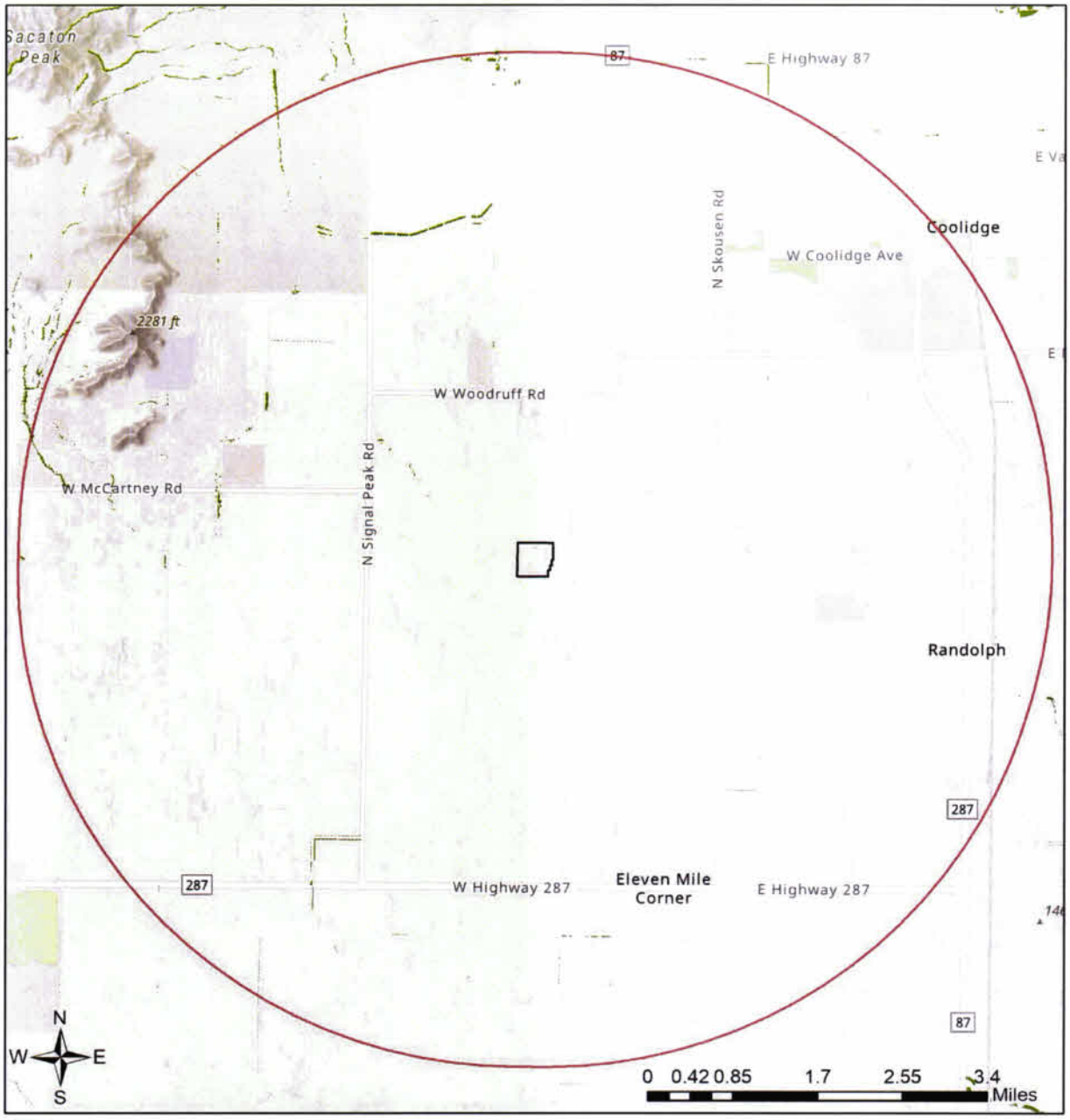
Township/Range(s): T6S, R7E

USGS Quad(s): COOLIDGE

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Sundance Power Plant Sixth Power Block

Important Areas



- Buffered Project Boundary
- Project Boundary
- Important Bird Areas
- Critical Habitat
- Pinal County Riparian
- Important Connectivity Zones
- Wildlife Connectivity

Project Size (acres): 74.82

Lat/Long (DD): 32.9282 / -111.5897

County(s): Pinal

AGFD Region(s): Mesa

Township/Range(s): T6S, R7E

USGS Quad(s): COOLIDGE

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community
Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Exhibit C

Sundance Power Plant Sixth Power Block

Township/Ranges and Land Ownership

- Buffered Project Boundary
- Project Boundary
- AZ Game & Fish Dept.
- BLM
- BOR
- Indian Res.
- Military
- Mixed/Other
- National Park/Mon.
- Private
- State & Regional Parks
- State Trust
- US Forest Service
- Wildlife Area/Refuge
- Township/Ranges

Project Size (acres): 74.82

Lat/Long (DD): 32.9282 / -111.5897

County(s): Pinal

AGFD Region(s): Mesa

Township/Range(s): T6S, R7E

USGS Quad(s): COOLIDGE

Prepared for: Arizona Public Service Company

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Anthus spragueii	Sprague's Pipit	SC				2
Artemisiospiza nevadensis	Sagebrush Sparrow					
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		2
Auriparus flaviceps	Verdin					2
Botaurus lentiginosus	American Bittern					2
Buteo regalis	Ferruginous Hawk	SC		S		2
Buteo swainsoni	Swainson's Hawk					2
Calcarius ornatus	Chestnut-collared Longspur					2
Calypte costae						2
Campylorhynchus brunneicapillus	Cactus Wren					2
Catharus ustulatus	Swainson's Thrush					2
Charadrius montanus	Mountain Plover	SC				2
Chilomeniscus stramineus	Variable Sandsnake					2
Coccyzus americanus	Yellow-billed Cuckoo (Western DPS)					
Colaptes chrysoides	Gilded Flicker			S		2
Columbina inca	Inca Dove					2
Corynorhinus townsendii pallescens	Pale Townsend's Big-eared Bat	SC	S	S		1
Cynanthus latirostris	Broad-billed Hummingbird		S			2
Empidonax wrightii	Gray Flycatcher					2
Eumops perotis californicus	Greater Western Bonneted Bat					
Falco mexicanus	Prairie Falcon					2
Falco peregrinus anatum	American Peregrine Falcon					
Falco sparverius	American Kestrel					2
Gopherus morafkai	Sonoran Desert Tortoise	CCA	S	S		1
Icterus bullockii	Bullock's Oriole					2
Incilius alvarius	Sonoran Desert Toad					2
Lanius ludovicianus	Loggerhead Shrike	SC				2
Lasiurus blossevillii	Western Red Bat		S			2
Lasiurus cinereus	Hoary Bat					2

Special Status Species Documented within 5 Miles of Project Vicinity

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Athene cunicularia hypugaea	Western Burrowing Owl	SC	S	S		2
Danaus plexippus	Monarch Butterfly	C		S		

Note: Status code definitions can be found at
https://www.azgfd.com/wildlife/planning/wildlifeguidelines/statusdefinitions/

No Special Areas Detected. No special areas were detected within the project vicinity.

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Species of Greatest Conservation Need Predicted that Intersect with Project Footprint as Drawn, based on Predicted Range Models

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Lasiurus xanthinus	Western Yellow Bat		S			2
Lepus alleni	Antelope Jackrabbit					2
Lithobates yavapaiensis	Lowland Leopard Frog	SC	S	S		1
Macrotus californicus	California Leaf-nosed Bat	SC		S		2
Megascops kennicottii	Western Screech-owl					
Melanerpes uropygialis	Gila Woodpecker					2
Melospiza lincolnii	Lincoln's Sparrow					2
Myotis velifer	Cave Myotis	SC		S		2
Myotis yumanensis	Yuma Myotis	SC				2
Nyctinomops femorosaccus	Pocketed Free-tailed Bat					2
Parabuteo unicinctus	Harris's Hawk					2
Passerculus sandwichensis	Savannah Sparrow					2
Pooecetes gramineus	Vesper Sparrow					2
Spizella breweri	Brewer's Sparrow					2
Tadarida brasiliensis	Brazilian Free-tailed Bat					
Toxostoma bendirei	Bendire's Thrasher					2

Species of Economic and Recreation Importance Predicted that Intersect with Project Footprint as Drawn

Scientific Name	Common Name	FWS	USFS	BLM	NPL	SGCN
Callipepla gambelii	Gambel's Quail					
Zenaida asiatica	White-winged Dove					
Zenaida macroura	Mourning Dove					

Project Type: Energy Storage/Production/Transfer, Energy Production (generation), gas power plant

Project Type Recommendations:

Consider impacts of outdoor lighting on wildlife and develop measures or alternatives that can be taken to increase human safety while minimizing potential impacts to wildlife. Conduct wildlife surveys to determine species within project area, and evaluate proposed activities based on species biology and natural history to determine if artificial lighting may disrupt behavior patterns or habitat use. Use only the minimum amount of light needed for safety. Narrow spectrum bulbs should be used as often as possible to lower the range of species affected by lighting. All lighting should be shielded, canted, or cut to ensure that light reaches only areas needing illumination.

Minimize the potential introduction or spread of exotic invasive species, including aquatic and terrestrial plants, animals, insects and pathogens. Precautions should be taken to wash and/or decontaminate all equipment utilized in the project activities before entering and leaving the site. See the Arizona Department of Agriculture website for a list of prohibited and restricted noxious weeds at https://www.invasivespeciesinfo.gov/unitedstates/az.shtml and the Arizona Native Plant Society https://aznps.com/invas for recommendations on how to control. To view a list of documented invasive species or to report invasive species in or near your project area visit iMapInvasives - a national cloud-based application for tracking and managing invasive species at https://imap.natureserve.org/imap/services/page/map.html.

https://www.fws.gov/sites/default/files/documents/Reducing_Risks_to_Pollinators_from_Pest_Control_factsheet.pdf.

The Department recommends that direct or indirect impacts to sensitive species and their forage base from the application of chemical pesticides or herbicides be considered carefully.

Minimization and mitigation of impacts to wildlife and fish species due to changes in water quality, quantity, chemistry, temperature, and alteration to flow regimes (timing, magnitude, duration, and frequency of floods) should be evaluated. Minimize impacts to springs, in-stream flow, and consider irrigation

improvements to decrease water use. If dredging is a project component, consider timing of the project in order to minimize impacts to spawning fish and other aquatic species (include spawning seasons), and to reduce spread of exotic invasive species. We recommend early direct coordination with Project Evaluation Program for projects that could impact water resources, wetlands, streams, springs, and/or riparian habitats.

Based on the project type entered, coordination with the Environmental Protection Agency may be required (http://www.epa.gov/).

For any powerlines built, proper design and construction of the transmission line is necessary to prevent or minimize risk of electrocution of raptors, owls, vultures, and golden or bald eagles, which are protected under state and federal laws. Limit project activities during the breeding season for birds, generally March through late August, depending on species in the local area (raptors breed in early February through May). Conduct avian surveys to determine bird species that may be utilizing the area and develop a plan to avoid disturbance during the nesting season. For underground powerlines, trenches should be covered or back-filled as soon as possible. Incorporate escape ramps in ditches or fencing along the perimeter to deter small mammals and herpetofauna (snakes, lizards, tortoise) from entering ditches. In addition, indirect affects to wildlife due to construction (timing of activity, clearing of rights-of-way, associated bridges and culverts, affects to wetlands, fences) should also be considered and mitigated.

Based on the project type entered, coordination with State Historic Preservation Office may be required (https://azstateparks.com/).

Based on the project type entered, coordination with Arizona Department of Environmental Quality may be required (http://www.azdeq.gov/).

Based on the project type entered, coordination with Arizona Department of Water Resources may be required (https://new.azwater.gov/).

Vegetation restoration projects (including treatments of invasive or exotic species) should have a completed siteevaluation plan (identifying environmental conditions necessary to re-establish native vegetation), a revegetation plan (species, density, method of establishment), a short and long-term monitoring plan, including adaptive management guidelines to address needs for replacement vegetation.

The Department requests further coordination to provide project/species specific recommendations, please contact Project Evaluation Program directly at PEP@azgfd.gov.

Avoid/minimize wildlife impacts related to contacting hazardous and other human-made substances in facility water collection/storage basins, evaporation or settling ponds and/or facility storage yards. Design slopes to discourage wading birds and use fencing, netting, hazing or other measures to exclude wildlife. The Department encourages the use of technology that requires minimal amounts of water, preferably dry cooling. In the desert, water is very scarce and reducing consumption will lessen impacts on wildlife as well as the public.

Project Location and/or Species Recommendations: • To build a list: zoom to your area of interest, use the identify/measure tool to draw a polygon around your area of interest, and select "See What's Here" for a list of reported species. To export the list, you must have an account and be logged in. You can then use the export tool to draw a boundary and export the records in a csv file.

Follow manufacturer's recommended application guidelines for all chemical treatments. The U.S. Fish and Wildlife Service, Integrated Pest Management Group has a reference document that serves as their pesticide recommendations for protecting wildlife and fisheries resources, titled "Reducing Risks to Pollinators from Pest Control",

Exhibit D
Biological Resources

As stated in Arizona Corporation Commission Rules of Practice and Procedure R-14-3-219:

"List the fish, wildlife, plant life, and associated forms of life in the vicinity of the proposed site or route and describe the effects, if any, other proposed facilities will have thereon."

Overview

For the purposes of amending the Certificate of Environmental Compatibility (CEC) Decision No. 107, this report (Exhibit D) analyzes biological wealth resources and impacts related to the construction and operation of the sixth power block expansion of the Sundance Power Plant (Project), including two additional GE LM6000 turbines with each turbine having a nameplate capacity of 45 MW, collectively called the Project. The study boundaries for the environmental review of the proposed Project includes areas within one mile of the study site (**Figure D-1)**.

The elevation at the Sundance Power Station is approximately 1,400 feet above mean sea level. The topography of the surrounding area is flat ground with the prominent land cover classes being agricultural fields, low-impact urbanization for residential areas, and open desert. The City of Coolidge is located approximately three miles northeast and the North Mountains are located approximately six and a half miles northwest from the Project. The study area can be found on the Gila-Salt River Principal Meridian, Arizona, U.S. Geological Survey 7.5-minute topographic quadrangle. The study area is within Section 2 of Township 6 South, Range 7 East.

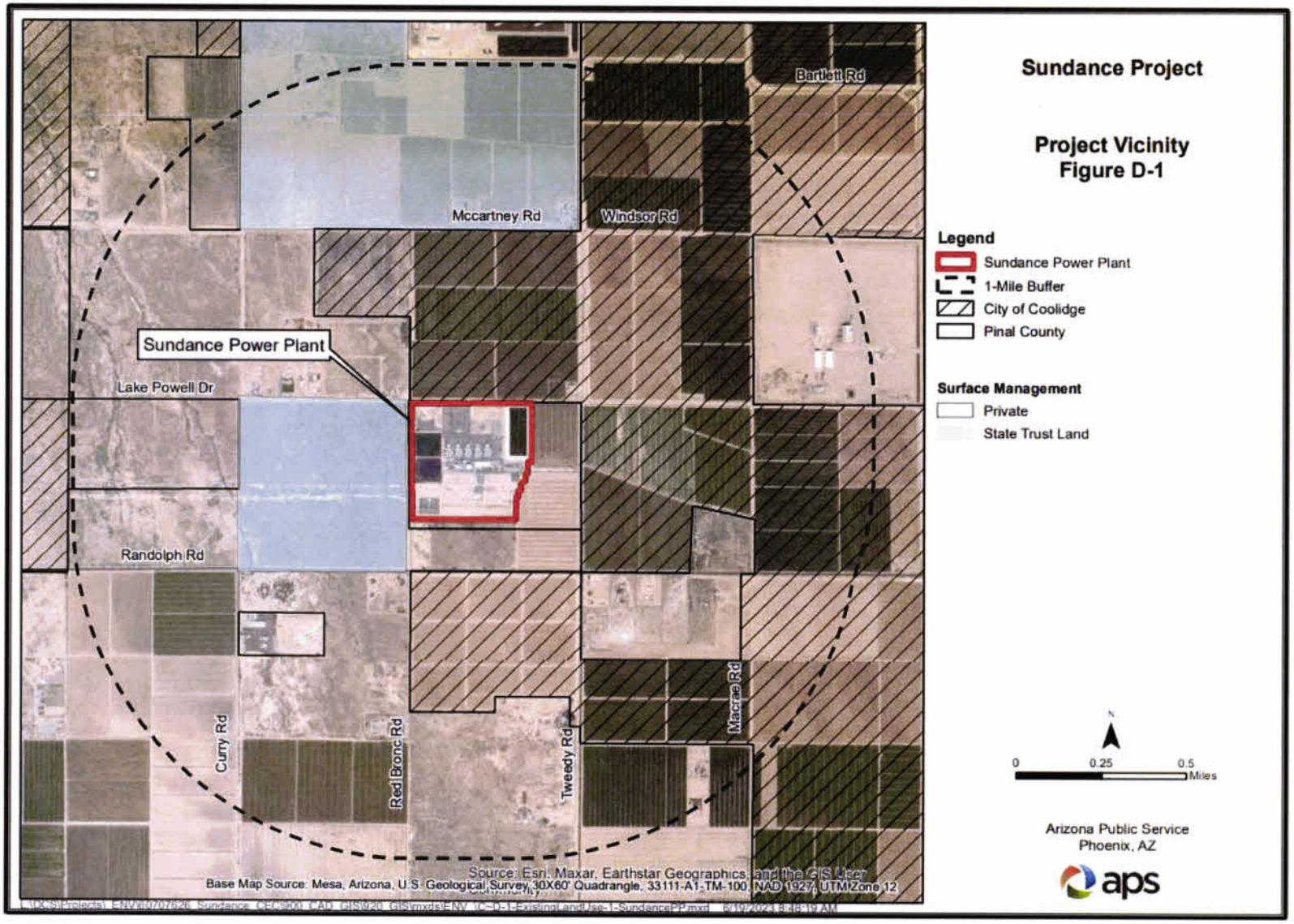
The study area is in the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biome (Brown 1994, USGS 2023). The Lower Colorado River Valley subdivision is characterized by high temperatures and low precipitation and is the most arid subdivision of the Sonoran Desert. All project feature and ground disturbances are located within the existing footprint of the Sundance Power Plant, meaning the area is highly developed with little native desert components remaining.

Overall, the biotic environment is heavily disturbed throughout the study area. Land use consists of the existing Sundance Power Plant, which is highly urbanized and modified from the original desert landscape while the rest of the study area is a mix of agriculture, scattered residential properties, and

Biological Resources Information

Desktop-level review of the study area included general wildlife, sensitive habitats, soils, streams, wetlands and irrigation canals. The below publicly available data was reviewed. Prior CEC application data was reviewed to the extent relevant.

- Aerial photography (Google Earth, Environmental Systems Research Institute (ESRI) online imagery)
- United States Geologic Survey (USGS) 7.5-minute topographic maps for the Gila-Salt River quadrangle
- Wetlands data from the Unites States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) (USFWS 2023)
- Surface water features data from the U.S. Environmental Protection Agency (USEPA) Waters Mapper (USEPA 2023)
- Floodplain data from the Federal Emergency Management Agency (FEMA) Flood Map Service Center (FEMA 2023)


Sundance Project
Project Vicinity
Figure D-1
Legend
Sundance Power Plant
1-Mile Buffer
City of Coolidge
Pinal County
Surface Management
Private
State Trust Land
Bartlett Rd
Mccartney Rd
Windsor Rd
Sundance Power Plant
Lake Powell Dr
Randolph Rd
Curry Rd
Red Bronc Rd
Tweedy Rd
Macrae Rd
0
0.25
0.5
Miles
Arizona Public Service
Phoenix, AZ
aps
Source: Esri, Maxar, Earthstar Geographics, and the GIS User
Base Map Source: Mesa, Arizona, U.S. Geological Survey, 30X60' Quadrangle, 33111-A1-TM-100, NAD 1927, UTM Zone 12

- Soil data from the National Resources Conservation Service (NRCS) Web Soil Survey (USDA 2023)
- Arizona Game and Fish Department (AZGFD) Online Environmental Review Tool (AZGFD 2023)
- Land cover data from the Southwest Regional Gap Analysis Project (USGS 2005, USGS 2023)

The data was used to develop a characterization of the biological resources in the study area. The impact analysis focused on vegetation communities, existing human disturbance, the presence of riparian or wetland habitats, and other habitats for special status species and species of concern. No field surveys were performed to validate desktop analysis.

The native vegetation communities in the study area includes the Lower Colorado River Valley subdivision of the Sonoran Desertscrub biotic community. Three freshwater ponds that are classified as potential PUBHx wetlands are in the study area based on NWI data(USFWS 2023a). The ponds were construction by the powerplant and used as part of plant operations. No drainages are associated with the study area and the Sundance Power Plant and surrounding area are classified by FEMA as areas of minimal flood hazard (*Zone X*) (FEMA 2023). A summary of the vegetation community and a list of the representative wildlife species found within the project area (**Table D-1**) can be found below. The representative wildlife species were derived from the AZGFD Online Environmental Review Tool, which used prior wildlife observations and potential range maps to predict species that could possibly utilize this area.

