CERTIFICATION AND FINANCING PROPOSAL

ZIER SOLAR AND ENERGY STORAGE PROJECT IN KINNEY COUNTY, TEXAS

Published: September 1st, 2021

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EXECUTIVE SUMMARY

ZIER SOLAR AND ENERGY STORAGE PROJECT IN KINNEY COUNTY, TEXAS

Project:

The proposed project consists of the design, construction and operation of a 160-MW_{AC} solar park, a 40-MW_{AC}, 2-hour duration battery energy storage system (BESS), and a transmission line located in Kinney County, Texas (the "Project").[1] The electricity generated by the solar system, as well as the products generated or enabled by the BESS (ancillary services and energy arbitrage),[2] will be sold to a private off-taker under a long-term power purchase agreement (PPA) or hedge agreement and/or in the wholesale electricity market.

Objective:

The purpose of the Project is twofold. Its first objective is to increase the installed capacity of renewable energy resources, which will help reduce future demand on traditional fossil fuel-based energy production and thus help prevent the emission of greenhouse gases and other pollutants from such power generation.

Its second objective is to increase the energy storage capacity of the Texas grid, which will allow the system operator to manage the grid more efficiently and reduce the use of ramp-up/ramp-down fossil fuel power generating plants. The Project will also help integrate the intermittent electricity generated by renewable energy sources including the new solar park, as well as support a more efficient and reliable power grid by minimizing power disruptions and reducing energy losses resulting from mismatches in supply and demand.

Expected Outcomes:

The estimated environmental and human health outcomes resulting from the installation of 160 MW_{AC} of new renewable energy generation capacity and 40 MW_{AC} of new energy storage capacity are:

a) Generation of approximately 414.31 gigawatt-hours (GWh) of electricity during the first year of operation.[3]

[1] MW_{AC} stands for megawatts in alternating current.
[2] Ancillary services are those required to support the reliability of the electricity grid. For the Electric Reliability Council of Texas (ERCOT) these services include regulation up, regulation down, responsive reserves and non-spinning reserves. Energy arbitrage refers to the practice of storing electricity generated by the solar park (or purchased from the grid) during off-peak periods and discharging it during peak periods.
[3] Source: Information provided by the Sponsor based on expected P50 electricity production. P50 refers to the electricity projected to be generated by the plant with a 50% probability of exceedance.

b) Storing and delivering up to 13.5 GWh of energy output per year for ancillary services and energy arbitrage purposes.[4]

c) Displacement of approximately 186,398 metric tons/year of carbon dioxide (CO_2), 132 metric tons/year of nitrogen oxides (NOx) and 132 metric tons/year of sulfur dioxide (SO_2).[5]

Sponsor:	Cypress Creek Renewables, LLC.
Borrower:	Zier Solar, LLC.
NADB Loan Amount:	Up to US$70.5 million.

[4] The BESS is expected to complete the equivalent of 0.4 charge/discharge cycles (32 MWh) per day and is subject to energy conversion losses (round-trip efficiency losses). The round-trip efficiency ratio for the Project is 87%, according to information provided by the Sponsor. The BESS will be restricted to solar charging during the first five years. After five years, the BESS can be charged from a combination of solar and grid power to boost revenue from ancillary services and energy arbitrage.

[5] CO_2, NOx and SO_2 calculations are based on the potential emissions avoided as a result of reducing future demand on fossil fuel-based electricity through the use of solar energy equivalent to 414.31 GWh/year and the emission factors for the state of Texas. The emission factors are: 0.4499 metric tons/megawatt-hour (MWh) for CO_2; 0.0003178 metric tons/MWh for NOx and 0.0003178 metric tons/MWh for SO_2.

CERTIFICATION AND FINANCING PROPOSAL

ZIER SOLAR AND ENERGY STORAGE PROJECT IN KINNEY COUNTY, TEXAS

1. PROJECT OBJECTIVE AND EXPECTED OUTCOMES

The proposed project consists of the design, construction and operation of a 160-MW_{AC} solar park, a 40-MW_{AC}, 2-hour duration battery energy storage system (BESS), and a transmission line located in Kinney County, Texas (the "Project").[6] The electricity generated by the solar system, as well as the products generated or enabled by the BESS (ancillary services and energy arbitrage), will be sold to a private off-taker under a long-term power purchase agreement (PPA) or hedge agreement and/or in the wholesale electricity market.[7] The purpose of the Project is twofold: i) increase the installed capacity of renewable energy resources and ii) increase the energy storage capacity of the Texas grid.

The solar park is expected to generate 414.31 gigawatt-hours (GWh) of electricity during the first year of operation, which will help reduce future demand on traditional fossil fuel-based energy production and thus help prevent the emission of greenhouse gases and other pollutants from power generation using fossil fuels.[8] The BESS is expected to store electricity generated by the solar park and/or the Electric Reliability Council of Texas (ERCOT) grid and deliver up to 13.5 GWh of electricity a year, which will allow the system operator to manage the grid more efficiently and reduce the use of ramp-up/ramp-down fossil fuel power generating plants.[9] It will also help integrate the intermittent electricity generated by renewable energy sources, including the solar park, as well as support a more efficient and reliable power grid by minimizing power disruptions and reducing energy losses resulting from mismatches in supply and demand. Together, the two components will help prevent the emission of an estimated 186,398 metric tons/year of carbon dioxide (CO_2), 132 metric tons/year of nitrogen oxides (NOx) and 132 metric tons/year of sulfur dioxide (SO_2).[10]

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[6] MW_{AC} stands for megawatts in alternating current.

[7] Ancillary services are those required to support the reliability of the electricity grid. For the Electric Reliability Council of Texas (ERCOT) these services include regulation up, regulation down, responsive reserves and non-spinning spinning reserves. Energy arbitrage refers to the practice of storing electricity generated by the solar park (or purchased from the grid) during off-peak periods and discharging it during peak periods.

[8] Source: Information provided by the Sponsor based on expected P50 electricity production.

[9] The BESS is expected to complete the equivalent of 0.4 charge/discharge cycles (32 MWh) per day and is subject to energy conversion losses (round-trip efficiency losses). The round-trip efficiency ratio for the Project is 87%, according to information provided by the Sponsor. The BESS will be restricted to solar charging during the first five years. After five years, the BESS can be charged from a combination of solar and grid power to boost revenue from ancillary services and energy arbitrage.

[10] CO_2, NOx and SO_2 calculations are based on the potential emissions avoided as a result of reducing future demand on fossil fuel-based electricity through the use of solar energy equivalent to 414.31 GWh/year and the emission

2. ELIGIBILITY

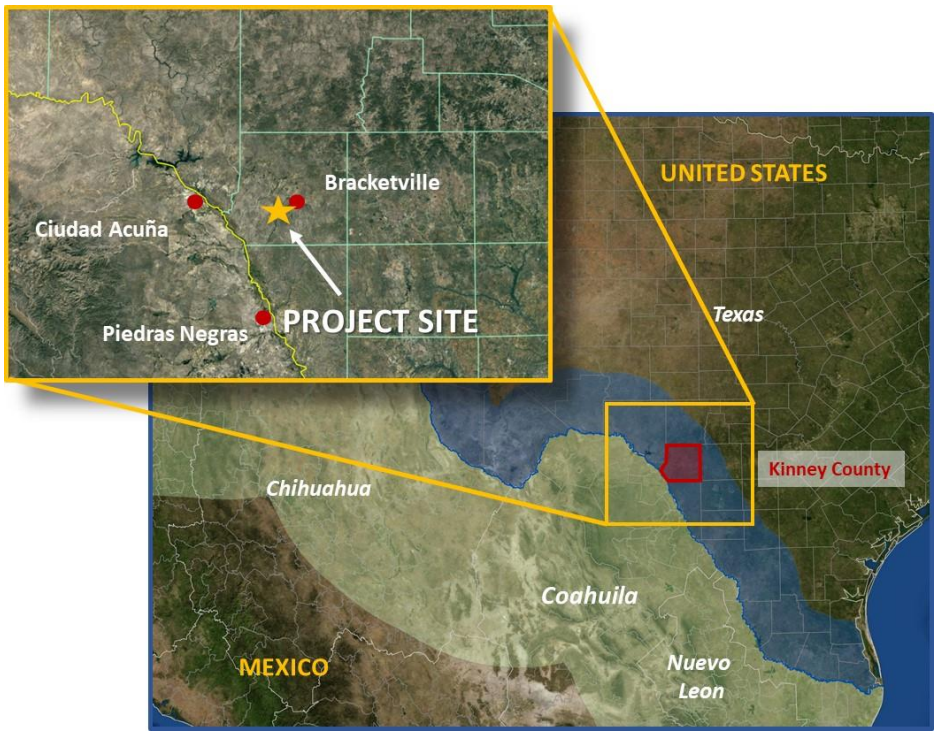
2.1. Project Type

The Project falls into the category of clean and efficient energy.

