

COMMONWEALTH OF KENTUCKY

BEFORE THE KENTUCKY STATE BOARD ON ELECTRIC GENERATION  
AND TRANSMISSION SITING

In the Matter of:

ELECTRONIC APPLICATION OF CALDWELL	)	
SOLAR, LLC FOR A CERTIFICATE OF	)	
CONSTRUCTION FOR AN APPROXIMATELY	)	CASE NO.
200-MEGAWATT MERCHANT ELECTRIC SOLAR	)	2020-00244
GENERATING FACILITY IN CALDWELL	)	
COUNTY, KENTUCKY	)	

ORDER

On October 12, 2021, Caldwell Solar, LLC (Caldwell Solar) filed an application with the Kentucky State Board on Electric Generation and Transmission Siting (Siting Board) seeking a Construction Certificate to construct an approximately 200-megawatt (MW) ground-mounted solar photovoltaic electric generating facility (Project) comprising approximately 3,000 acres of land in Caldwell County, Kentucky.

There are no intervenors in this matter. Pursuant to a procedural schedule established on November 1, 2021, Caldwell Solar responded to two rounds of discovery. A site visit was held on December 8, 2021. Siting Board consultant Harvey Economics (Harvey) filed its report (Harvey Report) on January 21, 2022.<sup>1</sup> Caldwell Solar submitted its response to the Harvey Report on February 2, 2022. A formal hearing was held on February 22, 2022. Caldwell Solar filed its responses to post-hearing requests for information on March 11, 2022. The matter now stands submitted for a decision.

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<sup>1</sup> Harvey Review and Evaluation of the Caldwell Solar, LLC Site Assessment Report (Harvey Report) (filed Jan. 21, 2022).

## LEGAL STANDARD

The filing requirements and standard of review for requests to construct a merchant generating facility are set forth in KRS 278.700–.718. KRS 278.704(1) requires that an application be filed with and approved by the Siting Board before the construction of a merchant electric generating facility can commence. KRS 278.706 requires that the application include evidence of public notice and compliance with local planning and zoning ordinances.

KRS 278.708(2) requires Caldwell Solar to prepare a site assessment report (SAR) that includes (1) a detailed description of the proposed site; (2) an evaluation of the compatibility of the facility with scenic surroundings; (3) potential changes in property values and land use resulting from the siting, construction, and operation of the proposed facility for property owners adjacent to the site; (4) evaluation of anticipated peak and average noise levels associated with the facility's construction and operation at the property boundary; (5) the impact of the facility's operation on road and rail traffic to and within the facility, including anticipated levels of fugitive dust created by the traffic and any anticipated degradation of roads and lands in the vicinity of the facility; and (6) any mitigating measures to be suggested by Caldwell Solar to minimize or avoid adverse effects identified in the SAR.

KRS 278.710(1) delineates the criteria on which the Siting Board will grant or deny the certificate, which includes (1) impact on scenic surroundings, property values, and surrounding roads; (2) anticipated noise levels during construction and operation of the facility; (3) economic impact on the region and state; (4) whether the proposed facility will meet all local planning and zoning requirements existing on the date the application was

filed; (5) impact of the additional load on the reliability of jurisdictional utilities; (6) setback requirements; (7) efficacy of mitigation measures proposed by Caldwell Solar and (8) whether Caldwell Solar has an excellent environmental compliance history.

### PROPOSED FACILITY

The project will be located on 1,450 acres within a 3,000-acre site over one contiguous location and includes approximately 541,750 solar panels and 265 inverters, which will be clustered on 65 inverter skids, associated racking, and a substation within the Project boundary to connect it to the Barkley 161 kV transmission line owned by Big Rivers Electric Corporation.

### DISCUSSION AND FINDINGS

#### **I. KRS 278.708: SAR Filing Requirements and Mitigation Measures**

##### Mitigation Measures Proposed by Caldwell Solar and Siting Board Consultant

As required by KRS 278.708(4), Caldwell Solar proposed various mitigation measures consistent with the statutes regarding traffic, noise, roadway preservation, permitting, setbacks, public safety, scenic preservation, and decommissioning.

In accordance with KRS 278.708(5), Harvey recommended mitigation measures in the following areas: noise, glare, traffic control, road degradation, visual buffers, complaint resolution mechanisms, and decommissioning requirements.<sup>2</sup>

Caldwell Solar disagreed with certain recommendations of the Harvey Report as to mitigation measures, particularly the hours of noise-producing work at the site, the

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<sup>2</sup> Harvey Report, Section VI at 2–7.

type and amount of vegetative screening, and the need to remove underground structures after cessation of the project.<sup>3</sup>

The Siting Board has reviewed the mitigation measures proposed by Caldwell Solar and Harvey and finds that in addition to those Caldwell Solar had initially proposed and has agreed to, the mitigation measures set forth in Appendix A, and discussed throughout this Order, are appropriate and reasonable because they achieve the statutory purpose of mitigating the adverse effects identified in the site assessment report and its consultant's report in accordance with KRS 278.708.

#### Detailed Site Description

KRS 278.708 (3)(a)(1-6) requires that the detailed site description in the SAR include a description of (1) surrounding land uses for residential, commercial, agricultural, and recreational purposes; (2) the legal boundaries of the proposed site; (3) proposed access control to the site; (4) the location of facility buildings, transmission lines, and other structures; (5) location and use of access ways, internal roads, and railways; and (6) existing or proposed utilities to service the facility.

Caldwell Solar submitted the required SAR with its application.<sup>4</sup> The SAR contained detailed site maps that included existing roadways, railways, project boundaries, property lines, overhead electric lines, dwellings, and hydrological features, with the proposed fence, underground feeder lines, overhead lines, vegetative screening, solar arrays, inverters, substation, and switchyard.<sup>5</sup> The legal boundaries of the proposed

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<sup>3</sup> Caldwell Solar's Response to Harvey Report (filed Feb. 3, 2022) at 2-10.

<sup>4</sup> Application, Exhibit H, SAR (filed Oct. 12, 2021); amended SAR (filed Feb. 10, 2022).

