PREPARED BY:

TICK TOCK ENERGY

Rend Lake Conservancy District (RLCD)

Solar Photovoltaic (PV) Feasibility Study

3/9/2026

Executive Summary

Tick Tock Energy, Inc has been in discussion with potential solar options for various RLCD sites dating back to 2016. More recently in 2025, RLCD issued a competitive Request for Qualifications to perform a feasibility study. Through that solicitation process Tick Tock Energy, Inc was selected in spring 2025. This study is the final deliverable in response.

The various RLCD properties (sites) identified in the RFQ. We organized this feasibility study response by the following:

1) **Recreation (Rec) Sites**
   a) Event Center (EC)
   b) Seasons Lodge (Lodge)
   c) Seasons Condos (Condos)
   d) Clubhouse / Restaurant / Golf Maintenance (CRGM)
2) **Water Plant (WTP)**
3) **Site Partially Evaluated**
   a) Ewing Sewer Treatment Plant (STP)
4) **Sites Briefly Screened**
   a) Rend Lake Manor (RLM)
   b) Cabins (CAB)
   c) Pump Stations – various (PS)

For sites #3 and #4 above, electricity bills were not furnished and for purposes of narrowing focus disregarded from further study.

This feasibility study provides an in-depth analysis of:

- electricity bill analysis and solar array sizing
- array mounting considerations, locating siting and aesthetics
- electrical interconnection feasibility and utility allowance,
- project construction cost estimates and overall financial considerations,
- solar incentives via State of Illinois, Federal Govt., and Ameren-IL
- overall project cashflow and return on investment (ROI) estimates

Various options and mounting approaches were considered by TTE and presented to RLCD management and Board of Directors during the study development. The final recommended array sizes, locations and associated benefits are presented herein. Some solutions identified, such as solar canopy for the golf driving range, were developed but not pursued to final detail. Information on disregarded options are included in the Appendix.

Key findings

- **Preferred mounting approach at the four fully-evaluated recreation sites: low-profile ballasted ground-mount** systems, selected to balance cost, aesthetics, and owner preferences. Fixed-tilt high-profile racks and single-axis trackers are not preferred for these specific sites due to profile/visual considerations and project scale.
- Tick Tock Energy performed site visits of each facility, opened up electrical gear, identified electrical installation requirements and developed cost estimates for each of the five sites – 4 REC sites and Water Plant
- See Table E.1 on following page for summary of final recommended size, implementation budget, total incentives, electric bill savings and ROI by site.
- **Interconnection status:**
    - **Approved:**
        - Seasons Lodge (152 kW DC / 120 kW AC)
        - Clubhouse (99 kW DC / 86 kW AC).
        - Ameren DER approvals are active; construction progress evidence is required to maintain queue position.
    - **Pending**
        - Event Center (112 kW DC / 100 kW AC)
        - Seasons Condominiums (184.8 kW DC / 150 kW AC)
        - Initially denied due to capacity constraints on local Ameren lines; additional review fees and resubmission for further engineering has occurred. Approval may be granted but pending additional upgrades which will confirm final feasibility of these sites.
    - Not Submitted
        - After further discussion w/ SEIEC we decided not to submit formal interconnection until further discussion w/ RLCD. SEIEC confirmed that interconnection must occur at the Water Plant and any alternate closer options were not possible. Further, application would need to start with wholesale provider SIPC and first determine compatibility with the local grid. SEIEC would then perform their engineering study to determine the physical equipment required. The combined application would require $15,000 and approximately 60 days.
        - To make the Water Plant feasible, an investment in medium voltage power distribution from the solar site to Water Plant would be required and likely cost in the $1.0M to $1.5M range.

- Although the water plant demonstrates a greater than 7% ROI by factoring a $1.5M distribution budget, the requirement to have this project under contract before 7/4/26 in order to meet Federal tax credit requirements (if started after the plant must be energized by 12/31/27, or approximately 18 months) not leaving enough time for long-lead electrical equipment.
- If RLCD wished to pursue the Water Plant project, it still can but will need to pursue it bid and award process before 7/4/26 and should work through the interconnection process with SIPC and SEIEC on parallel timeframe.

ID	Recommended Size kW (DC)	kW (AC)	Estimated Installation BUDGET	TOTAL ESTIMATED INCENTIVES	Estimated NET COST After Incentives	Estimated Year 1 Elec. Bill Savings	Est ROI
Event Center	112.2	100	[redacted]	[redacted]			
Seasons Lodge	140.8	120					
Seasons Condos	184.8	150					
Clubhouse	99	86					
SUBTOTAL	**536.8**	**456.0**					
Water Treatment Plant							
Solar Plant Budget							
1-Mile+ (12.47 kV) Distribution*							
Total Estimated Budget	**5,069**	**4,000**					
TOTAL	**5,606**	**4,456**					

Figure E.1 – Overall Summary of Size, Budget Estimate, Incentives, Electricity Savings & ROI

Section 1: Introduction & Feasibility Study Approach

Introduction

The overall feasibility study initially focused on the buildings listed below in Table 1. These were segregated into four (4) categories. As further discussion with RLCD management occurred, eventually the core focus became the Recreation Sites (REC) and Water Treatment Facility (WTP). We initially reviewed some electricity bills and performed initial concept layout for the Ewing Sewer Treatment Plant (STP) but was dropped from further consideration. Similarly, utility bills were never furnished for the sites under Briefly Screened sites and therefore not further developed either. In the interest in focusing on the top priority REC and WTP sites these latter two categories were placed on hold to revisit sometime in the future at RLCD's direction.

Table 1: Scope of Study / Summary of Facilities

Site ID	Facility	Address	Load (kWh/Yr)	Utility
RECREATION SITES:				
EC	Event Center	14967 Gun Creek Trail, Whittington, IL	191,506	Ameren
Lodge	Seasons Lodge	12575 Golf Course Dr., Whittington, IL	217,120	Ameren
Condos	Seasons Condominiums	12596 Golf Course Dr., Whittington, IL	281,178	Ameren
Club	Clubhouse (& Restaurant/Golf Maint.)	12476 Golf Course Dr., Whittington, IL	157,200	Ameren
WATER TREATMENT FACILITY				
WTP	Water Treatment Plant & Admin Bldg	11228 Marcum Branch Road, Benton, IL	10,059,300	S.E. Elec Coop
Partially Evaluated Site				
STP	Ewing Sewer Treatment Plant	511 E. Main St., Ewing, IL	290,758	Ameren
Briefly Screened Sites				
RLM	Rend Lake Manor			Ameren
CAB	Cabins			Ameren
PS	Pump Stations	Several Locations		Ameren

RECREATION SITES (REC)

The four recreation-area buildings evaluated for solar feasibility include:

- **Event Center (EC)**
- **Seasons Lodge (Lodge)**
- **Seasons Condos (Condos)**
- **Clubhouse & Golf Maintenance Facility (Club)**

The first three buildings sit north of Golf Course Drive and surround a large shared green space. This layout ultimately shaped the preferred solar strategy.