2.2. Project Location

The Project will be developed on approximately 1,865 acres (755 hectares) of private land in Kinney County, approximately six miles west of Brackettville, which is the county seat, and approximately 17 miles northeast of the U.S.-Mexico border, at the following coordinates: latitude: 29°18'26"N and longitude: 100°31'10"W. Figure 1 illustrates the geographic location of the Project.

Figure 1
PROJECT LOCATION MAP



factors for the state of Texas. The emission factors are: 0.4499 metric tons/megawatt-hour (MWh) for CO_2; 0.0003178 metric tons/MWh for NOx and 0.0003178 metric tons/MWh for SO_2.

2.3. Project Sponsor and Legal Authority

The private-sector project sponsor is Cypress Creek Renewables, LLC. (Cypress Creek or the "Sponsor"), which will use a special-purpose vehicle, Zier Solar, LLC. (Zier or the "Project Company"), to implement the Project. Zier is a Texas-based, limited-liability company established in March 2018.

3. CERTIFICATION CRITERIA

3.1. Technical Criteria

3.1.1. General Community Profile

According to the U.S. Census Bureau, in 2019, Kinney County had an estimated population of 3,667, which represents 0.013% of the Texas population. The County had an average poverty rate of 18.9% in 2019, which is higher than the 13.6% poverty level estimated for the state of Texas. The median household income (MHI) in 2019 was estimated at US$26,738, which is less than half the US$61,874 estimated for the state.[11]

The electricity generated by the Project is expected to offset generation from other, more polluting sources, thus resulting in cleaner air in the region. Specifically, the electricity generated by the solar park will be equivalent to the annual consumption of 30,286 households (86,315 residents).[12] The electricity stored and delivered daily by the BESS will be equivalent to serving up to 987 households (2,813 residents) per day.[13] Additionally, the Project is expected to benefit nearby communities through the creation of approximately 225 jobs during construction and three on-site jobs during operation.

Local Energy Profile

According to the U.S. Energy Information Administration (EIA), reductions in technology costs combined with the implementation of policies that encourage the use of renewables at the state level (renewable portfolio standards) and at the federal level (production and investment tax credits) are driving down the costs of renewable energy facilities (wind and solar photovoltaic), supporting their expanded adoption.[14] The development of non-hydroelectric renewable energy is projected to be the fastest growing energy source in the United States. Figure 2 shows the U.S. net renewable capacity in 2020, and Figure 3 shows the U.S. net generation from renewable energy sources.

[11] Source: U.S. Census Bureau, QuickFacts, https://www.census.gov/quickfacts/fact/table/kinneycountytexas,TX/PST045219
[12] Calculated by NADB based on (i) average annual and daily electricity consumption per Texas household of 13,680 kilowatt-hours (kWh) and 37.48 kWh, respectively, in 2019, as estimated by the U.S. Energy Information Administration (EIA) (https://www.eia.gov/electricity/sales_revenue_price/pdf/table5_a.pdf), and (ii) 2.85 persons per household as estimated by the U.S. Census Bureau.
[13] Ibid.
[14] Source: EIA, Annual Energy Outlook 2021.

Figure 2
2019 U.S. NET RENEWABLE GENERATION CAPACITY
(Gigawatts)

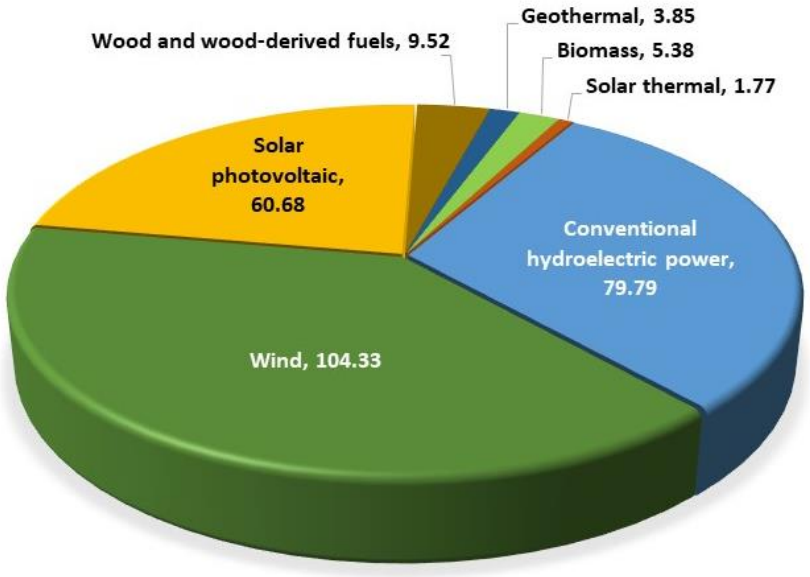


Chart prepared by NADB based on EIA electricity capacity reports (February 2021)
(https://www.eia.gov/electricity/annual/html/epa_04_03.html).

Figure 3
2019 U.S. NET GENERATION FROM RENEWABLE SOURCES
(Thousands of Gigawatts-hours)

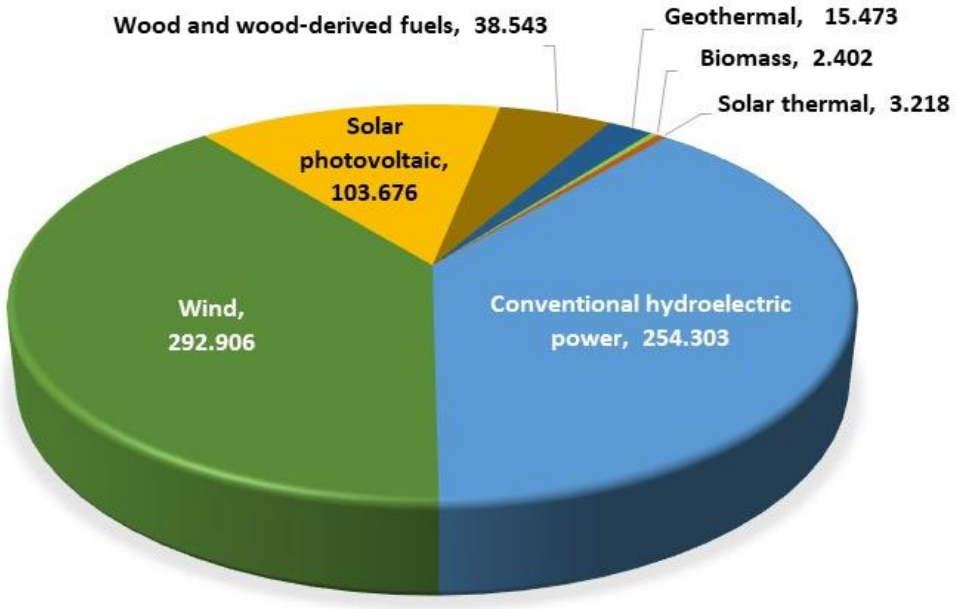
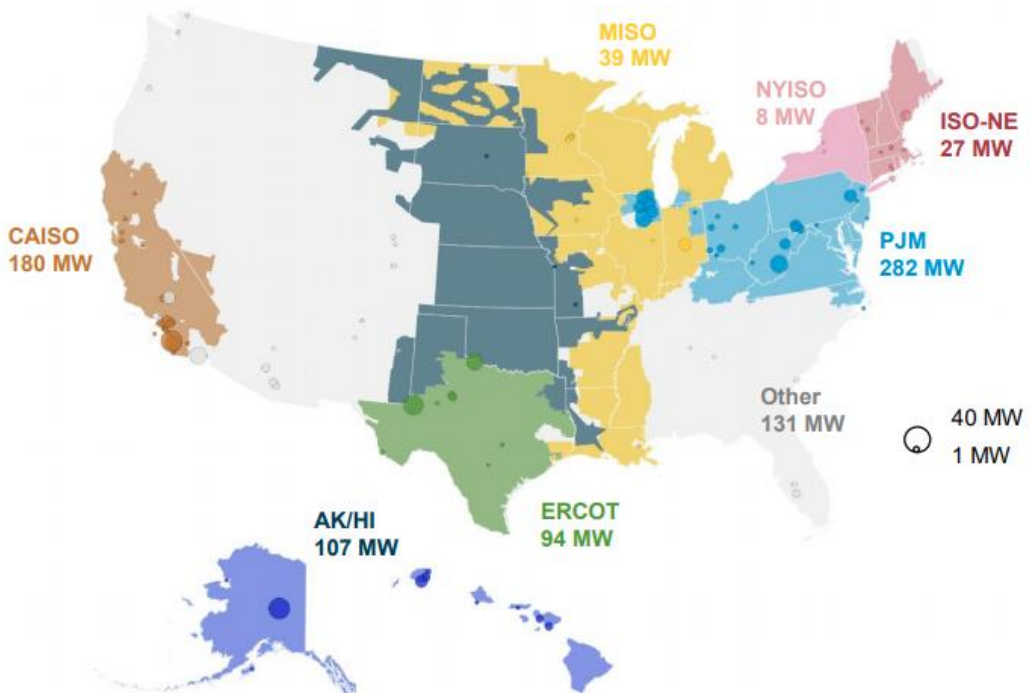