<sup>5</sup> Application, Amended Exhibit J (filed Dec. 3, 2021).

site are contained in leases, deeds, and maps of tax parcels.<sup>6</sup>

A security fence meeting the National Electrical Safety Code (NESC) requirements will enclose the facility, and its entrance gates will be secured to allow for emergency and maintenance access. The substation and switchyard will have their own security fence and locked access.<sup>7</sup> The project will require a minor amount of electricity during construction and operation from Kentucky Utilities. Caldwell Solar anticipates the water and wastewater services for the Operations and Management (O&M) building will be provided by Caldwell County Water District.<sup>8</sup>

The surrounding area is primarily rural agricultural land with scattered rural residential properties. Cultivated crops are 25 percent, pasture/hay is 54 percent, and deciduous forest is 16 percent of the area of the project site.<sup>9</sup> Two residential “groupings” are located within 2,000 feet of project facilities; there are no schools, hospitals, or nursing homes within 2,000 feet of the site.<sup>10</sup>

Harvey reviewed and evaluated the SAR and stated that Caldwell Solar generally complied with the statutory requirements for describing the facility and a site development plan required by KRS 278.708.<sup>11</sup>

After reviewing the record of this proceeding, the Siting Board finds that Caldwell

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<sup>6</sup> Application, Exhibit I.

<sup>7</sup> Harvey Report, Section III at 6.

<sup>8</sup> Caldwell Solar’s Response to Siting Board Staff’s First Request for Information (Staff’s First Request) (filed Dec. 3, 2021), Item 39.

<sup>9</sup> SAR, Section 1.2.2 at 2.

<sup>10</sup> Caldwell Solar’s Motion for Deviation from Setback Requirements (Caldwell Solar’s motion for deviation) (filed Oct. 28, 2021) at 16–17.

<sup>11</sup> Harvey Report, Section III at 14.

Solar has complied with the requirements for describing the facility and a site development plan as required by KRS 278.708. However, the Siting Board finds it necessary to impose certain mitigation measures and requirements related to the description of the facility and the proposed site development plan. Specifically, the Siting Board will require Caldwell Solar to keep the Siting Board apprised of changes throughout the development of the project and, as such, will order Caldwell Solar to provide the final site plan before the commencement of construction. The final site plan should indicate and highlight any change, including those to the design and boundaries of the project from the proposed site plan provided to the Siting Board during the pendency of this matter. Additionally, based on the record and the concerns and proposals of the Harvey Report, the Siting Board further finds that additional mitigation measures are required. These mitigation measures are outlined in Appendix A to this Order, mitigation measures 1 through 7.

#### Compatibility with Scenic Surroundings

The Project setting is rural, not densely populated, and agricultural.<sup>12</sup> The view will be impacted by the structures to be added, including the solar panels, inverter skids, a substation, a switchyard, weather stations, an overhead collection system, and security fencing.<sup>13</sup> Caldwell Solar proposes a setback of 200 feet from any residential structures or inverter skids and 1,000 feet from the substation to residences.

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<sup>12</sup> Harvey Report, Section V at 2–3.

<sup>13</sup> *Id.* at 7.

Several glare studies were provided, and glare impacts on nearby residences are not anticipated.<sup>14</sup> Harvey's analysis agreed that glare would not be a factor.<sup>15</sup>

Caldwell Solar, LLC prepared a screening plan<sup>16</sup> to mitigate potential visual impacts to the adjoining property. Caldwell stated that one would be planted if a vegetation buffer is not already present between the Project boundary and adjacent residential structures. It is estimated that 19 buffers will be planted, and the total length of the proposed screening is 26,426 feet.<sup>17</sup> The majority of buffers will be planted along the Project perimeter, with a smaller proportion within the Project area.<sup>18</sup> In addition, Caldwell Solar has agreed to provide transition barriers if there is more than a 30-foot gap between existing vegetation barriers and the new plantings.<sup>19</sup> Caldwell Solar provided a list of proposed plantings; however, the Siting Board finds that some of those are not the most efficacious or native. The Siting Board will require additional mitigation measures regarding the visual barrier, which are outlined in Appendix A to this Order, and in particular, mitigation measures 8 through 12.

### Impact on Property Values

Caldwell Solar submitted a property value impact report from CohnReznick LLP (CohnReznick), a certified real estate appraiser. CohnReznick stated that the solar facility

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<sup>14</sup> Caldwell Solar's Response to Siting Board Staff's Second Request for Information (Staff's Second Request) (filed Jan. 7, 2022), Item 30 at unnumbered page 44–53.

<sup>15</sup> Harvey Report, Section V at 9.

<sup>16</sup> *Id.* at 8.

<sup>17</sup> *Id.*

<sup>18</sup> Amended SAR at 4 and Second amended Exhibit I, Figure 2.

<sup>19</sup> Caldwell Solar's Response to Harvey Report at 6.

will have no negative impact on the property values of abutting or adjacent residential or agricultural properties based on a comparative analysis.<sup>20</sup> CohnReznick indicated that the solar facility would function in a harmonious manner with the nearby surroundings, which are mostly agricultural, and that operation of the solar facility would not generate the level of noise, odor, or traffic impacts to negatively impact the nearby surroundings as compared to a fossil fuel generating facility or another industrial facility.<sup>21</sup>

Harvey evaluated the impacts to property values by reviewing relevant existing literature related to solar facility impacts and conducted further analysis of the data provided in by CohnReznick.<sup>22</sup> Among the literature reviewed by Harvey was a 2020 study completed by economists at the University of Rhode Island, which stated that in areas of high population density, houses within a one-mile radius depreciate by about 1.7 percent following the construction of a solar array.<sup>23</sup> However, that study did further analysis focused on impacts in more rural areas and found that the effects in rural areas were effectively zero, as opposed to non-rural areas.<sup>24</sup>

Harvey also reviewed additional sources related to the potential for property value impacts associated with solar projects.<sup>25</sup> The overall conclusion of these sources was that solar facilities do not negatively impact property values.

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<sup>20</sup> SAR, Attachment D at 111.

<sup>21</sup> *Id.* at 104.

<sup>22</sup> Harvey Report, Section II at 4.

<sup>23</sup> Harvey report, Section V at 18.

<sup>24</sup> *Id.*

<sup>25</sup> *Id.* at 18–19.

Harvey interviewed the Caldwell County Property Valuation Administrator (PVA), who is familiar with property valuation and real estate in Caldwell County. The PVA indicated that the county has a stable market<sup>26</sup>, and he does not believe that property values will be affected by the presence of the facility given the rural nature of the proposed Project area, but that residents adjacent to the Project site would appreciate appropriate vegetative buffers.<sup>27</sup>

Overall, Harvey stated that the current research indicates that the existence of solar facilities does not, in general, negatively influence property values for adjacent landowners,<sup>28</sup> and there is no expected change in property values due to the Caldwell solar project. Harvey stated that with the use of vegetation buffers citizen concerns could be mitigated.<sup>29</sup>

Having reviewed the record, the Siting Board finds that there is sufficient evidence to conclude that the proposed Caldwell Solar facility will not have any significant adverse impact on nearby property values. In order to mitigate any possible impact on adjoining property values the Siting Board will require Caldwell Solar to implement several mitigation measures, which are outlined in Appendix A to this Order, and in particular, mitigation measures 8 through 12, 16, and 32 through 33.