Lower Colorado River Valley Subdivision/Sonoran Desertscrub Community

Almost no native vegetation is currently found in the study area, as the land has been urbanized into the existing power plant and surrounding land are active agriculture farms. The Lower Colorado River Valley Subdivision of Sonoran Desertscrub is the most arid portion of the Sonoran Desert. Native vegetation in the study area is typically dominated by low, open stands of creosotebush (*Larrea tridentata*) and white bursage (*Ambrosia dumosa*). Cacti including saguaro (*Carnegiea gigantea*) and fishhook barrel cactus (*Ferocactus wislizenii*), though present in project vicinity, are less abundant than in regions with upland desertscrub areas. In undisturbed areas of this vegetation community, trees and taller vegetation are largely confined to washes and other drainages. However, there are no drainages within the study area and very few are associated with the project vicinity due to natural topography and current agricultural practices. Within the project vicinity, smaller areas of low, undrained and salt-affected soils commonly are dominated by four-wing saltbush (*Atriplex canescens*), catclaw acacia (*Acacia greggii*), and velvet mesquite (*Prosopis velutina*). Other conspicuous species in a typical Sonoran Desertscrub community include: desertbroom (*Baccharis sarothroides*), chuparosa (*Justicia californica*), jumping cholla (*Cylindropuntia fulgida*), ironwood (*Olneya tesota*), and blue paloverde (*Parkinsonia florida*) (Brown 1994, USGS 2005, USGS 2023).

Table D-1. Representative Wildlife Species Associated within the CEC Project Area

Species	Habitat Requirements	Habitat Suitability
Reptiles		
-Variable Sandsnake (*Chilomeniscus stramineus)* -Sonoran Desert Tortoise (*Gopherus morafkai*)	Species in this list can be found throughout the desertscrub, shrubland, thornscrub and sandy washes of the Sonoran Desert (Brennan and Holycross 2009). Sonoran Desert tortoises often prefer upland habitats (Brown et al. 1979).	Not likely to occur. Some Sonoran scrub vegetation occurs on the within the study area, with larger patches throughout the project vicinity.
Birds		
-American Bittern (*Botaurus lentiginosus)* -Brewer's Sparrow (*Spizella breweri*) -Ferruginous Hawk (*Buteo regalis*) -Gila Woodpecker (*Melanerpes uropygialis*) -Gilded Flicker (*Colaptes chrysoides*)	Birds such as American bittern, Gila woodpecker, and Lincoln's sparrow prefer denser, larger riparian vegetation near streams and rivers (Natureserve 2023a, 2023b). Western burrowing owl	A lack of distinct riparian habitat makes it unlikely that many of the species will be present. Some sparrow species that utilize agricultural fields and open desert may be present

-Lincoln's Sparrow (*Melospiza lincolnii*) -Loggerhead Shrike (*Lanius ludovicianus*) -Prairie Falcon (*Falco mexicanus*) -Savannah Sparrow (*Passerculus sandwichensis*) -Vesper Sparrow (*Pooecetes gramineus*) -Western Burrowing Owl (*Athene cunicularia hypugaea*)	are known to inhabit the perimeter of agricultural fields (AZGFD 2022). Savannah and Vesper sparrows are often found in agricultural fields, where they can move across the ground to find food (AOU 1983, Wheelwright and Rising 1993)	seasonally. Suitable habitat for western burrowing owl is found in the agriculture fields and along the irrigation ditch near the project area.
Mammals		
-Western Red Bat (*Lasiurus blossevillii*) -Hoary Bat (*Lasiurus cinereus*) -Western Yellow Bat (*Lasiurus xanthinus*) -Cave Myotis (*Myotis velifer*) -Yuma Myotis (*Myotis yumanensis*) -Brazilian Free-tailed Bat (*Tadarida brasiliensis*) -Antelope Jackrabbit (*Lepus alleni*)	Bat species occupy diverse habitats in the southwestern US including coniferous woodlands, dense riparian trees, and desert habitats (Genoways and Jones 1968, Ammerman et al. 2012, Davidai et al. 2015). Antelope jackrabbits can be found in open desertscrub but are less common in barren deserts compared to highly vegetated areas (Hoffmeister 1986).	Not likely to occur. Some bat species could be foraging across the agricultural fields, but the likelihood of residence in the project area is low. Jackrabbits could utilize the open desert areas within the project vicinity as habitat, but the low vegetation densities in those areas would make it unlikely.
Amphibians		
-Sonoran Desert Toad (*Incilius alvarius*) -Lowland Leopard Frog (*Lithobates yavapaiensis*)	Sonoran Desert toads are often found in Sonoran desertscrub, but also in semidesert grasslands and Madrean woodlands. Strongly associated with ephemeral waterways were pooling occurs during the monsoon season (Brennan and Holycross 2009). Lowland leopard frogs are reliant on perennially flowing streams with dense riparian vegetation (Brennan and Holycross 2009).	Not likely to occur. Flooding during monsoon rains could potentially create temporary suitable habitat, but unlikely.

Native Plants

Arizona Native Plant Law (ANPL) (ARS § 3-901 to 3-916) is administered by the Arizona Department of Agriculture (AZDA), who manages native plant resources and impacts to protected native plant species. Arizona Native Plant Law-listed plants include four protection categories: Highly Safeguarded, Salvage Restricted, Salvage Assessed, and Harvest Restricted. Landowners have the right to destroy or remove native plants growing on their land, but at least 60 days prior to the destruction of any protected native plants, landowners are required to notify the AZDA. At the time of the notification the landowner can state if they would allow salvage companies an opportunity to salvage the plants or if they intend to destroy the plants. Removal of protected native plants from the site would require tags/permits from AZDA. The landowner is allowed to transplant healthy native trees within the site without a permit or notification. It is anticipated that no native trees or cacti will be removed as part of this project.

Analysis

Sundance Power Plant Expansion Project

The Sundance study area is comprised of an existing power plant that will be expanded within the current footprint and surrounding agricultural fields, residential housing, and some patches of native vegetation in open desert. The study area retains minimal natural vegetation and would be unlikely to attract or support native wildlife. Potential impacts to wildlife are anticipated to be low, short-term in duration and would be mostly limited to effects from construction activities such as noise. Tall powerlines, towers and other support structures may pose a risk of collision for birds and other flying species.

Conclusion

Implementation of the proposed Project would occur on pre-disturbed lands that provide minimal wildlife habitat values. Wildlife species are not expected to experience long-term detrimental impacts from the loss or alteration of vegetative cover within the right-of-way given the pre-disturbed nature of the lands proposed for use by the Project and on the availability of other suitable and unaffected habitats in the vicinity of the proposed Project.

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Exhibit E

Scenic Areas, Historic Sites and Structures, and Archaeological Sites

As stated in Arizona Corporation Commission Rules of Practice and Procedure R-14-3-219:

"Describe any existing scenic areas, historic sites and structures, or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon."

For the purposes of amending the Certificate of Environmental Compatibility (CEC) Decision No. 107, Exhibit E analyzes the inventory and potential effects associated with scenic, or visual resources, as well as with existing historic sites and structures, or archaeological sites, related to the construction and operation of the sixth power block expansion of the Sundance Power Plant.

Scenic Areas

The methodology for this assessment is provided below and includes separate discussions for scenery and sensitive viewers. The methodology is followed by the results of the inventory and impact assessment, both of which also include separate discussions for scenery (e.g. scenic quality) and sensitive viewers. The Project would not cross lands managed by the BLM, United States Forest Service, or any other state or county agencies that require conformance with visual resource management objectives or management guidelines. A discussion of the existing historic sites and structures, and archaeological sites and associated impacts follows the discussion on scenic areas.

The purpose of the scenic area impact assessment is to identify and characterize the level of visual modification in the landscape that would result from the construction and operation of the Project. Modification of the landscape is described in levels of visual contrast, which can potentially affect both scenic quality and sensitive viewers. A 3-mile area (Study Area) was used to identify scenic areas around the existing Sundance Power Plant. The Sundance Power Plant is located between Casa Grande to the west and Coolidge to the northeast. The landscape surrounding the power plant can be characterized as flat with expansive views. Generally, the Study Area consists of irrigated agriculture parcels and undeveloped lands with several rural manufacturing facilities and sparsely populated residential homes.

Inventory data for visual resources within the Study Area were collected from aerial photography and field review. The inventory focused on landscape character, determination of scenic quality, identification of sensitive viewers, and viewing conditions (e.g., distance zones, viewer orientation, and screening). Expansive views within the Study Area allow for the surrounding mountain ranges to be seen during normal conditions. The Sacaton Mountains are approximately 5 miles to the northwest, the Picacho Mountains are approximately 18 miles to the southeast, and numerous mountain ranges are located over 30 miles to the northeast. Higher densities of shrubs are found along washes and canals.

In consideration of the sensitivity of viewers, existing residential neighborhoods are typically considered to be of high sensitivity. There are numerous single-family homes found throughout the Analysis Area with very low density. There are three medium density residential developments located at: Woodruff Lane and Curry Road, Signal Peak Road and Warren Drive, and Randolph Road and La Palma Road. The existing powerplant and electrical infrastructure are visible from the residential neighborhoods but do not significantly hinder the expansive views of the surrounding mountains.

The most visible components of the Project from all viewpoints would be the exhaust stacks, which are approximately 60 feet in height. A new water tank approximately 50 feet in height will also be visible from numerous viewpoints. Sensitive viewpoints consist of location from which a significant number of people who have a concern for scenic resources will view a landscape, or will be exposed to Project activities. Sensitive viewpoints are generally located on transportation routes, residential areas, and recreational use areas. Visual simulations from key observation points (KOP) around Sundance power plant are included as **Appendix A**, which show the power plant features. Both daytime and nighttime simulations have been prepared.

Analysis

Inventory of Scenic and Recreational Resources

There were no scenic or recreational resources identified within the Study Area. The landscape character of the area is flat and expansive with little natural vegetation. The surrounding mountain ranges are approximately five to more than 30 miles away from the Sundance Power Plant. These mountains can be seen during clear conditions from throughout the Study Area. Existing electrical powerlines may hinder views directly in their line of sight but do not significantly block views from a distance.

Sensitive Viewers

High sensitivity viewers are found in the low and medium density residential homes found throughout the Study Area. Views from the three residential neighborhoods are not significantly hindered by the existing powerplant. Views towards the powerplant would not be blocked or altered.

Sundance Power Plant

Construction of the sixth power block would be conducted within the existing footprint of the Sundance Power Plant. The power plant is visible from the surround area but does not significantly hinder views of the surrounding mountains. The addition of the sixth power block would not substantially block or alter the views within the Study Area.

Scenic Area Conclusion

Existing conditions within the Study Area generally include expansive views of flat irrigated agricultural parcels and dispersed residences with distance mountains visible in the background. Transmission lines follow the majority of the major roadways. The power plant is visible from throughout the Study Area but does not significantly hinder the expansive views of the surrounding mountain ranges. Construction of the sixth power block is not anticipated to impact general views in the area or views from the high sensitivity viewers in the residential neighborhoods. Despite the close proximity of these views, and generally high sensitivity of recreational viewers, the lines, forms, colors, textures, and scale of the Project features would repeat those of the existing infrastructure development.

Historic Site, Structures, and Archaeological Sites

The Arizona Corporation Commission (ACC) Rules of Practice and Procedure R14-3-219 require Exhibit E of CEC applications to describe any

> *historic sites and structures or archaeological sites in the vicinity of the proposed facilities and state the effects, if any, the proposed facilities will have thereon.*

Prior Cultural Resources Information (2003)

An intensive cultural resources survey conducted in conjunction with the original application for CEC 107 found no cultural resources within the site selected for the power plant. That survey did record a prehistoric artifact scatter, designated AZ AA:22:199(ASM), approximately 100 feet south of the power plant site. Construction of the power plant did not disturb that site or any other historic sites and structures or archaeological sites.

Current Cultural Resources Information

The cultural resource assessment prepared to support the proposed amendment of CEC 107 confirmed no cultural resources have been recorded in the Sundance power plant. The review also documented that prior cultural resource surveys had covered approximately 35 percent of area within one mile of the power plant and recorded five cultural resources.

Two of the recorded cultural resources are scatters of precontact Hohokam artifacts. The closest of those is the site the original survey found approximately 100 feet south of the power plant. The State Historic Preservation Officer (SHPO) determined that site lacks significance and is not eligible for inclusion in the Arizona Register of Historic Places (ARHP). The mapped location of the other Hohokam artifact scatter is approximately one-half mile from the power plant. No archaeologist has inspected that site since its original recording in 1985 and the SHPO has not evaluated its eligibility for the ARHP.

The three other cultural resources recorded within one mile of Sundance are of historic age. One is a section line road (Tweedy Road), and the SHPO determined the road is not eligible for the ARHP. The other two recorded cultural resources are concrete-lined irrigation ditches, and one also is associated with a capped water well, concrete foundation for a pump, and a trash pit. The SHPO has not evaluated the ARHP eligibility of those two sites, but the recorders evaluated them as ineligible.

Cultural Resources Analysis and Conclusion

The review confirmed there are no cultural resources in the power plant and documented that the SHPO has determined two of the five cultural resources recorded within 1 mile of the power plant lack historic values and are not eligible for the ARHP. The SHPO has not evaluated the ARHP eligibility of the other three cultural resources, but the proximity impacts of the proposed Project, due to factors such as visual changes or increased noise, would not adversely impact the potential of those cultural resources to yield information or other historically significant characteristics those cultural resources might have. In summary, the review documented that the proposed addition of a sixth power block within the current limits of the Sundance power plant would not substantially damage or destroy any properties listed in or eligible for the ARHP.

APS provided a copy of the cultural resource assessment to the SHPO and will respond to any comments.

Appendix A. Daytime and Nighttime Visual Simulations

VISUAL DAY SIMULATION

Simulación visual diurna

Key Observation Point 1

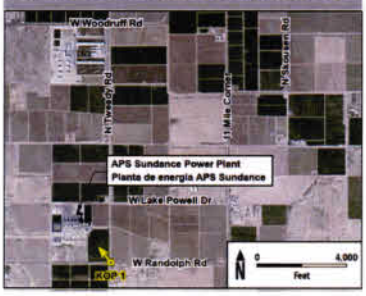
Punto de observación clave 1

Existing | *Existente*

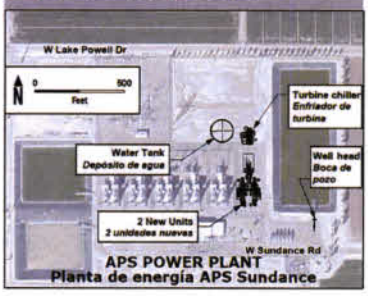
Simulation | *Simulación*

Distance to project *(Distancia al proyecto)*: 0.4 mile *(milla)* | 2209 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL DAY SIMULATION

Simulación visual diurna

Key Observation Point 2

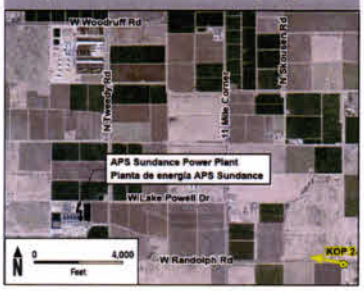
Punto de observación clave 2

Existing | *Existente*

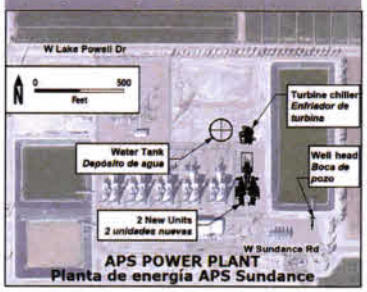
Simulation | *Simulación*

Distance to project *(Distancia al proyecto)*: 2.3 miles *(milla)* | 12,038 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point
(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL DAY SIMULATION

Simulación visual diurna

Key Observation Point 3

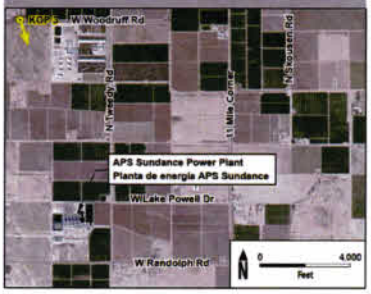
Punto de observación clave 3

Existing | *Existente*

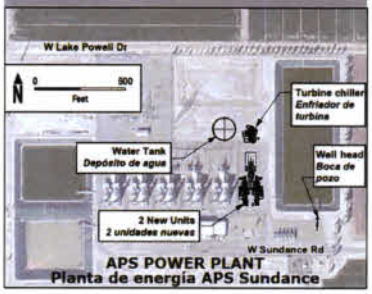
Simulation | *Simulación*

Distance to project *(Distancia al proyecto)*: 1.7 miles *(milla)* | 9,060 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point
(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL DAY SIMULATION

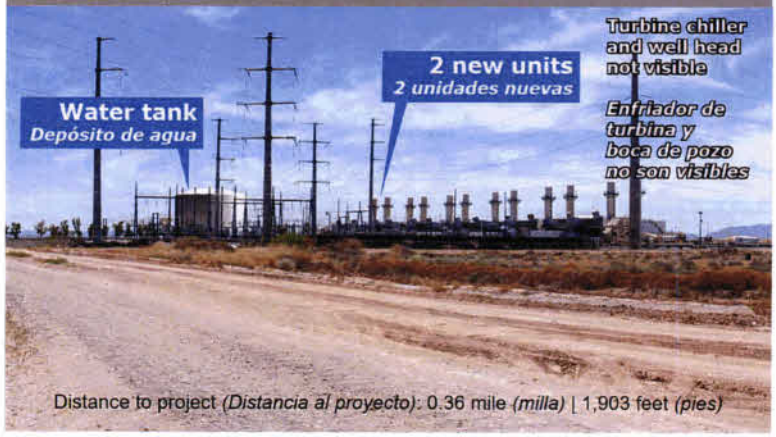
Simulación visual diurna

Key Observation Point 4

Punto de observación clave 4

Existing | *Existente*

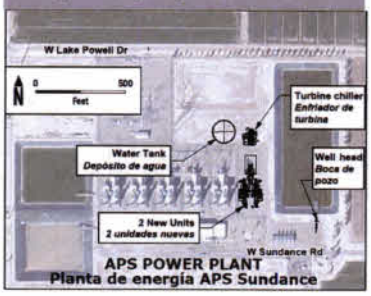
Simulation | *Simulación*



Distance to project *(Distancia al proyecto)*: 0.36 mile *(milla)* | 1,903 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto

Proposed Project | Proyecto propuesto



KOP=Key Observation Point
(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL DAY SIMULATION

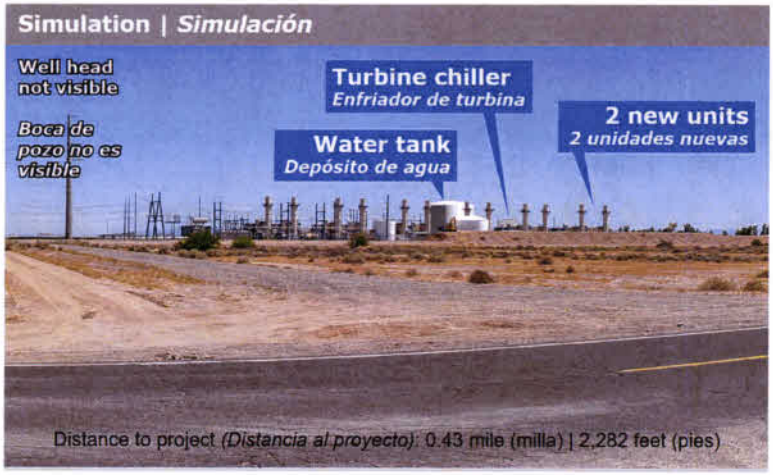
Simulación visual diurna

Key Observation Point 5

Punto de observación clave 5

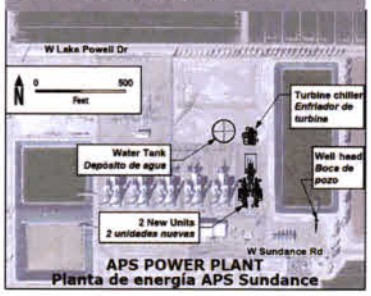
Existing | *Existente*

Simulation | *Simulación*



Project Location Map | Mapa de ubicación del proyecto

Proposed Project | Proyecto propuesto



KOP=Key Observation Point
(Punto de observación clave, KOP por sus siglas en inglés)

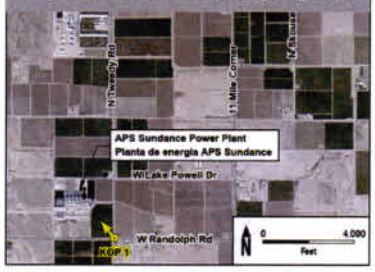
VISUAL NIGHT SIMULATION
Simulación visual nocturna
Key Observation Point 1
Punto de observación clave 1

Existing | *Existente*

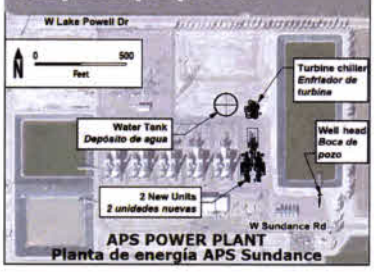
Simulation | *Simulación*

Distance to project *(Distancia al proyecto)*: 0.4 mile *(milla)* | 2209 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto



Proposed Project | Proyecto propuesto



KOP=Key Observation Point
(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL NIGHT SIMULATION