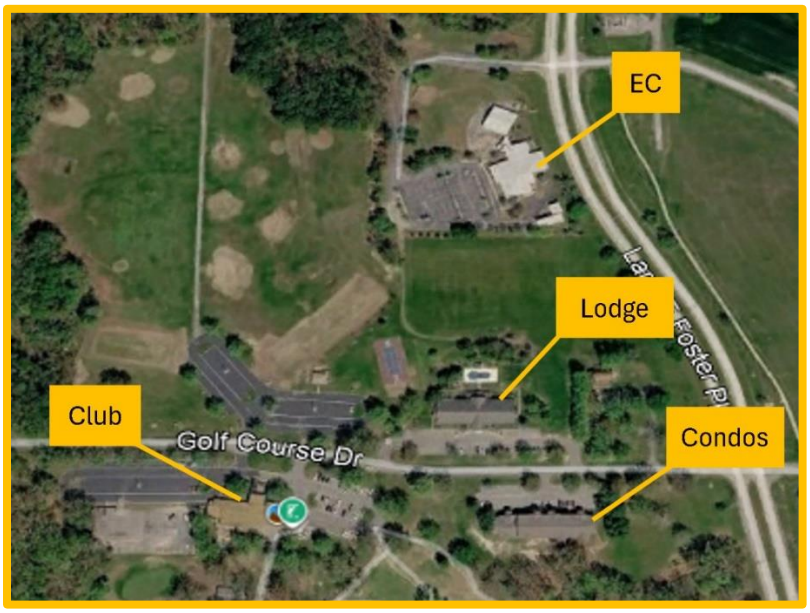


Figure 1.1: Location of REC Sites

WATER TREATMENT PLANT (WTP)

Due to the lack of area adjacent to the Water Treatment Plant and due to availability of open ground owned by RLCD approximately 1 mile to the east, the proposed solar site for this facility focused in the location shown below in Figure 1.2.

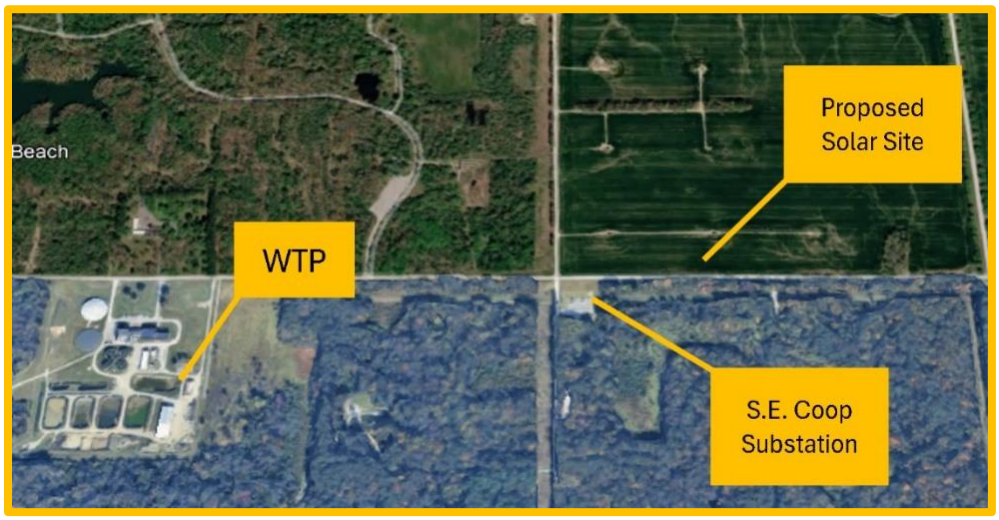


Figure 1.2: Location of Water Treatment Plant & Proposed Solar Site

SEWER TREATMENT PLANT (STP) – Partially Evaluated Site

Solar for the STP site was briefly evaluated but was not pursued with any detail. Initial solar sizing based on reported 12-month electricity (kWh) consumption was done. Two conceptual layouts were started. However, given lack of space on-site and need to potentially lease or purchase adjacent ground created challenges determined to defer until future date to revisit. For this reason this site was not seriously investigate. It is a good targe for solar but finding available ground is first hurdle to address. Figure 1.3 references the site just east of the town of Ewing.

Figure 1.3: Location of Sewer Treatment Plant

KEY CONSIDERATIONS THAT APPLY TO ALL SITES

FEDERAL INVESTMENT TAX CREDIT (ITC)

The financial viability of RLCD's proposed solar projects is strongly influenced by eligibility for the Federal Investment Tax Credit (ITC). Under the Inflation Reduction Act, nonprofit entities such as RLCD may utilize the ITC through a *direct-pay* mechanism. With a baseline credit of 30% and an additional 10% available because RLCD's sites are located within federally designated "energy communities," the total ITC benefit available is **40% of total eligible project costs**. This includes solar construction, interconnection fees, and related development expenses. Direct-pay reimbursement typically occurs **6–18 months after project energization**.

FOREIGN ENTITY OF CONCERN (FEOC)

Beginning **January 1, 2026**, new compliance rules related to "Foreign Entities of Concern" (FEOC) will phase in. These rules limit the allowable content of solar components sourced from China, Russia, Iran, or North Korea. Each year after 2026, permitted FEOC-derived

content decreases, potentially constraining equipment options and affecting procurement timelines and pricing. Figure 1.4 below provides a visual timeline of FEOC requirements and key dates.