#### Anticipated Noise Level

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<sup>26</sup> Harvey Report, Section V at 20.

<sup>27</sup> *Id.* at 19.

<sup>28</sup> Harvey Report, Section II at 4.

<sup>29</sup> Harvey Report, Section V at 21.

Caldwell Solar contracted with Hessler Associates, Inc. to conduct a noise assessment. The typical sources of construction-related noise for the project are the operation of heavy machinery, construction traffic, and installation of major plant components via pile driving. Potential sources of noise during long-term operation include inverters, tracking motors, and maintenance activities.<sup>30</sup>

Caldwell Solar explained that it is difficult to provide an evaluation of construction-related noise, as it is highly variable and dependent on the area in which it is occurring.<sup>31</sup> However, Caldwell Solar stated that average sound pressure levels emitted by construction-related activities are expected to range between 69.0 to 88.0 dBA at 50 feet,<sup>32</sup> which is higher than the range of ambient noise levels of 35 to 45 dBA typically experienced in a rural area during the daytime.<sup>33</sup> Caldwell Solar noted that the area also experiences intermittent sounds emitted by a nearby quarry and railroad, which was not included in its estimation of ambient, background noise.<sup>34</sup>

The loudest source from construction is anticipated to be pile driving equipment,<sup>35</sup> and Caldwell Solar anticipated between 1 and 12 pile drivers will be in use at any given time.<sup>36</sup> The maximum anticipated noise produced by pile driving equipment is estimated

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<sup>30</sup> Harvey Report, Section V at 22.

<sup>31</sup> Caldwell Solar's Response to Staff's First Request, Item 61.

<sup>32</sup> Caldwell Solar's Response to Staff's Second Request, Item 28, Table N-5-1.

<sup>33</sup> Caldwell Solar's Response to Staff's First Request, Item 59.

<sup>34</sup> *Id.*, Items 58–60.

<sup>35</sup> *Id.*, Item 61, Table N-5.

<sup>36</sup> *Id.*, Item 8.

to be 89.0 dBA at 50 feet,<sup>37</sup> and the maximum anticipated sound level impact for nearest non-participating residence during the pile driving process will be approximately 68.0 dBA at 216 feet.<sup>38</sup> Caldwell Solar stated that other construction-related, noise-generating activity, such as trenching may occur at the same time as pile driving, which could increase the experienced level of sound pressure, but may occur in different areas of the project site.<sup>39</sup> However, Caldwell Solar explained that pile driving noise impacts are temporary; lasting around five months<sup>40</sup>, and time spent at any single installation location is around one minute.<sup>41</sup>

Residential noise sensitive receptors less than 500 feet from pile driving locations will experience estimated sound levels of 61 to 68 dBA during pile driving. Trenching activity, road construction and other construction activities will also generate noise greater than 55 dBA at 300 feet. However, the nature of the project, which requires that construction activities move around the site as each task is completed, will minimize some of the annoyance created by loud, though sporadic, noise.<sup>42</sup>

In order to lessen the impact of construction activity, Caldwell Solar proposed to limit pile driving activity to 7 a.m. through 7 p.m., Monday through Saturday, with occasional work occurring on Sundays.<sup>43</sup> No other mitigation measures were proposed.

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<sup>37</sup> Caldwell Solar's Response to Staff's Second Request, Item 28, Table N-5-1.

<sup>38</sup> Caldwell Solar's Response to Staff's First Request, Item 6, Table N-1.

<sup>39</sup> Caldwell Solar's Response to Staff's First Request, Item 67.

<sup>40</sup> *Id.*, Item 66.

<sup>41</sup> *Id.*, Item 5a.

<sup>42</sup> Harvey Report, Section V at 30.

<sup>43</sup> Caldwell Solar's Response to Staff's First Request, Item 65.

Caldwell Solar stated it did not find that utilization of fence sound blankets or covered trailers to suppress pile driving noise to be a proven or practical noise suppression method.<sup>44</sup> Caldwell Solar stated that it would provide contact information for nearby residents to express noise concerns, and address issues on a case-by-case basis.<sup>45</sup> The Siting Board does not find these measures to be sufficient to address the construction noise issue.

Caldwell Solar stated the final residential structure setbacks will meet the Environmental Protection Agency's (EPA) 55 dBA daytime and 45 dBA nighttime noise standards.<sup>46</sup> During the project's operation phase, solar inverters, transformers, and the substation are expected to result in a cumulative sound pressure level no greater than 44 dBA to the nearest non-participating dwelling.<sup>47</sup> The solar array will also be fitted with motor tracking systems that would produce mechanical noise intermittently.<sup>48</sup> Caldwell Solar explained that the sound from the tracking motors will be very quiet and is only barely perceptible within the panel arrays themselves.<sup>49</sup>

Harvey reviewed the SAR submitted by Caldwell Solar.<sup>50</sup> Harvey utilized the noise recommendations generated by the EPA and the World Health Organization (WHO) to

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<sup>44</sup> Caldwell Solar's Response to Staff's First Request, Item 5c.

<sup>45</sup> *Id.*, Item 68.

<sup>46</sup> *Id.*, Item 31.

<sup>47</sup> SAR, Attachment B at 5.

<sup>48</sup> *Id.*, Noise Assessment at 2.

<sup>49</sup> SAR, Section 4.2, at 6.

<sup>50</sup> Harvey Report, Section V at 22–33.

gauge acceptable levels of sound.<sup>51</sup> Harvey stated that the level of noise generated by pile driving is above standards for annoyance, but will be sporadic and decrease with distance from nearby residences.<sup>52</sup> Further, during the operations phase, Harvey believed noise is not likely to be annoying and may not even be noticeable.<sup>53</sup> Harvey made several sound mitigation recommendations, including restricting the work times, responding to noise complaints, following setbacks and using sound controlling measures if pile driving activity occurs within 1,500 feet of a sensitive noise receptor.<sup>54</sup>

The Siting Board finds that noise from construction will be intermittent and temporary to nearby residences, but nevertheless, significant. As discussed by both the Caldwell Solar and Harvey, the construction noise will be loudest during the pile driving portion of the construction process, however the cumulative construction noise will not be permanently damaging to nearby residents. The Siting Board further finds that the operational noise from the solar inverters, substation transformers, and tracking motors should have little-to-no effect on residences in the area.