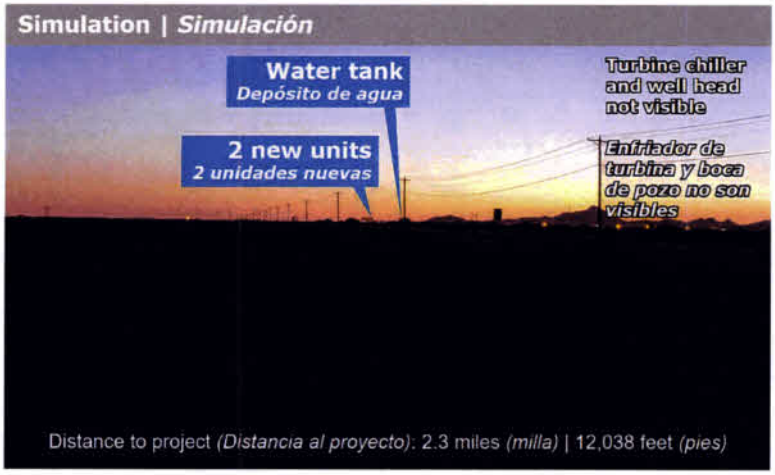
Simulación visual nocturna

Key Observation Point 2

Punto de observación clave 2

Existing | *Existente*

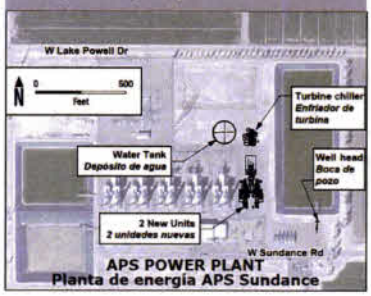
Simulation | *Simulación*



Distance to project *(Distancia al proyecto)*: 2.3 miles *(milla)* | 12,038 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto

Proposed Project | Proyecto propuesto



KOP=Key Observation Point
(Punto de observación clave, KOP por sus siglas en inglés)

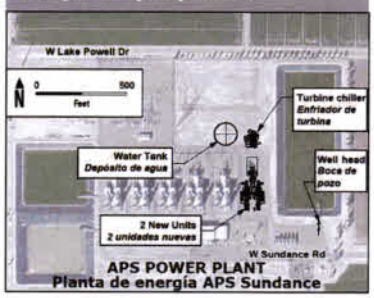
VISUAL NIGHT SIMULATION
Simulación visual nocturna
Key Observation Point 3
Punto de observación clave 3

Existing | *Existente*

Simulation | *Simulación*

Project Location Map | Mapa de ubicación del proyecto

Proposed Project | Proyecto propuesto

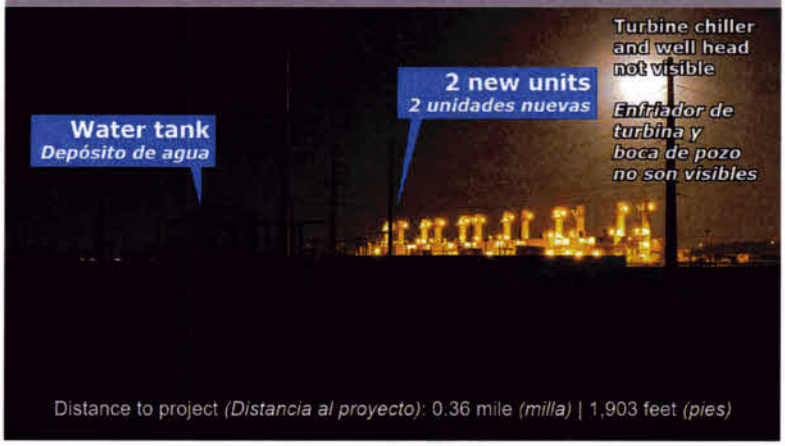


KOP=Key Observation Point
(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL NIGHT SIMULATION
Simulación visual nocturna
Key Observation Point 4
Punto de observación clave 4

Existing | *Existente*

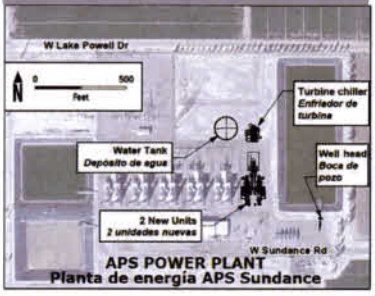
Simulation | *Simulación*



Distance to project *(Distancia al proyecto)*: 0.36 mile *(milla)* | 1,903 feet *(pies)*

Project Location Map | Mapa de ubicación del proyecto

Proposed Project | Proyecto propuesto



KOP=Key Observation Point
(Punto de observación clave, KOP por sus siglas en inglés)

VISUAL NIGHT SIMULATION

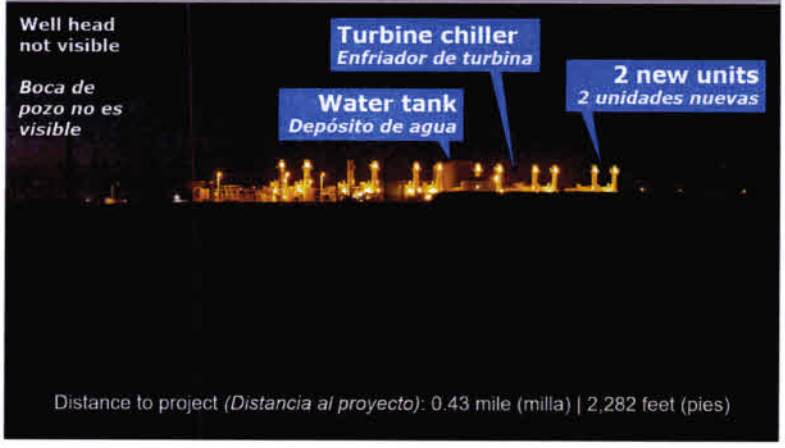
Simulación visual nocturna

Key Observation Point 5

Punto de observación clave 5

Existing | *Existente*

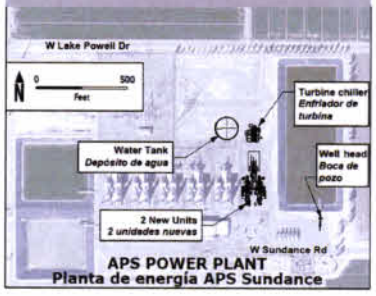
Simulation | *Simulación*



Distance to project *(Distancia al proyecto)*: 0.43 mile (milla) | 2,282 feet (pies)

Project Location Map | Mapa de ubicación del proyecto

Proposed Project | Proyecto propuesto



KOP=Key Observation Point

(Punto de observación clave, KOP por sus siglas en inglés)

Exhibit E

Exhibit F

Recreational Resources

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

State the extent, if any, the proposed site or route will be available to the public for recreational purposes, consistent with safety considerations and regulations, and attach any plans the applicant may have concerning the development of the recreational aspects of the proposed site or route. "

RECREATIONAL PURPOSES AND ASPECTS

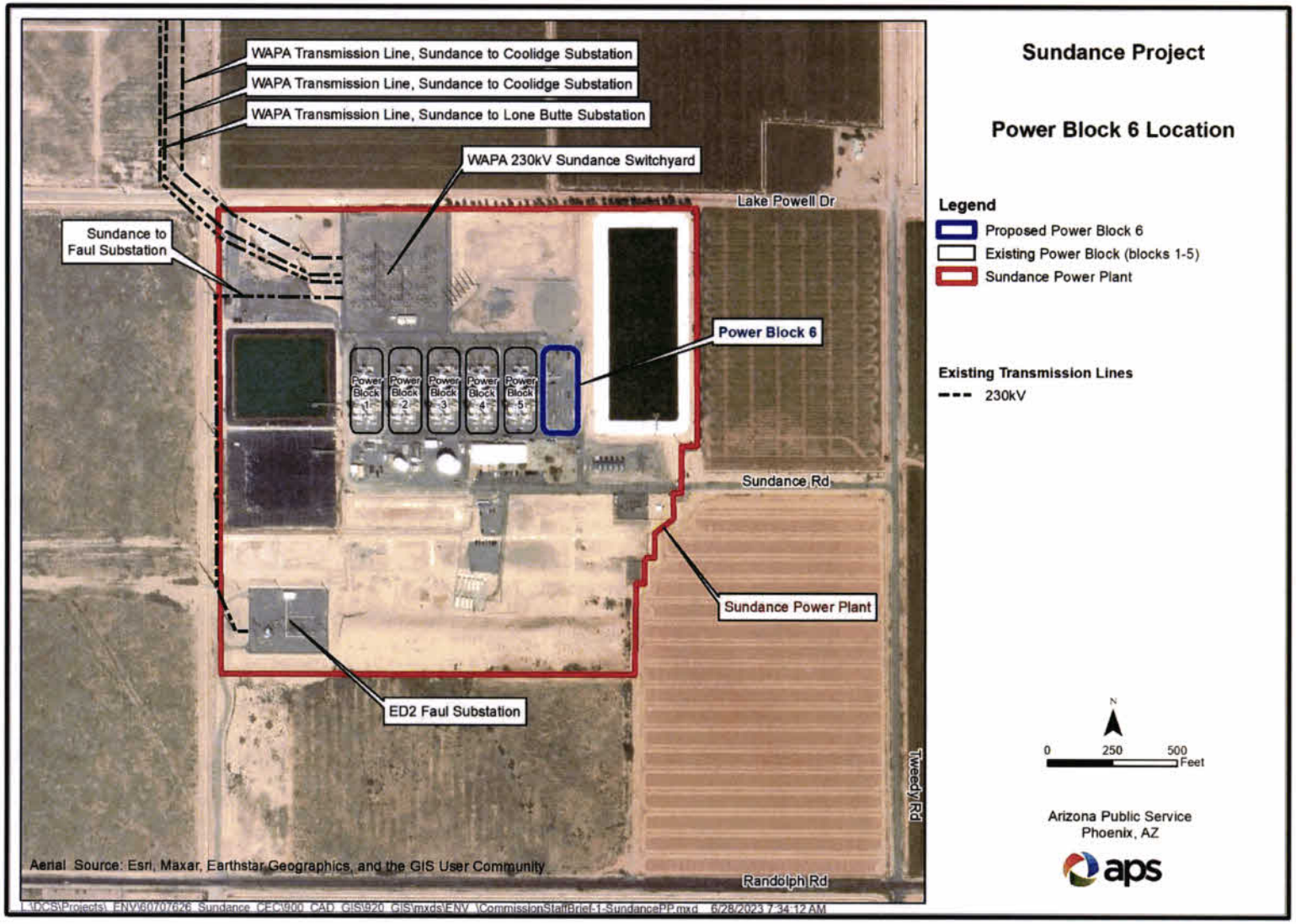
Neither APS nor any jurisdictional agencies have proposed any plans for the development of recreational facilities associated with the Project. The construction, operation and maintenance of proposed Project will be consistent with safety considerations and not open to public access. There is currently no developed recreation within the Project study area. No significant recreation occurs on or around the existing power plant. Dispersed activities such as hunting and off-road vehicle (ORV) uses do occur on public lands in the general area and would not be impacted by the Project.

Exhibit G
Conceptual Drawings of Transmission Facilities

As stated in Arizona Corporation Commission Rules of Practice and Procedures R14-3-219:

"Attach any artist's or architect's conception of the proposed plant or transmission line structures and switchyards, which applicant believes may be informative to the Committee."

The illustrations on the following pages represent conceptual design information for the transmission line structures and substation.


WAPA Transmission Line, Sundance to Coolidge Substation
WAPA Transmission Line, Sundance to Coolidge Substation
WAPA Transmission Line, Sundance to Lone Butte Substation
WAPA 230kV Sundance Switchyard
Lake Powell Dr
Sundance to Faul Substation
Power Block 6
Power Block 1
Power Block 2
Power Block 3
Power Block 4
Power Block 5
Sundance Rd
Sundance Power Plant
ED2 Faul Substation
Tweedy Rd
Randolph Rd
Aerial Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
L:\DCS\Projects\ ENV\60707626 Sundance CEC\900 CAD GIS\920 GIS\mxds\ENV \CommissionStaffBrief-1-SundancePP.mxd 6/28/2023 7:34:12 AM
Sundance Project
Power Block 6 Location
Legend
Proposed Power Block 6
Existing Power Block (blocks 1-5)
Sundance Power Plant
Existing Transmission Lines
230kV
N
0
250
500
Feet
Arizona Public Service
Phoenix, AZ
aps

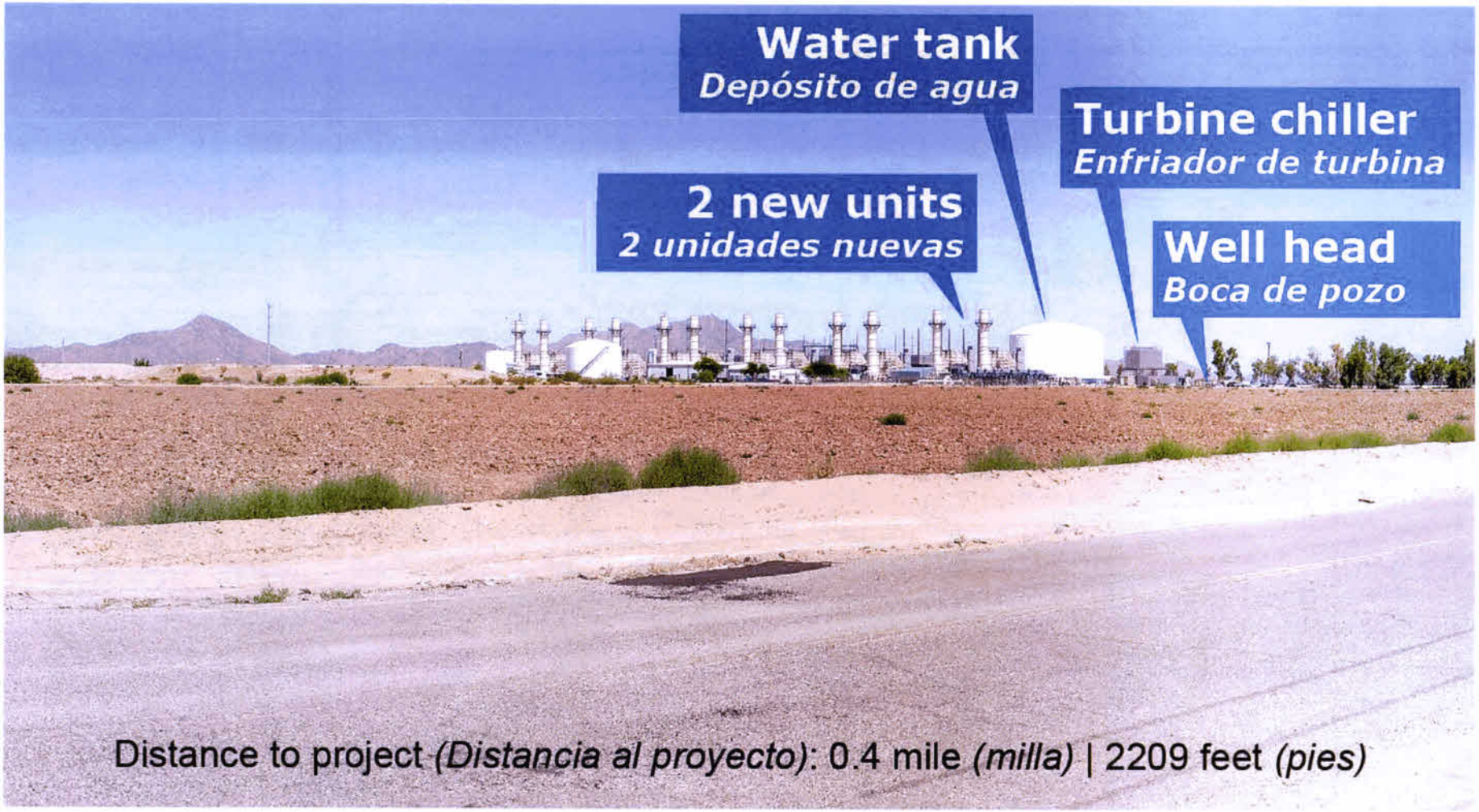

Water tank
Depósito de agua
Turbine chiller
Enfriador de turbina
2 new units
2 unidades nuevas
Well head
Boca de pozo
Distance to project (Distancia al proyecto): 0.4 mile (milla) | 2209 feet (pies)

Exhibit H
Existing Plans

As stated in Arizona Corporation Commission Rules of Practice and Procedures R14-3-219

"To the extent applicant is able to determine, state the existing plans of the state, local governments and private entities for other developments at or in the vicinity of the proposed site or route."

Overview

As part of the land use study (discussed in detail in Exhibit A-Location and Land Use Information), general and site-specific plans were obtained from the respective jurisdictions, landowners and developers. Furthermore, APS invited representatives from jurisdictional planning departments, local agencies, and developers to provide relevant planning information throughout the siting study process.

Throughout the siting process, APS met with representatives from the local planning departments with the City of Casa Grande, City of Coolidge, City of Eloy, and Pinal County. Jurisdictional general plans, agency management plans, site plans from specific developers and aerial photography were reviewed to identify development plans and constraints and opportunities near the Sundance power plant. All project components are within the existing footprint of the power plant.

Jurisdictional and Agency General Plans

Existing and future land use information was reviewed for the Sundance Power Plant Project study area. The analysis is based on the most recently available data from various local and regional plans relevant to the project vicinity and GIS databases including:

- City of Coolidge 2025 General Plan (CC 2014)
- City of Casa Grande 2030 Comprehensive Plan (CCG 2021)
- Pinal County Comprehensive Plan (PC 2019)
- Pinal County Zoning Ordinance (PC 2023)
- State of Arizona Land Resource Information System (ASLD 2023)

In June 2023 APS scheduled one on one meetings and sent letters to the jurisdictions (listed in Table H-1) to provide Project information and request new or additional information or plans or planning development. Stakeholder letters are included in **Appendix A**. No responses to letters send were received, however, during one on one meetings with stakeholders, only support from the project was received.

Table H-1. Jurisdiction/Agencies Contacted

Contact Name	Title	Jurisdiction/Agency
Steve Miller	Supervisor	Pinal County
Leo Lew	County Manager	Pinal County
Jon Thompson	Mayor	City of Coolidge
Rick Miller	City Manager	City of Coolidge
Jacque Hendrie-Henry	Vice-Mayor	City of Coolidge
Tom Bagnall	Councilmember	City of Coolidge

Contact Name	Title	Jurisdiction/Agency
Eric Daniels	Councilmember	City of Coolidge
Tatiana Murrieta	Councilmember	City of Coolidge
Steve Hudson	Councilmember	City of Coolidge
Adriana Saavedra	Councilmember	City of Coolidge
Ken Robbins	General Manager	ED2
Lisa Raymond	Principal	Mary C. O-Brien School
Ben Dickman	Owner	Dickman and Sons Dairy
Dr. Jackie Elliot	President	Central Arizona College
Evelyn Casuga	Board Chair	Central Arizona College
Samantha	Manager	Martin Valley HOA-City Property Management
Steve Kerber	Chief	Regional Fire and Rescue
Micah Powell	Mayor	City of Eloy
Craig McFarland	Mayor	City of Casa Grande
Maria Roberts	Director	SRP Desert Basin & Coolidge Generating Station
Lynn Parsons	Executive Director	Coolidge Chamber of Commerce

Appendix A. Stakeholder Letters

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Steve Miller
Supervisor
Pinal County
P.O. Box 827
Florence, AZ 85132

RE: Sundance Power Plant

Dear Steve:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

This fall, APS will apply to the Arizona Corporation Commission requesting approval to construct the two units. This application will include assessments showing that the two additional units at Sundance will have minimal environmental impacts and comply with National Ambient Air Quality Standards. Additionally, the public and stakeholders will have the opportunity to provide comments.

Please contact me with any questions about our proposal to construct the two additional Sundance units. I look forward to speaking with and thank you for your support.

Sincerely,

Richard Rosales
Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Leo Lew
County Manager
Pinal County
P.O. Box 827
Florence, AZ 85132

RE: Sundance Power Plant

Dear Leo:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Jon Thompson
Mayor
City of Coolidge
130 W. Central Avenue
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Jon:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Rick Miller
City Manager
City of Coolidge
130 W. Central Avenue
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Rick:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Jacque Hendrie-Henry
Vice-Mayor
City of Coolidge
130 W. Central Avenue
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Jacque:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Tom Bagnall
Councilmember
City of Coolidge
130 W. Central Avenue
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Tom:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Eric Daniels
Councilmember
City of Coolidge
130 W. Central Avenue
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Eric:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

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Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Tatiana Murrieta
Councilmember
City of Coolidge
130 W. Central Avenue
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Tatiana:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

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Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Steve Hudson
Councilmember
City of Coolidge
130 W. Central Avenue
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Steve:

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

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Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Adriana Saavedra
Councilmember
City of Coolidge
130 W. Central Avenue
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Adriana:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

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Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Ken Robbins
General Manager
ED2
P.O. Box 548
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Ken:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Public Affairs Manager - SE

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Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Lisa Raymond
Principal
Mary C. O'Brien School
1400 N. Eleven Mile Corner Road
Casa Grande, AZ 85194

RE: Sundance Power Plant

Dear Lisa:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Richard Rosales
Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Ben Dickman
Owner
Dickman & Sons Dairy
7976 N Tweedy Rd
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Ben:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

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Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Dr. Jackie Elliot
President
Central Arizona College
8470 N. Overfield Rd
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Dr. Jackie:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Public Affairs Manager - SE

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Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Evelyn Casuga
Board Chair
Central Arizona College
8470 N. Overfield Rd
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Evelyn:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

This fall, APS will apply to the Arizona Corporation Commission requesting approval to construct the two units. This application will include assessments showing that the two additional units at Sundance will have minimal environmental impacts and comply with National Ambient Air Quality Standards. Additionally, the public and stakeholders will have the opportunity to provide comments.

