1. Provide a copy of the cumulative environmental assessment required to be submitted pursuant to KRS 224.10-280, or direct the Siting Board to the portions of the record that include the information required by that assessment.

Response: Following the January 13, 2022, hearing, Rhudes Creek Solar contacted its consultant to prepare a Cumulative Environmental Assessment. It anticipates that the Cumulative Environmental Assessment can be submitted to the Cabinet by February 11, 2022. It will file a copy of that document with the Siting Board when it submits it to the Cabinet.

Witness: Jeffrey Chang

2. Provide any written communications or reports relative to this project that were directed to, or received from, the U.S. Department of Fish and Wildlife. Provide these whether made through a third party such as the Army Corps of Engineers, or carried out directly with Rhudes Creek Solar representatives.

Response: Please see the attached letter from U.S. Fish and Wildlife Service's Kentucky Field Office.

Witness: Jeffrey Chang

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

September 29, 2021

Sarah Atherton
U.S. Army Engineers Louisville District
CELRL-RDS 752
P.O. Box 59
Louisville, KY 40201

Subject: FWS2021-B-0497; USACE LRL-2020-243; Rhudes Creek Solar Project; Hardin County, Kentucky

Dear Sarah Atherton:

The U.S. Fish and Wildlife Service's Kentucky Field Office (KFO) has reviewed the above-referenced project and request for concurrence received on August 25, 2021 and additional information provided by ibV Energy Partners, LLC (ibV) on September 23, 2021. The U.S. Army Corps of Engineers (USACE) is proposing to authorize impacts associated with a solar facility in Hardin County, Kentucky. The KFO offers the following comments in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

Project Description
IbV proposes to construct a 100 megawatt solar facility within a 1,074-acre project area in Hardin County, Kentucky. The facility will include a 750-acre solar array, a 1.5 mile transmission route, a 5-acre switchyard, and internal access roads. The project area primarily consists of agricultural lands, but also includes areas of scattered forested habitat that range in size from 0.5 acre to 17 acres. The project will impact five unnamed tributaries to Blacks Branch and three wetlands. The USACE considers each crossing a single and complete crossing; therefore, the USACE's jurisdictional review area only includes the crossings and immediate uplands. The proposed project will remove 45.03 acres of forested habitat, 0.26 acre of which is within the USACE's jurisdictional review area.

Federally Listed Species
The USACE has determined that the proposed project will have "no effect" on the Snuffbox (*Epioblasma triquetra*) because there is no suitable habitat for this species within the project area. There is no statutory requirement to request concurrence with a "no effect" determination; however, the KFO acknowledges this determination and has no additional comments or concerns regarding this species. The USACE has also determined that the proposed project has the potential to affect the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), and gray bat (*Myotis grisescens*).

Indiana Bat: The KFO is unaware of any adverse effects that could occur to Indiana bats once the solar facility is complete; however, facility construction has the potential to impact the species. The project area occurs in a high karst area and includes several sinkholes. The applicant intends to establish a 100-foot buffer around all sinkholes within the project area. In addition, no sinkhole surface openings were identified during field surveys; therefore, no impacts to potential Indiana bat hibernacula are anticipated.

The proposed project occurs in potential Indiana bat habitat and will require the removal of 45.03 acres of suitable roosting habitat. The applicant proposes to remove this habitat during the unoccupied timeframe (October 15 to March 31). The applicant has chosen to make a voluntary payment to the Imperiled Bat Conservation Fund (IBCF) as part of the proposed action to address Indiana bat habitat loss. A voluntary payment to the IBCF is a conservation measure that is identified in the KFO's 2016 *Revised Conservation Strategy for Forest-Dwelling Bats* (Conservation Strategy). Based on the Conservation Strategy, the voluntary payment to the IBCF should be $90,060.00[1]. This total $90,060.00 contribution includes $520.00 to account for the 0.26-acre of forested habitat removal within the USACE's jurisdictional review area.