In order to ensure the impact of construction noise does not unduly affect nearby residences, the Siting Board will require Caldwell Solar to implement several additional mitigation measures designed to limit the impact of construction noise. These mitigation measures are outlined in Appendix A to this Order, and in particular, mitigation measures 13 through 16.

#### Impact on Roads, Railways, and Fugitive Dust

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<sup>51</sup> Harvey Report, Section V at 30.

<sup>52</sup> Harvey Report, Section II at 4.

<sup>53</sup> *Id.*

<sup>54</sup> Harvey Report, Section V at 32–33.

The anticipated routes for construction equipment, materials deliveries, and construction and operation crews to access the Project site include the roads adjacent to the site.<sup>55</sup> Construction activities are expected to take 12 to 16 months. During this time, a temporary increase in traffic is anticipated near the vicinity of the proposed site.<sup>56</sup>

Harvey reviewed the plan for traffic management and projected there would be an increase of between 284 (average) and 534 (peak) trips per day for workers and deliveries. Given the light traffic in the area, Harvey noted this impact will be noticed by residents; however, it may be acceptable due to the short timeframe involved.<sup>57</sup> Harvey noted that the roads in the area are narrow and there is a possibility of damage to the roads, as well as inconvenience of drivers who will have to wait for larger vehicles to pass during construction.<sup>58</sup> Caldwell Solar stated safety precautions including signage, signaling, flagmen, and temporary lane closures will be utilized as needed.<sup>59</sup> Caldwell Solar confirmed it would adhere to all local and state requirements related to permitting and repairing road infrastructures following construction.<sup>60</sup>

The operational phase will have little impact to roads and traffic. There will be permanent employees conducting maintenance and will be driving small pick-up trucks.<sup>61</sup>

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<sup>55</sup> SAR, at 7.

<sup>56</sup> *Id.*

<sup>57</sup> Harvey Report, Section V at 39.

<sup>58</sup> *Id.* at 40

<sup>59</sup> SAR, at 7.

<sup>60</sup> *Id.* at 8–9.

<sup>61</sup> *Id.* at 7.

The Siting Board finds that traffic and road degradation issues can be addressed with Caldwell Solar's proposed mitigation measures and those mitigation measures outlined in Appendix A, in particular, mitigation measures 17 through 24.

The Fredonia Valley railroad track extends along the northern Project boundary.<sup>62</sup> Caldwell Solar indicated the railway could be used by vendors to deliver the main power transformer.<sup>63</sup> Any additional road traffic caused by construction will not impact the railway. The project will not utilize the railway during operation.<sup>64</sup> The Siting Board finds there will be no impact on railways.

The Siting Board anticipates fugitive dust from the construction phase. To reduce potential dust impacts, Caldwell Solar has affirmed it will use water for dust control.<sup>65</sup> Caldwell Solar further stated that vegetative buffers along the boundaries of the project will also help minimize fugitive dust.<sup>66</sup> Dust will not be a factor during final operations. The Siting Board requires additional mitigation to reduce any potential harmful effect on the area, which are outlined in Appendix A to this Order, in particular, mitigation measure 25.

## **II. KRS 278.710(1)-Criteria**

In addition to the evaluation of the factors addressed in the SAR, the Siting Board considered the below-described factors set forth in KRS 278.710(1) in rendering its decision.

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<sup>62</sup> SAR at 7.

<sup>63</sup> *Id.*

<sup>64</sup> *Id.*

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

### Economic Impact on Affected Region and the State

An Economic Impact Analysis was prepared by Cardno (Cardno Report) for Caldwell Solar, using National Renewable Energy Laboratory's (NREL) Jobs and Economic Development Impacts Model (JEDI).<sup>67</sup> According to that analysis, the Caldwell Solar Project is expected to have significant impacts on the economies of Caldwell, Crittenden, and Lyon counties, Kentucky, bringing new employment, spending, and taxes to the areas.<sup>68</sup> With a total estimated capital investment of \$318.0 million, the Commonwealth as a whole will also see similar positive effects stemming from the investments made into the project's local economies.<sup>69</sup>

The Cardno Report described the economic impacts on a direct, indirect, and induced basis.<sup>70</sup> There will be two phases of the project, a construction phase and an operation phase. The economic impact analysis was performed separately for each phase.<sup>71</sup> The construction phase is estimated to last approximately 16 to 18 months,<sup>72</sup> with the majority of employment and purchases occurring in the construction sector.<sup>73</sup> The operation phase stands to bring smaller, but long-term, economic impacts over the

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<sup>67</sup> Application, Exhibit F at 3 and 5.

<sup>68</sup> *Id.* at 3–4.

<sup>69</sup> *Id.*; Caldwell Solar's Response to Staff's First Request Item 12.

<sup>70</sup> Application, Exhibit F at 6.

<sup>71</sup> *Id.*

<sup>72</sup> Caldwell Solar's Response to Staff's Second Request, Item 5.

<sup>73</sup> Caldwell Solar's Response to Staff's First Request, Item 12 and Item 80.

20 to 25-year project life.<sup>74</sup> Tax revenues will also contribute to the overall economic impact of the project.<sup>75</sup>

Regarding the project's construction phase, Caldwell Solar conservatively estimates a direct impact of up to 160.6 full-time equivalent (FTE) workers, filled by residents in Kentucky over the 16- to 18-month construction period, with a direct payroll of \$17.5 million.<sup>76</sup> The total estimated impact to the Commonwealth, including the indirect and induced impacts, is estimated to be 361 FTE jobs, a new payroll of \$21.9 million, and total economic output of \$47.1 million.<sup>77</sup> In order to quantify the economic impacts to the specific counties using JEDI, Caldwell Solar scaled the Kentucky impacts downward by the counties' 2019 GDP of 0.41 percent.<sup>78</sup> This smaller-scale analysis for the counties estimated that 1.5 additional FTE jobs would be created with a payroll of \$90,300 and a total economic output of \$194,500.<sup>79</sup>

Direct employment for the operational phase was determined based on Caldwell Solar's recent experience from similar projects.<sup>80</sup> For the operations phase of the Project, Caldwell Solar estimated 5.0 FTE jobs direct hires statewide to support the continued operation of the site over the 20 to 25-year Project life.<sup>81</sup> The operational phase will have

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<sup>74</sup> Application, Exhibit F at 6, Table 2; Caldwell Solar's Response to Staff's First Request, Item 96.

<sup>75</sup> Application, Exhibit F at 8.