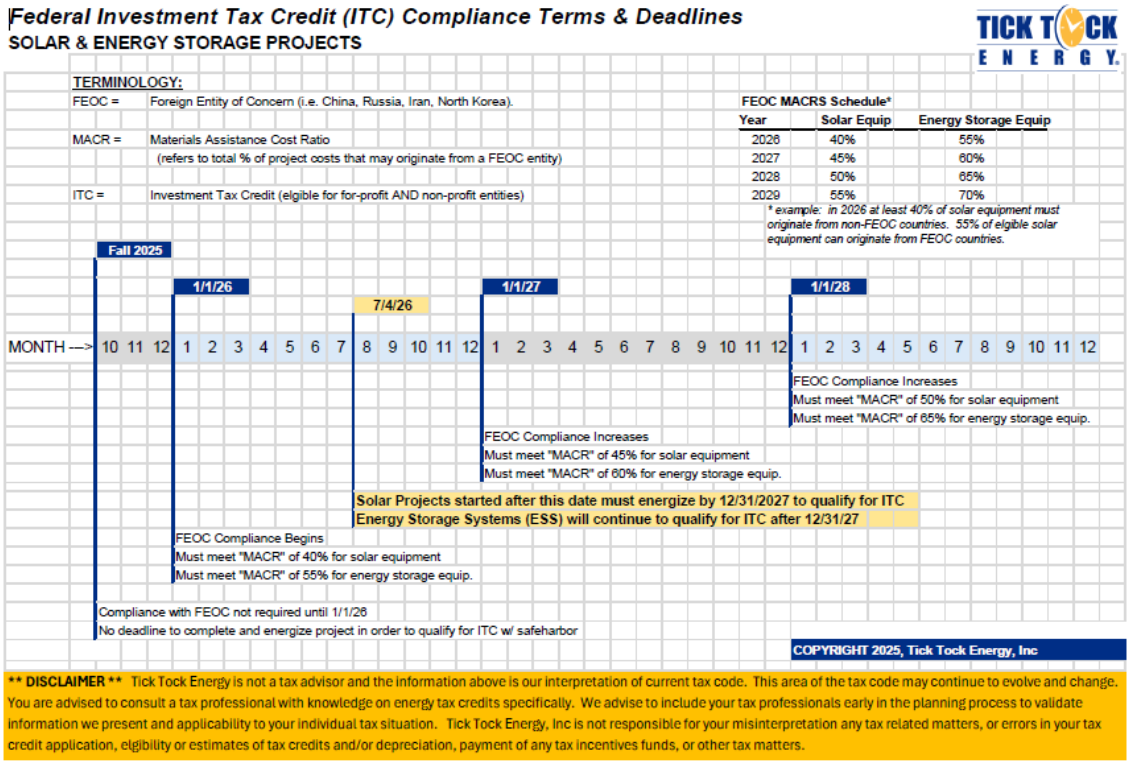


Figure 1.4: Location of Sewer Treatment Plant

CRITICAL PROJECT TIMING REQUIREMENTS

Two federal deadlines significantly influence RLCD's project strategy:

- **July 4, 2026 – Interconnection/Start Construction Deadline**
    - Projects initiated **before** this date retain the full 40% ITC and benefit from a generous **four-year window** to reach completion.
    - Projects started **after** this date must be **fully energized by December 31, 2027**, allowing only ~18 months for engineering, procurement, and construction.

- **Implications by Project Size**
    - **Smaller REC sites (<500 kW)**: Generally manageable timelines, as smaller electrical gear has shorter lead times.
    - **Water Plant project (>500 kW to ~1 MW+)**: Much longer procurement cycles for large switchgear (12–16+ months). Missing the July 4 deadline could jeopardize the 40% ITC—potentially a loss exceeding **$1 million**.

Given these constraints, timely action—especially on the larger water plant project—is essential to preserve ITC value and ensure overall project feasibility.

OVERALL BUDGET ESTIMATE, INCENTIVES, ELECTRICITY SAVINGS & ROI

See attached table on the following page for the overall estimate of construction budget, value of available incentives, estimate of annual and 15-year electricity savings, and return on investment (ROI).

Available Incentives

- Federal Investment Tax Credit (ITC)
    - All sites can qualify for the 30% federal tax credit plus 10% bonus adder for their location in an "Energy Community". The ITC requires an application and would result in a direct payment from the Federal government.
    - We would advise retaining an accounting firm with expertise in energy tax credits
- Illinois Shines Solar Renewable Energy Credit (SREC)
    - The SREC incentive is paid over a year period. Payment #1 occurs about 8 to 14 months after solar system is energized. The SREC incentive is based on the value published by the IL Shines each program year starting on June 1st. The feasibility study estimates reflect values for the size class of each solar array and the 2025-26 program year SREC values.
- Ameren Smart Inverter Rebate (SIR)
    - For Ameren sites, each project qualifies for the SIR incentive which is typically paid about 3 to 6 months after project energization.

	SIZE & BUDGET		Tax & Incentives Summary	NET COST	Electricity Savings Summary	ROI
	Recommended Size					
	kW	kW				
ID	(DC)	(AC)				
Event Center	112.2	100				
Seasons Lodge	140.8	120				
Seasons Condos	184.8	150				
Clubhouse	99	86				
SUBTOTAL	**536.8**	**456.0**				
Water Treatment Plant						
Solar Plant Budget						
1-Mile+ (12.47 kV) Distribution*						
Total Estimated Budget	**5,069**	**4,000**				
TOTAL	**5,606**	**4,456**				

[redacted]

(average)

Section 2: Feasibility Assessment & Findings – REC SITES

Introduction

The four recreation-area buildings evaluated for solar feasibility include:

- **Event Center (EC)**
- **Seasons Lodge (Lodge)**
- **Seasons Condos (Condos)**
- **Clubhouse & Golf Maintenance Facility (CGMF)**

The first three buildings sit north of Golf Course Drive and surround a large shared green space. This layout ultimately shaped the preferred solar strategy.

Site Constraints & Opportunities

Event Center, Lodge, and Seasons Condos

- Roof-mounted solar was evaluated but deemed unsuitable due to:
    - Multiple roof orientations (E/W/N/S)
    - Limited usable surface area
    - Shading concerns (particularly for the condos)
    - Poor long-term access and maintenance feasibility
- The expansive green space between the Event Center and the Lodge offered a rare opportunity for a **large, centralized, low-profile, ballasted ground-mount array** capable of serving all three buildings.
- Although the green space held aesthetic and future-use considerations, RLCD management and board stakeholders ultimately approved a single consolidated ground-mount layout after reviewing several alternatives.
- Figure 2.1 below shows the initial concept plan developed for these 3 sites.
- Figure 2.2 below shows the final single-array plan to serve these 3 sites.

Central Ground-Mount Strategy

A single large array was divided into three electrically independent sub-arrays, each serving one building:

- **North Section → Event Center**
  Direct underground conduit provides a dedicated feed to the Event Center's electrical interconnection point.
- **Middle Section → Seasons Condos**
  Due to shading and roof limitations, the condos' share of solar generation was more effectively delivered from the green-space array through a longer electrical run to the condo service.
- **South Section → Lodge**
  Initial concepts included a solar canopy over the driving range tee area, but this was not pursued due to higher capital cost. Those kW were instead incorporated into the main ground-mount array.

Clubhouse & Golf Maintenance Facility

Located south of Golf Course Drive, this building has a separate viable solar location:

- A former west-side parking lot offered an open, unshaded, flat area suitable for a **dedicated low-profile ballasted ground-mount array**.
- The unused lot allowed RLCD to avoid a long interconnection run back to the green space and provided an efficient, self-contained system location acceptable to management.
- Figure 2.7 below shows the final array plan to serve this site.

Figure 2.1: Initial Solar Plan Developed for the Event Center, Lodge & Condo Meters

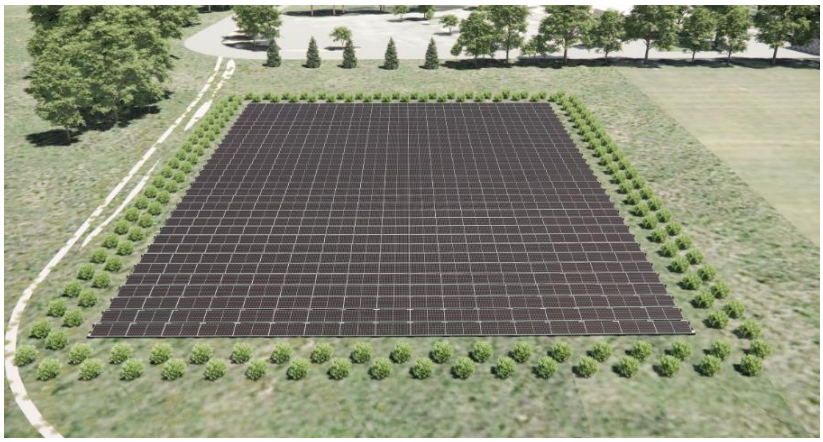


Figure 2.2: Rendering (Aerial View) of FINAL Proposed Solar Array for Event Center, Seasons Condo & Seasons Lodge