We have determined that the proposed action is consistent with the actions evaluated in the 2015 Biological Opinion: *Kentucky Field Office's Participation in Conservation Memoranda of Agreement for the Indiana Bat and/or Northern Long-eared Bat* (BO) that supports the Conservation Strategy. Any incidental take of Indiana bats resulting from forested habitat removal is not prohibited. The BO concludes that this incidental take is not likely to jeopardize the continued existence of the Indiana bat. To complete this proposed conservation measure, the applicant should mail the voluntary payment to the Imperiled Bat Conservation Fund administered by Kentucky Natural Lands Trust. **The check or money order should be made payable to Kentucky Natural Lands Trust with "Imperiled Bat Conservation Fund" in the memo line. At this time, payments can only be received via U.S. Postal Service delivery due to office closures in response to COVID-19.**

Mail to:
Imperiled Bat Conservation Fund
c/o Kentucky Natural Lands Trust
433 Chestnut Street
Berea, KY 40403

The voluntary payment should include a cover letter with the following information: the applicant's name, the FWS project number referenced in the subject line of this letter, and a contact name and address to receive the receipt of payment.

Northern Long-eared Bat (NLEB): The USACE addressed potential effects to the NLEB by requesting reliance on the Service's programmatic biological opinion for the 4(d) rule through the Service's Information for Planning and Consultation (IPaC) system (Event Code: 04EK1000-2021-E-03728). We have no additional comments or concerns regarding this species.

[1] The calculated amount is based on the current average value of farm real estate in Kentucky as reported by the U.S. Department of Agriculture in the Land Values and Cash Rents document ($4,000). This figure is updated annually around the first week in August. If payment is not made prior to August 31, 2022, please contact the KFO to confirm the current cost value.

Gray Bat: The KFO is unaware of any adverse effects that could occur to gray bats once the solar facility is complete; however, facility construction has the potential to impact the species. The project area occurs in a high karst area and includes several sinkholes. The applicant intends to establish a 100-foot buffer around all sinkholes within the project area. In addition no sinkhole surface openings were identified during field surveys; therefore, no impacts to potential gray bat summer or winter roosts are anticipated. There are several gray bat occurrences within the project vicinity and it is likely that gray bats use the project area for foraging; however, stream impacts are limited to five intermittent stream crossings that are not expected to provide high quality foraging habitat for the species. Based on the lack of roosting habitat and minimal impact to foraging habitat, we concur with your determination that the proposed action, "may affect, but is not likely to adversely affect" the gray bat.

Summary

The KFO concurs with your determination that the proposed project "may affect, but is not likely to adversely affect" the gray bat. We also agree that the project is consistent with the IBCF process. In view of these findings, we believe the USACE has satisfied the requirements of section 7 of the Endangered Species Act for this project. The USACE should reconsider their section 7 obligations, if: (1) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered, (2) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (3) new species are listed or critical habitat designated.

We appreciate the opportunity to review the proposed project. If you have any questions, please contact Carrie Allison of my staff at Carrie_Allison@fws.gov or 502-695-0468, extension 46103.

Sincerely,

for Virgil Lee Andrews, Jr.
Field Supervisor

3. Provide a verification of the accuracy of the tax rates table provided by witness Dr. Paul Coomes in his report found in the Application, Attachment K, dated June 9, 2021, at page 5. If it is not accurate, provide a corrected table and any revised conclusions required by the correction.

Response: The June 9, 2021, contained errors in the tax rates table on page 5 of Attachment K to the Application. A corrected version of the report is attached.