<sup>76</sup> *Id.* at 6, Table 2.

<sup>77</sup> *Id.*

<sup>78</sup> Application, Exhibit F at 5; Response to Staff's First Request, Item 15.

<sup>79</sup> Application, Exhibit F at 7, Table 3.

<sup>80</sup> Application, Exhibit F at 6, Footnote 3; Caldwell Solar's Response to Staff's First Request, Item 16.

<sup>81</sup> Application, Exhibit F at 6, Table 2; Caldwell Solar's Response to Staff's First Request, Item 96.

an additional combined indirect and induced impact of 5.3 FTE jobs throughout the state for a total of 10.3 FTE jobs.<sup>82</sup> Total payroll is expected to be \$629,900 and total economic output of \$1.3 million annually.<sup>83</sup> Even though there were no ongoing jobs estimated for the counties during the operational phase, the Cardno Report noted that the five direct FTE jobs would likely be filled by employees who resided in or nearby the regional counties.<sup>84</sup>

Caldwell Solar stated that the project would pay property taxes and state sales taxes, which will support local schools, infrastructure, and other services.<sup>85</sup> In addition, \$5.3 million to \$6.6 million in state and local property taxes over the life of the project will provide additional funding to the area.<sup>86</sup> Caldwell Solar further committed up to \$40,000 annually over 20 years or approximately \$800,000 to a local charitable fund.<sup>87</sup>

Harvey evaluated Caldwell Solar's economic impact report. Harvey stated that during the construction phase there would be some economic benefits to the region and Commonwealth, chiefly related to the labor activities and expenditures.<sup>88</sup> Although the hiring and income benefits would be temporary, it is in a region in need of such stimulus. As most of the purchasing and capital expenditures would be made out of state, there

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<sup>82</sup> Application, Exhibit F at 6, Table 2.

<sup>83</sup> *Id.*

<sup>84</sup> *Id. at 7*, Table 3.

<sup>85</sup> *Id. at 8.*

<sup>86</sup> Application, Exhibit F at 8; Caldwell Solar's Response to Staff's First Request, Item 95b.

<sup>87</sup> Application, Exhibit F at 8; Caldwell Solar's Response to Staff's First Request, Item 95(g)(2).

<sup>88</sup> Harvey Report, Section V at 46.

would be limited opportunity for local businesses to benefit.<sup>89</sup> Operational phase employment is minimal. Other operational phase economic benefits are largely limited to property taxes, although Caldwell Solar has pledged annual monetary payments to a local charitable organization.<sup>90</sup> Overall, the socio-economic benefits of the facility are a small positive contribution to the region.<sup>91</sup> Harvey recommended that Caldwell Solar should attempt to hire local workers and contractors to the extent they are qualified to perform the construction and operations work<sup>92</sup> and that Caldwell Solar should consider opportunities to optimize local benefits; for example, by purchasing materials, if possible, in the local area during construction and operation.<sup>93</sup>

In its response Caldwell Solar stated that it was agreeable to the proposed measures,<sup>94</sup> assuming local workers and contractors are cost-effective.<sup>95</sup>

Having reviewed the record, the Siting Board finds that the Caldwell Solar facility will have a positive economic impact on the region.

#### Existence of Other Generating Facilities

Caldwell Solar has indicated there are no existing facilities on the proposed site that generate electricity.<sup>96</sup> Caldwell Solar did not locate any nearby, but the proposed

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<sup>89</sup> Harvey Report, Section V at 46.

<sup>90</sup> Harvey Report, Section II at 5, and Section V at 47.

<sup>91</sup> Harvey Report, Section II at 5.

<sup>92</sup> Harvey Report, Section V at 47.

<sup>93</sup> *Id.*

<sup>94</sup> Caldwell Solar's Response to Harvey Report at 9.

<sup>95</sup> *Id.*

<sup>96</sup> Application at 5.

location does permit interconnection to an existing transmission line.<sup>97</sup>

#### Local Planning and Zoning Requirements

There are no applicable zoning requirements in Caldwell County.<sup>98</sup> The statutory requirements of KRS 278.706(2)(e) apply unless a deviation is granted by the Siting Board. KRS 278.706(2)(e) requires that all proposed structures or facilities used for generation of electricity must be 2,000 feet from any residential neighborhood, school, hospital, or nursing home facility. This project will be closer than that to residences, however, there are no schools, hospitals, or nursing homes within 2000 feet.<sup>99</sup>

#### Impact on Transmission System

The Siting Board finds that the effect of this Project on Kentucky's transmission system will not be harmful. Caldwell Solar is sited within the Midcontinent Independent System Operator's (MISO) Central Zone 6.<sup>100</sup> The project is currently assigned a Queue Number<sup>101</sup> and is set for study by MISO to issue a Final System Impact Study and Network Facilities Study. These studies will provide the information necessary to make any adjustments required to mitigate any potential impacts to the regional electric grid and identify the need for any network upgrades to mitigate potential impacts.<sup>102</sup> Caldwell Solar will be responsible for meeting any such requirements.

#### Compliance with Setback Requirements

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<sup>97</sup> Application at 6.

<sup>98</sup> Application, Exhibit D at 1.

<sup>99</sup> *Id.*

<sup>100</sup> Application, Exhibit E at 1.

<sup>101</sup> J1632 Miso-Central-Definitive Planning Phase 2020 cycle. Application Exhibit E at 1.

<sup>102</sup> Application, Exhibit E at 1.

Setback requirements are not established by the local Ordinance in this case, however, the statute concerning merchant electric generating facilities establishes setback requirements for Caldwell Solar by requiring that “all proposed structures or facilities used for generation of electricity are two thousand (2,000) feet from any residential neighborhood, school, hospital or nursing home facility.”<sup>103</sup>

KRS 278.704(4) authorizes the Siting Board to grant a deviation from this setback requirement if requested, assuming it finds the goals of the statutes are met.<sup>104</sup> Caldwell Solar has requested such a deviation.<sup>105</sup> The Siting Board finds that given the totality of the mitigation measures proposed by Caldwell Solar, the nature of the surrounding property, and the mitigation measures the Siting Board has set in Appendix A, specifically mitigation measures 8 through 12, the statutory purposes are met by Caldwell Solar's Project. The Siting Board grants a deviation from this requirement as to the distance to residences and residential neighborhoods, as requested by motion and set forth in Appendix A to this Order, mitigation measure 16.