Chart prepared by NADB based on EIA electricity generation reports (February 2021)
(https://www.eia.gov/electricity/annual/html/epa_03_01_b.html)

In July 2020, EIA published the U.S. Battery Storage Market Trends report. According to the report, large-scale battery storage power capacity in the United States has grown at an average compound rate of nearly 40% since 2010, reaching 869 MW in operation in 2018.[15] Figure 4 shows the location and power capacity in MW of large-scale battery storage facilities in the U.S. in 2018.[16]

Figure 4
U.S. LARGE SCALE BATTERY STORAGE INSTALLATIONS BY REGION (2018)



Source: U.S. Energy Information Administration | *US. Battery Storage Market Trends*

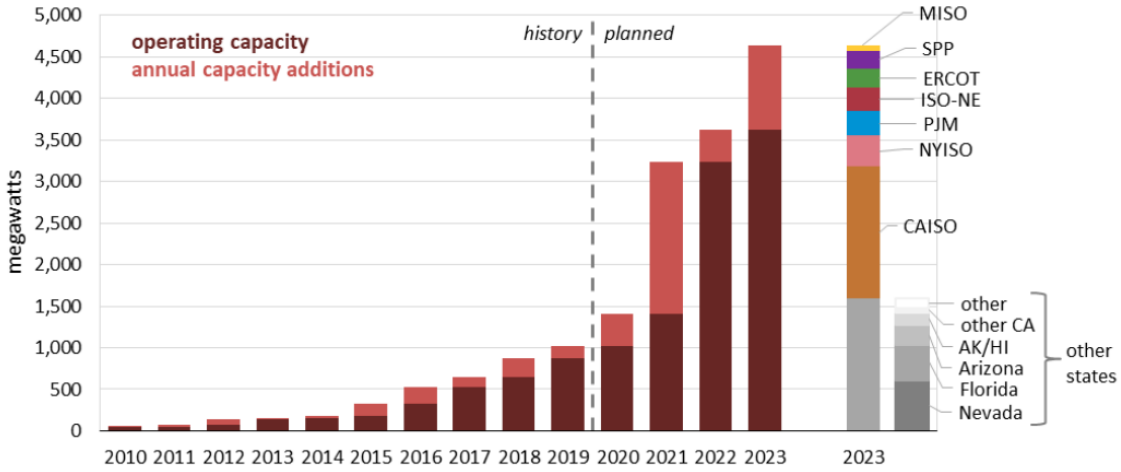
As shown in Figure 4, about 73% of large-scale battery storage capacity in the United States is installed in the regions covered by five of the seven organized independent system operators (ISOs) or regional transmission organizations (RTOs) and the non-contiguous states of Alaska and Hawaii (AK/HI).[17] The ISOs and RTOs, depicted in Figure 4, account for 58% of total grid capacity in the United States and have the largest share of storage capacity relative to their share of installed grid capacity. The disproportionate share of large-scale battery storage across the ISOs and RTOs may result from differences in market design and state policies. Installations in the California ISO (CAISO) accounted for 21% of existing large-scale battery storage nameplate

[15] In this context, large-scale refers to systems that are grid connected and have a nameplate power capacity greater than 1 MW.
[16] Source: EIA, Battery Storage in the United States: An Update on Market Trends, July 2020, https://www.eia.gov/analysis/studies/electricity/batterystorage/pdf/battery_storage.pdf
[17] ISOs and RTOs are independent, federally regulated non-profit organizations that ensure reliability and optimize supply and demand bids for wholesale electric power.

capacity (MW) in the United States in 2018 and 41% of existing energy (MWh) storage capacity. Meanwhile, ERCOT accounted for 11% of existing large-scale battery storage power capacity in the country but only 4.4% of existing energy storage capacity.

As of December 2019, project developers had reported to EIA that they planned to make 3,616 MW of large scale battery storage operational in the United States between 2020 and 2023 (Figure 5).[18] Given the short planning period required to install a storage facility, the planned capacity reported to EIA does not necessarily reflect all the storage that will be built over this period, but the estimates can be used as an indicator of trends.[19] EIA projects that the United States will have 17 gigawatts (GW) of battery storage capacity by 2050.[20]

Figure 5
LARGE-SCALE BATTERY STORAGE CUMULATIVE POWER CAPACITY (2010-2023)



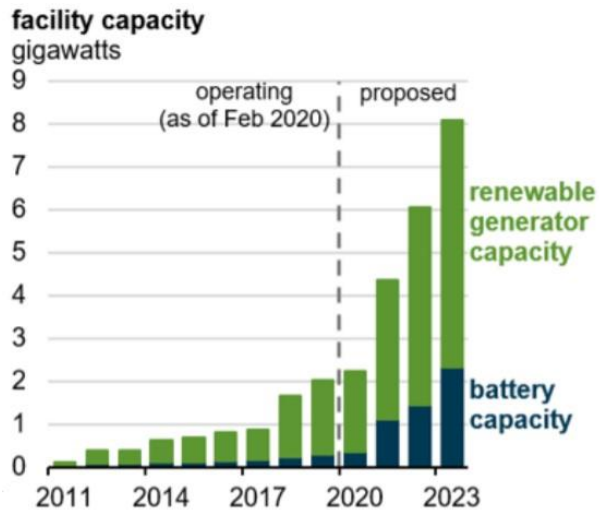
Source: EIA | US. Battery Storage Market Trends.

In the longer term, wind and solar growth are projected to support economic opportunities for storage systems that can provide several hours of storage and enable renewable generation produced during periods of high wind or solar output to supply electricity during periods of peak electricity demand.

Pairing renewable energy generators with energy storage, particularly batteries, is increasingly common as the cost of energy storage continues to decrease. According to EIA's latest inventory of electric generators, the number of solar and wind generation sites co-located with batteries has grown from 19 paired sites in 2016 to 53 paired sites in 2019. This trend is expected to continue. Based on planned installations reported to EIA, another 56 facilities pairing renewable energy and battery storage will come online by the end of 2023. Figure 6 shows the capacity of renewable energy integrated with storage in the U.S.

[18] Large-scale refers to systems that are grid connected and have a nameplate power capacity greater than 1 MW.
[19] Source: U.S. Energy Information Administration, Battery Storage in the United States: An Update on Market Trends. July 2020.
[20] Idem, p. 28.