Please contact me with any questions about our proposal to construct the two additional Sundance units. I look forward to speaking with and thank you for your support.

Sincerely,

Richard Rosales
Public Affairs Manager - SE

Richard L. Rosales
Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Samantha
Manager
Martin Valley HOA - City Property Management
4645 E Cotton Gin Loop
Phoenix, AZ 85040

RE: Sundance Power Plant

Dear Samantha:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Steve Kerber
Chief
Regional Fire & Rescue
7951 W McCartney Rd,
Casa Grande, AZ 85194

RE: Sundance Power Plant

Dear Steve:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
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Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Micah Powell
Mayor
City of Eloy
595 N. C Street, Suite 104
Eloy, AZ 85131

RE: Sundance Power Plant

Dear Micah:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

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Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Craig McFarland
Mayor
City of Casa Grande
510 E. Florence Blvd
Casa Grande, AZ 85122

RE: Sundance Power Plant

Dear Craig:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Richard Rosales
Public Affairs Manager - SE

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Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Maria Roberts
Director
SRP Desert Basin & Coolidge Generating Station
P.O.Box 52025
Phoenix, AZ 85072

RE: Sundance Power Plant

Dear Maria:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Public Affairs Manager - SE

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Public Affairs Manager
Southeast Division
Mail Station: 4539
50 N Brown Ave.
Casa Grande, AZ 85122
Office: 520 421 8309
Mobile: 520-560-6271
richard.rosales@aps.com

July 17, 2023

Lynn Parsons
Executive Director
Coolidge Chamber of Commerce
351 N Arizona Blvd # 5
Coolidge, AZ 85128

RE: Sundance Power Plant

Dear Lynn:

Thank you for talking with me about our proposal to add two natural gas units at the existing Sundance Power Plant, which is in west Pinal County at 2060 West Sundance Road, Casa Grande, Arizona 85194. Sundance currently has five power blocks with ten natural gas units. APS is seeking authorization to construct two additional units, which were originally authorized at Sundance but never built. Building these previously authorized units is important because they will support reliable electric service for residential and commercial customers, provide much-needed energy during the late-afternoon and evening hours when customers use it most, and complement APS's fleet of renewable energy resources.

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Sincerely,

Richard Rosales
Public Affairs Manager - SE

Exhibit I

Noise Emissions Levels and Interference with Communication Signals

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-220, Ex. I.

"Describe the anticipated noise emission levels and any interference with communication signals which will emanate from the proposed facilities."

AECOM

Sundance Generating Station Noise Assessment

Arizona Public Service

Project number: 60707626

July 6, 2023

Delivering a better world

Prepared for:

Arizona Public Service

Prepared by:

George Hitterman
Acoustics and Noise Control Specialist
E: george.hitterman@aecom.com

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Acoustics and Noise Control Specialist
E: chris.kaiser@aecom.com

AECOM
401 West A Street
Suite 1200
San Diego, CA 92101
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Table of Contents

Figures

Tables

1. Introduction

1.1 Project Description

Arizona Public Service (APS) is proposing an upgrade the Sundance Generating Station near the town of Coolidge in Pinal County, Arizona (Project). The gas turbine power plant is on the north side of a large, industrially zoned property bounded on the north by Lake Powell Road, on the east by Tweedy Road, on the south by Randolph Road, and on the west by Curry Road. The surrounding land uses are comprised of agricultural fields and sparsely distributed single-family homes in most directions.

The proposed Project will add a sixth power block to the facility featuring two additional General Electric (GE) LM6000 turbines. Each turbine has a nameplate capacity of 45 megawatts (MW) for a combined additional generation of 90 MW. The current design of the facility includes five power blocks with ten GE LM6000 turbines. The original Certificate of Environmental Compatibility (CEC) authorizing the powerplant included six blocks. However, the facility's original owner only constructed five of the six permitted blocks. The original CEC authorizing the sixth power block has since expired. Therefore, in order to construct the sixth power block and increase facility capacity, an amendment to the original CEC is needed. Figure 1 shows the existing Sundance Generating Station Site and adjacent roadways.

This noise study will analyze the combined-operational effects for two scenarios:

- **Scenario A: Existing Sundance Facility** – including the operation of the existing facility with five power blocks under maximum load.
- **Scenario B: Proposed Sundance Facility Expansion** - including the operation of the existing facility with the additional sixth power block under maximum load.

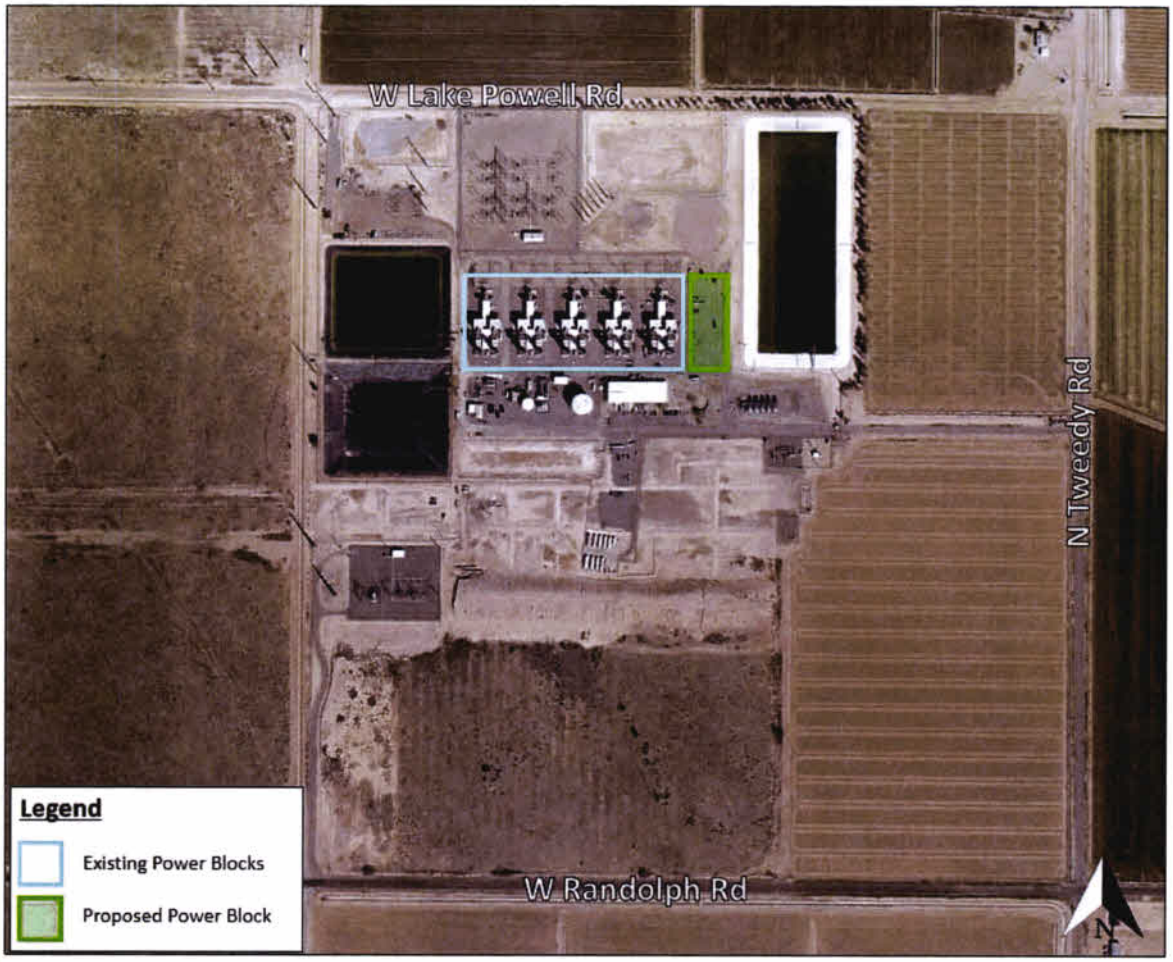

Figure 1. Location of Existing and Proposed Power Blocks

2. Regulatory Setting and Noise Impact Criteria

2.1 Federal

Several laws and guidelines at the federal level direct the consideration of a broad range of noise and vibration issues; these include the National Environmental Policy Act, Noise Control Act, and Federal Energy Regulatory Commission Guidelines. Because noise generated by this Project does not fall within the purview of (or require action by) federal agencies, the Project is not directly subject to federal noise regulations other than OSHA for worker occupational noise exposure.

2.1.1 EPA Guidance

The U.S. Environmental Protection Agency (EPA) has published guidance that specifically addresses issues of community noise (EPA 1974). This guidance, commonly referred to as the "levels document," contains goals for noise levels affecting residential land use of day-night sound level (Ldn) ≤ 55 A-weighted decibels (dBA) for exterior levels and Ldn ≤ 45 dBA for interior levels. The U.S. Department of Housing and Urban Development (HUD) Noise Guidebook, Chapter 2 Section 51.101(a)(8), also recommends that exterior areas of frequent human use follow the EPA guideline of 55 dBA Ldn (HUD, 2009). Hence, in the absence of a quantified noise threshold from local regulations, 55 dBA Ldn would be

considered a guidance-based threshold for determining potential noise impacts at noise-sensitive receivers like residences.

2.1.2 Occupational Safety and Health Administration

The Occupational Safety and Health Administration Occupational Noise Exposure; Hearing Conservation Amendment (Federal Register 48 (46), 9738 – 9785 (1983)) standard stipulates that protection against the effects of noise exposure shall be provided for employees when time-weighted average (TWA) sound levels exceed 90 dBA over an 8-hour exposure period. It also states that worker protection shall consist of feasible administrative or engineering controls; and, if such controls fail to reduce sound levels to within acceptable levels, personal protective equipment (PPE) shall be provided and used to reduce employee exposure. Additionally, a Hearing Conservation Program (HCP) must be implemented by the employer whenever employee noise exposure equals or exceeds the Action Level of an 8-hour TWA sound level of 85 dBA. The HCP requirements consist of periodic area and personal noise monitoring, performance and evaluation of audiograms, provision of hearing protection, annual employee training, and record-keeping.

2.2 Local

The Project site and nearest noise-sensitive receptors (NSRs) are located wholly within Pinal County, Arizona. The receptor located at 3964 South Tweedy Road is within the incorporated boundary for the City of Coolidge. The City of Coolidge Noise Ordinance does not stipulate sound level limits and, therefore, the Pinal County Noise Ordinance is used to evaluate noise impacts at this (and all other) receptors.

2.2.1 Pinal County Noise Ordinance

The Pinal County Noise Ordinance defines limits for noise received by neighboring receptors based on the receiving land use and time of day. Applicable noise thresholds for the zones in the vicinity of the project are included in Table 1 below.

Table 1. Pinal County Noise Thresholds

Zone	Time of Day	Noise Limit (Leq, dBA)*
CI-B, CI-2 (Industrial)	(7:00 a.m. — 10:00 p.m.)	70
	(10:00 p.m. — 7:00 a.m.)	65
GR (Rural)	(7:00 a.m. — 9:00 p.m.)	65
	(9:00 p.m. — 7:00 a.m.)	60

Source: Pinal County Code of Ordinances, Title 10, Chapter 2

**Pinal County noise limits are evaluated on the basis of a 2-minute Leq measurement.*

The nearest residential receptor to the project, located approximately 500 feet northwest of the site boundary, is zoned GR (rural) and is therefore restricted by the 65/60 dBA Day/Night limits defined in the Pinal County noise ordinance. There are no residentially zoned parcels within approximately 5000 feet of the project site.

3. Baseline Ambient Outdoor Sound Level Survey

3.1 Methodology and Instrumentation

3.1.1 Methodology

Baseline sound pressure level (SPL) measurements were conducted from Thursday, May 25th to Friday, May 26th, 2023. Four long-term (LT) SPL measurements were conducted to establish and characterize the existing ambient noise environment at representative noise-sensitive land uses in the project vicinity. An AECOM field investigator set up each of the four LT noise monitors and performed pre-measurement

instrument calibration checks prior to monitoring start. Secured to existing fixed man-made or natural features, these LT monitors were left unattended until revisited by the investigator to check instrument function, remaining onboard memory, and battery life.

All field observations were recorded on field data sheets. Collected data includes time, name and location of measurement, instrument identification information, observed meteorological data, field calibration results, and notes regarding the dominant noise sources and any other audible sources of continuous or intermittent noise (e.g., vehicle pass-bys, operation of construction/agricultural equipment, or aircraft flyovers).

Figure 2 shows the LT measurement locations on aerial imagery of the study area. Field photos of the deployed LT noise monitoring systems are provided in Attachment A.

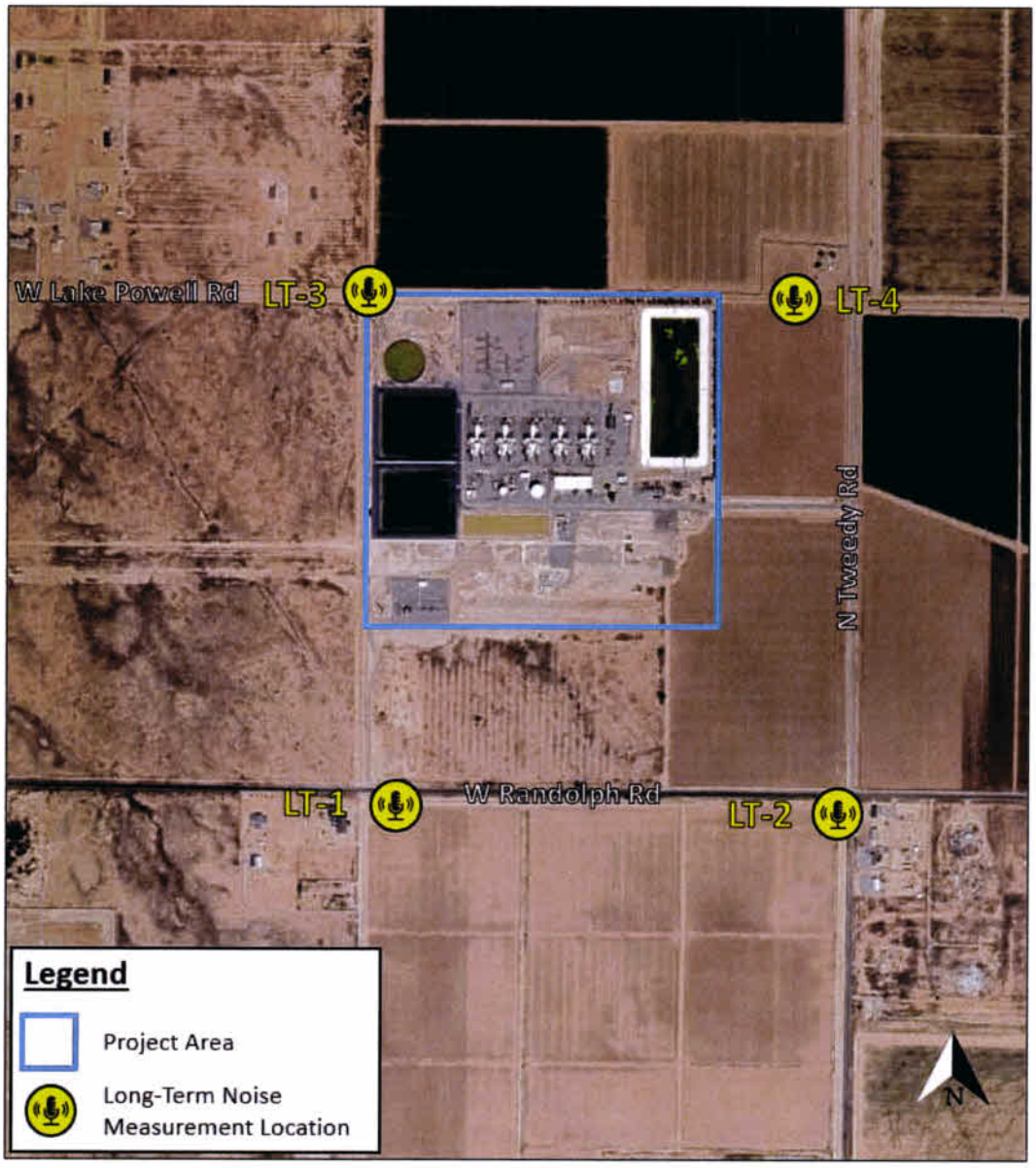

Figure 2. Long-Term Noise Measurement Locations

3.1.2 Instrumentation

Baseline SPL measurements were conducted using Larson Davis Model LxT sound level meters, rated by the American National Standards Institute (ANSI) as Class 1 per ANSI S1.4-2014. All microphones were fitted with standard open-cell foam windscreens and positioned approximately five feet above grade. The sound level meters were set using slow time response and the A-weighting scale. Sound level meter calibration was field-checked before and after the measurement period with a Larson Davis Model CAL200 acoustic calibrator and all instruments were laboratory-calibrated within one year of the measurement period. Where not already described, sound level measurements performed for this field survey were conducted in a manner based on guidance from applicable portions of the International Organization for Standardization 1996-1, 1996-2, and 1996-3 standards.

3.2 Survey Results and Observations

3.2.1 Measurement Location Details

The following narratives summarize descriptions of the sound level monitoring locations and highlight perceived or witnessed key acoustical contributors to the measured outdoor ambient sound environment.

Site Vicinity Notes

At the time of the sound level survey, the AECOM field investigator observed that some sound was emanating from existing operations at the project site, which contributed significantly to the ambient noise environment. Major additional noise contributions in the project vicinity included agricultural operations to the north and east of the project site, traffic on Randolph Road to the south of the project site, sporadic heavy truck traffic on Lake Powell Drive, and activities associated with the construction of new single-family homes northwest of the project site.

LT 1

This measurement position was located south-southwest of the Project site at the corner of Randolph Road and Red Bronc Lane and is representative of the nearest residential NSR at 4776 North Red Bronc Lane. The SLM was attached to a utility pole and faced north toward the Project. The dominant noise source at this location was vehicular traffic on Randolph Street and facility operations were only faintly audible. Insects were the dominant noise source during the evening and nighttime period.

LT 2

This measurement position was located southeast of the Project Site at the corner of Randolph Road and Tweedy Road and is representative of the nearest residential NSR at 4789 North Tweedy Road. The SLM was attached to a utility pole guy wire and faced northwest toward the Project. The dominant noise source at this location was vehicular traffic on Randolph Street and facility operations were only faintly audible. Also audible were agricultural operations to the northeast of the measurement location and sporadic traffic on Tweedy Road. Insects were the dominant noise source during the evening and nighttime period.

LT 3

This measurement position was located northwest of the project site alongside Lake Powell Drive and is representative of the nearest residential NSR at 2480 West Lake Powell Drive. The SLM was attached to a utility pole guy wire and faced southeast toward the Project. The dominant noise sources at this location were agricultural operations to the north and facility operations. Distant traffic noise on Randolph Road was also audible at this location. Additionally, sporadic tractor trailer pass-bys on Lake Powell Drive contributed to the ambient noise environment, as well as construction activities occurring approximately 2000 feet northwest of the measurement location. Insects were the dominant noise source during the evening and nighttime period.

LT 4

This measurement position was located northeast of the project site alongside Lake Powell Drive and is representative of the nearest residential NSR at 3964 South Tweedy Road. The SLM was attached to a utility pole and faced southwest toward the Project. The dominant noise sources at this location while investigators were present were agricultural operations to the north and facility operations. Distant traffic on Randolph Road and sporadic traffic on Tweedy Road were also audible at this location. Additionally, sporadic tractor trailer pass-bys on Lake Powell Drive contributed to the ambient noise environment. Insects were the dominant noise source during the evening and nighttime period. Photos of measurement locations are provided in Appendix A.

3.2.2 Measured Sound Level Data

Table 2 presents a summary of acoustical metrics representing the measured SPL as indexed by measurement location. Detailed measurement data are presented in Appendix B.

Table 2. Long-Term Noise Survey Summary

Measurement Location	Nearest NSR	Total Duration of Collected Data (hours)	Daytime Hourly Sound Level Range (Leq, dBA)	Nighttime Hourly Sound Level Range (Leq, dBA)
LT 1	4776 North Red Bronc Lane	24	65 – 74	55 - 66
LT 2	4789 North Tweedy Road	24	57 – 62	48 - 64
LT 3	2480 West Lake Powell Drive	22*	45 – 57	38 - 50
LT 4	3964 South Tweedy Road	24	45 - 56	44 - 53

Notes:
Daytime: 7:00 a.m. to 10:00 p.m.
Nighttime: 10:00 p.m. to 7:00 a.m.
*Measurement location LT 3 suffered a power failure and only 22 hours of data were recorded

Figures 3 through 6 show summary plots of measured 1-hour noise levels collected throughout the monitoring period at the long-term measurement locations. The highest 2-minute noise levels per one-hour period are also included in these plots to assess existing compliance with Pinal County regulations. The 1-hour Leq and 2-minute Leq values used to develop these plots are provided in Appendix B.

