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October 14, 2021

Ms. Tanowa Troupe, Secretary Ohio Power Siting Board Docketing Division 180 East Broad Street, 11th Floor Columbus, Ohio 43215-3797

Re: Case No. 20-1605-EL-BGN - In the Matter of the Application of Birch Solar 1, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Allen and Auglaize Counties, Ohio.

Response to Tenth Data Request from Staff of the Ohio Power Siting Board

Dear Ms. Troupe:

Attached please find Birch Solar 1, LLC's ("Applicant") Response to the Tenth Data Request from the staff of the Ohio Power Siting Board ("OPSB Staff"). The Applicant provided this response to OPSB Staff on October 14, 2021.

We are available, at your convenience, to answer any questions you may have.

Respectfully submitted,

/s/ Christine M.T. Pirik Christine M.T. Pirik (0029759) (Counsel of Record) Terrence O'Donnell (0074213) Matthew C. McDonnell (0090164) Dickinson Wright PLLC 150 East Gay Street, Suite 2400 Columbus, Ohio 43215 Phone: (614) 591-5461 Email: <u>cpirik@dickinsonwright.com</u> <u>todonnell@dickinsonwright.com</u> mmcdonnell@dickinsonwright.com

Cc: James O'Dell Theresa White Randall Schumacher Jon Pawley Ms. Tanowa Troupe Birch Solar 1, LLC Case No. 20-1605-EL-BGN Page 2

CERTIFICATE OF SERVICE

The Ohio Power Siting Board's e-filing system will electronically serve notice of the filing of this document on the parties referenced in the service list of the docket card who have electronically subscribed to these cases. In addition, the undersigned certifies that a copy of the foregoing document is also being served upon the persons below this 14th day of October, 2021.

/s/ Christine M.T. Pirik Christine M.T. Pirik (0029759)

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BEFORE THE OHIO POWER SITING BOARD

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In the Matter of the Application of Birch Solar 1, LLC for a Certificate of Environmental Compatibility and Public Need to Construct a Solar-Powered Electric Generation Facility in Allen and Auglaize Counties, Ohio.

Case No: 20-1605-EL-BGN

BIRCH SOLAR 1, LLC 'S RESPONSE TO THE TENTH DATA REQUEST FROM THE STAFF OF THE OHIO POWER SITING BOARD

On February 12, 2021, as supplemented on March 25 and 31, 2021, and April 5, 2021, Birch Solar 1, LLC ("Applicant") filed an application ("Application") with the Ohio Power Siting Board ("OPSB") proposing to construct a solar-powered electric generation facility in Allen and Auglaize Counties, Ohio.

On October 1, 2021, the Staff of the OPSB ("OPSB Staff") provided the Applicant with OPSB Staff's Tenth Data Request. Now comes the Applicant providing the following response to the Tenth Data Request from the OPSB Staff.

1. Since the hydro-excavation work in April '21, what additional efforts has the Applicant taken to further identify possible subsurface oil and gas well infrastructure within the project area?

<u>Response</u>: The oil and gas well infrastructure in the community around the Project is rooted in Lima, Ohio's history. The oil boom for the area began in 1885. Recording of oil well data by the Ohio Department of natural Resources ("ODNR") began in 1980 and currently the ODNR Risk Based Management System ("RBMS") contains comprehensive well data for over 100,000 wells permitted since 1980. Historical well card information from the Division of Geological Survey for wells permitted before 1980 has also be added to the database (See <u>https://ohiodnr.gov/wps/portal/gov/odnr/discover-and-learn/safety-conservation/about-odnr/oil-gas/oil-gas-resources/featured-content-3</u>).

Lima, Ohio has continued to grow since the original oil boom of the 1800s. Residential, commercial, and industrial complexes have grown beyond city limits, often times over

known ODNR data points. Attachment 1 to this response illustrates the city and township's growth over the ODNR's oil and gas data and the Project Area (shown in blue). Housing subdivisions, industrial warehouses, refineries, factories and even golf courses now cover the ODNR data points both inside and outside of Lima, Ohio city limits and Shawnee Township. These developments include multiple uses which would require the same underground disturbance a solar field would require, if not more. The excavation for a residential basement, digging of a residential well, or the addition of a man-made pond, pool or water feature would feature depths similar or more than solar racking pilings. The ability to build and develop over ODNR data points and well locations has been made possible, often times, by a lack of any physical presence of a well feature. If wells were located in the ODNR locations, wells may have been removed, possibly by the well driller themselves to reuse components, by a farmer during planting, or during wartime to resuse components.