#### History of Environmental Compliance

No information appears in the record of any environmental violations. Caldwell Solar states that neither it, nor anyone with an ownership interest in it, has violated any environmental laws, rules, or administrative regulations that resulted in a criminal conviction, or a fine of greater than \$5,000. Further, it is not the subject of any pending

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<sup>103</sup> KRS 278.706(2)(e).

<sup>104</sup> KRS 224.10-280, 278.010, 278.212, 278.214, 278.216, 278.218, and 278.700 to 278.716.

<sup>105</sup> Caldwell Solar's motion for deviation.

judicial or administrative actions.<sup>106</sup>

### Decommissioning

Caldwell Solar describes its decommissioning plan generally to include “removal of panels, weather stations, inverters, electrical equipment, piles, racking, and scrap, but only to a depth of at least three feet. It mentions the removal of access roads, as needed.”<sup>107</sup>

A decommissioning outline is set forth with the application. It discusses the required consultations on water, roads, endangered species, hauling and disposal, and references necessary permits. It proposes recycling or salvage where feasible.<sup>108</sup> Caldwell Solar agrees to regrade the land as necessary and recompact it for agricultural use.<sup>109</sup> Caldwell Solar recognizes the need for a bond.<sup>110</sup>

The Siting Board consultant recommended the removal of all components above and below ground.<sup>111</sup> The Siting Board agrees. Return of the property to its original use at the end of the Project's life is required to the extent that is possible. Concerns over erosion and below ground components must be addressed by complete removal of components and restoration of the ground without underground structures and wiring. Financial security for the full cost of decommissioning must be established. The Siting

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<sup>106</sup> Application at 6.

<sup>107</sup> *Id.* at 7

<sup>108</sup> SAR, Attachment E at unnumbered page 212.

<sup>109</sup> *Id.* at unnumbered page 213.

<sup>110</sup> *Id.*

<sup>111</sup> Harvey Report, Section V at 50.

Board will mandate further mitigation measures, which are outlined in Appendix A to this Order, and in particular, mitigation measures 26 through 31.

### CONCLUSION

After carefully considering the criteria outlined in KRS Chapter 278, the Siting Board finds that Caldwell Solar has presented sufficient evidence to support the issuance of a Construction Certificate to construct the proposed merchant solar facility. The Siting Board conditions its approval upon the full implementation of all mitigation measures and other requirements described herein and listed in Appendix A to this Order. A map showing the location of the proposed solar generating facility is attached to this Order as Appendix B.

IT IS THEREFORE ORDERED that:

1. Caldwell Solar's application for a Construction Certificate to construct an approximately 200 MW merchant solar electric generating facility in Caldwell County, Kentucky, is conditionally granted subject to full compliance with the mitigation measures and conditions prescribed in Appendix A.
2. Caldwell Solar's motion for deviation from the statutory setback from residential neighborhoods is granted, and a setback of 300 feet from residential neighborhoods as set forth in its motion is required.
3. Caldwell Solar shall fully comply with the mitigation measures and conditions prescribed in Appendix A.
4. In the event mitigation measures within the body of this Order conflict with those prescribed in Appendix A, the measures in Appendix A shall control.
5. This case is closed and removed from the commission's docket.

KENTUCKY STATE BOARD ON ELECTRIC  
GENERATION AND TRANSMISSION SITING

[Signature]  
Chairman, Public Service Commission

[Signature]  
Vice-Chairman, Public Service Commission

[Signature]  
Secretary, Energy and Environment Cabinet,  
or her designee

[Signature]  
Secretary, Cabinet for Economic Development,  
or his designee

[Signature]  
Larry Curing, County Judge Executive,  
ad hoc member

[Signature]  
Dixie Gale Cherry, ad hoc member

by KAC  
w/permission

ATTEST:

[Signature]  
Executive Director  
Public Service Commission  
*on behalf of* the Kentucky State  
Board on Electric Generation  
and Transmission Siting



## APPENDIX A

### APPENDIX TO AN ORDER OF THE KENTUCKY STATE BOARD ON ELECTRIC GENERATION AND TRANSMISSION SITING IN CASE NO. 2020-00244 DATED APR 08 2022

The following mitigation measures and conditions are hereby imposed on Caldwell Solar, LLC (Caldwell Solar) to ensure that the facilities proposed in this proceeding are constructed as ordered.

1. A final site layout plan shall be submitted to the Siting Board upon completion of the final site design. Deviations from the preliminary site layout should be clearly indicated on the revised graphic. Those changes could include but are not limited to, the location of solar panels, inverters, transformers, substations, operation, and maintenance building, transmission line route, or other Project facilities and infrastructure.

2. Any change in the Project boundaries from the information that formed this evaluation shall be submitted to the Siting Board for review.

3. The Siting Board will determine whether any deviation in the boundaries or site layout plan is likely to create a materially different pattern or magnitude of impacts. If not, no further action is required, but if yes, the applicant will support the Siting Board's effort to revise its assessment of impact and mitigation requirements.

4. Prior to construction, Caldwell Solar shall provide a finalized Emergency Response Plan to the local fire district, first responders, and any county emergency management agency. Caldwell Solar will provide site-specific training for local emergency responders at their request. Access for fire and emergency units must be set up after consultations with local authorities.

5. Caldwell Solar or its contractor will control access to the site during construction and operation. All construction entrances will be gated and locked when not in use.

6. Caldwell Solar's access control strategy shall also include appropriate signage to warn potential trespassers. Caldwell Solar must ensure that all site entrances and boundaries have adequate signage, particularly in locations visible to the public, local residents, and business owners.

7. The security fence must be installed prior to activation of any electrical installation work in accordance with NESC standards. The substation shall have its own separate security fence and locked access installed in accordance with NESC standards.

8. Existing vegetation between solar arrays and nearby roadways and homes shall be left in place to the extent feasible to help minimize visual impacts and screen the project from nearby homeowners and travelers. Caldwell Solar will not remove any existing vegetation except to the extent it must remove such vegetation for the construction and operation of Project components.

9. Caldwell Solar shall implement planting of the native evergreen species American Holly, Eastern Red Cedar, or white pine as a visual buffer to mitigate visual viewshed impacts, in areas where those viewshed impacts occur from residences or roadways directly adjacent to the project and there is not adequate existing vegetation. Eastern Arborvitae and the deciduous plantings listed in the application are not acceptable. If the visual buffer is not adequate, to the reasonable satisfaction of the affected adjacent property owners, then additional vegetation ten feet thick reaching six

feet at maturity (in four years) will be added by Caldwell Solar between Project infrastructure and residences or other occupied structures with a line of sight to the facility. Such planting shall be done prior to construction of panel arrays commencing in any phase of development identified in the record.