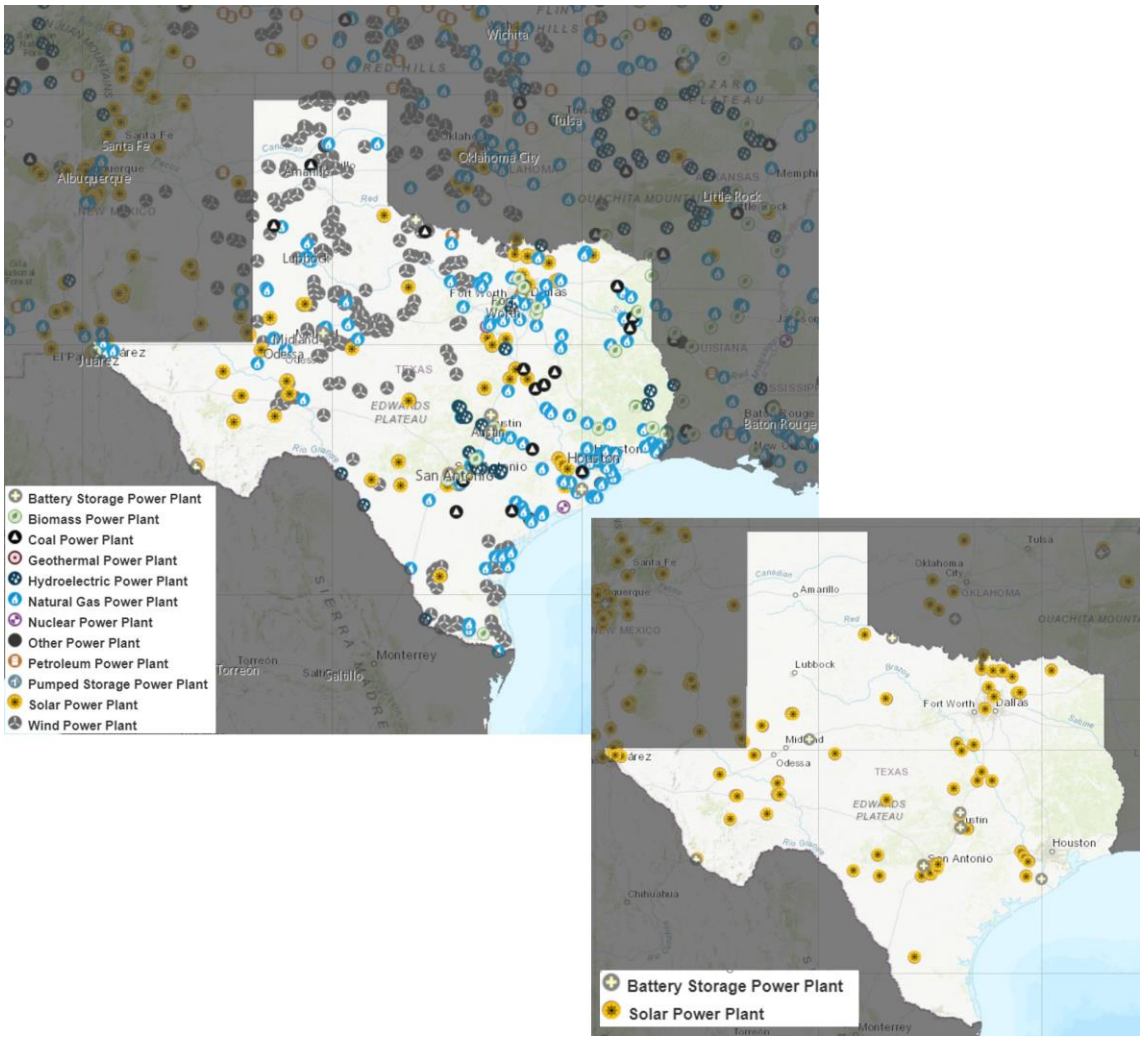
Figure 6
RENEWABLE ENERGY PLUS BATTERY STORAGE CAPACITY (2011-2023)



The U.S. Department of Energy (DOE) through the EIA provides a state-by-state reference for information and data covering energy production and demand. Texas produces more electricity than any other state, generating almost twice as much as the second-highest electricity-producing state, Florida.[21] Figure 7 shows the location of renewable power plants and energy sources in Texas.

[21] The Texas electricity production portfolio includes coal, natural gas, crude oil, nuclear power, biofuels and renewable energy.

Figure 7
POWER PLANTS AND ENERGY SOURCES IN APRIL 2021



Source: EIA (http://www.eia.gov/)

In 1999, Texas established a Renewable Portfolio Standard (RPS) as part of its electricity industry restructuring legislation under Senate Bill 7, which was designed to increase the delivery of renewable electricity with associated environmental benefits to the people of Texas. The RPS initially mandated that electricity providers collectively generate 2,000 MW of additional renewable energy by 2009. In 2005, the Texas Legislature approved a much more aggressive RPS, increasing the state's total renewable energy mandate to 5,880 MW by 2015 and 10,000 MW by 2025. Texas has already exceeded these goals. In 2019 the state had an installed capacity of 30,507 MW, generating 87,985 GWh of electricity only from solar and wind sources.[22] Table 1 shows a breakdown of the sources of energy generation in Texas.

[22] Source: EIA, Texas Electricity Profiles, Tables 4 & 5 (http://www.eia.gov/electricity/state/texas/).

Table 1
TEXAS ELECTRIC POWER INDUSTRY GENERATION BY SOURCE 2019

Source	Generation (GWh)	%
Coal	91,816	19.00%
Hydroelectric	1,475	0.31%
Natural gas	255,630	52.90%
Nuclear	41,298	8.55%
Other	521	0.11%
Other biomass	419	0.09%
Other gas	2,869	0.59%
Petroleum	154	0.03%
Solar	4,365	0.90%
Wind	83,620	17.31%
Wood	1,042	0.22%
Total electric industry	**483,209**	**100.00%**

The 11.3 GWh supplied by battery storage systems in 2019 was not included in total power industry generation. Table developed by NADB based on EIA data, Texas Electricity Profile 2019 (Full data tables 1–16) (https://www.eia.gov/electricity/state/texas/index.php).

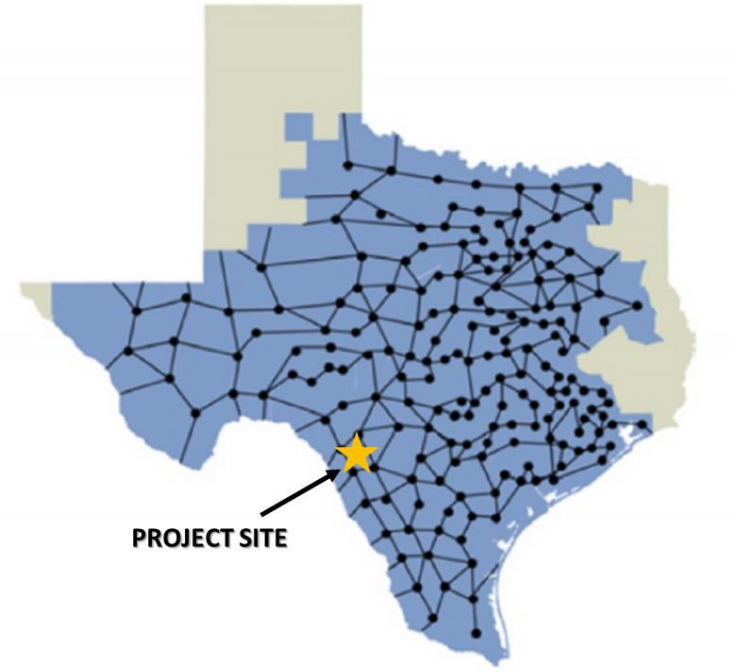
Since 2008 the NADB have certified and funded six renewable energy projects that are contributing 810 MW to the Texas RPS. In the United States, the electricity system consists of three regions, the Eastern Interconnection, the Western Interconnection, and the Texas Interconnection. The latter, operated by ERCOT, is separate from the rest of the nation, making Texas the only mainland state with its own grid. As a result, the utilities within ERCOT are exempt from most federal regulation.