Figure 2.3: Rendering (Ground View) of FINAL Proposed Solar Array for Event Center, Seasons Condo & Seasons Lodge

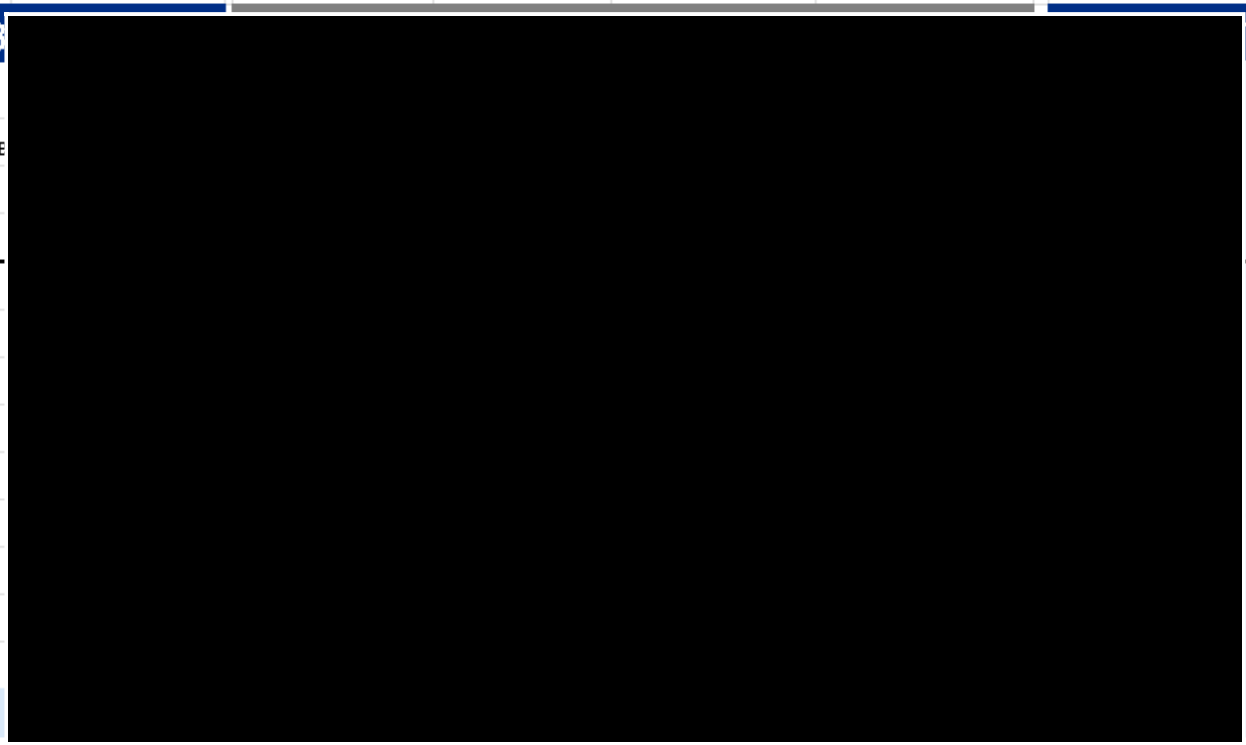
Figure 2.4: Example Close-Up View of Low-Profile, Ballasted Ground Mount Solar Array

Figure 2.5: EXAMPLE (Ground View): SIMILAR PROJECT Completed by Tick Tock Energy. 86 kW (DC) Installation for Village of Dieterich Waste Water Plant

Figure 2.6: EXAMPLE (Aerial View): SIMILAR PROJECT Completed by Tick Tock Energy. 86 kW (DC) Installation for Village of Dieterich Waste Water Plant

Figure 2.7: Aerial View of Concept Plan for Clubhouse Site Using Same Low-Profile Ballasted Ground Mount (GRM) Rack Solution

	SIZE & B	
	Recommended Size	
	kW	kW
ID	(DC)	(AC)
Event Center	112.2	100
Seasons Lodge	140.8	120
Seasons Condos	184.8	150
Clubhouse	99	86
SUBTOTAL	**536.8**	**456.0**



2.1 Rend Lake Event Center (EC)

The Rend Lake Event Center located at 14967 Gun Creek Traill, Whittington, IL 62897 is in the upper NE area of the REC sites. Mounting solar on the roof is possible but not optimum. The multiple smaller sections of roof at different orientations increases overall construction cost. The collective roof area with best orientation also doesn't provide enough area to make substantial offset in electricity consumption from the grid. For this reason, utilizing the large green space south of the Event Center became priority.

After several options were developed and shared with RLCD management, the preferred solution became a portion of a larger array as a dedicated circuit for the Event Center. Figure 2.1a below shows the final recommended location and size of the subarray dedicated to the Event Center.

Please see **Appendix 1** for **Energy & Financial Summary** consisting of:

1. System Concept Plan
2. Financial investment Summary,
3. Utility bill & Solar Production Analysis,
4. Cashflow Analysis

Figure 2.1a: Proposed Location of Subarray for Event Center

Recommended system size: 112 kW DC / 100 kW AC

Mounting Option Preferred / Recommended:

- **Ballasted ground-mount (preferred): Recommended** for cost, aesthetics, and stakeholder preference; note lower tilt may modestly reduce yield; **rock base** required under arrays.

Mounting Options Considered but Rejected:

- **Rooftop:** Not recommended (orientation, slope, cut-up geometry).
- **Solar canopy:** Technically viable but **highest cost**; benefit of covered parking potentially an appealing enhancement to facility.
- **Fixed-tilt ground-mount:** Technically viable, **not preferred** due to high-profile of rack (up to ~15 ft) and less than ideal visual impact.
- **Trackers:** Not suitable for project scale and profile considerations.

Solar Array Sizing / Energy Analysis.

Based on our analysis of historical electricity use and cost versus solar production analysis we recommend a solar system size of 112 kW (DC) and 100 kW (AC).

The Event Center is served by Ameren-Illinois which offers partial netmetering. Excess kWh accrue when solar production exceeds building demand. Solar production will first reduce retail purchased kWh and excess will accrue value at the supply rate value. Ameren no longer provides credit for the distribution of excess kWh that they once did under full netmetering. For this reason, balancing self-consumption of generated solar versus limiting excess generation to the grid is helpful to optimize the investment.

Based on the 12-months of billing history provided, the Event Center consumed 185,400 kilowatt-hours (kWh). **Figure 2.1b** below shows the annual consumption load profile (blue line).

> ***Energy-Efficiency Tip****: One noticeably trend is high electricity use in the winter season which is indicative of electric heating for HVAC. Depending on the age and state of the HVAC system, RLCD might consider retrofitting the heating system to natural gas, all-electric geothermal heating and cooling, or other higher efficiency option. Reducing winter kWh would then allow solar to provide a greater annual offset of building electricity use.*

Refer to Appendix A for detailed utility bill and solar production analysis.

