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PUBLIC SERVICE COMMISSION

February 15, 2024

Via Electronic Filing

Linda C. Bridwell, P.E., Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
P. O. Box 615
Frankfort, Kentucky 40602

RE: KY PSC Case No. 2023-00421
Roger D. Shocklee, Complainant, versus Kenergy Corp, Defendant

Dear Ms. Bridwell:

Please accept the attached electronic version of Complainant's verified Response to Staff's First Request for Information. The documents in electronic format are submitted with the request that they be filed into the record for KY PSC Case No. 2023-00421. Pertinent information has been redacted from the public version in accordance with 807 KAR 5:001, Section 4(10).

Counsel certifies that all material filed with the Commission in this electronic submission is a true representation of the materials prepared for the filing.

Please contact me if you have any questions regarding this filing.

Respectfully submitted,

/s/ David E. Spenard

Randal A. Strobo
David E. Spenard
STROBO BARKLEY PLLC
730 West Main Street, Suite 202
Louisville, Kentucky 40202
Phone: 502-290-9751
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Email: rstrobo@strobobarkley.com
Email: dspenard@strobobarkley.com

Counsel for Roger D. Shocklee

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ROGER D. SHOCKLEE	)	
	)	
COMPLAINANT	)	CASE NO.
	)	2023-00421
V.	)	
	)	
KENERGY CORP.	)	
	)	
DEFENDANT	)	

COMPLAINANT'S RESPONSE TO
COMMISSION STAFF'S FIRST REQUEST FOR INFORMATION

Comes now Complainant, Roger D. Shocklee, by and through Counsel, and submits his Responses to Commission Staff's First Request for Information.

Respectfully submitted,

/s/ David E. Spenard

Randal A. Strobo
David E. Spenard
STROBO BARKLEY PLLC
730 West Main Street, Suite 202
Louisville, Kentucky 40202
Phone: 502-290-9751
Facsimile: 502-378-5395
Email: rstrobo@strobobarkley.com
Email: dspenard@strobobarkley.com

Counsel for Roger D. Shocklee

Notice And Certification For Filing
And
Regarding Privacy Protection for Filing

Undersigned counsel provides notice that the electronic version of the paper has been submitted to the Commission by electronic mail message to the Commission's Executive Director, February 15, 2024, in conformity with the instructions in the request for information in the instant case. Pursuant to the Commission's Orders in Case No. 2020-00085, *Electronic Emergency Docket Related to Novel Coronavirus Covid-19*, the paper, in paper medium, is not required to be filed.

Pursuant to 807 KAR 5:001, Section 4(10), pertinent items have been redacted in five (5) attachments.

/s/ David E. Spenard

Notice And Certification Concerning Service

No party has been excused from the electronic filing procedures in the instant proceeding.

/s/ David E. Spenard
David E. Spenard

KY PSC Case No. 2023-00421
Complainant's Response to
Commission Staff's First Request for Information

1. Refer to Kenergy Corp.'s (Kenergy's) Answer to Complaint, pages 8–10, paragraphs 45–46, which alleges that even if Mr. Shocklee were considered an eligible customer-generator, his applications should be denied under Kenergy's Tariff, Sheet 46C paragraph (1).

a. State whether Mr. Shocklee's applications sought to interconnect the proposed generating facilities to a radial distribution circuit.

Notice by Counsel Concerning Response:

Each of Mr. Shocklee's applications for interconnection (supplied with the Formal Complaint) speaks for itself. A copy of each application, redacted pursuant to 807 KAR 5:001, Section 4(10), is supplied as an attachment to data request Item 5.

Response by Steve Killian:

Solar Energy Solutions LLC ("SES") filed the then-required Applications for Interconnection for net metering. SES did not have knowledge of Kenergy's radial distribution network.

b. State whether Mr. Shocklee's applications sought to interconnect proposed generating facilities that in aggregate with other customers, would exceed 15% of the line section's most recent one hour peak load.

Notice by Counsel Concerning Response:

Mr. Shocklee's applications were rejected by Kenergy and were not processed for approval or denial and formal action to approve or deny the applications did not occur and is not documented. To the extent that the data request requires Mr. Shocklee to speculate as to this matter in the absence of formal consideration of each application and formal documentation by Kenergy, Counsel objects.

Objection notwithstanding; Response by Steve Killian:

SES is without knowledge or information to make this judgment.

c. State any reasons why Kenergy's Tariff, Sheet 46C paragraph (1) should not prohibit approval of Mr. Shocklee's applications.

Notice by Counsel Concerning Response:

To the extent that data request seeks a legal opinion or requests that Mr. Shocklee construe a legal question, Counsel objects to the request.

Counsel further states, in response on behalf of Mr. Shocklee, that the referenced provision of Sheet 46C paragraph (1) is not a prohibition provision. Specifically, Tariff Sheet 46B, in discussing the force and effect of the eight (8) conditions appearing on Tariff Sheets 46C and 46D (which includes paragraph condition (1) referenced in the data request), states, at pertinent part: "Kenergy ***will*** approve the Level 1 application if the generating facility also meets all of the following conditions (emphasis added)." Through use of the term "will" rather than a phrase such as "shall not approve the Level 1 application unless the generating facility meets all of the following conditions," the plain language of the pertinent tariff provision's referenced condition demonstrates that the condition in Tariff Sheet 46C paragraph (1) does not prohibit approval of Mr. Shocklee's applications in any scenario. Satisfaction of the eight (8) conditions, including the referenced paragraph (1) functions to mandate that "Kenergy will approve the Level 1 Application if the generating facility also meets" the eight (8) listed conditions. The plain language of the referenced tariff provision does not create any prohibition against approval of either application.

Objection Notwithstanding; Response by Steve Killian:

The amount of solar proposed to be connected is no larger than the incoming power on the lines.

KY PSC Case No. 2023-00421
Complainant's Response to
Commission Staff's First Request for Information

d. Identify any factual allegations made in Kenergy's Answer to Complaint that Mr. Shocklee disputes.

Notice by Counsel Concerning Response:

Numbered Paragraph 2 of the Answer. Mr. Shocklee denies that Kenergy reviewed the two applications at issue in this matter and applied its Commission-approved tariff properly in furtherance of the applicable statutes and regulations relevant to this matter.

Numbered Paragraphs of the Answer 3, 15, and 17. Mr. Shocklee is without knowledge and information sufficient to form a belief as to whether Kenergy's policy is not discuss details of a member's account with anyone other than the account holder." Therefore, these parts of these paragraphs are denied.

Numbered Paragraphs 5 of the Answer. Mr. Shockless is without knowledge and information sufficient to form a belief as to the truth of this paragraph; therefore, it is denied.

Numbered Paragraph 8 of the Answer. To the extent that Kenergy alleges that it has a Commission-approved tariff provision concerning property ownership for net metering, the paragraph is denied.

Numbered Paragraph 16 of the Answer. To the extent that Kenergy alleges it was "practicing the policy it applies to all applications for like-kind in furtherance of its Commission-approved tariff," Mr. Shocklee is without knowledge and information sufficient to form a belief as to the truth of this statement; therefore, it is denied. Mr. Shocklee denies Kenergy's conclusory legal statements that he was not eligible to be considered because he was not the owner of the premises. Each referenced statute and tariff provision speaks for itself.

Numbered Paragraph 22 of the Answer. Section 8(l) of the Formal Complaint speaks for itself. It is a reference to KRS 278.465(1). Mr. Shocklee denies the portion of the paragraph alleging and concluding that "Kenergy's rejection of the applications at issue, was in compliance with Kenergy's Commission-approved tariffs and KRS 278.465."

Numbered Paragraphs 23, 24, 25, and 26 of the Answer. Mr. Shocklee denies the portions of the paragraphs stating that he incorrectly interprets any provision in KRS Chapter 278, denies the legal conclusions offered by Kenergy in the paragraphs, and denies that Kenergy has complied with KRS 278.465 and its tariffs in rejecting the applications.

Numbered Paragraphs 40, 41, 42, 43, 44, and 47 of the Answer are each denied. Each statute and tariff provision referenced in the paragraphs speaks for itself.

Numbered Paragraph 45 of the Answer. Mr. Shocklee is without knowledge of information sufficient to form a belief regarding the facts alleged through the unsworn statements of Counsel for Kenergy; therefore, each such allegation is denied. Mr. Shocklee denies the remaining conclusory statements in this paragraph. Kenergy's tariff provisions speak for themselves.

Numbered Paragraph 46 of the Answer. The record in Kentucky Public Service Commission Case No. 2023-00309 speaks for itself. Mr. Shocklee is without knowledge or information sufficient to form a belief regarding the remaining facts alleged in this paragraph; therefore, they are denied. Mr. Shocklee denies the remaining conclusory statements in this paragraph.