ERCOT manages the flow of electric power to 26 million Texas customers, on an electric grid with 46,500 miles of transmission lines and more than 680 generation units. The ERCOT grid covers several counties within the 100-km Texas border region, including Kinney, Starr, Jim Hogg, Zapata, Webb, Dimmit, Maverick, Zavala, Uvalde, Edwards, Val Verde, Crockett, Terrel, Brewster, Presidio, Jeff Davis, and Culberson counties. ERCOT is governed by a board of directors and subject to oversight by the Public Utility Commission of Texas and the Texas Legislature. Its members include consumers, cooperatives, generators, power marketers, retail electric providers, investor-owned electric utilities, transmission and distribution providers, and municipally owned electric utilities.[23]

ERCOT operates under a “nodal market” scheme with more than 4,000 points of interconnection where energy is supplied by generators or utilized by retailers. Figure 8 shows the ERCOT service area and transmission lines.

[23] Source: ERCOT company profile (http://www.ercot.com/about/profile).

Figure 8
ERCOT NODAL MAP



Source: ERCOT

ERCOT's Texas Interconnection Region covers 75% of the landmass and 90% of the electrical load of the state. A total of 384,000 gigawatts-hours (GWh) of energy were used in 2019, a 2% increase compared to 2018. Around 47% of the energy used in the state of Texas came from natural gas (180,000 GWh).[24]

3.1.2. Project Scope

The Project consists of the design, construction, and operation of a 160 MW_{AC} solar park and a 40 MW_{AC}, 2-hour duration battery energy storage system and includes the following components:

- *Modules*: Approximately 380,000-440,000 bi-facial monocrystalline photovoltaic modules with a nominal capacity of 475-550 watts will be installed.[25] The panel provider will be a top-tier global provider. The expected useful life of the modules is at least 30 years.

[24] Source: ERCOT Fact Sheet, (http://www.ercot.com/content/wcm/lists/197391/ERCOT_Fact_Sheet_8.11.20.pdf).
[25] A bifacial photovoltaic module is a double glass module that has the capability of converting solar power into electricity from the reflecting light in the rear side of the module in addition to the typical conversion of incident light at the front side, providing higher output power, a lower temperature coefficient, less shading loss and enhanced tolerance for mechanical loading.

- *Tracking system*: The modules will be mounted on single-axis tracking arrays, made out of galvanized and stainless steel, with at least a 104-degree tracking range, and a self-powered controller with dedicated solar panel per row.

- *Inverters*: A total of 41 inverters will be installed to transform the direct current from the modules into alternating current, with an efficiency of 98.5% and modular design for easy maintenance. The inverters will be directly coupled to step-up transformers, which will transform the electricity to 34.5 kV.

- *Interconnection*: A network of underground electric cables will be installed to collect the energy from the modules. One step-up substation will be constructed to transform the electricity from 34.5 kV to 138 kV. The Project will be interconnected to the existing Pinto Creek 138 kV station operated by ERCOT, through a new 3.67-mile transmission overhead line.

- *Monitoring and Control System*: A SCADA system will be used to monitor, operate, and track the park remotely, as well as document the performance of the PV system relative to its predicted output.

- *BESS:* The Project will be utilizing a manufacturer-integrated BESS, called Megapack, which contains module bays comprised of battery cells. Each module contains 1,056 cells, and Megapacks are scalable at up to 15 modules per system. Each Megapack comes with a 10-year manufacturer's warranty ("no defect") and 20-year power/energy guarantee ("energy retention") warranty, according to the manufacturer. Figure 9 shows a picture of the BESS:

Figure 9
BESS

- *System controller*. Using a management software for system operation and control, the system controller interacts with metering devices, system hardware and stored electricity to regulate power. It accepts commands remotely from customer sites or can execute

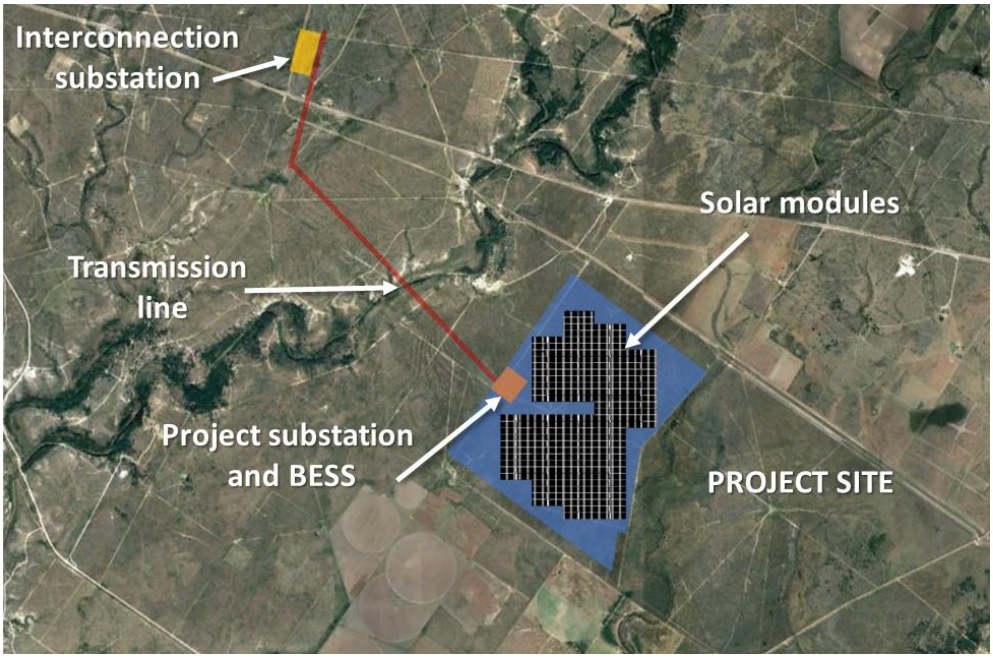
operations locally as defined by use cases in a program. Additionally, it can serve as an interface for maintenance.

- *Energy storage inverter*. The energy storage inverter is responsible for converting and conditioning power to and from the battery system. It transforms the direct current from the batteries into alternating current at 480 V_{AC}.

- *BESS Transformer*. The transformer converts the electricity from 480 V_{AC} to 34.5 kV_{AC} to allow the system to receive and deliver electricity through the distribution line near the Project site.

Figure 10 shows the location of the main components within the Project area, as well as the location of the transmission line and interconnection substation.

Figure 10
PROJECT LAYOUT



3.1.3. Technical Feasibility

The Sponsor evaluated solar modules and BESS components from different top tier suppliers in order to select the equipment best suited to the characteristics of the Project site and solar resource, etc. The process for evaluating technology took into consideration elements such as technical performance, commercial offering and warranties. Additionally, the viability of the Project was evaluated based on the cost-effectiveness and reliability of the technologies.

The Sponsor selected the bifacial monocrystalline photovoltaic modules, which are state-of-the-art technology for solar panels. These double-glass modules have the capability of converting

incident light on the rear side into electricity in addition to the electricity generated on the front side. This characteristic makes these modules best performing and most cost-effective in terms of solar energy generation.