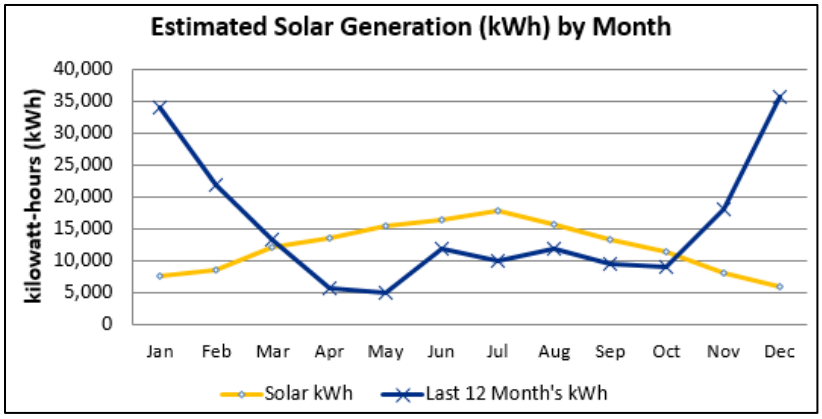


Figure 2.1b: Existing 12-Month Building Consumption vs Forecasted Solar Production

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]

[redacted]

Estimated Cost of Construction, Incentives & Investment Analysis

Tick Tock Energy completed a detailed utility bill analysis, recommended a solar array size and location, identified major equipment, performed an on-site survey evaluating electrical interconnection approach in order to develop an implementation budget. Actual construction costs may vary but are indicative. As part of this feasibility study, we developed electrical single-line diagrams and supporting documentation to apply for utility interconnection. Ultimate feasibility is contingent on Ameren's approval of the proposed solar capacity on their system. Besides construction budget, estimated incentives were identified, energy savings estimated, and cashflow analysis completed. Appendix A includes details of the analysis completed. Table 2.1a and 2.1b below summarize overall results for this site.

Interconnection Status

At this time, Ameren has yet to approve this project for construction. It was initially submitted and denied. The application was resubmitted on 2/16 for further engineering review and moved to further review on 2/24. There might be site issues that may need to be addressed or mitigated for this solar capacity to be approved. Example could be replacing the transformer for the building, downsizing the solar array, or other requirement. We expect final answer this month which will confirm final steps required before construction can commence.

Other Feasibility Considerations:

- **Vandalism/security:** Low-profile racking could invite vandalism. However, a dense evergreen landscaping (see renderings) would help conceal the array. Tick Tock Energy has seen few problems related to vandalism and rate this as low concern. Installing security cameras around array could offer additional deterrent.
- **Procurement:** due to FEOC compliance requirements, equipment prices are rising and will continue to increase most likely. This is particularly true for solar panels. Making sure final procurement contains adequate domestic content to comply with FEOC will be critical for obtaining the 40% Federal ITC.

Table 2.1a: Summary of Size, Budget, Incentives & After-Incentive Cost

	SIZE & BUDGET		Tax & Incentives Summary	NET COST
	Recommended Size		[redacted]	
ID	kW (DC)	kW (AC)		
Event Center	112.2	100		
Lodge	140.8	120		
Condos	184.8	150		
SUBTOTAL	437.8	370.0		

[redacted]

[redacted]

2.2 Seasons Lodge

The Seasons Lodge is located on the south edge of the large central green space, adjacent to the golf driving range.

Initial Concept

Early in the evaluation process, a **solar golf canopy** over the driving-range tee area was proposed as the primary solar solution. This concept offered several appealing benefits:

- Weather protection for golfers
- Seasonal extension of driving-range usability
- A distinctive aesthetic improvement to the range area
- Dual-purpose infrastructure combining solar generation with user amenities

Concept renderings were developed (see Appendix F). Although promising, the canopy option carried a higher capital cost, which ultimately made it less favorable for RLCD.

Figure 2.2b: Rendering of Solar Golf Canopy Concept Initially Considered

Final Concept

After further consideration by RLCD management & board, the final selected solution was to dedicate a **sub-array** within the centralized ground-mount system described in the prior section. This approach allowed the Lodge to receive substantial solar generation at a lower cost through:

- A dedicated Lodge circuit fed from the shared green-space array
- Reduced construction complexity & easy access for easy long-term maintenance

See **Figure 2.2a** for the portion of the overall array allocated to the Lodge.

Please see **Appendix B** for **Energy & Financial Summary** consisting of:

1. System Concept Plan
2. Financial investment Summary,
3. Utility bill & Solar Production Analysis,
4. Cashflow Analysis

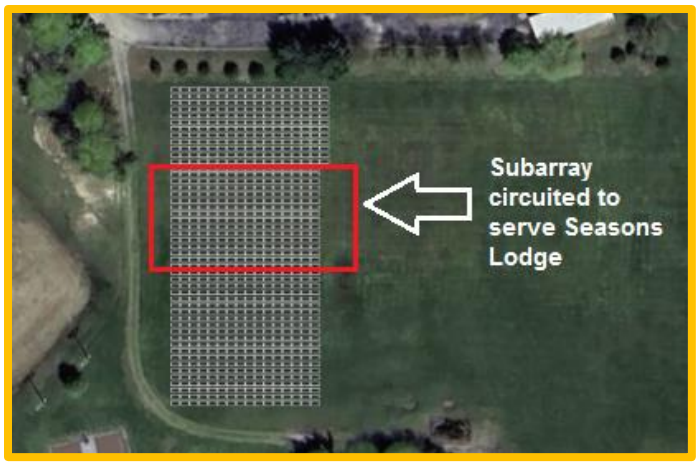


Figure 2.2a: Recommended Solar Location & System Size: 152 kW DC / 120 kW AC

Mounting options considered:

- **Rooftop:** Limited viable area; not recommended at target size.
- **Canopy (driving range):** Studied in detail; viable with ancillary benefits (shade for patrons, potential concession revenue) but higher cost; after review, ground-mount preferred. Refer to **Appendix F** for renderings of this solution.
- **Fixed-tilt ground-mount:** Technically viable; **not preferred** due to high-profile and aesthetics.
- **Ballasted ground-mount (preferred):** Recommended for cost/aesthetics; **rock base** required.
- **Trackers:** Not suitable for project scale and profile considerations.

Solar Array Sizing / Energy Analysis.

Based on our analysis of historical electricity use and cost versus solar production analysis we recommend a solar system size of **140.8 kW (DC) and 120 kW (AC)**.

The Seasons Lodge is served by Ameren-Illinois and based on the 12-months of billing history provided, consumed 215,200 kilowatt-hours (kWh). **Figure 2.2c** below shows the annual consumption load profile (blue line). Refer to **Appendix B** for detailed utility bill and solar production analysis sheet.