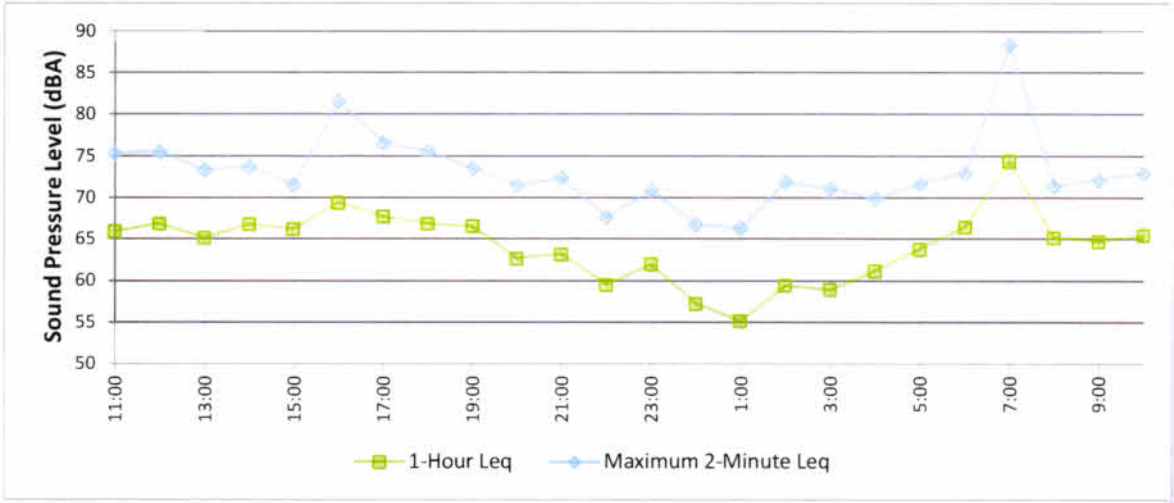

Figure 3. Measured Hourly Sound Pressure Levels at LT 1

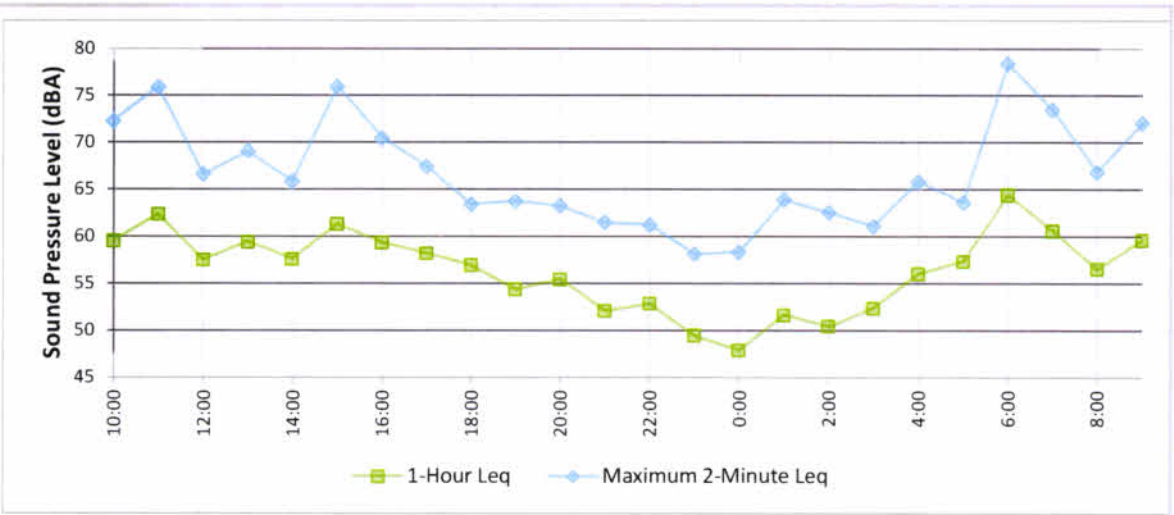

Figure 4. Measured Hourly Sound Pressure Levels at LT 2

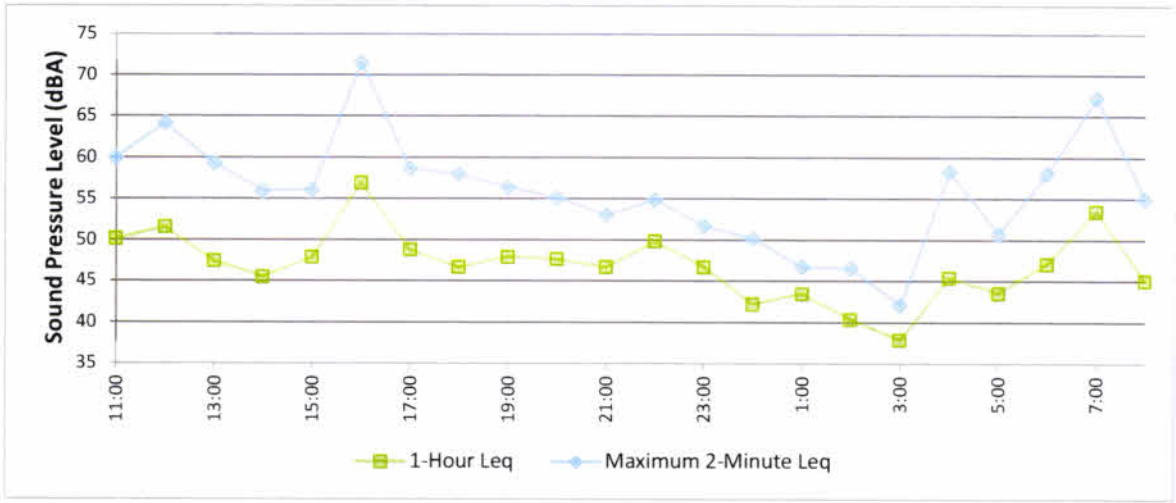

Figure 5. Measured Hourly Sound Pressure Levels at LT 3

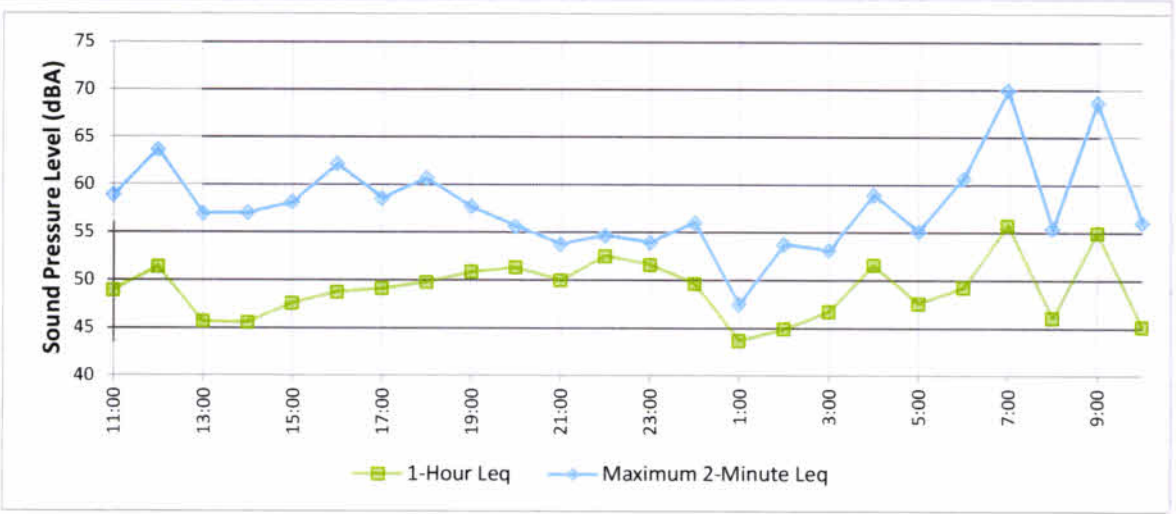

Figure 6. Measured Hourly Sound Pressure Levels at LT 4

Measured hourly noise levels generally ranged between 38-74 dBA during the monitoring period in the project area, with the highest levels collected at LT 1. The measured noise level plots suggest that ambient noise levels in the area generally are higher during mid to late morning hours, through the afternoon. During the daytime period, traffic on Randolph Road was the dominant noise source. Additional observed noise sources included agricultural operations to the north and east of the project site.

4. Predicted Operation Noise Effect Assessment

4.1 Methodology

The CadnaA® noise prediction model (Version 2022) was used to estimate the propagation of sound from aggregate project operations and thereby predict SPL at various distances from the project, including specific locations such as the representative noise-sensitive receptors selected for the ambient sound

survey. CadnaA is a Windows-based software program that predicts and assesses noise levels near industrial noise sources based on ISO 9613-2 (ISO 1996) algorithms for noise propagation calculations. The software can accept sound power levels (in dB referenced to 1 picoWatt) in octave band center frequency resolution to describe the multiple sound propagation sources of the site processes or activity to be modeled.

The software's calculations account for classical sound wave divergence plus attenuation factors resulting from air absorption, basic ground effects, and barrier/shielding. The advantage of using CadnaA is that it can handle the three-dimensional sound propagation complexity of considering realistic intervening natural and man-made topographical barrier effects, including those resulting from terrain features and structures such as multi-level buildings, storage tanks, and large equipment.

4.1.1 Sound Sources Definitions

Sound power level (PWL or Lw) for nominal steady-state operation is shown in Table 3. Reference noise levels used for the analysis were obtained from the Power Block equipment manufacturer.

Table 3. Major Project Operations Noise-Producing Sources

Equipment/Source Type	Individual Reference Sound Power Level (A-Weighted)	Quantity of Equipment/Source (Existing Facility Model)	Quantity of Equipment/Source (Proposed Facility Model)
Turbine Enclosure	96.3	10	12
Auxiliary Skid	81.6	10	12
GLO	77.9	10	12
Turbine Exhaust	100.6	10	12
Generator Enclosure	92.6	10	12
Air Filter House	105.7	20	24
Generator Inlet Fan	102.7	10	12
Generator Exhaust Silencer	107.3	10	12

Source: General Electric Company (USA), 2022

While the Project mechanical systems include several additional types of equipment, the sources listed in Table 3 represent the loudest features and are thus expected to have the greatest effect on the ambient sound environment. Equipment not appearing in Table 3 are expected to produce noise, but not at a magnitude that will challenge the expected dominance of the power block equipment.

4.1.2 Predictive Model Configuration Settings

Additional CadnaA model configuration settings and operations noise analysis assumptions are as follows: 10 degrees Celsius (°C) outdoor temperature, 70% relative humidity (RH), calm wind conditions (< 0.5 meters per second), one order of acoustic reflections, and an average acoustical ground absorption coefficient of 0.6 (representing an estimate for the observed Project vicinity - a conservative blend of hard, reflective surfaces [roadways and other pavement] that tend towards zero, and highly absorptive ground cover [loose soils and/or vegetative ground cover] that approaches unity).

4.2 Analyzed Scenarios

This noise study considers two Project operations noise analysis scenarios as follows:

Scenario A: Continuous operation of the five existing power blocks operating at full load.

Scenario B: Scenario A as described above, but includes the operation of the proposed sixth power block.

These scenarios are considered to be conservative estimations of the facility's impact on the ambient noise environment as it is unlikely for all the power blocks to be operating at full load simultaneously except sporadically.

4.3 Results

Predicted aggregate Project operation noise levels at the nearest residential receptors for studied operational Scenarios A and B are shown in Table 4.

Table 4. Predicted Operation Noise Levels

Receiver ID	Land Use Type	Receiver Address	Predicted Operation Noise Levels (dBA, Leq)		Relative Increase (dB)
			Scenario A	Scenario B	
R-01	Residential	4776 North Red Bronc Lane	47	48	+0*
R-02	Residential	4789 North Tweedy Road	45	47	+2
R-03	Residential	2480 West Lake Powell Drive	56	57	+0*
R-04	Residential	3964 South Tweedy Road	52	54	+2

* Decibel values presented in this table are rounded to the nearest whole decibel. Therefore, arithmetic calculations may be inconsistent with expectations.

Figures 7 and 8 display modeled operation noise contours superimposed upon aerial imagery of the Project site and its surroundings. Note that the Project-attributed noise contours appearing in contour figures do not include the acoustical contribution of the existing outdoor sound environment.

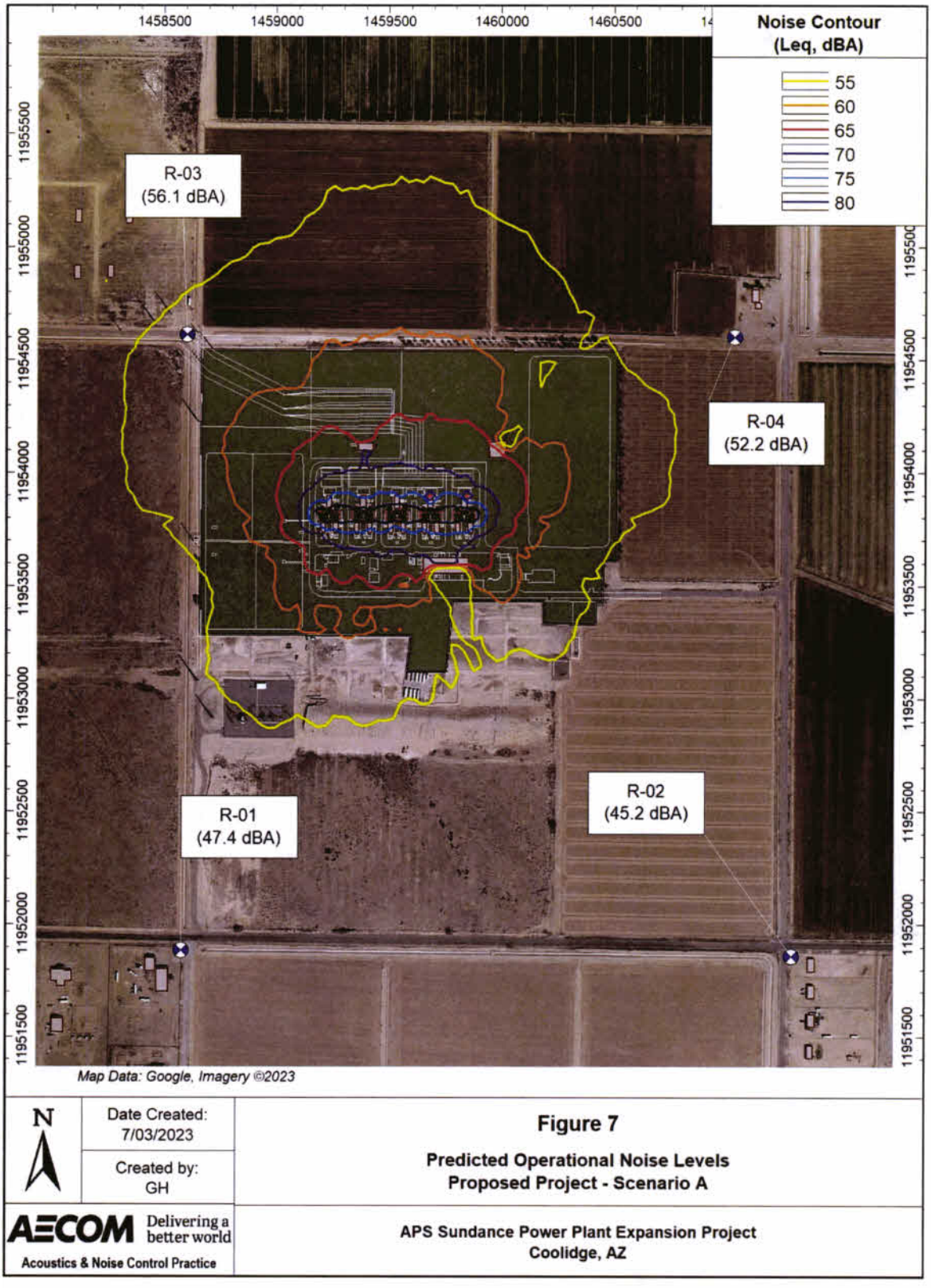

Figure 7. Predicted Project Operation Noise Contours - Scenario A

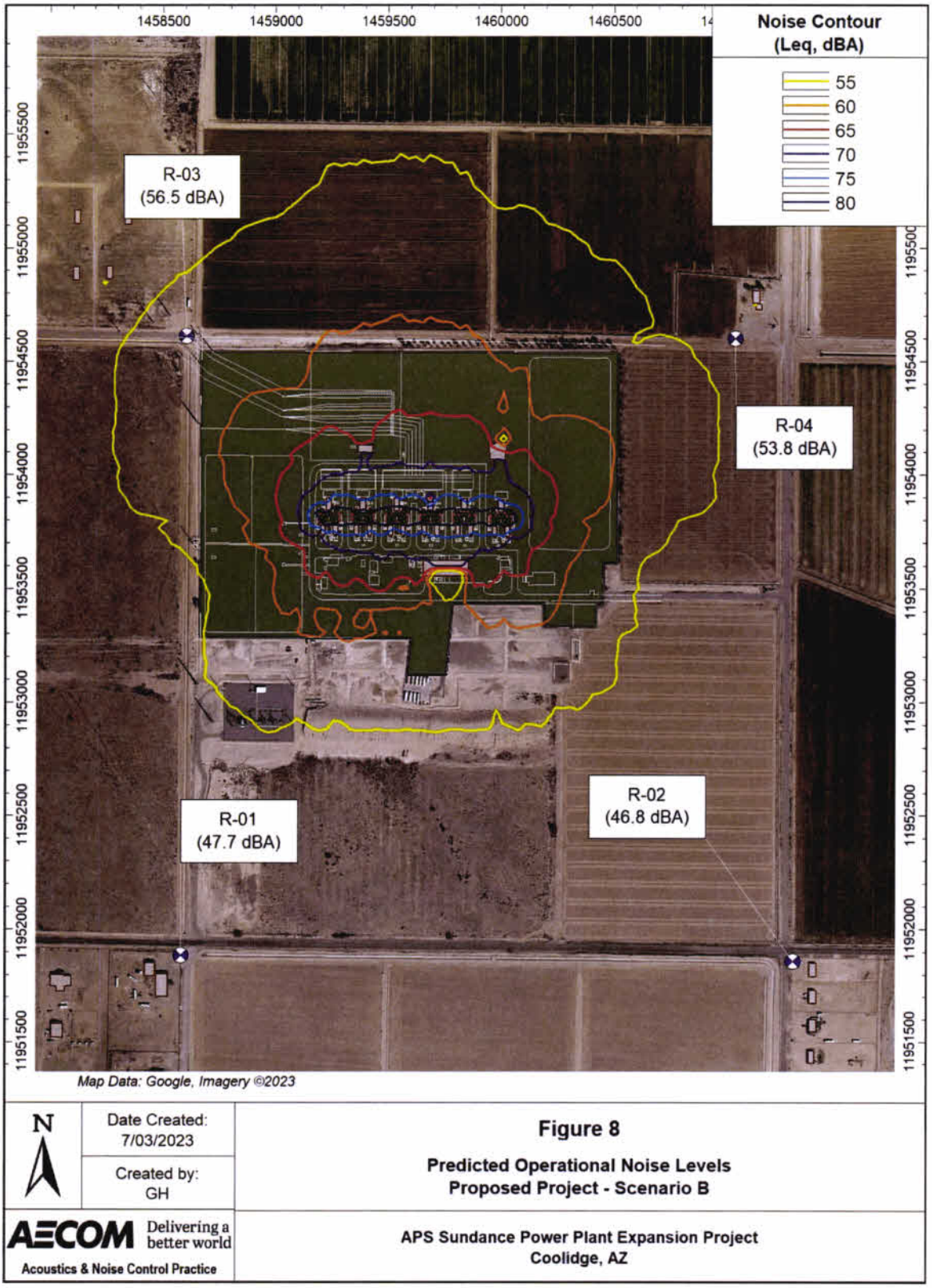

Figure 8. Predicted Project Operation Noise Contours - Scenario B

5. Findings and Recommendations

5.1 Project Noise Effects

Under maximum load operating conditions, Table 4 shows that aggregate Project operation noise levels would not exceed the Pinal County Noise Ordinance guidelines for either scenario (existing and future). Maximum load operation is expected to be atypical, and, as shown by Table 2, the current noise contribution from the facility does not significantly affect the ambient noise environment. Table 4 shows that ambient noise levels generated by facility operation are not expected to increase by more than 2 dBA at any location, with the greatest increases occurring at receptor locations R-02 and R-04. A change in sound level of 3 dBA is generally considered to be the smallest change in noise levels that is perceptible outside of a laboratory environment. Therefore, the predicted maximum increase in facility noise of up to 2 dBA at nearby receptors will not result in adverse effects.

5.2 Recommendations

Predicted Project operation noise is compliant with County standards and is not expected to significantly impact the ambient noise environment. Therefore, no additional noise control measures are recommended.

Appendix A Photo Log

Photo 1

Monitoring Site:
LT-1

Date Taken:
May 25, 2023

Camera Facing:
South

Description:
View toward SLM with sensitive receptor in background.