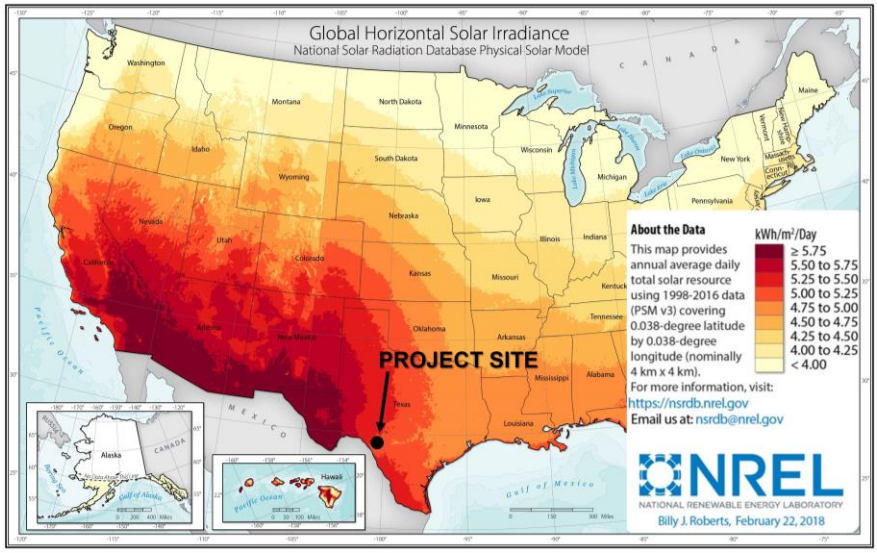
Lithium-ion phosphate (LiFePO4) technology is a common battery storage medium and is considered one of the safest, most easily understood and efficient methods of energy storage on the market. It is the technology most commonly used for this application given its high-cycle efficiency and fast-response time. The performance of the battery represents a favorable balance between cost, energy density, degradation and cycle life, making it an optimal choice for stationary grid-tied energy storage solutions. At the end of 2018, the U.S. had 869 MW of storage power capacity in large-scale battery storage systems in operation, representing 1,236 MWh of energy storage capacity.[26] Over 90% of that capacity was provided by lithium-ion-based batteries.[27] In addition, their high energy density makes them the current battery of choice for the portable electronic and electric vehicle industries. Even more importantly, LiFePO4 is safer than other commonly used lithium-ion alternatives (i.e., cobalt-based alternatives), ensuring safe and worry-free operations. Phosphate-based batteries virtually eliminate the risk of battery fire or explosion because of their high thermal runaway point, as well as the environmental risk of cobalt entering the environment through improper disposal.

Solar Resource Assessment

The Project is located in Kinney County, Texas. According to the National Renewable Energy Laboratory (NREL), the yearly average photovoltaic solar resource in Kinney County is between 5 and 5.25 kWh/m^2 /day (Figure 11).

[26] Source: EIA, Battery Storage in the United States: An Update on Market Trends. July 2020. Power capacity, defined as the maximum instantaneous amount of power output, is measured in units such as megawatts (MW). Energy capacity, defined as the total amount of energy that can be stored or discharged by a battery storage system, is measured in units such as megawatt-hours (MWh).
[27] Source: Ibid.

Figure 11
SOLAR RESOURCE POTENTIAL



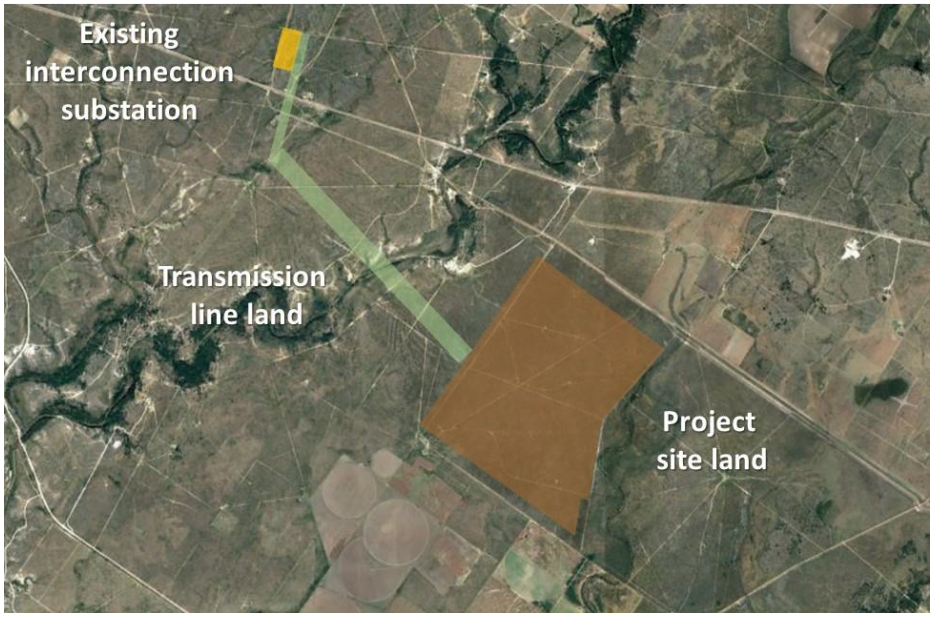
Source: National Renewable Energy Laboratory

The energy production of the Project was calculated using Photovoltaic System (PVSyst) software, published by the University of Geneva, Switzerland. It is estimated that the installed capacity of 160 MW_{AC} will generate approximately 414.31 GWh of electricity in the first year of operation. Performance losses due to current conversion, dust and inverter losses were taken into consideration. The energy generation estimate will be vetted by the independent engineer.

3.1.4. Land Acquisition and Right-of-Way Requirements

The site consists of a total of 1,865 acres of private land. The solar modules, BESS, Project substation and related infrastructure will occupy a total of 1,800 acres. The transmission line will be constructed in an area of 65 acres. The land is undeveloped and has been used for livestock grazing and hunting. Figure 12 shows the location of the Project site. The Sponsor secured the land through a 20-year lease and easement agreement, with an option to extend it for an additional 20-year period. The lease agreement to develop, construct and operate a solar generation facility and a BESS was executed in May 2018.

Figure 12
PROJECT LAND



The Project requires county and state clearances to carry out construction and operation activities.

The Sponsor reviewed information from several sources to determine whether oil and gas exploration activities have ever taken place within the Project boundaries and to identify the existence of possible on-site pipelines. The records showed that seven pipelines are located near the Project site, but outside Project's boundaries. No pipeline incidents in the vicinity of the site have been reported.

3.1.5. Project Milestones

The Project will be implemented through a turnkey engineering-procurement-construction (EPC) contract. Construction permits will be obtained by the EPC contractor prior to the start-of-construction, which is expected to occur in Q1-Q2 2022. The Commercial Operation Date (COD) is expected to occur in the 3rd quarter of 2023. Table 2 presents the status of key milestones for Project implementation.

Table 2
PROJECT MILESTONES

Key Milestones	Status
Project site lease agreement	Completed (May 2018)
Project site lease agreement amendment	Completed (October 2020)
Transmission line lease agreements	Completed (October 2020)
Environmental impact assessment phase I (Project site)	Completed (December 2018)
Environmental impact assessment phase I (transmission line)	Completed (October 2020)

Power Purchase Agreements or Hedge Agreements	In process (expected Q4, 2021)
Interconnection agreement	Completed (October 2020)
EPC contract	In process (expected Q4 2021)
Commercial operation date	Expected 3rd quarter 2023

NADB procurement policies require that private-sector borrowers use appropriate procurement methods to ensure a sound selection of goods, works and services at fair market prices and that their capital investments are made in a cost-effective manner. As part of its due-diligence process, NADB will review compliance with this policy.

3.1.6. Management and Operation

Cypress Creek Renewables is an industry-leading company involved in the core segment of renewable energy in the United States. Cypress develops and owns projects integrating solar and storage systems. In addition, the company offers asset management services and operations & maintenance services (O&M) for owned and third-party assets and is ranked as the fourth largest utility-scale O&M provider in US by managed capacity, according to PR Newswire from information of Wood Mackenzie.[28]

Cypress has experience developing more than 10 GW in installed capacity of solar plus storage projects and operates a total of 1.6 GW in the United States.

Solar photovoltaic systems are highly reliable and require minimal maintenance. The Sponsor will provide a comprehensive O&M program for the Project through a
subsidiary pursuant to an O&M contract entered into with the Project company.

For the BESS component, the Sponsor will act as asset manager, operator and maintenance provider for the system. The Sponsor will sign a 20-year Capacity Maintenance Agreement with the BESS supplier, which consists in replacing battery modules presenting a reduction in efficiency. The Sponsor expects to use the battery recycling program of the cell supplier for battery disposal at the end of their useful life.

In general, the recycling process entails technicians dismantling the battery packs and separating assembly pieces and circuitry from the actual battery cells. The separated parts are then fed by conveyor into an automated crusher. The crusher operates under a liquid solution to prevent fugitive emissions and to reduce potential chemical reactions of the processed batteries. It produces three types of material: metal solids, metal-enriched liquid, and plastic fluff. The metal solids typically contain various amounts of copper, aluminum and other materials that can be used as raw materials in new products. The metal-enriched liquid is solidified using filtering technology and is sent off-site for further metal purification.