Response by Mr. Shocklee:

The factual allegations (except as discussed above) in Numbered Paragraphs 3, 4, 6, and 16 are admitted. Further, Mr. Shocklee spoke with Mr. Scott Heath who stated that even if Mr. Shocklee qualified as an approved generating facility, the transmission line supplying his farm was only capable of supporting a 45 KW system. Mr. Heath stated that it was due to Kenergy's tariff that only allowed fifteen (15) percent of said line's capacity. Mr. Shockless stated to Mr. Heath that he would let someone else speak on his behalf because over the past three (3) years he had the perception that Kenergy changed the rules as it went along.

Response by Steve Killian:

(Except at discussed above) – SES filed the interconnection applications. Kenergy, by telephone, advised Mr. Shocklee that his applications had been rejected. After several follow-ups by Clayton Salchi, SES Engineer, who filed the applications, SES received a response from Scott Heath, on behalf of Kenergy, stating: "Unfortunately, I am unable to discuss the matter with you," and stating further, "I have, however, informed Mr. Shockley directly."

KY PSC Case No. 2023-00421
Complainant's Response to
Commission Staff's First Request for Information

2. Refer to Kenergy's Tariff, Sheet 46D paragraph (8), which states "No construction of facilities by Kenergy on its own system will be required to accommodate the generating facility." State any reasons why this tariff provision should not apply to Mr. Shocklee's proposed generating facilities.

Notice by Counsel Concerning Response:

To the extent that data request seeks a legal opinion or requests that Mr. Shocklee construe a legal question, Counsel objects to the request.

Mr. Shocklee does not take the position that referenced tariff provision at Sheet 46D paragraph (8) does not apply to his proposed generating facilities. Counsel further states, in response on behalf of Mr. Shocklee, that the referenced provision of Sheet 46D paragraph (8) is not a prohibition provision. Specifically, Tariff Sheet 46B, in discussing the force and effect of the eight (8) conditions appearing on Tariff Sheets 46C and 46D (which includes paragraph condition (8) referenced in the data request), states, at pertinent part: "Kenergy ***will*** approve the Level 1 application if the generating facility also meets all of the following conditions (emphasis added)." Through use of the term "will" rather than a phrase such as "shall not approve the Level 1 application unless the generating facility meets all of the following conditions," the plain language of the pertinent tariff provision's referenced condition demonstrates that the condition in Tariff Sheet 46D paragraph (8) does not prohibit approval of Mr. Shocklee's applications in any scenario. Satisfaction of the eight (8) conditions, including the referenced paragraph (8) functions to mandate that "Kenergy will approve the Level 1 Application if the generating facility also meets" the eight (8) listed conditions. The plain language of the referenced tariff provision does not create any prohibition against approval of either application.

Further, the unsworn statements of Kenergy's Counsel concerning Kenergy's system are simply arguments rather than evidence, and Counsel objects to use of or reliance upon them as evidence. The only available evidence of record supplied by Kenergy that might be relevant to this matter is set forth in Kenergy's Verified Petition in KY PSC Case No. 2023-00309[1] which states, at pertinent parts:

> Recently, Kenergy has received inquiries about members who desire to install solar equipment on their property. In these two inquiries, the solar generating capacity is significant.
>
> …

[1] *Electronic Petition of Kenergy Corp. for a Declaratory Order*, (filed Sept. 13, 2023), pages 2 and 3.

> In order to properly install such solar facilities as are described above in compliance with Tariff 46, the pertinent distribution lines may require upgrades."

Mr. Shocklee objects to any inference that construction by Kenergy is necessary to accommodate either or both generating facilities, particularly since Kenergy rejected the applications rather than having acted upon them through a formal review.

Objection Notwithstanding; Response by Steve Killian:

SES does not expect Kenergy to construct or require any additional facilities to accommodate this application.

KY PSC Case No. 2023-00421
Complainant's Response to
Commission Staff's First Request for Information

3. State whether interconnection as proposed in Mr. Shocklee's applications is possible without causing an overload to any portion of the circuit to be used by the proposed generating facility.

Notice by Counsel Concerning Response:

Mr. Shocklee's applications were rejected by Kenergy and were not processed for approval or denial and formal action to approve or deny the applications did not occur and is not documented. To the extent that the data request requires Mr. Shocklee to speculate as to this matter in the absence of formal consideration of each application and formal documentation by Kenergy, Counsel objects.

Objection Notwithstanding; Response by Steve Killian:

The amount of solar proposed to be connected is no larger than the incoming power on the lines, and with net metering it is expected only a small percentage of power could be sent back to Kenergy during light loads. The solar system is designed to capture up to 100 percent of the recent twelve (12) months energy, no more.

KY PSC Case No. 2023-00421
Complainant's Response to
Commission Staff's First Request for Information

4. State whether interconnection as proposed in Mr. Shocklee's applications is possible without hindering other customers' ability to maintain electric service.

Notice by Counsel Concerning Response:

Mr. Shocklee's applications were rejected by Kenergy and were not processed for approval or denial and formal action to approve or deny the applications did not occur and is not documented. To the extent that the data request requires Mr. Shocklee to speculate as to this matter in the absence of formal consideration of each application and formal documentation by Kenergy, Counsel objects.

Objection Notwithstanding. Response by Steve Killian:

SES has no way of knowing this, although stated in response to data request No. 3 each system is designed such that the customer consumes the energy provided by the solar system, with net metering it is expected only a small percentage of power could be sent back to Kenergy during light loads.

KY PSC Case No. 2023-00421
Complainant's Response to
Commission Staff's First Request for Information

5. Provide any documents used to respond to Items 1 through 4 above, including but not limited to, engineering reports or notes, photographs, maps, or correspondence.

Response:

See Attachments A through G.

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ROGER D. SHOCKLEE	)	
	)	
COMPLAINANT	)	CASE NO.
	)	2023-00421
V.	)	
	)	
KENERGY CORP.	)	
	)	
DEFENDANT	)	

VERIFICATION BY AFFIDAVIT

Comes the affiant, Roger D. Shocklee, and being duly sworn states that the foregoing response was prepared by him and is, to the best of his information and belief, true and correct.

Roger D. Shocklee

Commonwealth of Kentucky
Jefferson County

Subscribed and sworn to me, a Notary Public in and before said County and State, this 14th day of February 2024.

Notary Public KYNP15054

My Commission Expires:

09/14/2024

COMMONWEALTH OF KENTUCKY

BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

ROGER D. SHOCKLEE	)	
	)	
COMPLAINANT	)	CASE NO.
	)	2023-00421
V.	)	
	)	
KENERGY CORP.	)	
	)	
DEFENDANT	)	

VERIFICATION BY AFFIDAVIT

Comes the affiant, Steve Killian, and being duly sworn states that the foregoing responses and were prepared by him and are, to the best of his information and belief, true and correct.

Steve Killian

Commonwealth of Kentucky
Jefferson County

Subscribed and sworn to me, a Notary Public in and before said County and State, this 14 day of February 2024.

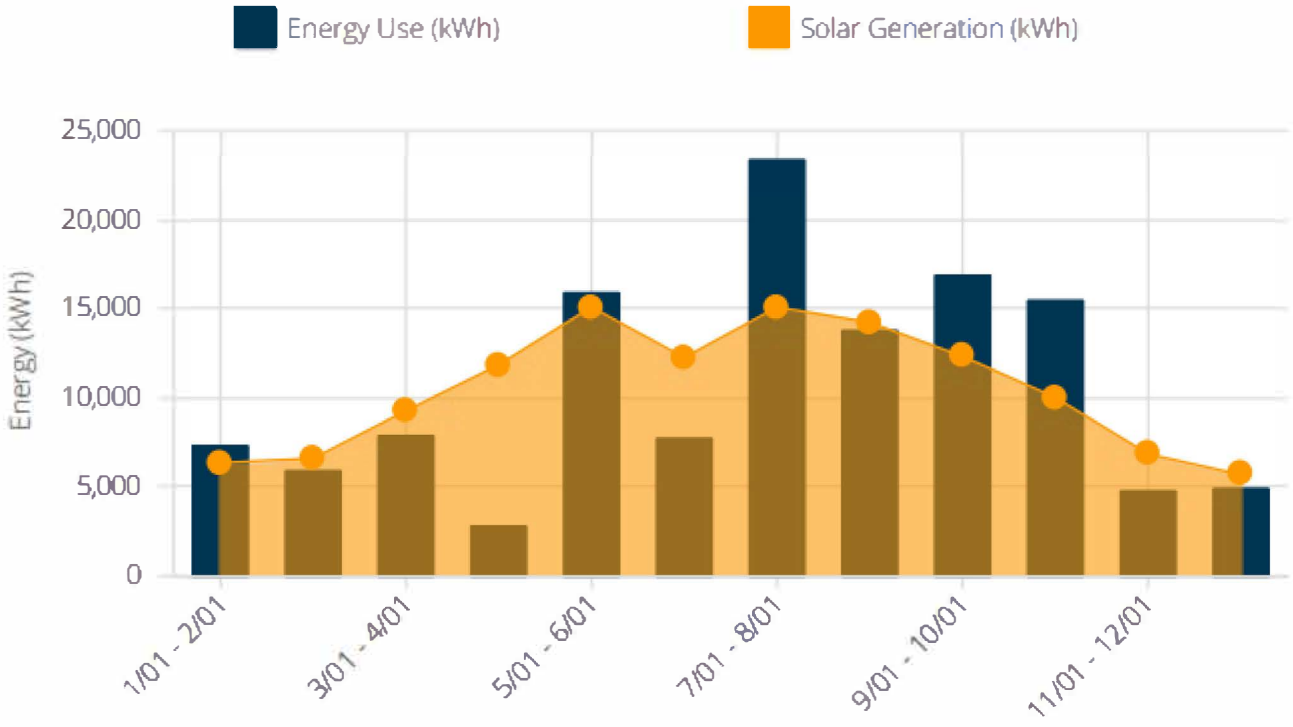
Notary Public

Theresa M. Whalen
NOTARY PUBLIC Id KYNP57202
State at Large Kentucky
My Commission Exp. August 27, 2026