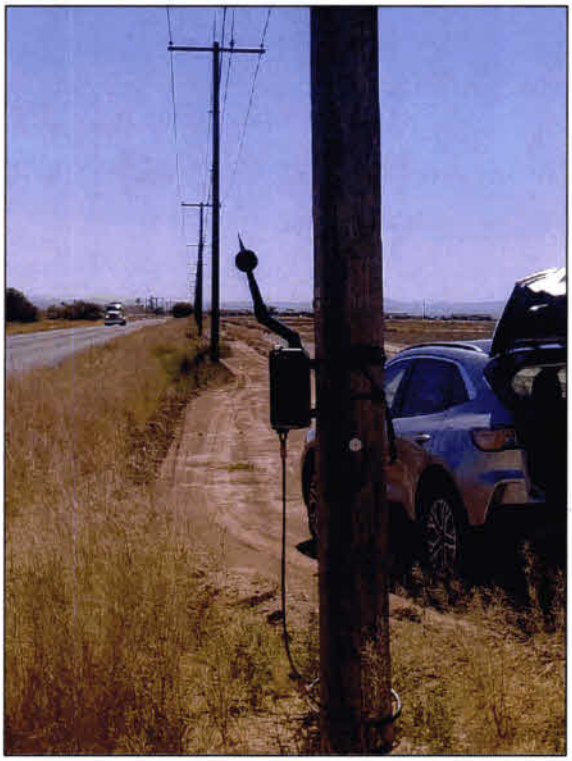

Photo 2

Monitoring Site:
LT-1

Date Taken:
May 25, 2023

Camera Facing:
East

Description:
View toward SLM with Randolph Road in background.

Photo 3

Monitoring Site:
LT-2

Date Taken:
May 25, 2023

Camera Facing:
East

Description:
View toward SLM with sensitive receptor in background.

Photo 4

Monitoring Site:
LT-2

Date Taken:
May 25, 2023

Camera Facing:
Northwest

Description:
View toward SLM with Sundance facility in background.

Photo 5

Monitoring Site:
LT-3

Date Taken:
May 25, 2023

Camera Facing:
East

Description:
View toward SLM with Sundance facility in background.

Photo 6

Monitoring Site:
LT-3

Date Taken:
May 25, 2023

Camera Facing:
West

Description:
View toward SLM with sensitive receptor in background.

Photo 7

Monitoring Site:
LT-4

Date Taken:
May 25, 2023

Camera Facing:
Northeast

Description:
View toward SLM with sensitive receptor in background.

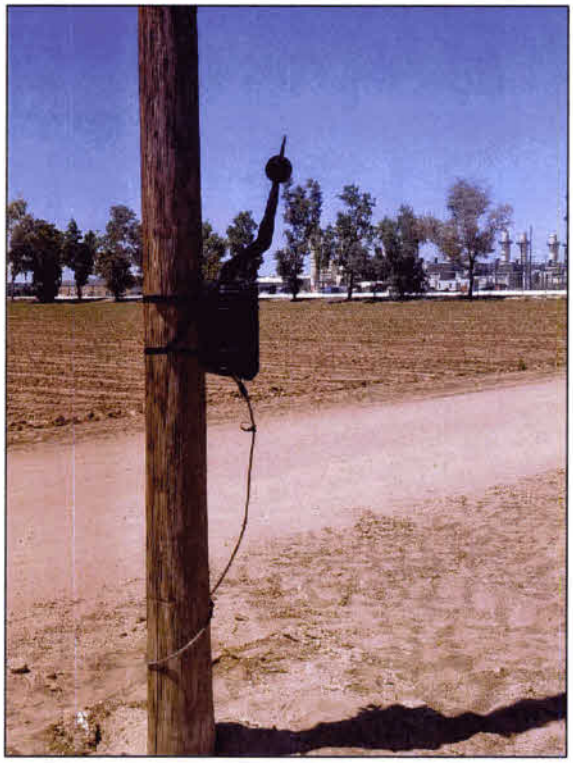

Photo 8

Monitoring Site:
LT-4

Date Taken:
May 25, 2023

Camera Facing:
Southwest

Description:
View toward SLM with Sundance facility in background.

Appendix B Hourly Noise Level Detail

Long-Term Measurement Hourly Data Summary

Date	Time	Leq, dBA	Lmax, dBA	Maximum 2-Minute Leq, dBA
		LT 1		
5/25/23	11:00	66	91	75
5/25/23	12:00	67	90	75
5/25/23	13:00	65	86	73
5/25/23	14:00	67	88	74
5/25/23	15:00	66	86	72
5/25/23	16:00	69	99	82
5/25/23	17:00	68	91	77
5/25/23	18:00	67	89	76
5/25/23	19:00	67	88	73
5/25/23	20:00	63	85	71
5/25/23	21:00	63	85	72
5/25/23	22:00	60	83	68
5/25/23	23:00	62	85	71
5/26/23	0:00	57	82	67
5/26/23	1:00	55	82	66
5/26/23	2:00	59	85	72
5/26/23	3:00	59	88	71
5/26/23	4:00	61	85	70
5/26/23	5:00	64	84	72
5/26/23	6:00	66	86	73
5/26/23	7:00	74	107	88
5/26/23	8:00	65	84	71
5/26/23	9:00	65	87	72
5/26/23	10:00	65	87	73
		LT 2		
5/25/23	10:00	60	82	72
5/25/23	11:00	62	87	76
5/25/23	12:00	58	80	67
5/25/23	13:00	59	83	69
5/25/23	14:00	58	78	66
5/25/23	15:00	61	90	76
5/25/23	16:00	59	86	70
5/25/23	17:00	58	80	67

Date	Time	Leq, dBA	Lmax, dBA	Maximum 2-Minute Leq, dBA
5/25/23	18:00	57	78	63
5/25/23	19:00	54	76	64
5/25/23	20:00	55	75	63
5/25/23	21:00	52	75	61
5/25/23	22:00	53	73	61
5/26/23	23:00	49	72	58
5/26/23	0:00	48	72	58
5/26/23	1:00	52	77	64
5/26/23	2:00	50	78	63
5/26/23	3:00	52	75	61
5/26/23	4:00	56	79	66
5/26/23	5:00	57	77	64
5/26/23	6:00	64	96	78
5/26/23	7:00	61	84	73
5/26/23	8:00	57	81	67
5/26/23	9:00	60	86	72
		LT 3		
5/25/23	11:00	50	75	60
5/25/23	12:00	51	79	64
5/25/23	13:00	47	67	59
5/25/23	14:00	45	69	56
5/25/23	15:00	48	69	56
5/25/23	16:00	57	85	72
5/25/23	17:00	49	72	59
5/25/23	18:00	47	72	58
5/25/23	19:00	48	70	56
5/25/23	20:00	48	67	55
5/25/23	21:00	47	58	53
5/25/23	22:00	50	65	55
5/25/23	23:00	47	63	52
5/26/23	0:00	42	63	50
5/26/23	1:00	43	53	47
5/26/23	2:00	40	51	47
5/26/23	3:00	38	48	42
5/26/23	4:00	45	73	58
5/26/23	5:00	44	56	51
5/26/23	6:00	47	69	58

Date	Time	Leq, dBA	Lmax, dBA	Maximum 2-Minute Leq, dBA
5/26/23	7:00	53	82	67
5/26/23	8:00	45	67	55
		LT 4		
5/25/23	11:00	49	75	59
5/25/23	12:00	51	82	64
5/25/23	13:00	46	71	57
5/25/23	14:00	46	75	57
5/25/23	15:00	48	78	58
5/25/23	16:00	49	78	62
5/25/23	17:00	49	77	59
5/25/23	18:00	50	80	61
5/25/23	19:00	51	73	58
5/25/23	20:00	51	69	56
5/25/23	21:00	50	67	54
5/25/23	22:00	53	66	55
5/25/23	23:00	52	68	54
5/25/23	0:00	50	73	56
5/26/23	1:00	44	54	48
5/26/23	2:00	45	72	54
5/26/23	3:00	47	73	53
5/26/23	4:00	52	75	59
5/26/23	5:00	48	70	55
5/26/23	6:00	49	76	61
5/26/23	7:00	56	88	70
5/26/23	8:00	46	77	55
5/26/23	9:00	55	87	69
5/26/23	10:00	45	81	56

Exhibit J
Special Factors

As stated in Arizona Corporation Commission Rules of Practice and Procedure R14-3-219:

"*Describe any special factors not previously covered herein, which applicant believes to be relevant to an informed decision on its application.*"

Introduction

This exhibit includes information regarding the public and agency involvement program that has been conducted for the Project. The outreach efforts provided information to agencies and individuals, solicited feedback on the proposed Project and information on the Project study area, and helped to identify potential issues relative to the Project.

The public involvement program was initiated to provide local jurisdictions, relevant agencies, and community residents with the opportunity to relay information or potential concerns relevant to the Project. To reach the affected residents and agencies, Arizona Public Service Company (APS) and AECOM (as consultant to APS) instituted multiple public participation activities including a project newsletter, a project website, an in-person open house meeting and a meeting reminder postcard, a virtual open house, social media advertisements, and developed a project email and phone hotline to receive comments from interested parties.

Project Newsletters

One newsletter was prepared during the public involvement process to provide technical information to the public such as the Project webpage address, the Project objective, information about the various methods to comment on the Project (e.g., in email or by telephone), and otherwise become involved in the process (**Exhibit J-1**). The newsletter was mailed on June 23, 2023, and was circulated to residences and business within three miles of the Project, approximately 875 were mailed. A follow up in-person public meeting reminder postcard was mailed on August 3, 2023. As of September 30, 2023, no (0) comments have been received through project outreach.

Website-Virtual Open House

A Project website (https://apssundanceproject.com) was created and maintained to provide access to Project information. Through the website, viewers can access project information, view maps, and leave comments. Viewers can provide their comments or questions on the Project through an embedded comment form on the website. The website address was advertised in the newsletter and on the in-person public meeting reminder postcard. The Project website went live on August 1, 2023. According to Google analytics, the site has been viewed by approximately 256 visitors since its launch on August 1, 2023 through September 30, 2023. The majority of the visitors to the website are from Coolidge, Casa Grande and Eloy in Pinal County and additional visitors from Maricopa County and other locations within and outside of Arizona. As of September 30, 2023, no (0) comment has been received through the webpage. A screenshot of the website and a sample of a weekly visitor analytics chart are provided in **Exhibit J-2**.

In Person Open House

APS hosted an in-person open house at the Mary C. O'Brien Elementary School located in building 6 at 1400 Eleven Mile Corner Road in Casa Grande, Arizona 85194 on August 17, 2023, from 4:00 PM to 8:00 PM. During the open house, APS provided display boards with Project maps and Project details, and APS staff attended the event to address public comments.

Comment sheets were provided and as of September 30, 2023, no (0) written comments were received.

Social Media

APS placed an advertisement through Instagram and Facebook targeted to users in the public outreach area identified for the Project, encompassing the study area and adjacent neighborhoods. The advertisement provided brief information on the Project and directed users to the virtual open house and provided information for an in-person open house. The advertisements ran from August 7, 2023 to August 16, 2023 with both the Spanish and English advertisements reaching 6,742 and 6,876 viewers respectively with about 1% of viewers clicking on the ad linked to the Sundance webpage. Screenshots of these advertisements are included in a supplemental **Exhibit J-3**.

Agency and Local Officials Briefings

During the Project process, APS coordinated with representatives of the Cities of Coolidge, Casa Grande, and Eloy as well as Pinal County, including elected officials and planning staff. The agency and local official outreach objective was to relay information on the Project to their community members to help better understand landowner development plans, answer questions, and request feedback. These meetings enabled the Project team to identify stakeholder issues, consider suggestions during the planning process, and relay information on developments in the Project. A list of agencies contacted is included with **Exhibit H-Existing Plans.**

Cultural Resources Report

A report documenting a cultural resources survey report was discussed In **Exhibit E**. The full report is included as **Exhibit J-4.**

Exhibit J-1. Project Newsletter and Postcard

aps

Mail Station 3293
P.O. Box 53933, Phoenix, AZ 85072

Presorted
Standard Mail
US Postage Paid
Phoenix, AZ
Permit No. 90

APS SUNDANCE PROJECT OPEN HOUSE | SESIÓN INFORMATIVA PROYECTO APS SUNDANCE

You're invited!

Join us to learn more about the APS Sundance Project at our in-person open house. Come by at your convenience to meet with APS representatives and to discuss the project one on one.

Thursday, August 17, 2023
4:00 – 8:00 pm
Mary C. O'Brien Elementary School
1400 Eleven Mile Corner Road, building 6
Casa Grande, AZ 85194
Please park in the north lot to access building 6

Or visit our virtual open house starting in August 2023 at **www.apssundanceproject.com**. You can also submit questions and comments by phone at **(800) 484-1358** or email to **apssundanceproject@aps.com** by **September 13, 2023.**

¡Estás invitado!

Únete a nosotros para obtener más información sobre el Proyecto APS Sundance en nuestra sesión informativa en persona. Ven a tu conveniencia para reunirte con los representantes de APS y discutir el proyecto en persona.

Jueves, el 17 de agosto del 2023
4:00 – 8:00 pm
Mary C. O'Brien Elementary School
1400 Eleven Mile Corner Road, *edificio 6*
Casa Grande, AZ 85194
Estacionate en el lote norte para acceder al edificio 6

O visita nuestra sesión informativa virtual a partir de agosto del 2023 en **www.apssundanceproject.com**. También puede enviar preguntas y comentarios por teléfono al **(800) 484-1358** o por correo electrónico a **apssundanceproject@aps.com** antes del **13 de septiembre del 2023.**

APS SUNDANCE PROJECT

JUNE 2023

Arizona Public Service (APS) plans to build two new natural gas units at the existing Sundance Power Plant, located near you. The two units will add 90 megawatts (MW) to the energy grid – enough to serve 14,400 Arizona homes.

Sundance is a key component of Arizona's energy infrastructure. It currently produces 420 MW, enough energy to power 67,200 Arizona homes. The original plan for the site included twelve units, but only ten were constructed. This project would add the final two units.

Why is this project needed?

As demand for energy in Arizona grows, our natural gas fleet is an important part of a diverse energy mix and a critical complement to the large quantities of solar and battery energy storage we're adding to our system. These new units will support reliable electrical service in our state and provide much-needed energy during the late-afternoon and evening hours, when consumers use it most.

What's next?

Impact studies for the Sundance Project are underway. The results of these studies will be shared with the community during the in-person open house on August 17, 2023, and online at the virtual open house: **www.apssundanceproject.com.**

This fall, APS will include these results when we file to amend the plant's Certificate of Environmental Compatibility (CEC) with the Arizona Corporation Commission.

We'll also file to amend the plant's air permit. Pinal County and the Environmental Protection Agency will review the study results to ensure air quality in the area remains within established guidelines to protect health.

Both the CEC and air permit processes include opportunities for the public to provide comment.

PROJECT SCHEDULE

JULY-SEPTEMBER 2023	AUGUST-SEPTEMBER 2023	EARLY 2025	SPRING 2026
Community open house and comment period	Permit filings with Pinal County, Arizona Corporation Commission	Construction begins	New units in service ahead of summer demand

Ver traducción al español adentro

aps

Where can I learn more? | ¿Dónde puedo aprender más?

We're committed to connecting you with information about the APS Sundance Project.

- **In-Person Open House:**
  Thursday, August 17, 2023, 4:00 - 8:00 p.m.
  Mary C. O'Brien Elementary School, 1400 Eleven Mile Corner Road, Casa Grande, AZ 85194
  Please park in the north lot to access building 6
- **Project Website:**
  www.apssundanceproject.com
  Virtual open house live starting in August 2023
- **Hotline: (800) 484-1358**
- **Email: apssundanceproject@aps.com**

We encourage you to submit your questions and comments by **September 13, 2023**.

Estamos comprometidos a conectarte con información sobre el Proyecto APS Sundance.

- **Sesión informativa en persona:**
  Jueves, 17 de agosto del 2023, 4:00 - 8:00 p.m.
  Mary C. O'Brien Elementary School, 1400 Eleven Mile Corner Road, Casa Grande, AZ 85194
  Estaciónate en el lote norte para acceder al edificio 6
- **Sitio web del proyecto:**
  www.apssundanceproject.com
  Sesión informativa virtual en vivo a partir de agosto de 2023
- **Línea directa: (800) 484-1358**
- **Correo electrónico:**
  apssundanceproject@aps.com

Te recomendamos que envíes tus preguntas y comentarios antes del **13 del septiembre del 2023.**

Who is Arizona Public Service (APS)? | ¿Quién es Arizona Public Service (APS)?

APS owns and operates the Sundance Power Plant near you. We are the state's largest electric utility, serving more than 1.3 million homes and businesses in 11 of Arizona's 15 counties. You can learn more about APS and our commitment to deliver reliable, affordable, clean energy to Arizona at **aps.com**.

APS posee y opera la planta de energía de Sundance cerca de ti. Somos la empresa de servicios eléctricos más grande del estado y atendemos a más de 1.3 millones de hogares y negocios en 11 de los 15 condados de Arizona. Puedes obtener más información sobre APS y nuestro compromiso de proporcionar energía limpia, asequible y confiable a Arizona en **aps.com**.

PROYECTO APS SUNDANCE

JUNIO 2023

Arizona Public Service (APS) planea construir dos nuevas unidades de gas natural en la planta de energía Sundance existente, ubicada cerca de ti. Las dos unidades agregarán 90 megavatios (MW) a la red de energía, suficiente para servir a 14,400 hogares de Arizona.

Sundance es un componente clave de la infraestructura energética de Arizona. Actualmente produce 420 MW, energía suficiente para proporcionar energía a 67,200 hogares en Arizona. El plan original para el sitio incluía doce unidades, pero solo se construyeron diez. Este proyecto agregaría las dos unidades finales.

¿Por qué es necesario este proyecto?

Mientras crece la demanda de energía en Arizona, nuestro gas natural es una parte importante de una combinación energética diversa y un complemento crítico para las grandes cantidades de almacenamiento de energía solar y de baterías que estamos agregando a nuestro sistema. Estas nuevas unidades apoyarán un servicio eléctrico confiable en nuestro estado y proporcionarán energía muy necesaria durante las últimas horas de la tarde y la noche, cuando los consumidores más la usan.

SECUENCIA DEL PROYECTO

- **JULIO-SEPTIEMBRE 2023** — Sesión informativa de la comunidad y período de comentarios
- **AGOSTO-SEPTIEMBRE 2023** — Solicitudes de permisos ante el Condado de Pinal y la *Arizona Corporation Commission*
- **PRINCIPIOS DEL 2025** — Comienza la construcción
- **PRIMAVERA 2026** — Nuevas unidades en servicio antes de la demanda de verano

¿Qué sigue?

Los estudios de impacto para el Proyecto APS Sundance están en proceso. Los resultados de estos estudios se compartirán con la comunidad durante la sesión informativa en persona el 17 de agosto del 2023 y en línea en la sesión informativa virtual: **www.apssundanceproject.com.**

Este otoño, APS incluirá estos resultados cuando presentemos una enmienda al Certificado de Compatibilidad Ambiental (CEC, por sus siglas en inglés) de la planta ante *Arizona Corporation Commission*.

También presentaremos para enmendar el permiso de aire de la planta. El condado de Pinal y la Agencia de Protección Ambiental revisarán los resultados del estudio para garantizar que la calidad del aire en el área permanezca dentro de las pautas establecidas para proteger la salud.

Tanto la CEC como los procesos de permisos de aire incluyen oportunidades para que el público proporcione comentarios.

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APS SUNDANCE PROJECT
PROYECTO APS SUNDANCE

Public Information Open House
Sesión informativa pública

Thursday, August 17th, 2023
Jueves, el 17 de agosto del 2023
4:00 – 8:00 pm
Mary C. O'Brien Elementary School,
1400 Eleven Mile Corner Road, building 6
Casa Grande, AZ 85194
Please park in the north lot to access building 6.
Por favor, estaciónate en el lote norte para acceder al edificio 6.

For more information, or to view our virtual open house, visit **apssundanceproject.com**
Para obtener más información o para ver la sesión informativa virtual, visita **apssundanceproject.com**

aps

Mail Station 3293
P.O. Box 53933, Phoenix, AZ 85072

Presorted
Standard Mail
US Postage Paid
Phoenix, AZ.
Permit No. 90

ABOUT THE APS SUNDANCE PROJECT
SOBRE EL PROYECTO APS SUNDANCE

Arizona Public Service (APS) plans to build two new natural gas units at the existing Sundance Power Plant, located near you. If the project is selected through our competitive procurement process that is underway, the two units will add 90 megawatts (MW) to the energy grid and provide much needed energy during the late afternoon and evening hours when consumers use it most.

Arizona Public Service (APS) planea construir dos unidades nuevas de gas natural en la planta de energía Sundance existente ubicada cerca de ti. Si el proyecto se selecciona a través de nuestro proceso competitivo de adquisición, las dos unidades agregarán 90 megavatios (MW) a la red eléctrica y proporcionarán energía muy necesaria durante las últimas horas de la tarde y la noche, cuando los consumidores más la usan.

CS#1904020

Exhibit J-2. Project Website-Virtual Open House


NOISE ASSESSMENT
EVALUACIÓN DEL RUIDO
NIGHT TIME
VISUAL SIMULATIONS
SIMULACIONES VISUALES
NOCTURNAS
BIOLOGICAL AND
CULTURAL RESOURCE


VISUAL EVALUATION
EVALUACIÓN VISUAL
LAND USE
USO DE LA TIERRA


LAND USE
USO DE LA TIERRA
Thank you for joining us at the
APS Sundance Project
Virtual Open House
Gracias por acompañarnos en la
Sesión informativa del
Proyecto APS Sundance
aps
aps
COMMENTS
COMENTARIOS
WELCOME!
¡BIENVENIDO!