[28] PR Newswire, retrieved the 8/20/2021 from: https://www.prnewswire.com/news-releases/cypress-creek-om-services-surpasses-3-gw-of-solar-under-management-301089167.html

3.2. Environmental Criteria

3.2.1. Environmental and Health Effects/Impacts

A. Existing Conditions

Historically, the United States has depended to a great extent on fossil fuels for the generation of electricity. These conventional sources of energy adversely affect the environment due to the harmful emissions produced in their processes, including greenhouse gases (GHG) and other pollutants, such as sulfur dioxide (SO_2) and nitrogen oxides (NOx). Consequently, there is a need for affordable and environmentally friendly alternatives to conventional fossil-fuel-based power generation.

On January 20, 2021, President Joe Biden signed an executive order beginning the 30-day process for the U.S. to reenter the Paris Agreement, a legally binding international treaty on climate change. It was adopted by 196 parties at the 21st Conference of Parties in Paris, on 12 December 2015 and entered into force on November 4, 2016. Its goal is to limit global warming to well below 2 degrees Celsius, and preferably to 1.5 degrees Celsius, compared to preindustrial levels. To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by mid-century.

According to EIA, in 2019, the main source of power generation in Texas was natural gas (52.9%), followed by coal (19.0%) and wind (17.3%).[29] That same year, Texas generated nearly 483,201 GWh of electricity, resulting in the emission of approximately 217 million metric tons of carbon dioxide (CO_2), 180 thousand metric tons of NOx and 157 thousand metric tons of SO_2.[30]

The transition to a low-carbon, and eventually zero-carbon grid, provides challenges and opportunities as increasing amounts of renewable energy are incorporated into the electric system. One of the main challenges is the intermittency of renewable energy sources such as wind and solar. Grid operators must have the capability to regulate and maximize the efficient use of electricity in the grid from both baseload and intermittent sources. One of the simplest and most efficient solutions is the implementation of energy storage systems.

Currently, more than 90% of the total operating hybrid (renewable generator plus energy storage) capacity in the country is located in just nine states, one of them, Texas has 46% of the current total. Installation as part of a hybrid system is common for batteries but not for renewable generators such as wind and solar. Although nearly 25% of U.S. battery capacity is installed as part of a hybrid system, only 1% of wind capacity and 2% of solar capacity is part of a hybrid system, which represents a great opportunity for the BESS sector.[31]

[29] Source: EIA, Texas Electricity Profiles, (https://www.eia.gov/electricity/state/texas/index.php).
[30] Source: Ibid.
[31] Source: EIA, Large battery systems are often paired with renewable energy power plants. (https://www.eia.gov/todayinenergy/detail.php?id=43775)

B. Project Impacts

Renewable energy projects create an opportunity to generate electricity by using sources that do not produce GHG and criteria pollutants (SO_2, NOx, etc.) like those released by fossil-fuel-based plants. Sunlight is a clean form of renewable energy, which means that it can be used continuously without depleting natural resources and does not produce waste byproducts that require disposal or gas emissions that contribute to air pollution. Moreover, solar energy production does not consume or pollute water, although small amounts may be used to clean the panels from time to time. Battery storage capacity, on the other hand, helps smooth out the delivery of variable or intermittent resources such as wind and solar, by storing excess energy, delivering it when demand increases. Specifically, incorporating storage capacity in a solar energy plant increases its efficiency and minimizes energy losses, thereby, increasing its capacity factor.

The Project will reduce the demand for electricity generated by fossil fuel-based power plants, and since solar-based power generation implies zero direct emissions, it will displace related harmful emissions. Energy storage systems also help reduce emissions by reducing the need for fossil-fuel power plants to provide regulation-up and regulation-down services, which are needed to regulate constant changes in energy supply and demand. As the energy supply mix becomes cleaner with low- and no-carbon resources, energy storage will help that supply mix evolve more easily and reliably.

The anticipated environmental outcomes from the installation of 160 MW_{AC} of new renewable energy generation capacity (or approximately 414.31 GWh per year) and 40 MW_{AC} of new storage capacity (or up to 13.5 GWh per year) include the displacement of an estimated 186,398 metric tons/year of carbon dioxide (CO_2), 132 metric tons/year of nitrogen oxides (NOx) and 132 metric tons/year of sulfur dioxide (SO_2).[32]

Energy storage systems also support the development of a more resilient grid by increasing the reliability and security of the energy supply for end users and providing backup power following a failure of the grid. As an active reserve of power and energy, the BESS can be used to energize transmission and distribution lines, deliver start-up power for generators and serve as a frequency reference.

C. Transboundary Impacts

No negative transboundary impacts are anticipated as a result of the development of the Project; on the contrary, a beneficial effect is anticipated on regional air quality due to the decreased demand on fossil-fuel-fired electrical plants in the region.

[32] CO_2, NOx and SO_2 calculations are based on the potential emissions avoided as a result of reducing future demand on fossil fuel-based electricity through the use of solar energy equivalent to 414.31 GWh/year and the emission factors for the state of Texas. The emission factors are calculated by NADB based on the power generation portfolio of the state of Texas in 2019. The resulting emission factors are: 0.4502 metric tons/megawatt-hour (MWh) for CO_2; 0.0003719 metric tons/MWh for NOx and 0.0003259 metric tons/MWh for SO_2.

3.2.2. Compliance with Applicable Environmental Laws and Regulations

A. Environmental Clearance

The Sponsor conducted the following environmental studies to evaluate the potential impact of implementing the Project, as well as the mitigation measures that might be required.

Phase I Environmental Site Assessment (Project Site)

On December 21, 2018, on behalf the Sponsor, the company Energy Renewal Partners, LLC (ERP) conducted a Phase 1 Environmental Site Assessment (ESA) of the 1,800-acre project site for the purpose of determining the presence of Recognized Environmental Conditions (RECs), Historical RECs (HRECs), Controlled RECs (CRECs) and any other conditions on the property, based on available information. The review included:

- Identify potential environmental impacts to the surface water, groundwater and/or soils within the property boundaries through a review of environmental regulatory records and do a reconnaissance of the subject site and vicinity;
- Evaluate historical documents to identify previous conditions that could potentially impact the environmental condition of the Project site;
- Conduct interviews with knowledgeable personnel to obtain information that could indicate potential environmental impacts in connection with the Project site;
- Evaluate the potential for on-site and off-site contamination; and
- Provide a professional opinion regarding the potential for environmental impact at the Project site, and a list of recognized environmental conditions.

ERP did not identify any known recognized environmental conditions in connection with the Project site.

Phase I Environmental Site Assessment (Transmission Line)

On October 15, 2020, on behalf the Sponsor, the company Kimley-Horn and Associates, Inc. (Kimley-Horn) conducted a Phase 1 ESA for a site of 65 acres with the purpose of determining the presence of RECs, HRECs, CRECs, and any conditions on the property where the transmission line for the Project will be built, based on available information. The review included:

- Review of historical information;
- Review federal and state environmental regulatory databases;
- Conduct a site reconnaissance; and
- Review adjoining properties.

Kimley-Horn did not identify any known recognized environmental conditions in connection with the Project's transmission line site.

Limited-basis National Environmental Policy Act Report (Project Site)

The National Environmental Policy Act (NEPA) requires federal agencies to assess the potential environmental effects of their proposed actions and projects prior to making decisions. Although the Project is not being developed in a federal site nor involving any federal agency for its development, as a best management practice, on December 20, 2018, on behalf the Sponsor, ERP prepared a limited-basis NEPA Report for the Project site. The purpose of the study was to identify the potential occurrence of federal and state threatened and endangered species and designated critical habitats, cultural resources, habitats for migratory birds and flood zones. The report for the Project site considered the following regulations:

- Endangered Species Act;
- Migratory Bird Treaty Act;
- Texas Threatened or Endangered Species Regulations;
- National Historic Preservation Act and Texas Historical Commission (THC);
- Clean Water Act and Rivers and Harbors Act; and
- Texas Water Code (Water Quality Control).