To date, precedent though the OPSB application process has required an Applicant to guide its site planning based on the ODNR database along with other oil and gas well locations that are identified through the Applicant's reasonable due diligence efforts. As discussed

in the Applicant's response to the Fifth Data Request from OPSB Staff filed on April 28, 2021, the Applicant's subsurface investigation methodology has been centered on the ODNR's database of oil and gas well locations and other available information regarding the history of the site. To date, this investigation methodology included sweeping the vicinity of the documented oil and gas wells (using the ODNR data) locations using electromagnetic ("EM") detection equipment that is widely used for locating metallic features such as oil and gas infrastructure, and then physically exploring areas where magnetic anomalies were identified within the areas of investigation using hydro-excavation. Sample results of hydro-excavation are shown below from the field work completed in April 2020 on well head 97 and 99, respectively, hydro-excavated at approximately eight feet; nothing was found to indicate presence of a well.



The above approach respects the precedent utilized by OPSB with regard the ODNR's database and incorporates other known or discovered information, while minimizing intrusion on the site to respect the ongoing landowner's agricultural operations. While physical exploration of the site was suspended after April 2021 to accommodate the crop planting and grow season, physical exploration will resume as soon as practical following harvest.

While physical exploration has been suspended, the Applicant diligently reviewed findings of the electro-magnetic investigation and initial physical exploration, correlated these findings against ODNR's database, conducted a third party internal review of the electromagnetic investigation report and methodology, reviewed the general history and vintage of oil wells in the area, started development of an actionable field mitigation plan (See the Unanticipated Discovery Plan submitted as Attachment 4 to the Applicant's Response to the Fifth Data Request from the OPSB Staff filed on April 28, 2021), and consulted with additional experts in the geophysical investigation profession to evaluate other investigation technologies as a means of continuing due diligence efforts without further or unnecessary delay. The experts conducting these electro-magnetic investigations and the physical exploration agree that the efforts undertaken by the Applicant enable the OPSB to determine the probable environmental impact of the facility in relation to the ODNR database and legacy oil and gas wells in the Project Area. These reasonable and compliant due diligence efforts, also enable the Applicant to develop a mitigation plan that will ensure that the OPSB can determine that the facility represents the minimum environmental impact considering the state of available technology and the nature and economics of the various alternatives, and other pertinent factors.

Upon further coordination with the OPSB Staff and ODNR in the first week of October 2021, it came to the Applicant's attention that the agencies would like the Applicant to conduct additional studies of the Project Area and provide a complete scan of the site using an aerial magnetometer-based methodology that mirrors ODNR's ongoing oil and gas well validation program. This is a new, undocumented approach in regard to the OPSB process that represents a departure from the established, previously coordinated investigation approach that has been used which focused on the ODNR data.

In contemplating adopting this new [different] course of exploration, the Applicant offers the following additional information for consideration.

• The electro-magnetic investigation methodology employed as part of the Applicant's due diligence effort is widely used throughout the oil and gas industry due to its sensitivity and accuracy in detecting metallic features and its ability to penetrate into the subsurface at appropriate depths (≈ 10 feet) for targeted

investigations. This technology was appropriate based on the precedent set in past OPSB applications to focus the well data and well investigations on the ODNR dataset. The Applicant also understands ODNR is now recommending an aerial survey using magnetometer technology and the Applicant has agreed to also use that study method.