My Commission Expires:

August 27, 2026

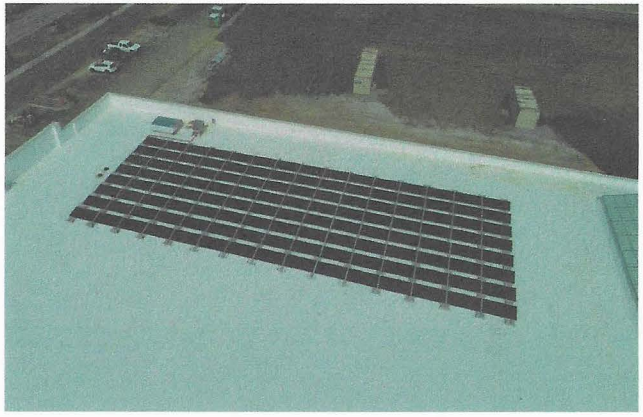
Attachment 5 A


Energy Use (kWh)
Solar Generation (kWh)
Energy (kWh)
25,000
20,000
15,000
10,000
5,000
0
1/01 - 2/01
3/01 - 4/01
5/01 - 6/01
7/01 - 8/01
9/01 - 10/01
11/01 - 12/01

Attachment 5 B (Redacted)

SOLAR ENERGY
SOLUTIONS




Prepared For:

Roger Shocklee
[redacted]
Livermore, KY 42352

Prepared By:

Steve Killian
[redacted]

Combined System 40% REAP

About Solar Energy Solutions ---- 2

Your Utility Today, Without Solar ---- 3

Solar PV System Details ---- 4

Your Future Utility, With Solar ---- 5

Financing Summary ---- 6

Cash Purchase - Cash Flow Analysis ---- 7

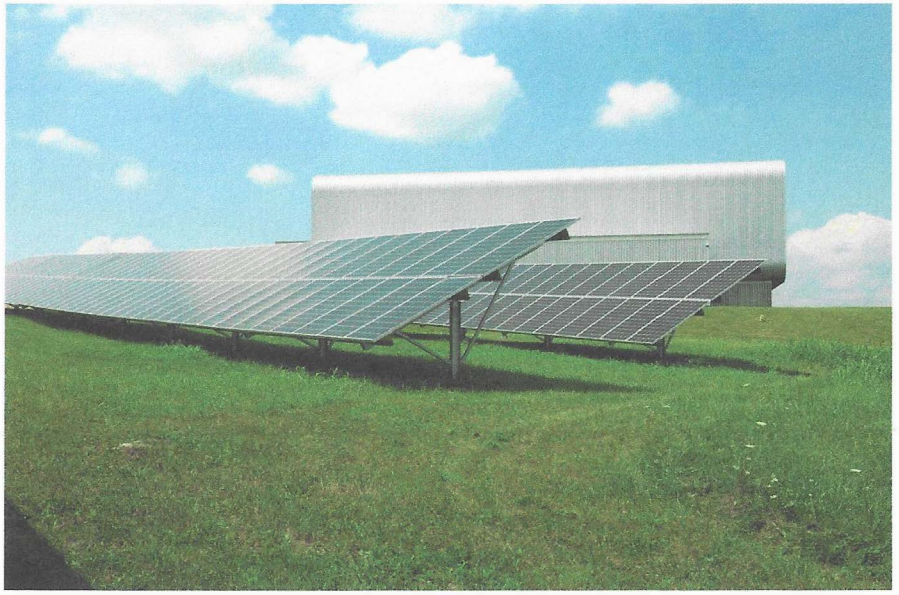
About Solar Energy Solutions

Regional Leaders

Solar Energy Solutions is Kentucky's preeminent full-time renewable energy installation firm. Formed in 2006, SES merges engineering expertise with electrical acumen to produce superior renewable energy installations. SES has completed numerous exceptional projects across the residential, commercial, and institutional spectrum.

Our Mission

Solar Energy Solutions, LLC is dedicated to bringing renewable energy to Kentucky, Ohio, Indiana, West Virginia, and Tennessee; to helping the environment; to establishing energy independence; and to educating the public on how to take part in making a healthier, more secure future.



Significant Experience

With over 2500 systems installed and many megawatts of built capacity, our experience conveys to your project. SES success is contingent on full-time immersion in the solar industry including standards and best practices.

Expert Installers

SES personnel are exemplary solar practitioners. Cumulatively SES personnel hold all relevant state trade licenses as well as SunPower and North American Board of Certified Energy Practitioners (NABCEP) accreditations.

Customer Testimonials

"We have been pleased with the service and professionalism of Solar Energy Solutions. The follow up after completion has been excellent."

Shawn Anderson

"Solar Energy Solutions does a GREAT job. On time, fair pricing, excellent workmanship. I will definitely call them for by next job."

Frank Pohlgeers

"We have worked with Solar Energy Solutions and now use them for all our solar related installs. Their attention to detail and standard of quality is equaled by no one."

Tony Hulefeld
Ecotech Renewable Engineering

See our Customer Reviews

Your Utility Today, Without Solar

Utility Details			Cost Details		
Utility Company	**Current Rate Schedule**	**Utility Escalation Rate**	**Total Utility Bill**	**Total Usage (kWh)**	**Avg blended cost**
KENERGY	Schedule 3	3.3%	$13,065	126,240 kWh	$0.104 /kWh

Monthly usage & billing data:

Time Periods	Energy Use (kWh)	Charges		
Bill Ranges & Seasons	Total	Other	Energy	Total
1/1/2022 - 2/1/2022 S1	7,240	$22	$734	$756
2/1/2022 - 3/1/2022 S1	5,880	$22	$596	$618
3/1/2022 - 4/1/2022 S1	7,800	$22	$791	$813
4/1/2022 - 5/1/2022 S1	2,760	$22	$280	$302
5/1/2022 - 6/1/2022 S1	15,840	$22	$1,606	$1,628
6/1/2022 - 7/1/2022 S1	7,720	$22	$783	$805
7/1/2022 - 8/1/2022 S1	23,360	$22	$2,369	$2,391
8/1/2022 - 9/1/2022 S1	13,760	$22	$1,395	$1,417
9/1/2022 - 10/1/2022 S1	16,840	$22	$1,707	$1,730
10/1/2021 - 11/1/2021 S1	15,400	$22	$1,561	$1,584
11/1/2021 - 12/1/2021 S1	4,760	$22	$483	$505
12/1/2021 - 1/1/2022 S1	4,880	$22	$495	$517
Total	126,240	$265	$12,800	$13,065

Prepared By: Erik Meyerhoffer
P: [redacted], **E:** [redacted]

Your Information

Roger Shocklee
[redacted]
Livermore, KY 42352

About Your Utility

No choice:
Your utility is 100+ year old monopoly, meaning they don't have competition, they have guaranteed profits and you don't have any say.

Rates are rising:
The regulated utility business model has failed but utilities are failing to change, relying on policymakers to protect sunk assets and raising your energy rates. On average we anticipate rates will increase by 3.3% annually.

Pollution:
Over 90% of utility energy generation comes from fossil-fuel plants, like coal or natural gas. This leads to pollution, climate change, and health impacts in our communities.