ERP reviewed public and restricted-access databases to determine, on a resource-by-resource basis, all areas that could potentially generate a development constraint. The following databases were reviewed for the Project area and/or adjacent areas:

- U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey;
- Survey for the Project area;
- U.S. Geological Survey (USGS) Topographic Quadrangle maps depicting the Project area;
- U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC);
- Species list for the Project area;
- Texas Parks and Wildlife Department (TPWD) threatened, endangered, and rare species for Kinney County;
- USFWS National Wetlands Inventory (NWI) data for the Project area;
- National Register of Historic Places Database; and
- THC Atlas Database of known locations of cultural resources and prior survey activities for historical, cultural, and archaeological resources.

In addition to the databases review, ERP conducted a site visit for the Project area on November 27-28, 2018. ERP did not observe any stream features onsite; therefore, no potentially jurisdictional streams were encountered. ERP did not detect the preferred habitat for federally listed threatened or endangered species, and non-federally listed or state listed species were observed onsite during the site visit. No historical, archaeological or cultural resources were observed, and no habitable structures were found on site.

ERP found that the Project site may provide foraging habitat for the state threatened peregrine falcon, American peregrine falcon, and zone-tailed hawk, and habitat for the state threatened reticulate collared lizard. ERP included a list of mitigation measures and recommendations to greatly reduce the risk of take of these species. The mitigation measures are included in Section 3.2.2.B of this document.

Limited-basis NEPA Report (Transmission Line)

Following the best management practice taken into account for the Project site area, on October 12, 2020, on behalf the Sponsor, Kimley-Horn conducted a limited-basis NEPA Report for the Project's transmission line site. The purpose of the study was to identify potential environmental constraints in association with the transmission line area, provide recommendations, solutions, and options to resolve potential environmental constraints, and request concurrence and/or comments from relevant regulatory agencies. The report for the Project's transmission line site considered the following regulations:

- Clean Water Act and Rivers and Harbors Act;
- Endangered Species Act;
- Texas Administrative Code;
- Migratory Bird Treaty Act;
- National Historic Preservation Act;
- Antiquities Code of Texas as administered by the THC; and
- Texas Water Code.

In addition to the regulations review and requested concurrence from the regulatory agencies mentioned above, Kimley-Horn conducted a site visit to the Project's transmission line area on August 25, 2020. Impacts to threatened and endangered species are not anticipated with the transmission line. Potential migratory bird habitat was identified on the site; therefore, if construction activities, including the clearing of trees and shrubs, occurs during the peak of the migratory bird nesting season (generally March through August), a migratory bird nest survey could be performed prior to commencing construction activities in areas with potential for migratory bird habitat. A list of mitigation measures and recommendations are included in Section 3.2.2.B of this document.

Assessment of Jurisdictional Waters of the U.S. (Project Site)

ERP conducted the study to evaluate the occurrence of areas demonstrating characteristics of waters of the United States (WoUS) within the boundaries of the Project site. The study included a desktop review of relevant literature and database sources, as well as a subsequent field study. During the desktop review, ERP noted the Project site consists primarily of mesquite thornscrub on undeveloped land used for livestock grazing and hunting. During the field study, ERP identified one freshwater pond located in the far northeastern portion of the Project site and within the Federal Emergency Management Agency (FEMA) 100-year floodplain. The pond presented evidence of wetland hydrology but lacked evidence of hydrophytic vegetation and hydric soil. Furthermore, ERP did not observe evidence of a surface water connection between the

freshwater pond and relatively permanent waters (RPW) or traditionally navigable waters (TNW). The pond was observed to be an isolated water feature, which is not regulated under the Clean Water Act (CWA). Therefore, ERP did not find any potentially jurisdictional WoUS, including wetlands, within the Project site boundaries.

In addition, the Sponsor sent a consultation letter to the United States Army Corps of Engineers (USACE) to verify whether a permit was required. On February 19, 2019, the Sponsor received a letter from the USACE stating that the Project does not require authorization.

Aquatic Resources Delineation Report (Transmission Line)

Kimley-Horn conducted a study with the objective of identifying potential WoUS within the boundaries of the transmission line site. The study included conducting a desktop review of relevant literature, database sources, and subsequent site visit. Kimley-Horn observed one perennial stream and one linear non-stream feature occurring within the study area. According to Kimley-Horn, the perennial stream is likely a WoUS, and the linear non-stream feature is not a WoUS. However, the Sponsor sent a consultation letter to the USACE to verify whether a permit was required. On January 12, 2021, the Sponsor received a letter from the USACE stating that the transmission line site will not require authorization.

B. Mitigation Measures

As part of the limited-basis NEPA reports conducted for the Project site and transmission line area, the following mitigation measures and recommendations were included:

- *Protected species*. To minimize impacts to state protected species, the following mitigation measures are to be considered:
  - Train contractors to identify the state listed reptile species and educate personnel to stop work, turn off motorized equipment and allow these species to flee when observed.
  - Provide escape ramps within trenches and prior to backfilling trenches inspect them for reptile species and remove any individuals observed.
  - Conduct nest surveys during the migratory bird nesting season (approximately March through August) to prevent take of tree and ground nesting birds and their active nests if vegetation clearing will take place during the nesting season.
- *Water quality*. To preserve the water quality of downgradient features, Best Management Practices for sediment and erosion control and total suspended solids should be implemented during construction and operation to limit the amount of sediment that might flow from the Project site during storm events.

C. Pending Environmental Tasks and Authorizations

There are no pending environmental authorizations for the Project.

3.3. Financial Criteria

Cypress Creek will finance the construction of the Project with equity from the Sponsor and a tax equity partner and a loan from NADB and other lenders.

The proposed payment mechanism for the loan is standard for similar renewable energy transactions in the U.S. The source of payment will be the revenue generated from sale of electricity, as well as other products (e.g., ancillary services) generated by the Project, to a private off-taker under a long-term PPA or hedge agreement, and/or in the wholesale electricity market. The Project's expected revenue is estimated to be sufficient to: a) cover scheduled operation and maintenance (O&M) expenses; b) pay the debt service on the loan; c) fund any debt service and other reserves; d) comply with debt service coverage requirements; and e) cover any return payments owed to the tax equity partner. Cypress Creek will operate and maintain the Project under the terms of a long-term O&M Agreement.

Considering the Project's characteristics and based on the financial and risk analyses performed, the proposed Project is considered to be financially feasible and presents an acceptable level of risk. Therefore, NADB proposes to provide to the Borrower a market-rate loan for the construction of the Project for up to US$70.5 million.

4. PUBLIC ACCESS TO INFORMATION

4.1. Public Consultation

NADB published the draft certification and financing proposal for a 30-day public comment period beginning on September 1st, 2021. The following Project documentation is available upon request:

- Phase I ESA (Project site);
- Phase I ESA (Transmission line);
- Limited-basis NEPA Report (Project site);
- Limited-basis NEPA Report (Transmission line); and
- U.S. Army Corps of Engineers letters

4.2. Outreach Activities

NADB also conducted a media search to identify potential public opinion about the Project. References to the Project were found on the websites listed below:

- *Hill County Chronicle* (July 21, 2020)*, "Kinney County to offer Cypress Creek Renewables nearly $13,654,126 in tax incentives for solar farm"* The article describes the tax incentives that Kinney County is offering the Project Sponsor.

(https://hillcountrychronicle.com/stories/543194510-kinney-county-to-offer-cypress-creek-renewables-nearly-13-654-126-in-tax-incentives-for-solar-farm)

- *Kinney County Regular Meeting Agenda* (November 13, 2018), *"Notice of regular open meeting of the Commissioners Court of Kinney County, Texas"* The agenda included the request submitted for review and consideration of the Kinney County Commissioners Court to work with Zier Solar on the establishment of a reinvestment zone and investment incentives. (https://cokinneytx.civicweb.net/document/7786)

In summary, these publications highlight the plan to develop the Project. Opposition to the Project was not detected from the available media coverage. The Sponsor has followed all public consultation requirements in order to comply with applicable environmental clearance and permitting processes.