Exhibit J

Analytics APS Sundance apssundanceproject

Go to report

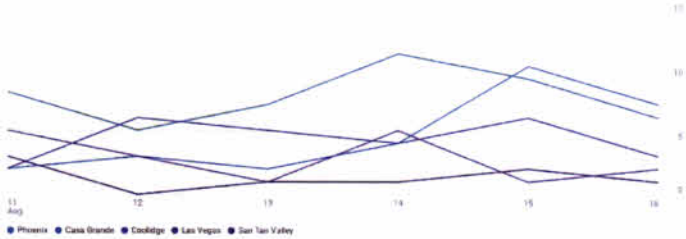
All Users Add comparison +

Custom Aug 11 - Aug 16, 2023

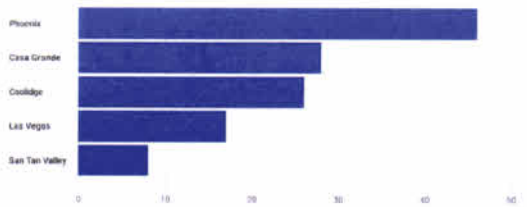
Demographic details: City

Add filter +

Users by City over time



Users by City

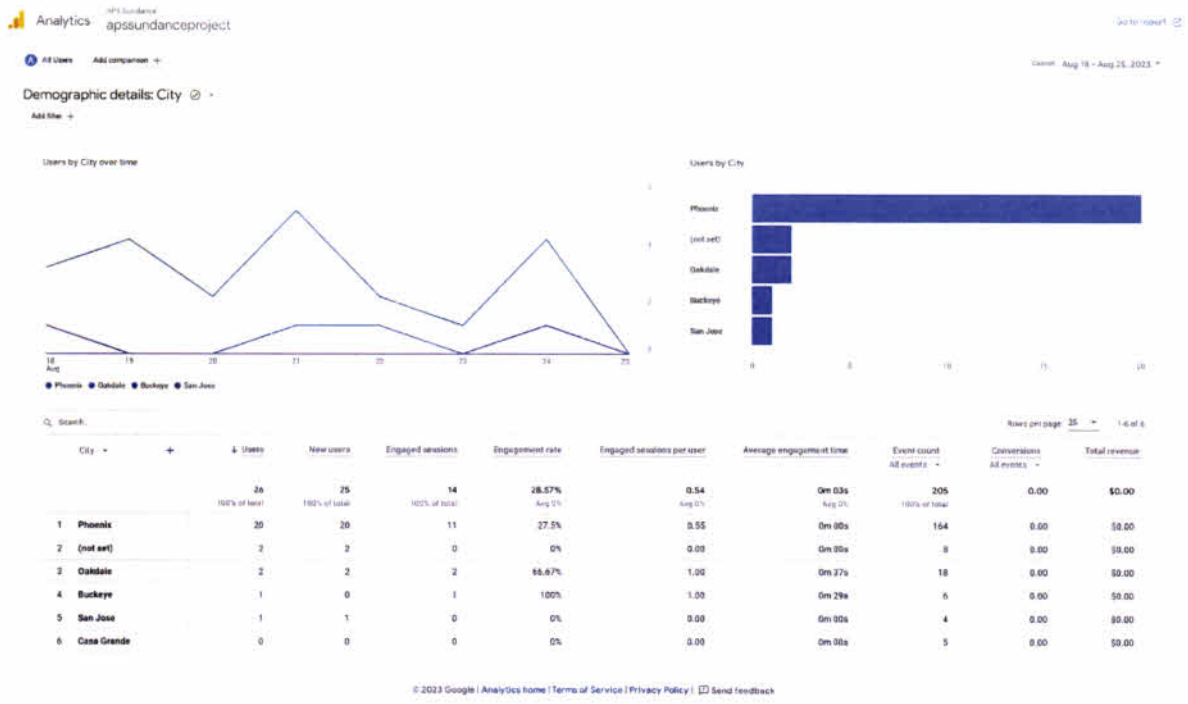


Search...

Rows per page: 50 1-37 of 37

	City	Users	New users	Engaged sessions	Engagement rate	Engaged sessions per user	Average engagement time	Event count All events	Conversions All events	Total revenue
		169 100% of total	168 100% of total	51 100% of total	23.72% Avg 0%	0.30 Avg 0%	0m 06s Avg 0%	915 100% of total	0.00	$0.00
1	Phoenix	46	45	13	17.57%	0.28	0m 03s	289	0.00	$0.00
2	Casa Grande	28	28	6	20%	0.21	0m 02s	119	0.00	$0.00
3	Coolidge	26	26	9	28.13%	0.35	0m 01s	152	0.00	$0.00
4	Las Vegas	17	16	4	23.53%	0.24	0m 05s	77	0.00	$0.00
5	San Tan Valley	8	8	3	30%	0.38	0m 02s	43	0.00	$0.00
6	Buckeye	5	4	3	60%	0.60	0m 10s	21	0.00	$0.00
7	(not set)	4	4	1	20%	0.25	0m 14s	20	0.00	$0.00
8	Los Angeles	4	4	1	25%	0.25	0m 00s	19	0.00	$0.00
9	Mesa	4	4	1	25%	0.25	0m 10s	18	0.00	$0.00
10	Florence	3	3	2	66.67%	0.67	0m 08s	21	0.00	$0.00
11	Des Moines	2	2	0	0%	0.00	0m 00s	8	0.00	$0.00
12	Eloy	2	2	1	33.33%	0.50	0m 00s	12	0.00	$0.00
13	Flagstaff	2	2	0	0%	0.00	0m 00s	8	0.00	$0.00
14	Gilbert	2	0	0	0%	0.00	0m 12s	7	0.00	$0.00
15	San Diego	2	2	1	50%	0.50	0m 12s	11	0.00	$0.00
16	Altoona	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
17	Apache Junction	1	1	0	0%	0.00	0m 00s	6	0.00	$0.00
18	Appleton	1	1	1	100%	1.00	0m 10s	6	0.00	$0.00
19	Chula Vista	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
20	Columbus	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
21	Denver	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
22	Fruita	1	0	0	0%	0.00	1m 34s	1	0.00	$0.00
23	Globe	1	1	0	0%	0.00	0m 00s	3	0.00	$0.00
24	Hermosillo	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
25	Kalispell	1	1	1	100%	1.00	2m 10s	6	0.00	$0.00
26	Managua	1	1	1	100%	1.00	0m 00s	5	0.00	$0.00
27	Marana	1	1	1	100%	1.00	0m 31s	6	0.00	$0.00
28	Maricopa	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
29	Mexico City	1	1	0	0%	0.00	0m 00s	3	0.00	$0.00
30	Morgan	1	0	0	0%	0.00	0m 03s	2	0.00	$0.00
31	Portales	1	0	1	100%	1.00	0m 07s	4	0.00	$0.00
32	Queen Creek	1	1	1	100%	1.00	0m 00s	5	0.00	$0.00
33	Seattle	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
34	Tempe	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
35	Upland	1	0	0	0%	0.00	0m 00s	3	0.00	$0.00
36	Vancouver	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00
37	Vassar	1	1	0	0%	0.00	0m 00s	4	0.00	$0.00

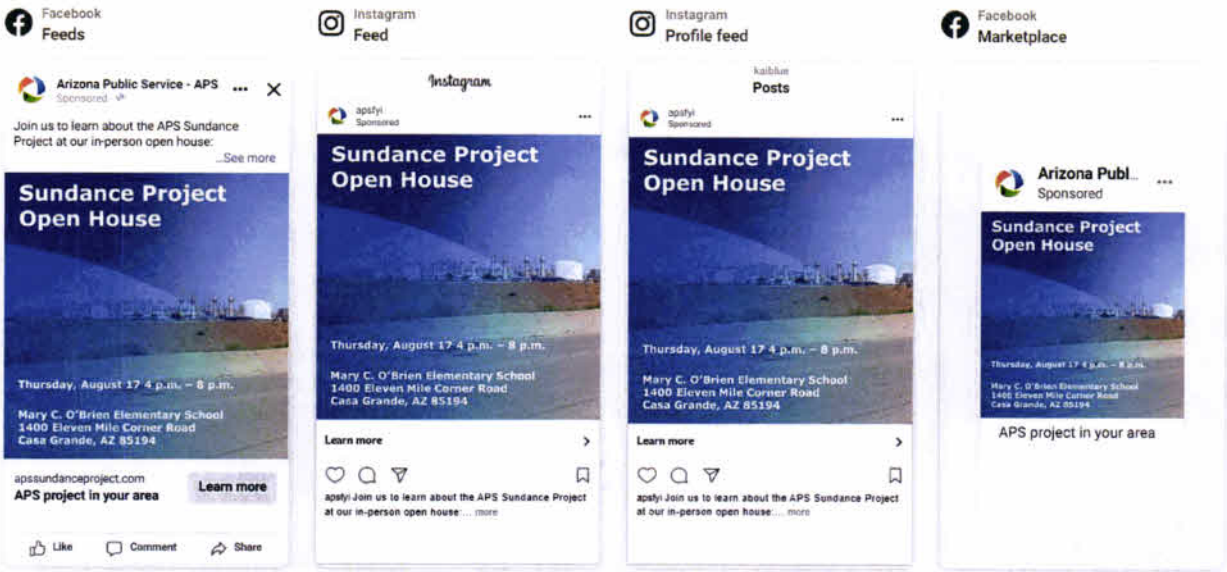
Project Webpage Weekly Visitor Analytics.



Project Webpage Weekly Visitor Analytics.

Exhibit J-3. Social Media Advertisement

Feeds



Performance overview

English Ad

Spanish Ad

Facebook
Feeds

Arizona Public Service - APS
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Join us to learn about the APS Sundance Project at our in-person open house:

Thursday, August 17, 2023 4:00 p.m.-8:00 p.m.

Mary C. O'Brien Elementary School
1400 Eleven Mile Corner Road
Casa Grande, AZ 85194

Meet with APS representatives and discuss the project one on one. Or visit our virtual open house on our project website www.apssundanceproject.com.

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Únete a nosotros para obtener más información sobre el Proyecto APS Sundance en nuestra sesión informative en persona.

Jueves, el 17 de agosto del 2023 4:00 p.m. – 8:00 p.m.

Mary C. O'Brien Elementary School
1400 Eleven Mile Corner Road, edificio 6
Casa Grande, AZ 85194

Únete con los representantes de APS y discutir el proyecto en persona. O visita nuestra sesión informativa virtual en el sitio de web del Proyecto www.apssundanceproject.com.

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Exhibit J-4. Cultural Resource Assessment for the Sundance Power Plant Expansion, Pinal County, Arizona

Cultural Resource Assessment for the Sundance Power Plant Expansion, Pinal County, Arizona

Prepared for
Arizona Public Service Company

Prepared by
AECOM
7720 North 16th Street, Suite 100
Phoenix, Arizona 85020

Restricted Distribution:
Restrict distribution of information in this document about the location, character, or ownership of archaeological and historic resources if that information could result in significant invasion of privacy, damage to the archaeological and historical resources, or impede the use of traditional religious sites by practitioners, in accordance with applicable regulatory requirements, including Section 304 of the National Historic Preservation Act, Section 9(a) of the Archaeological Resources Protection Act, and Section 39-125 of the Arizona Revised Statutes.

Cultural Resource Report 2023-17(AZ)

August 2023

Delivering a better world

1. REPORT TITLE
1a. Report Title:
Cultural Resource Assessment for the Sundance Power Plant Expansion, Pinal County, Arizona.
1b. Report **Author(s):** A.E. (Gene) Rogge
1c. Date: 21 August 2023 **1d. Report No.:** 2023-17(AZ)

2. PROJECT REGISTRATION/PERMITS
2a. ASM Accession Number: none required
2b. AAA Permit Number: none required
2c. ASLD Lease Application Number(s): not applicable
2d. Other Permit Number(s): none

3. ORGANIZATION/CONSULTING FIRM
3a. Name: AECOM
3b. Internal Project Number: 60707626
3c. Internal Project Name:
Sundance Power Plant Certificate of Environmental Compatibility (CEC) Amendment
3d. Contact Name: A.E. (Gene) Rogge
3e. Contact Address: 7720 N. 16th Street, Suite 100, Phoenix, AZ 85020
3f. Contact Phone: 602-317-1772
3g. Contact Email: gene.rogge@aecom.com

4. SPONSOR/LEAD AGENCY
4a. Sponsor: Arizona Public Service Company (APS)
4b. Lead Agency:
Power Plant and Transmission Line Siting Committee, Arizona Corporation Commission (ACC)
4c. Agency Project Number(s): CEC Case 107 amendment
4d. Agency Project Name: Sundance Energy Facility
4e. Funding Source(s): APS
4f. Other Involved Agencies: none
4g. Applicable Regulations:
ACC Rules of Practice and Procedure R14-3-219,
State Historic Preservation Act (Arizona Revised Statutes § 41-861 through § 41-864),
Governor's Office on Tribal Relations (Arizona Revised Statute 41-2051[C])

5. DESCRIPTION OF PROJECT OR UNDERTAKING:
On July 9, 2001, the ACC issued Decision No. 63863 (Docket No. L-00000W-00-0107) approving CEC 107 for the Sundance Energy Facility. The CEC authorized PPL Sundance Energy LLC to construct a 450 megawatt (MW) natural gas-fired, simple cycle, peaking power generating facility in Pinal County as Phase 1 of the project development and to construct Phase 2 within 5 years to increase the plant capacity to 540 MW. In 2001, the Western Area Power Administration completed an environmental impact statement for the power plant and associated transmission line and natural gas pipeline, pursuant to the National Environmental Policy Act (42 US Code §§ 4370h). PPL Sundance Energy LLC constructed Phase 1 with five power blocks, each with two paired 45-MW LM6000 turbines, with a combined generation capacity of 450 MW, and put the plant into service in 2002, APS purchased the Sundance Power Plant in 2005 and continues to operate the facility. To meet continued customer load growth, APS now plans to expand the plant capacity by adding a sixth power block with two additional turbines that would increase the plant's capacity to 540MW. Because the original ACC authorization to expand the plant expired in 2006, APS is now asking the ACC to amend CEC 107 to reauthorize the construction of the two Phase II units, each with a capacity of 45 MW.

6. PROJECT AREA/AREA OF POTENTIAL EFFECTS:
The project area is the Sundance Power Plant, which encompasses 73.4 acres.
7. PROJECT LOCATION
7a. Address: 2060 W. Sundance Road
7b. Route: not applicable **7c. Mileposts Limits:** not applicable
7d. Nearest City/Town: Coolidge **7e. County:** Pinal
7f. Project Locator UTM: 444,870 Easting, 3,643,505 Northing **7g. NAD** 83 **7h. Zone:** 12
7i. Baseline & Meridian: Gila and Salt River **7j. USGS Quadrangle(s):** Coolidge
7k. Legal Description(s): Township 6 South, Range 7 East, SE1/4 Section 2 (**Figure 1**)

8. SURVEY AREA
8a. Total Acres: 73.4 acres
8b. Survey Area

1. Land Jurisdiction	2. Total Acres Surveyed	3. Total Acres Not Surveyed	4. Justification for Areas Not Surveyed
private	none	not applicable	not applicable

9. ENVIRONMENTAL CONTEXTS
9a. Landform: valley floor at the northern end of an area known as the Santa Cruz Flats (**Figure 2**)
9b. Elevation: 1,415 feet
9c. Surrounding Topographic Features:
The Sacaton Mountain are approximately 4 miles northwest of the project area, the Casa Grande Mountains 10 miles to the southwest, and the Picacho Mountains 14 miles to the southeast.
9d. Nearest Drainage:
McClellan Wash, a tributary of the Gila River, is approximately 3 miles northeast of the project area.
9e. Local Geology:
Local geological deposits are Quaternary surficial deposits (sand, silt, and clay on alluvial plains and wind-blown sand) (Richard and others 2000).
9f. Vegetation:
Native vegetation is likely to have been a creosote bush-bursage community typical of the Lower Colorado River Subdivision of Sonoran Desertscrub (Turner and Brown 1994), but construction of the power plant has eliminated vegetation in the project area and agricultural development has eliminated native vegetation in much of the surrounding area.
9g. Soils/Deposition:
The Natural Resource Conservation Service (2023) classified soils in the project area as Casa Grande fine sandy loam on 0 to 3 percent slopes. In that soil unit, approximately the upper foot is sandy loam and underlying sandy clay loam extends to a depth of at least 5 feet.
9h. Buried Deposits: not likely
9i. Justification: The geomorphological setting indicates there is potential for buried archaeological deposits but they would be relatively shallow and there would typically be surface indications of such deposits. The cultural resource survey of the project area prior to development of the power plant did not identify any archaeological sites in the plant site. Construction of the power plant would have disturbed any undetected archaeological deposits that might have been present.

I0. BUILT ENVIRONMENT:
The Sundance Power Plant occupies the project area. There is a cotton gin and several scattered residences within 1 mile of the power plant, with the nearest residential community located approximately 2 miles from the Plant. The closest residence is approximately 500 to 1,000 feet away; however aerial photos indicate those buildings are no more than approximately 25 years old and not of historic age.

11. INVENTORY CLASS COMPLETED
11a. Class I Inventory: ☒
11b. Researcher(s): A.E. (Gene) Rogge and Ronald Savage
11c. Class II Survey: ☐
11d Sampling Strategy:
11e. Class III Inventory: ☐

12. BACKGROUND RESEARCH SOURCES
12a. AZSITE: ☒
12b.Arizona State Museum (ASM) Archaeological Records Office: ☒
12c. State Historic Preservation Office (SHPO) Inventories and/or SHPO Library: ☐
12d. NRHP Database: ☒
12e. ADOT Portal: ☐
12f. GLO Maps:
The General Land Office made the first cadastral survey of Township 6 South, Range 7 East in 1888 and the resulting plat showed no cultural features in Section 2, where the project is located. The only mapped cultural feature in the record review area was a wagon road between Tucson and Sacaton that passed within approximately one-half mile southwest of the project area (**Figure 3**). The General Land Office resurveyed the township in 1928 and again mapped no cultural features in the project area. Cultural features mapped in the review area included fields, roads, fences, and one building, probably a farm house. One field abutted the north side of the project area, but the plat does not depict the project area as a field (**Figure 4**), suggesting the landowner had not been able to develop a supply of irrigation water.
12g. Land- Managing Agency Files:
12h. Tribal Cultural Resources Files:
12i. Local Government Websites:
12j. Other:
Background research to identify potential unrecorded historical resources included review of a series of topographic maps (Signal Peak 1:62,500 quadrangle [1922, 1924, 1959, 1960], Tucson 1:250,000 [1956, 1959, 1962], Coolidge 1:24,000 [1965, 1966, 1977]), and aerial photos (1961, 1963, 1971, 1972) (NETROnline 2023; United States Geological Survey 2023). The 1920s maps depict scattered buildings and wells, numerous roads, mostly along section lines, and a school about 1.5 miles southwest of the project area. That pattern indicates homesteaders occupied the area and developed farms, which is consistent with historical documents indicating Euro-American farmers began settling the area about a half century earlier.

However, a high percentage of the early farms failed because of lack of water for irrigation (Rich and Jones 2017). The San Carlos Act of June 7, 1924 authorized a federal reclamation project that led to construction of Coolidge Dam and the Ashurst-Hayden Diversion Dam on the Gila River and an integrated network of irrigation canals to supply irrigation water to 50,000 acres of land on the Gila River Indian Community reservation and 50,000 acres of non-Indian lands in the San Carlos Irrigation and Drainage District (Pfaff 1996). Because the project area was outside the boundaries of the San Carlos Irrigation and Drainage District it did not benefit from

the federal irrigation project. Farming the project area apparently relied on deep irrigation wells, which was largely a post-World War II development. The project area became part of the Hohokam Irrigation and Drainage District when it organized in 1972 to construct facilities to enable delivery of irrigation water from the Colorado River via the Central Arizona Project (Hohokam Irrigation and Power 2023).

The earliest aerial photos confirm the project area was a field in 1961 and remained an agricultural field until PPL Sundance Energy LLC constructed the Sundance Energy Facility. None of the maps show any buildings or infrastructure within the project area, except for an unimproved road shown on a 1983 map branching north from Randolph Road to connect to a water well to the north of the project area. That map also depicts what appears to be the buried natural gas pipeline that crosses east-west through the project area. A 1972 aerial photo shows a scar that might reflect recent or ongoing construction of the pipeline.

13. BACKGROUND RESEARCH RESULTS

13a. Previous Projects Within Study Area

The review identified 10 prior cultural resource surveys that covered approximately 35 percent of the review area. Seven of those overlapped or were immediately adjacent to project area, which Slawson (2000) surveyed completely in conjunction with construction of the Sundance Energy Facility (see Figure 1).