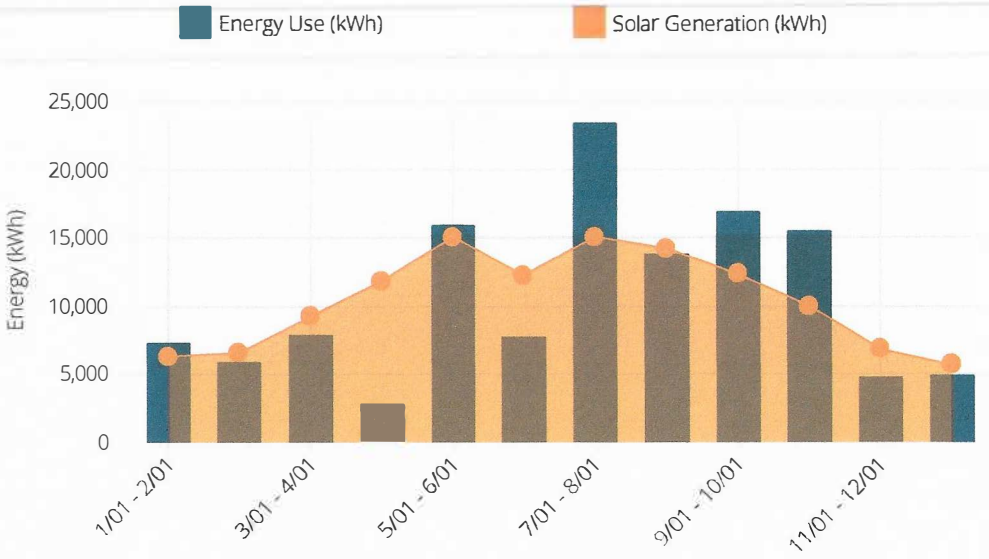
Solar PV System Details

System Size & Generation:

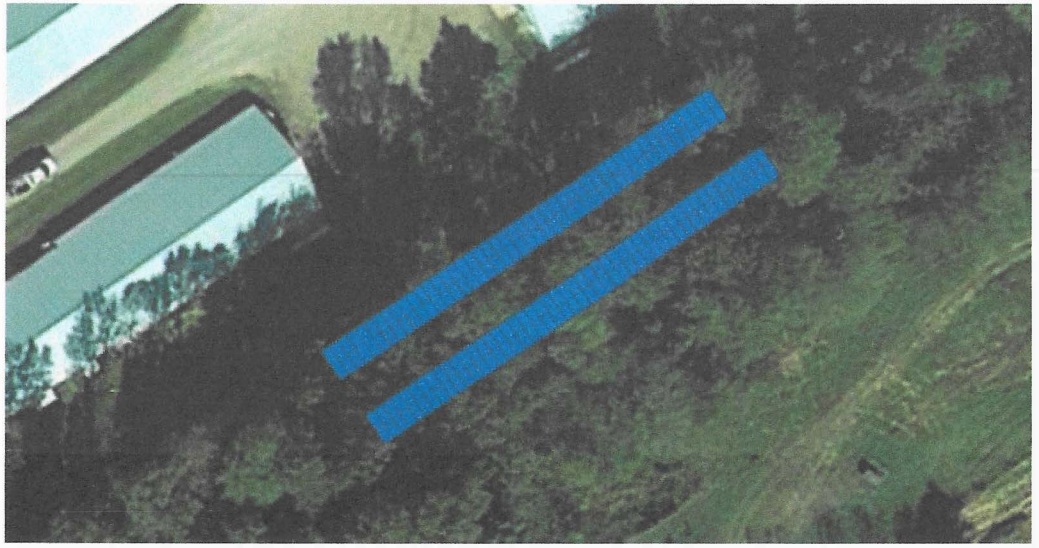
102.6 kW-DC System Size (DC)

76.8 kW-AC System Size (AC)

125,547 kWh 1st Year Generation



Roof layout rendering:



Equipment:

(190) Boviet Solar BVM7612M-540-H-HC-BF-DG (1500V)	Solar panels
(10) SMA SB7.7-1SP-US-41 240V	Inverter(s)

System Pricing & Incentives:

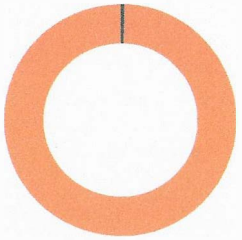
Solar PV System Cost	$219,750
Federal Tax Credit	-$65,925
Federal - MACRS Bonus Depreciation	-$39,225
USDA-REAP grant 40%	-$69,441
Net Solar PV System Cost	**$45,159**

Prepared By: Erik Meyerhoffer
P: [redacted] **E:** [redacted]

Your Future Utility, With Solar

Utility Details			Savings Details		
Utility Company	**Post-solar Rate Schedule**	**Annual usage**	**Total Savings**	**Total Solar Production**	**Avg blended savings**
KENERGY	Schedule 3	126,240 kWh	$12,730	125,547 kWh	$0.101 /kWh

Solar Production Offset %:



Utility 693 kWh (0.55%)

Solar PV 125,547 kWh (99.45%)

Monthly Utility Bills, Post-Solar

Time Periods	Energy Use (kWh)	Charges		
Bill Ranges & Seasons	Total	Other	Energy	Total
1/1/2022 - 2/1/2022 S1	875	$22	$89	$111
2/1/2022 - 3/1/2022 S1	-720	$22	$73	$51
3/1/2022 - 4/1/2022 S1	-1,467	$22	$149	$127
4/1/2022 - 5/1/2022 S1	-9,085	$22	$921	$899
5/1/2022 - 6/1/2022 S1	767	$22	$78	$100
6/1/2022 - 7/1/2022 S1	-4,529	$22	$459	$437
7/1/2022 - 8/1/2022 S1	8,290	$22	$841	$863
8/1/2022 - 9/1/2022 S1	-455	$22	$46	$24
9/1/2022 - 10/1/2022 S1	4,523	$22	$459	$481
10/1/2021 - 11/1/2021 S1	5,386	$22	$546	$568
11/1/2021 - 12/1/2021 S1	-2,082	$22	$211	$189
12/1/2021 - 1/1/2022 S1	-810	$22	$82	$60
Total	693	$265	$70	$335

Avoided Cost calculation:

Pre-solar utility bill: $13,065

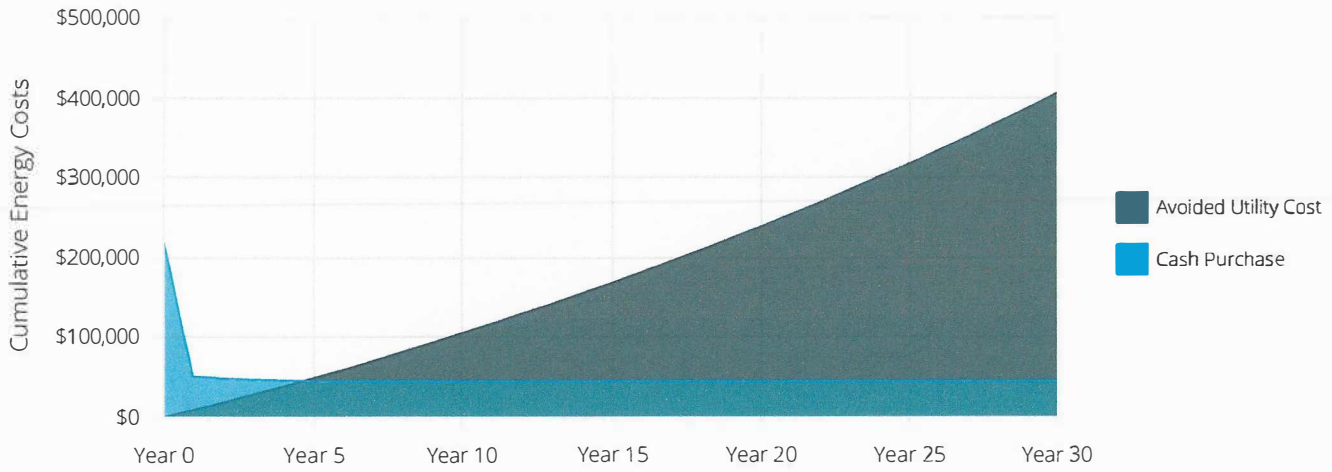
Post-solar utility bill: $335

Savings: $12,730

Financing Summary

Payment Options	Cash Purchase
IRR - Term	15.5%
LCOE PV Generation	$0.014 /kWh
Net Present Value	$137,170
Payback Period	4.6 Years
Total Payments	$219,750
Total Incentives	$174,591
Net Payments	$45,159
Electric Bill Savings - Term	$545,683
Upfront Payment	$219,750

Cummulative Energy Costs By Payment Option



Benefits of Payment Options:

Cash Purchase:

- Maximize your savings by owning a secure long-term investment.
- Use federal investment tax credit to reduce your tax liability.
- Increase the market value of your home.

Lease or PPA:

- Receive the benefits of having solar, with little or no money down.
- Avoid the responsibility of maintenance and repairs.
- Do not have tax liability to monetize the federal tax credit.

Loan:

- Numerous low-cost, low interest rate loan programs are available.
- 'Own' an asset that generates significant financial value, unlike other home improvement loans.
- Achieve immediate savings, as you repay the loan over time.