Witness: Paul Coomes

Paul A. Coomes, Ph.D.
Consulting Economist
3604 Trail Ridge Road Louisville KY 40241 502.608.4797 coomes.economics@gmail.com
Emeritus Professor of Economics, University of Louisville

REVISED: January 18, 2022

TO: Robin Saiz, Vice-President
ibV Energy Partners
777 Brickell Ave. Suite 500 | Miami, FL 33131

FROM: Paul Coomes

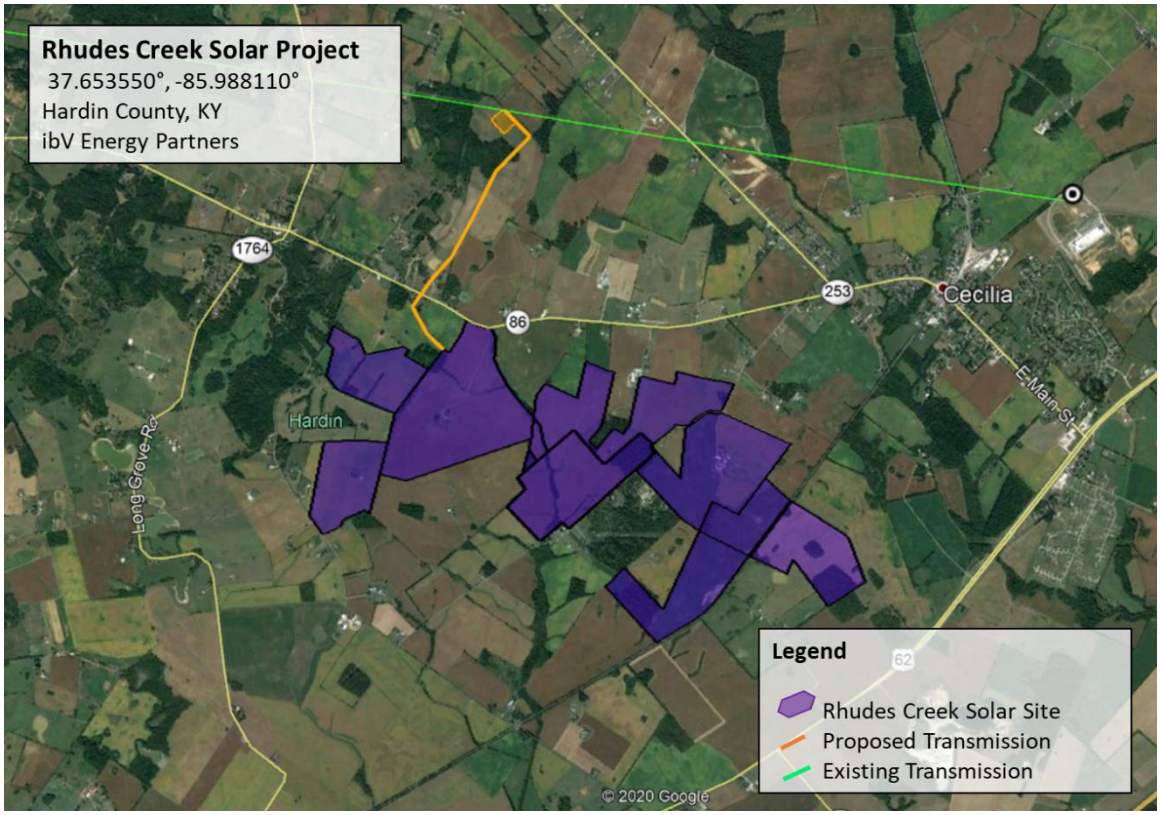
RE: Economic and fiscal impact of Rhudes Creek solar energy project

This note provides estimates of the new economic and fiscal activity expected from the proposed Rhudes Creek solar energy project, near Cecilia, in Hardin County, Kentucky. ibV Energy Partners is developing the 1,072-acre site, which will have an electricity generation capacity of 100 megawatts. Projects of this size typically require an investment of over $100 million. The company and the County government are negotiating a financial agreement in support of an industrial revenue bond in which the company will make annual payments in lieu of taxes (PILOT) to local government jurisdictions, in addition to other property and income-related taxes due.