10. Caldwell Solar shall carry out visual screening locations consistent with the plans proposed in its application, SAR, its post-hearing data response concerning a nearby church, and the maps included in its submission, and ensure that the proposed new vegetative buffers are successfully established and develop as expected over time. Caldwell Solar shall provide a visual buffer as set forth in any plan to be submitted to the Caldwell Fiscal Court and the requirements of any permits it issues. Should vegetation used as buffers die over time, Caldwell Solar shall replace that as appropriate.

11. To the extent that an affected adjacent property owner indicates to Caldwell Solar that a visual buffer is not necessary, Caldwell Solar will obtain that property owner's written consent and submit such consent in writing to the Siting Board.

12. Caldwell Solar shall cultivate at least two acres of native, pollinator-friendly species onsite.

13. Caldwell Solar is required to limit the construction activity, process, and deliveries to the hours between 8 a.m. and 6 p.m. local time, Monday through Saturday. The Siting Board directs that construction activities that create a higher level of noise, such as pile driving, will be limited to the hours of 9 a.m. to 5 p.m. local time, Monday through Friday. Non-noise-causing and non-construction activities can take place on the

site between 7 a.m. and 10 p.m., Monday through Sunday, including field visits, arrival, departure, planning meetings, mowing, surveying, etc.

14. If the pile driving activity occurs within 1,500 feet of a noise-sensitive receptor, Caldwell Solar shall implement a construction method that will suppress the noise generated during the pile driving process (i.e., semi-tractor and canvas method; sound blankets on fencing surrounding the solar site; or any other comparable method). Caldwell Solar can forego using noise suppression measures if it employs a panel installation method that does not use pile driving, so long as that method does not create noise levels similar to pile driving.

15. Caldwell Solar shall notify residents and businesses within 2,400 feet of the project boundary about the construction plan, the noise potential, any mitigation plans, and its Complaint Resolution Program referred to in Item 32 of this Appendix, at least one month prior to the start of construction.

16. Caldwell Solar shall place panels, inverters, and substation equipment consistent with the distances to noise receptors to which it has committed in its maps and site plans. The Siting Board approves Caldwell Solar's proposed setback from residences of 200 feet from any panel or string inverter. The Siting Board also approves a distance of 300 feet between any solar panel or string inverter and any residential neighborhood, and 100 feet from any exterior property line. Nevertheless, Caldwell Solar shall not place solar panels or string inverters, if used, closer than 150 feet from a residence, church or school, 25 feet from non-participating adjoining parcels, or 50 feet from adjacent roadways. Caldwell Solar shall not place a central inverter, and if used, energy storage systems, closer than 450 feet from any adjacent residences, church or school. These

further setbacks shall not be required for residences owned by landowners involved in the project that explicitly agree to lesser setbacks and have done so in writing. All agreements by participating landowners to lesser setbacks must include language advising the participating landowners of the setbacks otherwise required herein. All agreements by participating landowners to lesser setbacks must be filed with the Siting Board prior to commencement of construction of the project.

17. Caldwell Solar shall fix or pay for repairs for damage to roads and bridges resulting from any vehicle transport to the site. For damage resulting from vehicle transport in accordance with all permits, those permits will be controlled.

18. Caldwell Solar shall comply with all laws and regulations regarding the use of roadways.

19. Caldwell Solar shall implement ridesharing between construction workers when feasible, use appropriate traffic controls or allow flexible working hours outside of peak hours to minimize any potential delays during AM and PM peak hours.

20. Caldwell Solar shall consult with the Kentucky Transportation Cabinet (KYTC) regarding truck and other construction traffic and obtain necessary permits from the KYTC.

21. Caldwell Solar shall consult with the Caldwell County Road Department (CCRD) regarding truck and other construction traffic and obtain necessary permits from the CCRD.

22. Caldwell Solar shall develop special plans and obtain necessary permits before transporting heavy loads, especially the substation transformer, onto state or county roads.

23. Caldwell Solar shall comply with any road use agreement executed with CCRD. Such an agreement might include special considerations for overweight loads, routes utilized by heavy trucks, road weight limits, and bridge weight limits.

24. Caldwell Solar shall develop and implement a traffic management plan to minimize the impacts on traffic flow and keep traffic safe. Any such traffic management plan shall also identify any traffic-related noise concerns during the construction phase and develop measures that would address those noise concerns.

25. Caldwell Solar shall properly maintain construction equipment and follow best management practices related to fugitive dust throughout the construction process, including use of water trucks. Dust impacts shall be kept at a minimal level. The Siting Board requires Caldwell Solar's compliance with 401 KAR 63:010.

26. If any person shall acquire or transfer ownership of, or control, or the right to control the project, by sale of assets, transfer of stock, or otherwise, or abandon the same, Caldwell Solar or its successors or assigns shall request explicit approval from the Siting Board with notice of the request provided to the Caldwell County Fiscal Court. In any application requesting such abandonment, sale, or change of control, Caldwell Solar shall certify its compliance with KRS 278.710(1)(i).

27. As applicable to individual lease agreements, Caldwell Solar, its successors, or assigns will abide by the specific land restoration commitments agreed to by individual property owners, as described in each executed lease agreement.

28. Caldwell Solar shall file a full and explicit decommissioning plan with the Siting Board. This plan shall commit Caldwell Solar to remove all facility components, above-ground and below-ground, regardless of depth, from the Project site. Upon

its completion, this plan shall be filed with the Siting Board or its successors. The decommissioning plan shall be completed at least one month prior to the construction of the project.

29. Caldwell Solar shall file a bond with the Caldwell County Fiscal Court, equal to the amount necessary to effectuate the explicit or formal decommissioning plan naming Caldwell County Fiscal Court as a third-party obligee (or secondary, in addition to individual landowners) beneficiary, in addition to the lessors of the subject property insofar as the leases contain a decommissioning bonding requirement so that Caldwell County will have the authority to draw upon the bond to effectuate the decommissioning plan. For land in which there is no bonding requirement otherwise, Caldwell County shall be the primary beneficiary of the decommissioning bond for that portion of the project. The bond(s) shall be filed with the Caldwell County Treasurer or with a bank, title company or financial institution reasonably acceptable to the county. The acceptance of the county of allowing filing the bond(s) with an entity other than the Fiscal Court, through the Caldwell County Treasurer, can be evidenced by a letter from the Judge-Executive, the Fiscal Court, or the County Attorney. The bond(s) shall be in place at the time of commencement of operation of the project. The bond amount shall be reviewed every five years at Caldwell Solar's expense to determine and update the cost of decommissioning. This review shall be conducted by an individual or firm with experience or expertise in the costs of removal or decommissioning of electric generating facilities. Certification of this review shall be provided to the Siting Board or its successors and the Caldwell County Fiscal Court. Such certification shall be by letter

and shall include the current amount of the anticipated bond and any change in the costs of removal or decommissioning.