- While an aerial methodology allows larger areas to be scanned faster, which is understandable for ODNR's validation program, it ignores the administrative requirement to use the state's database and the public's legitimate reliance on the accuracy of that information. The Applicant, however, has agreed to also use the aerial methodology, as described by ODNR.
- While both investigation methodologies have certain value in developing information about a site, each also requires physical verification of anomalies detected by the various sensors.
- Regardless of the methodology employed to investigate the site, it remains necessary to develop and implement a mitigation plan for each legacy well encountered, as well as an Unanticipated Discovery Plan. A reasonable mitigation plan that ensures environmental compatibility may include setting back from confirmed wells, collaborating with ODNR to plug and cap, incidental cleanup, and/or other appropriate response measures based on the situations encountered. The Applicant is committed to implementing the Unanticipated Discovery Plan and any coordination required with ODNR if a well is found.

2. What is the soonest the Applicant can complete the potholing of the remaining well sites?

Response: It remains the Applicant's goal to ensure the Project accommodates agricultural production to the fullest extent before construction begins and that early-stage development studies are not disruptive. Accordingly, the Project will resume physical verification of anomalies when harvest is complete. The Applicant has requested guidance and coordination with ODNR. Timing for physical verification will be dependent on that coordination. Additional physical verification is weather dependent. However, the Applicant expects physical verification to be completed by approximately the end of 2021. The Applicant does note that this timeline will require ODNR to continue coordination in a timely fashion.

3. The Round Rock Geophysics (RRGR) report indicates the EM-61 Electromagnetic evaluation method was chosen considering 'the nature of the site and the expected responses of the wells and associated utility pipelines'. Please define what is implied

by the site's nature and expected well response. Also, please discuss why was this technology preferred over other techniques such as aerial based surveys followed by ground surveys.

Response: As discussed above, the EM-61 evaluation method is widely used in the oil and gas industry to detect wells, pipelines, and other underground metallic features. This technology is regarded as more sensitive than aerial-based surveys and allows for detection of anomalies to depths of approximately 10 feet which provides investigation coverage for the approximate depth of the pile foundations and electrical cabling associated with solar projects. Taken in conjunction with the administrative requirement to use the state's oil and gas well database, this evaluation method provides a compliant approach that is conservative in the sense that it employs a more sensitive technology.

4. Please discuss the accuracy and limitations of the EM-61 survey. Including vertical and horizontal detection. i.e. how deep or how far laterally will the tools detect magnetic anomalies accurately?

<u>Response</u>: The instrument noise level for a well maintained and calibrated EM-61 is approximately 1 to 1.5 millivolts ("mV"). The instrument noise of EM-61 may vary slightly depending on the buried depth and the size of the target of interest. For wellheads with diameters between 4 to 8 inches, the EM-61 threshold value was assigned to be 3 mV. However, to maximize the likely detection of features associated with wells, only amplitude values which in most cases were above 30 mV, and in general well above the calibrated instrument noise, were considered as anomalous features. This conservative estimate allows to offset instrument, ambient and motional noise that may have been produced during the time of data acquisition. Anomaly target depth is site specific. In case of the Birch Solar Project site, the depth of detection was estimated to be approximately 7 to 10 feet below ground surface.

The size of the EM-61 instrument coil is 1 meter (3.28 feet). The horizontal detection capacity of the instrument varies with the size and depth of the target. During this evaluation, the lateral response was estimated by performing walkaway tests at a test site location with a metallic pipe buried at a depth of approximately 4 feet below ground surface. The lateral response was determined to be at least 1 foot on each side of the coil.

With the coil size of 1 meter (3.28 feet) and lateral detection capacity of at least 1 foot on each side, a maximum profile spacing of 5 feet was established. The signal gradually dies out the further from the target, but the change is not abrupt.

5. If magnetic anomalies are being identified at suspected well locations, what explains why no wells have been found?

Response: The technology used, EM-61, was chosen due to its sensitivity and ability to capture metallic features possibly not found using other methods. This sensitivity, however, can also lead to the detection of potential metallic clutter (fragments) distributed within the soil which are measurable by EM-61, but are non-well related anomalies. This metallic clutter may also have resulted in higher mV responses relative to responses from wellheads. This is possible as manmade and natural activities could cause mobilization and erratic distribution of metallic fragments and ferrous minerals within the soil upon which the EM-61 survey is conducted. The degree of erosion-corrosion of the metal piece recovered from anomaly target 60A also indicate the potential deterioration of metallic objects within the site of investigation whose size now become too small to detect via potholing but responsive enough to be detected by the EM-61. Metallic features causing these anomalies could be the result of any industrial or agricultural use of the evaluation area over hundreds of years.