1. Project Reference Number		2. Project Name	3. Author(s)	4. Year
overlapping or adjacent to the project area				
1	1985-226.ASM	All American Pipeline Right-of-Way	Batcho	1985
2	1985-238.ASM	Central Arizona Project Distribution System, Hohokam Irrigation District	Hackbarth and Van Nimwegen	1990
3	2001-674.ASM	Sundance Energy Project historic irrigation	O'Mack	2001
4	2005-853.ASM	Sundance Energy Project alternative transmission line corridors	Shaw	2001
5	2006-894.ASM	Sundance Energy Project	Slawson	2000
6	2010-280.ASM	Arizona Natural Gas Storage Pipeline Header and Laterals	Rayle and others	2010
7	2012-594.ASM	All American Pipeline Survey/El Paso Natural Gas Line No. 2000	North	2000
in or overlapping review area outside project area				
8	1986-19.ASM	Central Arizona Project Distribution System, Hohokam Laterals 4 and 5	Quillian	1990
9	2006-423.ASM	120 acres near Kleck and Tweedy Roads	Moore	2005
10	2009-434.ASM	Sundance-Pinal 230kV transmission line	Ellison	2009a; 2009b

13b. Previously Recorded Cultural Resources Within Study Area

The review identified five cultural resources recorded in the review area. None of those are in the project area. Two of the recorded cultural resources are scatters of precontact Hohokam artifacts. The SHPO previously determined that one of those sites, located approximately 100 feet south of the power plant, lacks significance and is not eligible for the Arizona Register of Historic Places (ARHP). The mapped location of the other scatter of Hohokam artifacts is approximately one-half mile from the power plant. No archaeologist has inspected the site since its original recording in 1985 and its eligibility for the ARHP remains evaluated. The three other recorded cultural resources are of historic age. One is a section line road (Tweedy Road), and the SHPO previously determined the road is not eligible for the ARHP. The two other recorded

cultural resources are concrete-lined irrigation ditches and one also is associated with a capped well, concrete pump foundation, and trash pit. The SHPO has not determined the ARHP eligibility of those sites, but the recorders evaluated the sites as ineligible.

1. Site Number/Name	2. Affiliation	3. Site Type	4. Eligibility Status	5. Associated Reference(s)
AZ AA:2:95(ASM)	Hohokam	eroded low-density artifact scatter with 1 red-on-buff and about 20 Gila Plain ceramic sherds, fewer than 10 pieces of flaked stone, and small metate fragment.	unevaluated	Batcho 1985
Tweedy Road AZ AA:2:194(ASM) AZ AA:2:325(ASM)	historic	section line road	ineligible, SHPO-2010-0838	North 2000; Rayle and others 2010
AZ AA:2:199(ASM)	Hohokam	2 ceramic sherd and flaked stone concentrations	ineligible, SHPO-2001-27	Slawson 2000
AZ AA:2:207(ASM)	historic	segment of concrete-lined irrigation ditch, capped water well, concrete pump base, and trash pit	recorder considered not eligible	Shaw 2001
AZ AA:2:341(ASM)	historic	22 concrete-lined irrigation field ditches built circa 1936-1960, some abandoned, some in use, one in the review area	recorder considered not eligible	Rayle and others 2010

13c. Historic Buildings/Districts/Neighborhoods.

1. Property Name or Address	2. Year	3. Eligibility Status
None		

14. CULTURAL CONTEXTS
14a. Prehistoric Culture: Archaic, Hohokam
14b. Protohistoric Culture: O'odham, Apache
14c. Indigenous Historic Culture: O'odham
14d. Euro-American Culture: rural farms

15. FIELD SURVEY PERSONNEL
15a. Principal Investigator: not applicable
15b. Field Supervisor: not applicable
15c. Crew: not applicable
15d. Fieldwork Date(s): not applicable

16. SURVEY METHODS
16a. Transect Intervals: not applicable
16b. Coverage (%):not applicable
16c. Site Recording Criteria: not applicable
16d. Ground Surface Visibility: not applicable
16e. Observed Disturbances: not applicable

17. FIELD SURVEY RESULTS
17a. No Cultural Resources Identified: ☐ not applicable
17b. Historical In-Use Structures Identified: ☐ **Form(s) Attached:** ☐ not applicable
17c. Number of IOs Recorded: not applicable
17d. Table of IOs

1. IO Number	2. Description	3. Date Range	4. UTMs
not applicable			

18. COMMENTS: The assessment documented that an intensive cultural resource survey conducted in conjunction with construction of the Sundance Energy Facility found no cultural resources in the site selected for the power plant. The review also documented that prior cultural resource surveys had covered approximately 35 percent of the area within 1 mile of the project area and recorded five cultural resources outside the project area. The SHPO previously determined two of the five cultural resources are not eligible for the ARHP. The SHPO has not determined the eligibility of the other three but the recorders evaluated two of those sites as ineligible. No archaeologist has inspected the other unevaluated site since its recording in 1985. Proximity impacts of the proposed expansion of the Sundance Power Plant, due to factors such as visual changes or increased noise, would not affect any potential important information or other historically significant characteristics those cultural resources might have. In summary, the review documented that the proposed addition of a sixth power block within the current limits of the Sundance Power Plant would not substantially damage or destroy any properties listed in or eligible for the ARHP.

SECTION 19. ATTACHMENTS
19a. Project Location Map: ☒ Figure1 and 2
19b. Land Jurisdiction Map: ☒ Figure 1
19c. Background Research Map(s): ☒ Figure 1
19d. GLO Map(s): ☒ Figure 3 and 4
19e. References: ☒

SECTION 20. CONSULTANT CERTIFICATION

I certify the information provided herein has been reviewed for content and accuracy and all work meets applicable agency standards.

Signature

Cultural Resource Team Leader
Title

SECTION 21. DISCOVERY CLAUSE

In the event that previously unreported cultural resources are encountered during ground disturbing activities, all work must immediately cease within 30 meters (100 feet) until a qualified archaeologist has documented the discovery and evaluated its eligibility for the Arizona or National Register of Historic Places in consultation with the lead agency, the SHPO, and Tribes, as appropriate. Work must not resume in this area without approval of the lead agency.

If human remains are encountered during ground-disturbing activities, all work must immediately cease within 30 meters (100 feet) of the discovery and the area must be secured. The Arizona State Museum, lead agency, SHPO, and appropriate Tribes must be notified of the discovery. All discoveries will be treated in accordance with NAGPRA (Public Law 101-601; 25 U.S.C. 3001-3013) or Arizona Revised Statutes (A.R.S. § 41-844 and A.R.S. § 41-865), as appropriate, and work must not resume in this area without authorization from ASM and the lead agency.

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sensitive information redacted.

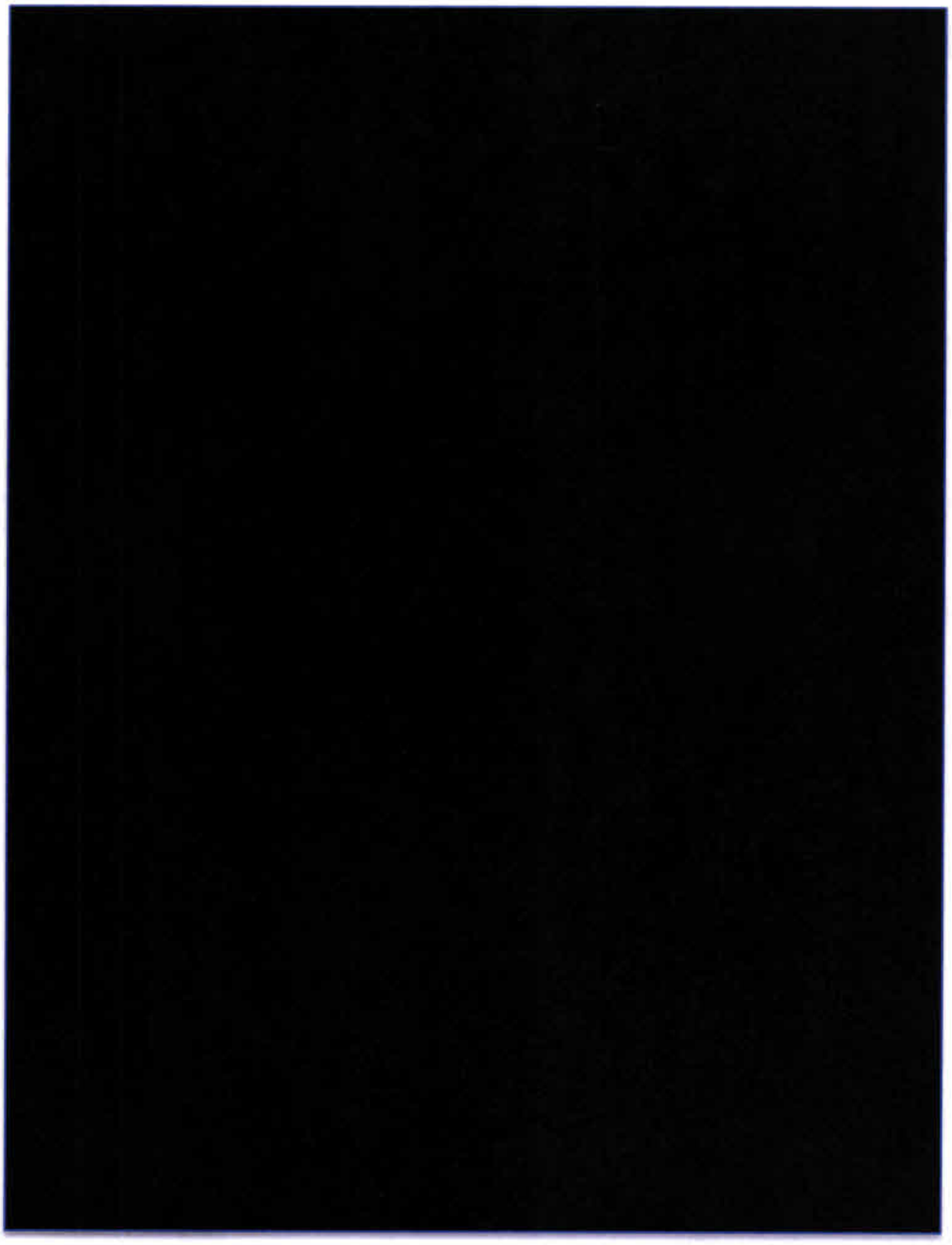

Figure 1. Project Area and Records Review Results

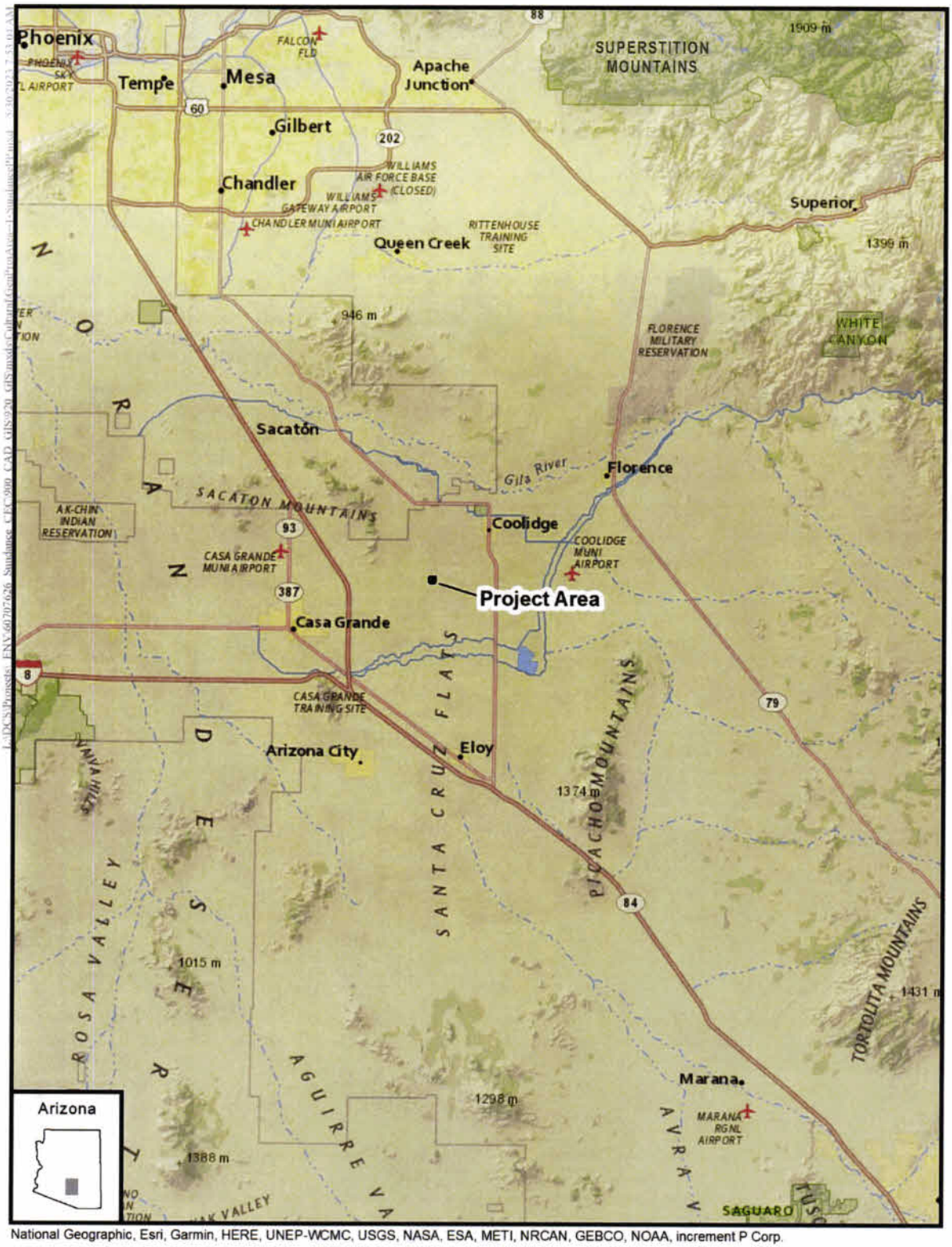

Figure 2. General Project Location

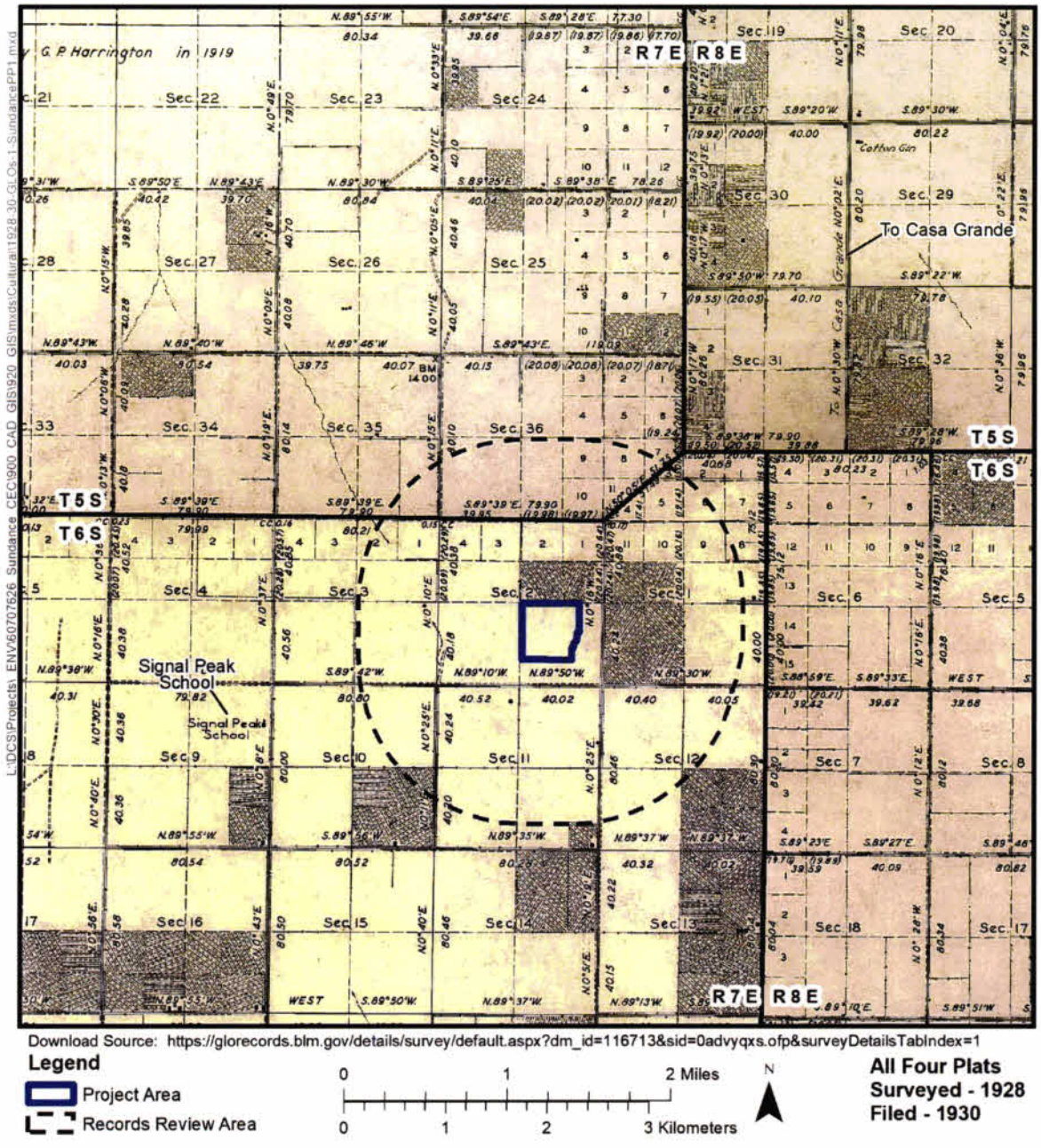

Figure 3. Original General Land Office Plats

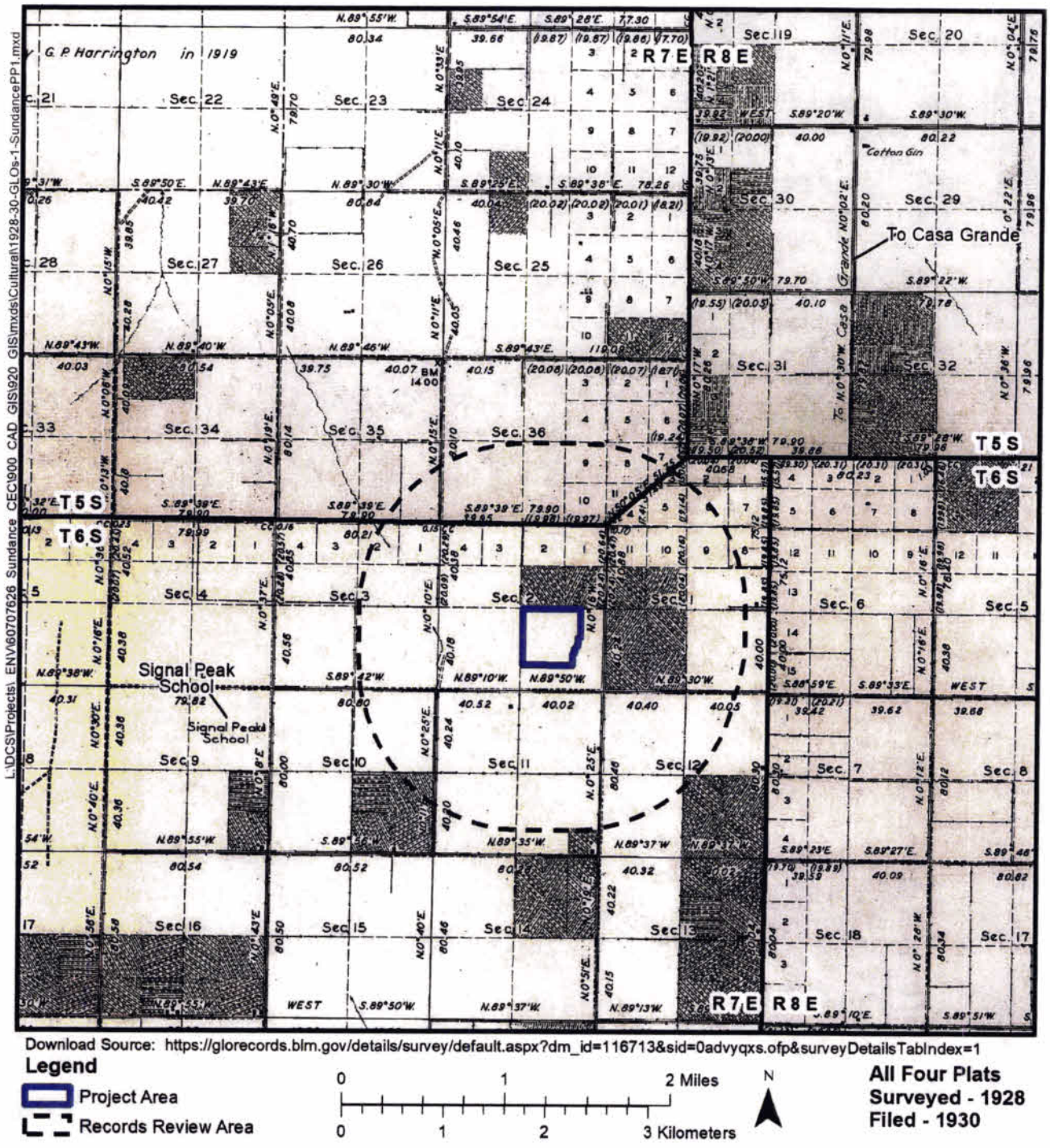

Figure 4. General Land Office Resurvey Plats