Prepared By: Erik Meyerhoffer
P: [redacted] **E:** [redacted]

Cash Purchase - Cash Flow Analysis

Years	Cash			PV Generation (kWh)	State Taxes	Federal Taxes					Total Cash Flow	Cumulative Cash Flow
	Project Costs	USDA-REAP grant 40%	Electric Bill Savings		Income Increase (Electric Bill Savings)	Income Decrease (Federal - MACRS Bonus Depreciation)	Income Increase (Electric Bill Savings)	Income Increase (USDA-REAP grant 40%)	Change in State Tax Liability	Federal Tax Credit		
Upfront	-$219,750	-	-	-	-	-	-	-	-	-	-$219,750	-$219,750
1	-	$87,900	$12,730	125,548	-$764	$32,949	-$2,673	-$18,459	$160	$65,925	$177,768	-$41,982
2	-	-	$13,038	124,544	-$782	$2,510	-$2,738	-	$164	-	$12,193	-$29,789
3	-	-	$13,354	123,539	-$801	$1,506	-$2,804	-	$168	-	$11,423	-$18,366
4	-	-	$13,675	122,535	-$821	$904	-$2,872	-	$172	-	$11,059	-$7,307
5	-	-	$14,004	121,530	-$840	$904	-$2,941	-	$176	-	$11,303	$3,996
6	-	-	$14,340	120,526	-$860	$452	-$3,011	-	$181	-	$11,101	$15,097
7	-	-	$14,682	119,522	-$881	-	-$3,083	-	$185	-	$10,903	$26,000
8	-	-	$15,032	118,517	-$902	-	-$3,157	-	$189	-	$11,163	$37,163
9	-	-	$15,389	117,513	-$923	-	-$3,232	-	$194	-	$11,428	$48,591
10	-	-	$15,754	116,509	-$945	-	-$3,308	-	$198	-	$11,699	$60,290
11	-	-	$16,125	115,504	-$968	-	-$3,386	-	$203	-	$11,975	$72,265
12	-	-	$16,505	114,500	-$990	-	-$3,466	-	$208	-	$12,256	$84,521
13	-	-	$16,892	113,495	-$1,013	-	-$3,547	-	$213	-	$12,544	$97,065
14	-	-	$17,286	112,491	-$1,037	-	-$3,630	-	$218	-	$12,837	$109,902
15	-	-	$17,689	111,487	-$1,061	-	-$3,715	-	$223	-	$13,136	$123,037
16	-	-	$18,099	110,482	-$1,086	-	-$3,801	-	$228	-	$13,440	$136,478
17	-	-	$18,517	109,478	-$1,111	-	-$3,889	-	$233	-	$13,751	$150,229
18	-	-	$18,944	108,473	-$1,137	-	-$3,978	-	$239	-	$14,068	$164,296
19	-	-	$19,378	107,469	-$1,163	-	-$4,069	-	$244	-	$14,390	$178,687
20	-	-	$19,821	106,465	-$1,189	-	-$4,162	-	$250	-	$14,719	$193,406
21	-	-	$20,272	105,460	-$1,216	-	-$4,257	-	$255	-	$15,054	$208,460
22	-	-	$20,732	104,456	-$1,244	-	-$4,354	-	$261	-	$15,395	$223,855
23	-	-	$21,200	103,452	-$1,272	-	-$4,452	-	$267	-	$15,743	$239,598
24	-	-	$21,676	102,447	-$1,301	-	-$4,552	-	$273	-	$16,097	$255,695
25	-	-	$22,161	101,443	-$1,330	-	-$4,654	-	$279	-	$16,457	$272,152
26	-	-	$22,655	100,438	-$1,359	-	-$4,758	-	$285	-	$16,824	$288,976
27	-	-	$23,157	99,434	-$1,389	-	-$4,863	-	$292	-	$17,197	$306,172
28	-	-	$23,668	98,430	-$1,420	-	-$4,970	-	$298	-	$17,576	$323,749
29	-	-	$24,188	97,425	-$1,451	-	-$5,080	-	$305	-	$17,962	$341,711
30	-	-	$24,717	96,421	-$1,483	-	-$5,191	-	$311	-	$18,355	$360,066
Totals:	-$219,750	$87,900	$545,683	3,329,533	-$22,741	$39,225	-$114,593	-$18,459	$6,876	$65,925	$360,066	-

Financial Metrics

Payback:	4.6 Years
ROI:	163.9%
10 Year IRR:	10.4%
20 Year IRR:	14.7%

Assumptions

Utility Escalator:	3.3%
Federal tax rate:	21.0%
State tax rate:	6.0%
Modeling:	After Tax

Prepared By: Erik Meyerhoffer
P: [redacted] **E:** [redacted]

Attachment 5 C (Redacted)

Steven Killian

From: Clayton Salchi
Sent: Tuesday, February 6, 2024 7:33 AM
To: Steven Killian; Matt Partymiller; Daniel Young; Jeff Nazarko
Subject: RE: KY PSC Case No. 2023-00421 (Shocklee) - time sensitive

This was my last conversation with Kenergy's Scott Heath: Please see my 3 emails below, with Kenergy's email as well.

I sent him the applications 11/9, asked for an update 11/14, and then again on 11/27 where I find out their application has been rejected. Scott Heath with Kenergy answers "I am unable to discuss the matter with you."

This is the only information and correspondence I would have to add.

Thanks

Clayton Salchli

Unfortunately, I am unable to discuss the matter with you. I have, however, informed Mr. Shockley directly.

Scott Heath | Energy/Technical Services
(o) 800.844.4832 | (d) 270.689.6156
3111 Fairview Drive Owensboro KY 42303

Kenergy

COMMITMENT TO: ZERO CONTACTS

From: Clayton Salchi [redacted]
Sent: Monday, November 27, 2023 6:34 AM
To: Scott Heath <SHeath@kenergycorp.com>
Subject: RE: Solar Energy Solutions - Net Metering Applications - Roger Shocklee - 2 Meters

CAUTION: This email originated from outside of Kenergy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Scott,

On November 9, 2023, I sent two net metering applications for Mr. Roger Shocklee pertaining to Kenergy Meters for accounts ending in [redacted] and [redacted]. I understand these applications were rejected. Can Kenergy please confirm that is the case and let us know the grounds for application rejection?

Kind Regards,

Clayton Salchi

From: Clayton Salchi
Sent: Tuesday, November 14, 2023 10:11 AM
To: [redacted]
Cc: Steven Killian [redacted]
Subject: RE: Solar Energy Solutions - Net Metering Applications - Roger Shocklee - 2 Meters

Dear Scott,

On November 9, 2023, I sent two net metering applications for Mr. Roger Shocklee pertaining to Kenergy Meters for accounts ending in [redacted] and [redacted]. Yesterday I received a call from Mr. Shocklee stating that these applications were rejected. Can Kenergy please confirm that is the case and let us know the grounds for application rejection?

Kind Regards,

Clayton Salchi

From: Clayton Salchi
Sent: Thursday, November 9, 2023 12:05 PM
To: sheath@kenergycorp.com
Subject: Solar Energy Solutions - Net Metering Applications - Roger Shocklee - 2 Meters

Good afternoon, Scott.

Please see our net metering applications for Mr. Roger Shocklee. Attached are (2) applications, one for each meter. There are (2) meters on the property, and each system will connect to their own respective meter. The systems are identical.

Please let me know if you have any questions.

Thank you.

Clayton Salchli

Solar Energy Solutions

Attachment 5 D (Redacted)

APPLICATION AND APPROVAL PROCESS

Applications will be submitted by the Member and reviewed and processed by Kenergy according to either Level 1 or Level 2 processes defined below.
Kenergy may reject an Application for violations of any applicable code, standard, or regulation related to reliability or safety; however, Kenergy will work with the Member to resolve those issues to the extent practicable. Members may contact Kenergy regarding status of an Application or with questions prior to submitting an Application.

An eligible Member-generator shall mean a retail electric Member of Kenergy with a generating facility that:

(1) Has a rated capacity of not greater than (100) kilowatts;
(2) Is located on the Member's premises;
(3) Is owned and operated by the Member;
(4) Is connected in parallel with Kenergy's electric distribution system; and
(5) Has the primary purpose of supplying all or part of the Member's own electricity requirements.

Should Kenergy determine, in its sole discretion, that the proposed generating facility does not meet all the above criteria, the Kenergy reserves the right to reject the Application and deny service.

LEVEL 1

A Level 1 Application shall be used if the generating facility is inverter-based and is certified by a nationally recognized testing laboratory to meet the requirements of Underwriters Laboratories Standard 1741 "Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources" (UL 1741). Kenergy will approve the Level 1 Application if the generating facility also meets all of the following conditions:

(1) For interconnection to a radial distribution circuit, the aggregated generation on the circuit, including the proposed generating facility, will not exceed 15% of the Line Section's most recent annual one-hour peak load. A line section is the smallest part of the primary distribution system the generating facility could remain connected to after operation of any sectionalizing devices.

(2) If the proposed generating facility is to be interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed generating facility, will not exceed the smaller of 20 kVA or the nameplate rating of the transformer.

(3) If the proposed generating facility is single-phase and is to be interconnected on a center tap neutral of a 240-volt service, its addition shall not create an imbalance between the two sides of the 240-volt service of more than 20% of the manufacturer's rating of the service transformer.

(4) If the generating facility is to be connected to three-phase, three wire primary utility distribution lines, the generator shall appear as a phase-to-phase connection at the primary utility distribution line.

(5) If the generating facility is to be connected to three-phase, four wire primary utility distribution lines, the generator shall appear to the primary utility distribution line as an effectively grounded source.