There are two primary impacts expected from the project. First, there will be a one-time spike in construction and linked jobs as the site is built out over approximately one year. Using data from other similar projects and an economic model of the County, I estimate that there will be a total of 312 new jobs in the County in year one, with new payroll of $15.2 million. Second, there will be 35 years of new property tax and PILOT payments to state and local jurisdictions in Hardin County due to the increased value of real estate, machinery and tangible property installed at the site. New property taxes to local jurisdictions are expected to be $1.51 million over the subsequent thirty-five years.

The site

The site is just west of Cecelia, and about seven miles west of Elizabethtown – the county seat of Hardin County. The land is currently in agricultural use. One can see in the map below the farmland, with Highway 86 on the north side of the site.



Construction phase

I anticipate that the company will invest over $100 million in the solar project. The investment involves land acquisition, site preparation, solar panel and electrical equipment installation, plus landscaping and security fencing. ibV Energy Partners will hire construction companies for this project. Using data from other studies, I estimate that construction will directly require about 240 job-years, and on-site labor costs will amount to $12 million, or $50,000 per construction job[1]. The average annual pay for all wage and salary jobs in Hardin County in 2020 was $49,985[2].

It is not possible to know precisely the ultimate number of construction-related jobs, since many subcontractors will be involved, each with their own decisions to make about staffing. The subcontractors, for example, may choose to use fewer highly skilled

[1] A University of California-Berkeley study looked at six large PV projects in California, and summarized the economics. The author finds a ratio of 2.4 FTE construction jobs per MW. Applied to the Rhudes Creek 100 MW you get 240 direct construction job-years. He shows the permanent operations jobs per MW, and applied to Rhudes Creek you get about 3 FTEs. See page 28 of *Economic and Environmental Benefits of Building Solar in California*, by Peter Philips, November 10, 2014, https://laborcenter.berkeley.edu/pdf/2014/building-solar-ca14.pdf

[2] Source: US Bureau of Economic Analysis, average annual wages and salaries in county.

workers or more less-skilled workers, depending on local labor market conditions. I estimate the average annual pay will be $50,000 per construction job.

Occupations include construction managers, earth grader operators, panel installers, electricians, and fencers. I searched the federal database on hundreds of occupations to learn how much these workers are likely to earn on the project. There is no listing in the Kentucky data for "Solar Photovoltaic Installer", but the national average annual wage in 2020 was $48,020[3]. Good inferences about other relevant occupations can be gleaned from the next table. The construction managers are likely to earn over $80,000, heavy equipment operators around $50,000, installers around $45,000, electricians around $53,000, and fencers $30,000. These data suggest that the $50,000 average pay assumed for construction jobs is reasonable.

Kentucky Wages for Related Occupations, 2020

Occupation (SOC code)	Employment	Hourly mean wage	Annual mean wage
Construction Managers(119021)	1,270	$41.64	$86,610
Operating Engineers and Other Construction Equipment Operators(472073)	4,350	$24.21	$50,360
Electricians(472111)	9,610	$25.39	$52,810
Fence Erectors(474031)	190	$14.55	$30,270
Industrial Engineers(172112)	4,830	$39.02	$81,170
Materials Engineers(172131)	400	$45.63	$94,910
Mechanical Engineers(172141)	3,170	$39.86	$82,910
Heating, Air Conditioning, and Refrigeration Mechanics and Installers(499021)	4,870	$21.44	$44,600
Electrical Power-Line Installers and Repairers(499051)	2,660	$28.60	$59,490
Telecommunications Line Installers and Repairers(499052)	940	$21.58	$44,890

Source: US Bureau of Labor Statistics, Occupational Employment Survey, https://www.bls.gov/oes/current/oes_ky.htm

Spin-off impacts in Hardin County - Construction

The construction phase will have some spin-off effects in Hardin County. I model this using a custom IMPLAN model of the County[4]. The relevant sector for the construction phase is number 52, "Construction of new power and communication structures", and

[3] Source: US Bureau of Labor Statistics, Occupational Employment Survey. For national data on solar photovoltaic installer, see www.bls.gov/oes/current/oes_nat.htm#47-0000 . For Kentucky data, see www.bls.gov/oes/current/oes_ky.htm

[4] For documentation of IMPLAN modeling, see www.implan.com/history/ . The model provides estimates of the linkages among over 500 industries in Hardin County.

this can be used to model the initial investment. The direct effect in the County is 240 jobs over one year, with a payroll of $12 million.