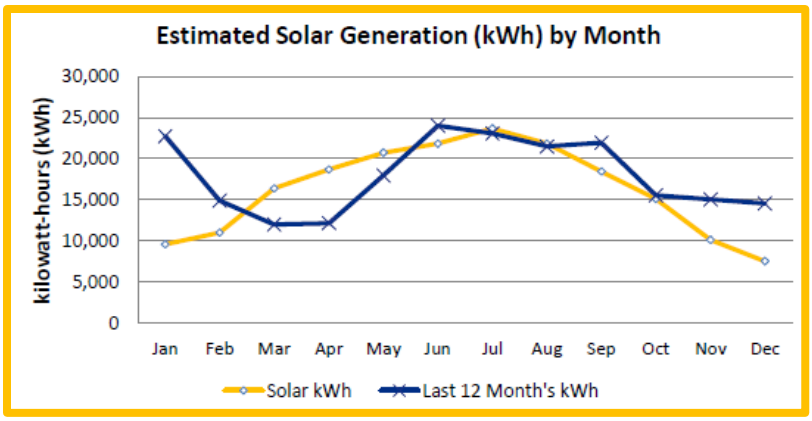


Figure 2.2c: Existing 12-Month Building Consumption vs Forecasted Solar Production

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Seasons Lodge Electrical Service / Interconnection Summary

- **Service / electrical:** 208/120 V, 2000 A; 500 kVA 12.47 kV → 208Y/120 V transformer; service entrance on NE side.
- **Building Distribution:** 208/120 Volt (V), 2000 Amp (A)
- **Electric Utility:** Ameren Illinois (Ameren-IL)
- **Rate Schedule:** DS-2 (non-demand based rate structure)
- **Preferred Point of Interconnection (POI):** 2000 A 208Y/120 switchgear in electrical room. A lug shall need to be added for interconnection purposes.

Estimated Cost of Construction, Incentives & Investment Analysis

Tick Tock Energy completed a detailed utility bill analysis, recommended a solar array size and location, identified major equipment, performed an on-site survey evaluating electrical interconnection approach in order to develop an implementation budget. Actual construction costs may vary but are indicative. As part of this feasibility study, we developed electrical single-line diagrams and supporting documentation to apply for utility interconnection. Ultimate feasibility is contingent on Ameren's approval of the proposed solar capacity on their system. Besides construction budget, estimated incentives were identified, energy savings estimated, and cashflow analysis completed. Appendix A includes details of the analysis completed. Table 2.2a and 2.2b below summarize overall results for this site.

Interconnection Status (DER)

Ameren **has approved this project for construction**. The project must started construction before 9/15/26 to prevent interconnection approval from lapsing. Ameren should be notified prior to construction so they keep updated on progress. Any appropriate time extensions should be requested if project not completed by this date.

Other Feasibility Considerations:

- **Vandalism/security:** Low-profile racking could invite vandalism. However, a dense evergreen landscaping (see renderings) would help conceal the array. Tick Tock Energy has seen few problems related to vandalism and rate this as low concern. Installing security cameras around array could offer additional deterrent.
- **Procurement:** due to FEOC compliance requirements, equipment prices are rising and will continue to increase most likely. This is particularly true for solar panels. Making sure final procurement contains adequate domestic content to comply with FEOC will be critical for obtaining the 40% Federal ITC.
- **Schedule vs. DER deadline:** Maintain pre-construction submittals and vendor POs on timeline to demonstrate progress.

Table 2.2a: Summary of Size, Budget, Incentives & After-Incentive Cost

	SIZE & B		[redacted]
	Recommended Size		
	kW	kW	
ID	(DC)	(AC)	
Event Center	112.2	100	
Lodge	140.8	120	
Condos	184.8	150	
SUBTOTAL	**437.8**	**370.0**	

[redacted]

2.3 Seasons Condos

The Seasons Condos are located south of Golf Course Drive and are heavily surrounded by mature trees. Several factors made on-site solar challenging:

- Persistent shading from surrounding trees
- Limited roof area suitable for solar
- Elevated cost and difficulty of installing and maintaining rooftop systems on a two-story building
- Lack of open, unshaded ground space adjacent to the Condos

For these reasons, rooftop solar and nearby ground-mount options were eliminated. Instead, a section of the centralized green-space array was designated specifically for the Condos.

Key elements of this approach:

- A dedicated sub-array located within the large ground-mount field
- A long underground electrical run to the Condo service, including a bore beneath Golf Course Drive
- Increased trenching/interconnection cost offset by the **economies of scale** of constructing a single large array rather than multiple small ones

This strategy provided the most cost-effective and reliable method to deliver solar energy to the Condos. See **Figure 2.3b** for the layout of the Condo-dedicated array section.

Please see **Appendix C** for **Energy & Financial Summary** consisting of:

1. System Concept Plan
2. Financial investment Summary,
3. Utility bill & Solar Production Analysis,
4. Cashflow Analysis

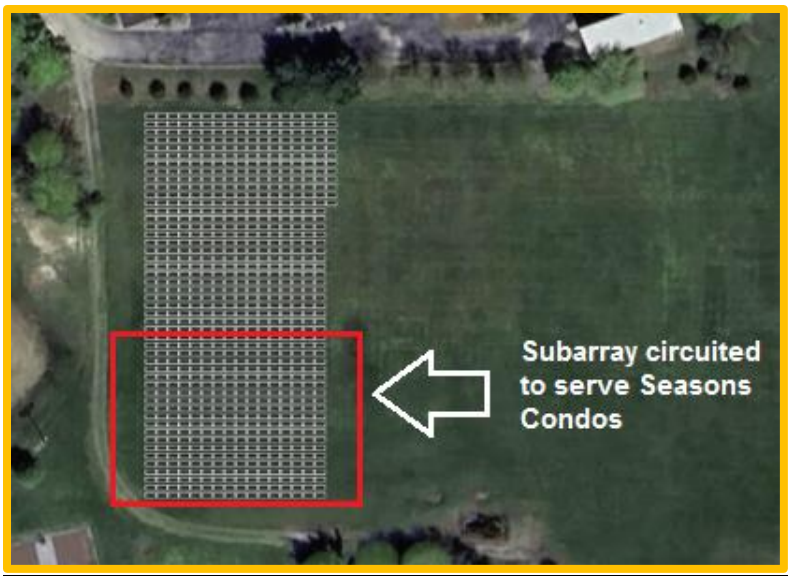


Figure 2.3b: Recommended Solar Location & System Size: 184.8 kW DC / 150 kW AC

Mounting options considered:

- **Rooftop:** Limited viable area; small array possible; not recommended vs. ground option.
- **Canopy:** Significant shading from building; highest cost; **tree removal** would be required.
- **Fixed-tilt ground-mount:** Technically viable; **not preferred** due to high-profile.
- **Ballasted ground-mount (preferred):** Recommended for cost and aesthetics; **rock base** required.
- **Trackers:** Not suitable for project scale and profile considerations.

Solar Array Sizing / Energy Analysis.

Based on our analysis of historical electricity use and cost versus solar production analysis we recommend a solar system size of **184.8 kW (DC) and 150 kW (AC)**.

The Seasons Lodge is served by Ameren-Illinois and based on the 12-months of billing history provided, consumed 296,632 kilowatt-hours (kWh). **Figure 2.2b** below shows the annual consumption load profile (blue line). Refer to **Appendix C** for detailed utility bill and solar production analysis sheet.