30. Caldwell Solar or its assigns must provide notice to the Siting Board if, during any two-year (730 days) period, it replaces more than 20 percent of its facilities. Caldwell Solar shall commit to removing the debris and replaced facility components from the Project site and from Caldwell County upon replacement. If the replaced facility components are properly disposed of at a permitted facility, they do not have to be physically removed from Caldwell County. However, if the replaced facility components remain in that County, Caldwell Solar must inform the Siting Board of the location where the replaced facility components are being placed.

31. Any disposal or recycling of Project equipment, during operations or decommissioning of the project, shall be done in accordance with applicable laws and requirements.

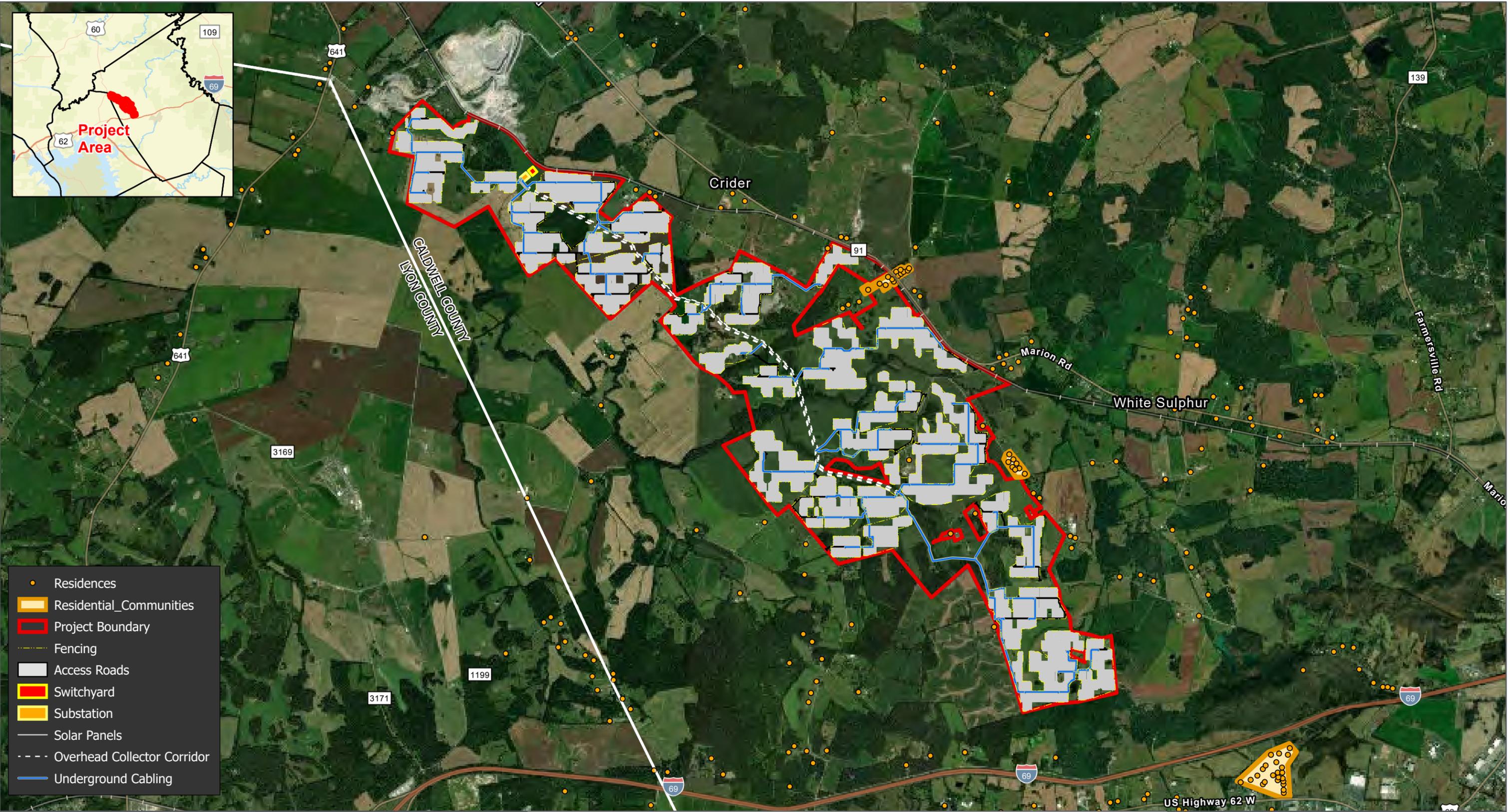
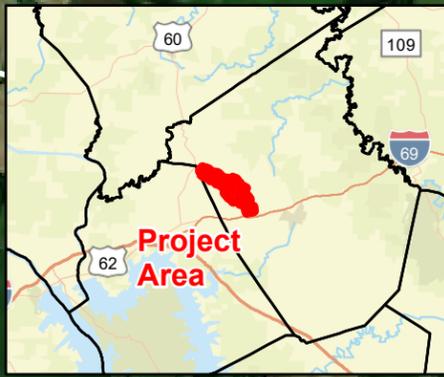
32. Caldwell Solar shall implement a Complaint Resolution Program to address any complaints from surrounding landowners. Caldwell Solar shall also submit annually a status report associated with its Complaint Resolution Program, providing, among other things, the individual complaints, how Caldwell Solar addressed those complaints, and the ultimate resolution of those complaints.

33. Within 30 days of entry, Caldwell Solar will send a copy of this Order to all the adjoining landowners who previously were required to receive notice of the project.

APPENDIX B

APPENDIX TO AN ORDER OF THE KENTUCKY STATE BOARD ON  
ELECTRIC GENERATION AND TRANSMISSION SITING IN  
CASE NO. 2020-00244 DATED APR 08 2022

ONE PAGE TO FOLLOW



- Residences
- ▭ Residential\_Communities
- ▭ Project Boundary
- Fencing
- ▭ Access Roads
- ▭ Switchyard
- ▭ Substation
- Solar Panels
- - - Overhead Collector Corridor
- Underground Cabling



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Figure 1 Surrounding Communities Map

Caldwell Solar Project  
Caldwell County, Kentucky



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