(6) The interconnection will not be on an "area" or "spot network". "Area" and "spot networks" are systems in which multiple transformers are interconnected on the secondary side and multiple primary voltage circuits are used to feed the transformers. A "spot network" is typically used to serve a single building and all the transformers are in one location. An "area network" typically serves multiple members with secondary conductors covering multiple city blocks and with transformers at various locations.

(7) Kenergy does not identify any violations of any applicable provisions of Institute of Electrical and Electronics Engineers Standard 1547(IEEE 1547), "Standard for Interconnecting Distributed Resources with Electric Power Systems."

(8) No construction of facilities by Kenergy on its own system will be required to accommodate the generating facility.

If the generating facility does not meet all of the above listed criteria, Kenergy, in its sole discretion, may either: 1) approve the generating facility under the Level 1 Application if Kenergy determines that the generating facility can be safely and reliably connected to Kenergy's system; or 2) deny the Application as submitted under the Level 1 Application.

Kenergy shall notify the Member whether the Application is approved or denied, based on the criteria provided in this section.

If the Application lacks complete information, Kenergy shall notify the Member that additional information is required, including a list of such additional information. The time between notification and receipt of required additional information will add to the time to process the Application.

The approval will be subject to successful completion of an initial installation inspection and witness test. The Member shall notify Kenergy within 3 business days of completion of the

generating facility installation and schedule an inspection and witness test with Kenergy to occur within 10 business days of completion of the generator facility installation or as otherwise agreed to by Kenergy and the Member. The Member may not operate the generating facility until successful completion of such inspection and witness test, unless Kenergy expressly permits operational testing not to exceed two hours. If the installation fails the inspection or witness test due to noncompliance with any provision in the Application and Kenergy approval, the Member shall not operate the generating facility until any and all noncompliance is corrected and re-inspected by Kenergy.

If the Application is denied, Kenergy will supply the Member with reasons for denial. The Member may resubmit under Level 2 if appropriate

LEVEL 2

A Level 2 Application is required under any of the following:

(1) The generating facility is not inverter based;
(2) The generating facility uses equipment that is not certified by a nationally recognized testing laboratory to meet the requirements of UL, 1741; or
(3) The generating facility does not meet one or more of the additional conditions under Level 1.

Kenergy will approve the Level 2 Application if the generating facility meets Kenergy's technical interconnection requirements, which are based on IEEE 1547.

Kenergy will process the Level 2 Application within 30 business days of receipt of a complete Application. Within that time Kenergy will respond in one of the following ways:

(1) The Application is approved and Kenergy will provide the Member with an interconnection Agreement to sign.
(2) If construction or other changes to Kenergy's distribution system are required, the cost will be the responsibility of the Member. Kenergy will give notice to the Member and offer to meet to discuss estimated costs and construction timeframe. Should the Member agree to pay for costs and proceed, Kenergy will provide the Member with an interconnection Agreement to sign within a reasonable time.
(3) The Application is denied. Kenergy will supply the Member with reasons for denial and offer to meet to discuss possible changes that would result in Kenergy approval. Member may resubmit Application with changes.

If the Application lacks complete information, Kenergy shall notify the Member that additional information is required, including a list of such additional information.
The Member may not operate the generating facility until an Interconnection Agreement is signed by the Member and all necessary conditions stipulated in the agreement are met.

TERMS AND CONDITIONS FOR INTERCONNECTION

To interconnect to Kenergy's distribution system, the Member's generating facility shall comply with the following terms and conditions:

(1) Kenergy shall provide the Member metering services, without charge for standard metering equipment, through a standard kilowatt-hour metering system capable of measuring the flow of electricity in two (2) directions. If the Member requests any additional meter or meters or distribution upgrades are needed to monitor the flow in each direction, such installations shall be at the Member's expense.

(2) The Member shall install, operate, and maintain, at Member's sole cost and expense, any control, protective, or other equipment on the Member's system required by Kenergy's technical interconnection requirements based on IEEE 1547, the National Electric Code "NEC", accredited testing laboratories such as Underwriters Laboratories, and the manufacturer's suggested practices for safe, efficient and reliable operation of the generating facility is parallel with Kenergy's electric system. Member shall bear full responsibility for the installation, maintenance and safe operation of the generating facility. Upon reasonable request from Kenergy, the Member shall demonstrate generating facility compliance.

(3) The generating facility shall comply with, and the Member shall represent and warrant its compliance with: (a) any applicable safety and power quality standards established by IEEE and accredited testing laboratories such as Underwriters Laboratories; (b) the NEC as may be revised from time to time; (c) Kenergy's rules, regulations, and Kenergy's Service Regulations as contained in Kenergy's Retail Electric Tariff as may be revised from time to time with the approval of the Kentucky Public Service Commission (Commission); (d) the rules and regulations of the Commission, as such rules and regulations may be revised from time to time by the Commission; and (e) all other applicable local, state, and federal codes and laws, as the same may be in effect from time to time. Where required by law, Member shall pass an electrical inspection of the generating facility by a local authority having jurisdiction over the installation.

(4) Any changes or additions to Kenergy's system required to accommodate the generating facility shall be considered excess facilities. Member shall agree to pay Kenergy for actual costs incurred for all such excess facilities prior to construction.

(5) Member shall operate the generating facility in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Kenergy's electric system. At all times when the generating facility is being operated in parallel with Kenergy's electric system, Member shall so operate the generating facility in such a manner that no adverse impacts will be produced thereby to the service quality rendered by Kenergy to any of its other Members or to any electric system

interconnected with Kenergy's electric system. Member shall agree that the interconnection and operation of the generating facility is secondary to, and shall not interfere with, Kenergy's ability to meet its primary responsibility of furnishing reasonably adequate service to its Members.

(6) Member shall be responsible for protecting, at Member's sole cost and expense, the generating facility from any condition or disturbance on Kenergy's electric system, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges, except that Kenergy shall be responsible for repair of damage caused to the generating facility resulting solely from the negligence or willful misconduct on the part of Kenergy.

(7) After initial installation, Kenergy shall have the right to inspect and/or witness commissioning tests, as specified in the Level 1 or Level 2 Application and approval process. Following the initial testing and inspection of the generating facility and upon reasonable advance notice to Member, Kenergy shall have access at reasonable times to the generating facility to perform reasonable onsite inspections to verify that the installation, maintenance, and operation of the generating facility comply with the requirements of this tariff.

(8) For Level 1 and 2 generating facilities, where required by Kenergy, an eligible Member shall furnish and install on Member's side of the point of common coupling a safety disconnect switch which shall be capable of fully disconnecting the Member's energy generating equipment from Kenergy's electric service under the full rated conditions of the Member's generating facility. The external disconnect switch (EDS) shall be located adjacent to Kenergy's meters or the location of the EDS shall be noted by placing a sticker on the meter, and shall be of the visible break type in a metal enclosure which can be secured by a padlock. If the EDS is not located directly adjacent to the meter, the Member shall be responsible for ensuring that the location of the EDS is properly and legibly identified for so long as the generating facility is operational. The disconnect switch shall be accessible to Kenergy personnel at all times. Kenergy may waive the requirement for an EDS for a generating facility at its sole discretion, and on a case-by-case basis, upon review of the generating facility operating parameters and if permitted under Kenergy's safety and operating protocols. Kenergy shall establish a training protocol for line workers on the location and use of the EDS, and shall require that the EDS be used when appropriate, and that the switch be turned back on once the disconnection is no longer necessary.

(9) Kenergy shall have the right and authority at Kenergy's sole discretion to isolate the generating facility or require the Member to discontinue operation of the generating facility if Kenergy believes that: (a) continued interconnection and parallel operation of the generating facility with Kenergy's electric system creates or contributes(or may create or contribute) to a system emergency on either Kenergy's or Member's electric system; (b) the generating facility is not in compliance with the requirements of this agreement, and the noncompliance adversely affects the safety, reliability, or power quality of Kenergy's electric system; or (c) the generating facility interferes with the operation of Kenergy's electric system. In non-

emergency situations, Kenergy shall give Member notice of noncompliance including a description of the specific noncompliance condition and allow Member a reasonable time to cure the noncompliance prior to isolating the generating facilities. In emergency situations, when Kenergy is unable to immediately isolate or cause the Member to isolate only the generating facility, Kenergy may isolate the Member's entire facility.

(10) Member shall agree that, without the prior written permission from Kenergy, no changes shall be made to the generating facility as initially approved. Increases in generating facility capacity will require a new "Application for Interconnection " which will be evaluated on the same basis as any other new application. Repair and replacement of existing generating facility components with like components that meet UL 1741 certification requirements for Level 1 facilities and not resulting in increases in generating facility capacity is allowed without approval.

(11) To the extent permitted by law, the Member shall protect, indemnify, and hold harmless Kenergy and its directors, officers, employees, agents, representatives and contractors against and from all loss, claims, actions or suits, including costs and attorney's fees, for or on account of any injury or death of persons or damage to property caused by the Member or the Member's employees, agents, representatives and contractors in tampering with, repairing, maintaining, or operating the Member's generating facility or any related equipment or any facilities owned by Kenergy except where such injury, death or damage was caused or contributed to by the fault or negligence of Kenergy or its employees, agents, representatives, or contractors. The liability of Kenergy to the Member for injury to person and property shall be governed by the tariff(s) for the class of service under which the Member is taking service.