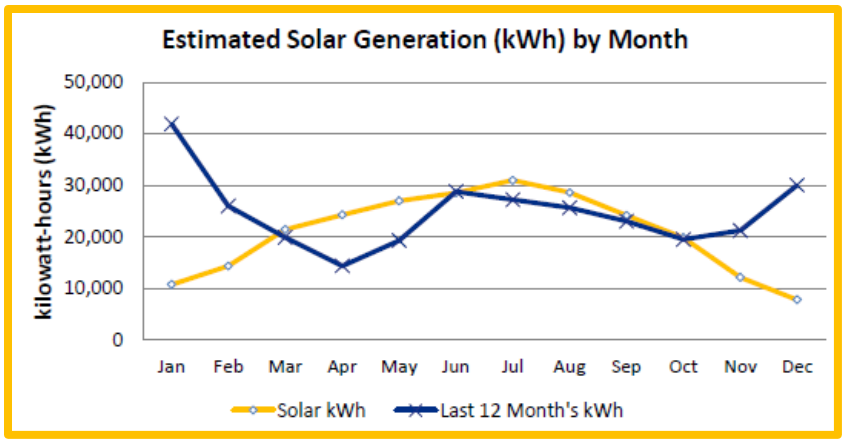


Figure 2.3b: Existing 12-Month Building Consumption vs Forecasted Solar Production

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]

[redacted]

Seasons Condos Electrical Service / Interconnection Summary

Electric Utility: Ameren Illinois (Ameren-IL)

Rate Schedule: DS-2 (non-demand based rate structure)

Electrical Incoming Service: Service entrance on N.E. side of building. Incoming utility service connects with transformer sized at 500 kVA 12.47 kV → 208Y/120 V

Building Distribution: 208/120 Volt (V), 1200 Amp (A)

Preferred Point of Interconnection (POI): Existing CT Cabinet shall need to be replaced with a new 1600A CT Cabinet with two spare lugs per phase. Existing conduits will need repaired during the update.

Principal risks & mitigations:

- **Shading & siting:** Finalize array footprints to avoid building shadows; confirm seasonal shading with imagery and on-site verification.

Estimated Cost of Construction, Incentives & Investment Analysis

Tick Tock Energy completed a detailed utility bill analysis, recommends a solar array size and location, identified major equipment, performed an on-site survey evaluating electrical interconnection approach in order to develop an implementation budget. Actual construction costs may vary but are indicative. As part of this feasibility study, we developed electrical single-line diagrams and supporting documentation to apply for utility interconnection request. Ultimate feasibility is contingent on Ameren's approval of the proposed solar capacity on their system. Besides construction budget, estimated incentives were identifies, energy savings estimated, and cashflow analysis completed. Appendix A includes details of the analysis completed. Table 2.3a and 2.3b below summarize overall results for this site.

Interconnection Status (DER)

Similar to the Event Center, Ameren has yet to approve this project for construction. It was initially submitted and denied. The application was resubmitted on 2/16 for further engineering review and moved to further review on 2/24. There might be site issues that may need to be addressed or mitigated for this solar capacity to be approved. Example could be replacing the transformer for the building, downsizing the solar array, or other requirement. We expect final answer this month which will confirm final steps required before construction can commence.

Other Feasibility Considerations:

- **Vandalism/security:** Low-profile racking could invite vandalism. However, a dense evergreen landscaping (see renderings) would help conceal the array. Tick Tock Energy has seen few problems related to vandalism and rate this as low concern. Installing security cameras around array could offer additional deterrent.
- **Procurement:** due to FEOC compliance requirements, equipment prices are rising and will continue to increase most likely. This is particularly true for solar panels. Making sure final procurement contains adequate domestic content to comply with FEOC will be critical for obtaining the 40% Federal ITC.
- **Schedule vs. DER deadline:** Maintain pre-construction submittals and vendor POs on timeline to demonstrate progress.

Table 2.3a: Summary of Size, Budget, Incentives & After-Incentive Cost

	SIZE &
	Recommended Size
	kW
ID	(DC)
Event Center	112.2
Lodge	140.8
Condos	184.8
SUBTOTAL	437.8

	ecommended Size
	kW
	(AC)
	100
	120
	150
	370.0

Table 2.3b: Sum

ecommended Size
ID
Event Center
Lodge
Condos
SUBTOTAL

2.4 Clubhouse & Restaurant / Golf Maintenance (Clubhouse)

The Clubhouse facility had a former parking lot on the west side of the building no longer in use. The open, flat and paved nature of this lot makes it an ideal candidate for a ground-mounted solar array. Given the long distance from the larger central array serving the other 3 REC sites, avoiding the costly electrical distribution made use of this lot ideal. For uniformity of equipment and take advantage of a low-profile design, a ballasted ground mount (BGM) was decided as preferred solution for this building.

Figure 2.4a below shows the concept proposed layout and location of the proposed array. Refer to Section 2 for additional photos of a BGM solution.

Please see **Appendix D** for **Energy & Financial Summary** consisting of:

1. System Concept Plan
2. Financial investment Summary,
3. Utility bill & Solar Production Analysis,
4. Cashflow Analysis,

Figure 2.4a: Proposed Location of Subarray for Clubhouse (CRGM)

Recommended Solar Location & Size: 99 kW DC / 86 kW AC

Mounting options considered:

- **Rooftop:** Not recommended (obstructions/shading/limited area).
- **Canopy:** Viable but highest cost; other locations preferred.
- **Fixed-tilt ground-mount:** Not preferred (no suitable location near clubhouse; profile concerns).
- **Ballasted ground-mount (preferred):** Recommended; **unused asphalt** available and suitable.

- **Trackers:** Not suitable for project scale and profile considerations.

Solar Array Sizing / Energy Analysis.

Based on our analysis of historical electricity use and cost versus solar production analysis we recommend a solar system size of **99 kW (DC) and 86 kW (AC)**.

The Seasons Lodge is served by Ameren-Illinois and based on the 12-months of billing history provided, consumed 114,120 kilowatt-hours (kWh). **Figure 2.4b** below shows the annual consumption load profile (blue line). Refer to **Appendix D** for detailed utility bill and solar production analysis sheet.