Anomaly locations were determined with a survey-grade GPS base station and rover receiver; potholing target locations were then established using a handheld, survey-grade GPS unit and staked. The accuracy between the two survey datasets was then evaluated and confirmed. However, dimensions of secondary fields measured by EM instruments are rarely uniform, consequently, EM-61 responses may not be highest directly above the target item. As a result, the peak responses can be located adjacent to the target's position. To counter this, potholing in multiple locations was directed beyond just the anomaly target. Additionally, limited trenching was conducted to transect potential horizontal anomalies.

Anomaly targets selected for the initial hydro-vac excavation effort were selected based on their potential to impact the array layout (Facility Area) and accessibility to potholing efforts. However, for remaining anomaly targets not selected for excavation, a 50-foot radius buffer was established in the array layout and Facility Area in order to meet past OPSB precedent.

6. Should the remaining 37/38 well sites be potholed and no oil and gas well infrastructure is found, would the Applicant consider alternative technology to confirm the findings?

<u>Response</u>: As discussed above, the EM-61 evaluation method is widely used in the oil and gas industry to detect wells, pipelines, and other underground metallic features. This technology is regarded as more sensitive than aerial-based surveys and allows for detection of anomalies to a depth of ≈ 10 feet, which provides investigation coverage for the approximate depth of the pile foundations and electrical cabling associated with solar projects. Taken in conjunction with the administrative requirement to use the state's oil and gas well database, this evaluation method provides a compliant approach that is conservative in the sense that it employs a more sensitive technology.

The Applicant also had additional communication with ODNR regarding the approach and the Applicant will adhere to ODNR direction regarding well detection and will coordinate in the instance a well is found. Though the Applicant believes it has gone above and beyond the current precedent set by OPSB and ODNR previously for solar projects, the Applicant will agree to an aerial magnetometer survey, followed by additional physical verification of anomalies found. Physical verification will be completed as described in coordination with ONDR.

7. The Applicant's response to Staff DR #5 speaks to a 150 feet "radius" of investigation at each potential well location. The electromagnetic transect figure provided in the Applicant's response to Staff data request #9 suggests the transect lines aren't 150 feet radially? Please explain.

<u>Response</u>: The Applicant attempted an approximate 150-foot radius of investigation at each ODNR oil and gas well database target. EM transects were run at 5-foot intervals in a generally linear fashion to ensure appropriate coverage. In some cases, however, the

survey area may not have had access suitable for achieving a 150-foot survey radius. Access limitations included fencing, structures, and crops.

8. Of the 8 well points where a magnetic anomaly was not found, what was the investigation area for each well?

Response: EM evaluation areas were based on the ODNR oil and gas well database. Each EM evaluation area was centered on each well point identified in the database. As stated above, the evaluation was expanded from this location out to approximately 150 feet where site conditions allowed.

9. The RRGR indicates KMZ files of the surveys have been provided to the client. Please provide those files to Staff.

<u>Response</u>: The KMZ files will be provided to OPSB Staff coincident with this response.

Respectfully submitted,

/s/ Christine M.T. Pirik Christine M.T. Pirik (0029759) (Counsel of Record) Terrence O'Donnell (0074213) Matthew C. McDonnell (0090164) Dickinson Wright PLLC 150 East Gay Street, Suite 2400 Columbus, Ohio 43215 Phone: (614) 591-5461 Email: <u>cpirik@dickinsonwright.com</u> <u>todonnell@dickinsonwright.com</u> mmcdonnell@dickinsonwright.com

Attorneys for Birch Solar 1, LLC

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Birch Solar I, LLC Case No: 20-1605-EL-BGN

Attachment 1 Ohio Department of Natural Resources Oil and Gas Well Data Shawnee Township



ODNR - Oil/Gas Wells Data



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Case No(s). 20-1605-EL-BGN

Summary: Response to Tenth Data Request from Staff of the Ohio Power Siting Board electronically filed by Christine M.T. Pirik on behalf of Birch Solar 1, LLC