(12) The Member shall maintain general liability insurance coverage (through a standard homeowner's, commercial, or other policy) for both Level 1 and Level 2 generating facilities. Member shall, upon request, provide Kenergy with proof of such insurance at the time that application is made.

(13) By entering into an Interconnection Agreement, or by inspection, if any, or by non-rejection, or by approval, or in any other way, Kenergy does not give any warranty, express or implied, as to the adequacy, safety, compliance with applicable codes or requirements, or as to any other characteristics, of the generating facility equipment, controls, and protective relays and equipment.

(14) A Member's generating facility is transferable to other persons or service locations only after notification to Kenergy has been made and verification that the installation is in compliance with this tariff. Upon written notification that an approved generating facility is being transferred to another person, Member, or location, Kenergy will verify that the installation is in compliance with this tariff and provide written notification to the Member(s) within 20 business days. If the installation is no longer in compliance with this tariff, Kenergy will notify the Member in writing and list what must be done to place the facility in compliance.

(15) The Member shall retain any and all Renewable Energy Credits (RECs) that may be generated by their generating facility.

Application for Interconnection

Use this application form only for a generating facility that is inverter based and certified by a nationally recognized testing Laboratory to meet the requirements of UL 1741.

Submit this Application to:

Kenergy Corp,
P. 0. Box 18,
Henderson, KY 42419-0018

If you have questions regarding this Application or its status, contact Kenergy at: (800)844-4832

Member Name: ROGER D SHOCKLEE Account Number: [redacted]

Member Address: 666 BARRETT HILL RD. LIVERMORE, KY 42352

Member Phone No.: _____ Project Contact Person: Solar Energy Solutions

Phone No.: E-mail Address (Optional): [redacted]

Provide names and contact information for other contractors, installers, or engineering firms involved in the design and installation of the generating Facilities: _____

Solar Energy Solutions

Member E-Mail Address: [redacted]

Energy Source: Solar Wind Hydro Biogas Biomass SOLAR

Inverter Manufacturer and Model #: Tesla, Tesla 7.6 kW Inverter, QTY:5

Inverter Power Rating: 7.6 kW, 38.00 kW AC TOTAL KW

Power Rating of Energy Source (ie., solar panels, wind turbine): 51.30 kW, (95) 540W Modules KW

Attach documentation showing that inverter is certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.

Attach site drawing or sketch showing location of Kenergy's meter, energy source, Kenergy accessible disconnect switch, and inverter.

Attach single line drawing showing all electrical equipment from Kenergy's metering location to the energy source including switches, fuses, breakers, panels, transformers, inverters, energy source, wire size, equipment ratings, and transformer connections.

Expected Start-up Date: 12/4/23

PHOTOVOLTAIC GROUND MOUNT SYSTEM

190 MODULES-SYSTEM SIZE STC (102.60 kW DC / 76.00 kW AC)

650 BARRETT HILL RD, LIVERMORE, KY, 42352 USA (37.53897, -87.09644)

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW

STC AC : (N) (10) 7600 W = 76.00 kW

- (N) (190) NE SOLAR, NESE540-72MHB-M10 MODULES
- (N) (10) TESLA SOLAR INVERTERS, TESLA 7.6 kW (240V) INVERTERS
- (N) 10 STRINGS OF 10 NE SOLAR NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 NE SOLAR NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

GOVERNING CODES

- [2017 NEC] 2017 NFPA 70 - NATIONAL ELECTRICAL CODE
- [2015 IMC] 2015 INTERNATIONAL MECHANICAL CODE
- [2015 IBC] 2015 INTERNATIONAL BUILDING CODE
- [2015 IPC] 2015 INTERNATIONAL PLUMBING CODE
- [2015 IECC] 2015 INTERNATIONAL ENERGY CONSERVATION CODE

GENERAL NOTES

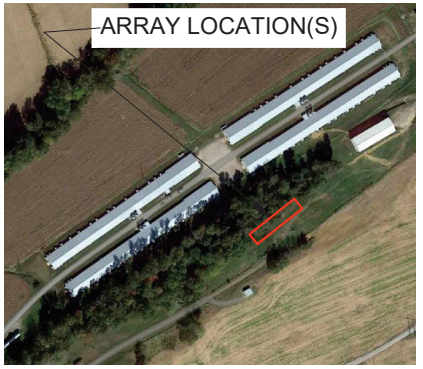
1) ALL PANELS, SWITCHES, ETC. SHALL HAVE SUFFICIENT GUTTER SPACE AND LUGS IN COMPLIANCE WITH UL REQUIREMENTS TO ACCOMMODATE CONDUCTORS SHOWN.
2) THIS SYSTEM WILL NOT BE INTERCONNECTED UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND UTILITY IS OBTAINED.
3) ALL EXTERIOR ELECTRICAL DEVICES AND EQUIPMENT INCLUDING THOSE THAT ARE EXPOSED TO OUTSIDE ENVIRONMENT SHALL BE WEATHERPROOF AND SHALL BE LISTED BY 'UL' FOR THE TYPE OF APPLICATION AND 'UL' LABEL SHALL APPEAR ON ALL ELECTRICAL EQUIPMENT.
4) WIRING METHOD SHALL BE EMT ABOVE GROUND MOUNTED IN CONCEALED SPACES (UNLESS APPROVED OTHERWISE) AND SCHEDULE-40 PVC FOR BELOW GROUND INSTALLATIONS UNLESS NOTED OTHERWISE.
5) IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE CONDUCTOR IF NECESSARY.

SHEET INDEX

PV-0.0	COVER SHEET
PV-1.0	SITE PLAN WITH MODULES
PV-1.1	ELECTRICAL EQUIPMENT DETAIL
PV-2.0	STRING DETAIL
PV-3.0	RACKING PLAN VIEW
PV-3.1	RACKING SIDE ELEVATION
PV-4.0	ELECTRICAL THREE LINE DIAGRAM
PV-4.1	ELECTRICAL THREE LINE DIAGRAM
PV-4.2	WIRING CALCULATION
PV-5.0	VOLTAGE DROP CALCULATION
PV-6.0	PLACARDS
PV-7+	EQUIPMENT SPECIFICATION