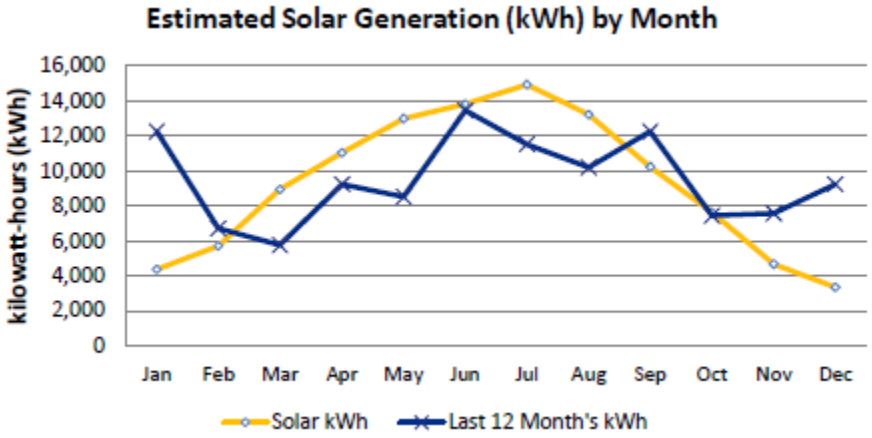


Figure 2.4b: Existing 12-Month Building Consumption vs Forecasted Solar Production

[redacted]

Clubhouse (CRGM) Electrical Service / Interconnection Summary

Electric Utility: Ameren Illinois (Ameren-IL)

Rate Schedule: DS-2 (non-demand based rate structure)

Electrical Incoming Service: Service entrance on N.E. side of building. Incoming utility service connects with transformer sized at 150 kVA 12.47 kV → 208Y/120 V

Building Distribution: 208/120 Volt (V), 1200 Amp (A)

Preferred Point of Interconnection (POI): On existing spare lug in the 1200A, 208Y/120V switchgear located in the building's electrical room.

Estimated Cost of Construction, Incentives & Investment Analysis

Tick Tock Energy completed a detailed utility bill analysis, recommends a solar array size and location, identified major equipment, performed an on-site survey evaluating electrical interconnection approach in order to develop an implementation budget. Actual construction costs may vary but are indicative. As part of this feasibility study, we developed electrical single-line diagrams and supporting documentation to apply for utility interconnection request. Ultimate feasibility is contingent on Ameren's approval of the proposed solar capacity on their system. Besides construction budget, estimated incentives were identifies, energy savings estimated, and cashflow analysis completed. Appendix A includes details of the analysis completed. Table 2.4a and 2.4b below summarize overall results for this site.

Interconnection Status (DER)

Ameren **has approved this project for construction**. The project must started construction before 9/15/26 to prevent interconnection approval from lapsing. Ameren should be notified prior to construction so they keep updated on progress. Any appropriate time extensions should be requested if project not completed by this date.

Other Feasibility Considerations:

- **Vandalism/security:** Low-profile racking could invite vandalism. However, a dense evergreen landscaping (see renderings) would help conceal the array. Tick Tock Energy has seen few problems related to vandalism and rate this as low concern. Installing security cameras around array could offer additional deterrent.
- **Procurement:** due to FEOC compliance requirements, equipment prices are rising and will continue to increase most likely. This is particularly true for solar panels. Making sure final procurement contains adequate domestic content to comply with FEOC will be critical for obtaining the 40% Federal ITC.

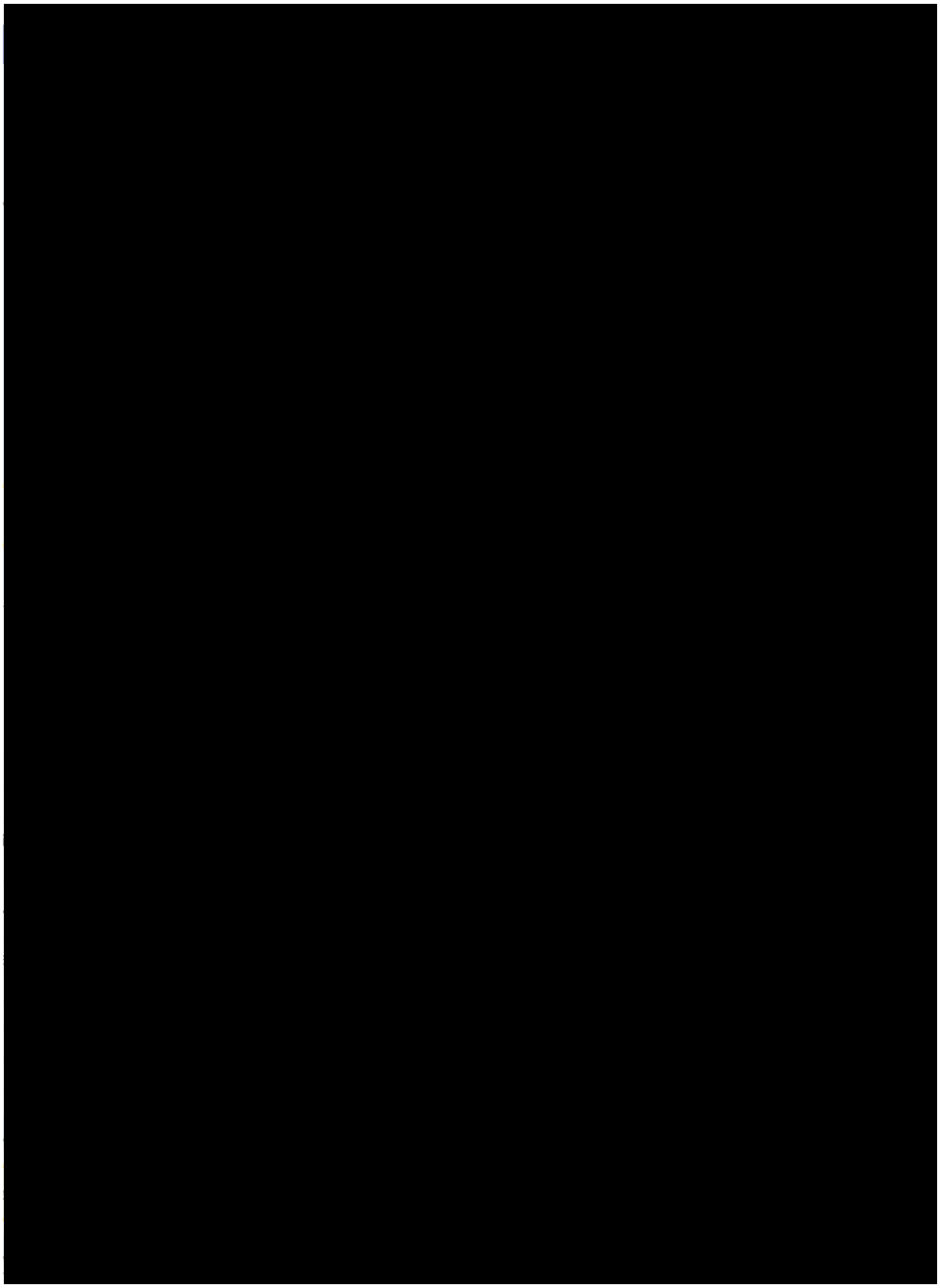
- **Schedule vs. DER deadline:** Maintain pre-construction submittals and vendor POs on timeline to demonstrate progress.
- **Service replacement coordination:** Align PV POI design with new service gear; specify termination provisions in new switchgear.

Table 2.4a: Summary of Size, Budget, Incentives & After-Incentive Cost

	SIZE & B	
	Recommended Size	
	kW	kW
ID	(DC)	(AC)
Event Center	112.2	100
Lodge	140.8	120
Condos	184.8	150
SUBTOTAL	**437.8**	**370.0**
Clubhouse	99	86
SUBTOTAL	**536.8**	**456.0**

Table 2.4b: Sum

ecommended S
ID
Event Cent
Lodge
Condos
SUBTOTAI
Clubhouse
SUBTOTAI



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