The model has detailed information about the inter-industry linkages in each regional economy, as well as the expected household spending on retail goods and services due to the enhanced employee compensation. When there is new industrial activity in a region, the model can predict how much of the supply chain can be met by local businesses and how much the new payroll will result in additional sales by local businesses. Adding these two effects to the direct effect yields the total effect of a development, and dividing the total effect by the direct effect yields a multiplier. Using the Hardin County multipliers for the relevant construction sector, and the direct construction budget, I project there will be a total of 312 new jobs in the County, and new payroll of $15.2 million.

Impacts in Hardin County - Operations

There will also be some modest spin-off impacts from ongoing operations. I expect operations to support only about three permanent jobs. Unfortunately, for the operations phase, the relevant IMPLAN sector, number 42, "Electric Power Generation – Solar", is empty of data and results for Hardin County. This is because there is no history of solar electricity generation and therefore no basic economic data to construct industry relationships. A reasonable recourse is to tap the literature on solar project impacts, find comparable places, and use other studies to estimate the likely operational impacts on local economies in Kentucky. A California PV study, cited above, of six large solar farms found a ratio of 31.3 MW electricity capacity per permanent operations job. Applied to the Rhudes Creek project, this results in an estimate of only three permanent operational jobs at the site. Thus, ongoing annual economic impacts from operation are expected to be very small relative to the one-time impacts of construction.

Local tax revenues

Hardin County jurisdictions and the Commonwealth of Kentucky levy property taxes on real estate and tangible property, with the state also taxing manufacturing machinery. The table below provides the latest tax rates that are applied County-wide. They total about eight-tenths of one percent of the assessed value of property. There are six other municipal taxing jurisdictions in Hardin County, but the Rhudes Creek project is outside their city boundaries and thus would not be subject to those property taxes. Hardin County does not levy a county-wide occupational license fee (payroll tax) or a net profits tax.

The County and the developer have discussed issuing an Industrial Revenue Bond (IRB) and a Payment in Lieu of Taxes (PILOT) agreement, whereby the company makes annual payments to the County jurisdictions. However, no arrangement has been agreed upon as of this writing.

Hardin County Property Tax Rates, 2021

in cents per $100 valuation

Jurisdiction	Real Estate	Tangible Personal
Agricultural Extension Services	1.8000	2.6700
Fiscal Court - General	12.0000	12.6000
Health Department	2.2000	2.2000
Soil Conservation	0.2000	0.0000
County Public Schools	65.2000	65.2000
Total, County-wide	81.4000	82.6700

Source: www.thenewsenterprise.com/news/local/hcs-board-votes-to-keep-tax-rates-the-same/article_f6e454a1-a5eb-59fd-9f51-91c2d898ecaf.html

The company and its consultants made projections of the increased real estate value and the annual value of machinery and tangible property, under standard depreciation schedules, over the subsequent thirty-five years. Current property tax rates were applied, and annual tax estimates were calculated. If an IRB and PILOT agreement are not reached, the company estimates that local governments will receive $1.51 million over the next thirty-five years (and the state would receive $1.91 million). These payments to local government jurisdictions, averaging around $43,000 per year, can be compared to the $6,500 per year currently paid by landowners of the site (almost all of which is assessed at its agricultural use value). It should be pointed out that solar projects like this require almost no public services from local government; and because they require so few people to operate do not add students and expenses to the Hardin public school system.