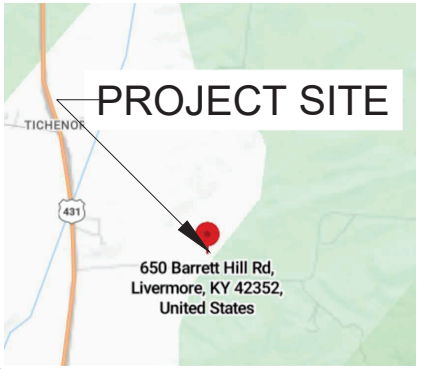
AHJ: MCLEAN (COUNTY OF), KENTUCKY

UTILITY: KENERGY CORP



BUILDING PHOTO

SCALE: NTS



VICINITY MAP

SCALE: NTS

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA

APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

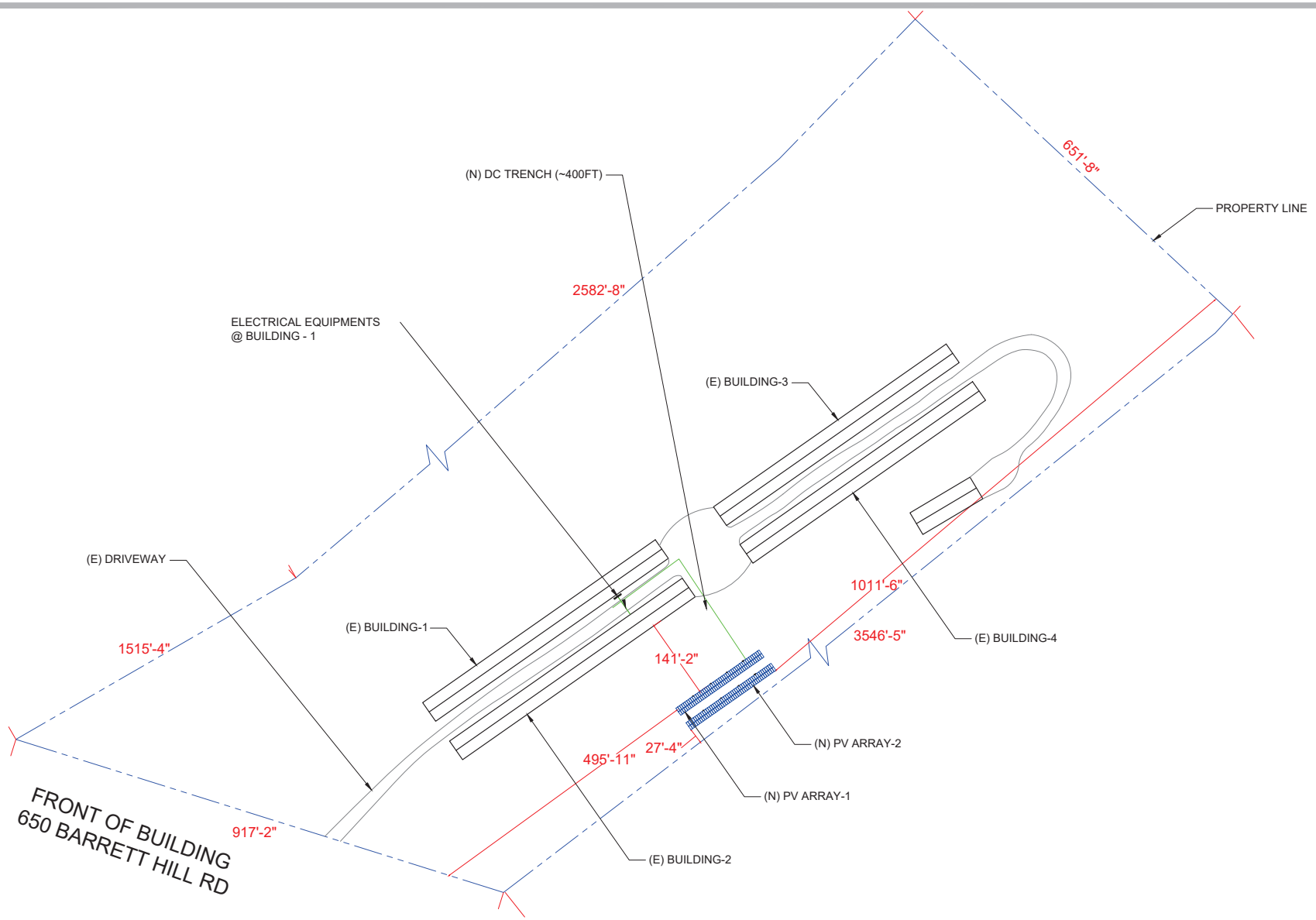
COVER SHEET

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-0.0



SITE PLAN WITH MODULES

SCALE: NTS

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW
STC AC : (N) (10) 7600 W = 76.00 kW

- (N) (190) NE SOLAR NESE MODULES, NESE540-72MHB-M10
- (N) (10) TESLA SOLAR TECHNOLOGY, TESLA 7.6 kW (240V) INVERTERS
- (N) 10 STRINGS OF 10 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

LEGEND

- FIRE SETBACK
- NEW PV MODULE
- OPTIMIZER
- MICRO-INVERTER
- ROOF ATTACHMENT
- ROOF ACCESS POINT
- STRING DETAIL
- CONDUIT RUN
- DIMENSIONS
- PROPERTY LINE
- RAFTER/TRUSS
- RAIL
- FENCE
- GATE

MSP	MAIN SERVICE PANEL (EXISTING)	CTC	CENTER TAP CONNECTOR (N/A)	TFO	TRANSFORMER (N/A)
UM	UTILITY METER (EXISTING)	INV	INVERTER (NEW)	AC	AC DISCONNECT UNFUSED (N/A)
PM	PRODUCTION METER (N/A)	LC	LOAD CENTER (NEW)	ACD	AC DISCONNECT FUSED (NEW)
BAT	BATTERY (N/A)	SM	SOLAREDGE METER (N/A)	JB	JUNCTION BOX (NEW)
		BLP	BACKUP LOAD PANEL (N/A)	ATS	AUTO TRANSFER SWITCH (EXISTING)

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA

APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

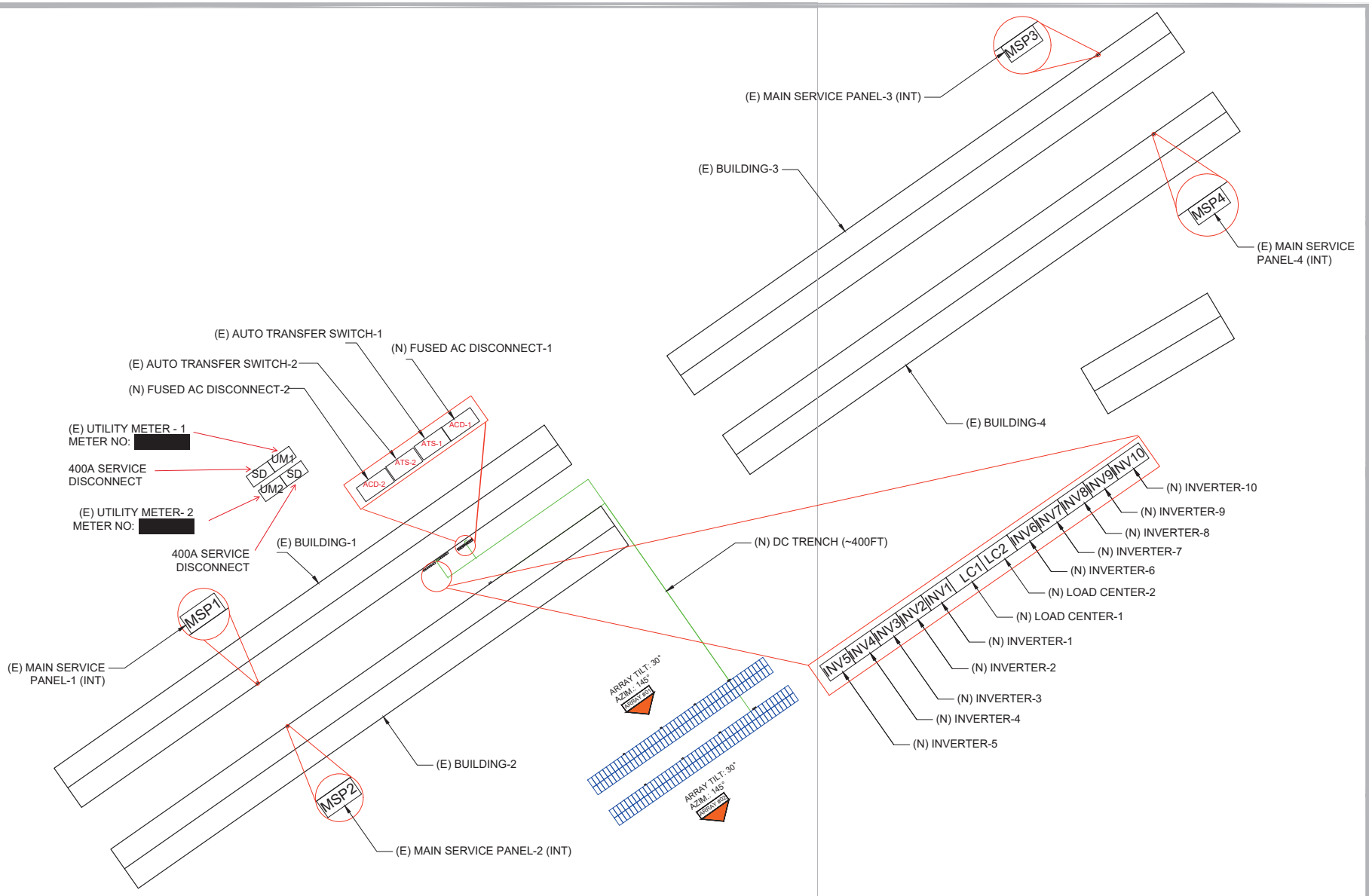
SITE PLAN WITH MODULES

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-1.0



ELECTRICAL EQUIPMENT DETAIL

SCALE: NTS

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW
STC AC : (N) (10) 7600 W = 76.00 kW

- (N) (190) NE SOLAR NESE540-72MHB-M10 MODULES
- (N) (10) TESLA SOLAR TECHNOLOGY, TESLA 7.6 kW (240V) INVERTERS
- (N) 10 STRINGS OF 10 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 BOVIET NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

FIRE SETBACK
NEW PV MODULE
OPTIMIZER
MICRO-INVERTER
ROOF ATTACHMENT
ROOF ACCESS POINT
STRING DETAIL
CONDUIT RUN
DIMENSIONS
PROPERTY LINE
RAFTER/TRUSS
RAIL
FENCE
GATE

LEGEND

MSP	MAIN SERVICE PANEL (EXISTING)	CTC	CENTER TAP CONNECTOR (N/A)	TFO	TRANSFORMER (N/A)
UM	UTILITY METER (EXISTING)	INV	INVERTER (NEW)	AC	AC DISCONNECT UNFUSED (N/A)
PM	PRODUCTION METER (N/A)	LC	LOAD CENTER (NEW)	ACD	AC DISCONNECT FUSED (NEW)
BAT	BATTERY (N/A)	SM	SOLAREDGE METER (N/A)	JB	JUNCTION BOX (NEW)
		BLP	BACKUP LOAD PANEL (N/A)	ATS	AUTO TRANSFER SWITCH (EXISTING)

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA
APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

ELECTRICAL EQUIPMENT DETAIL

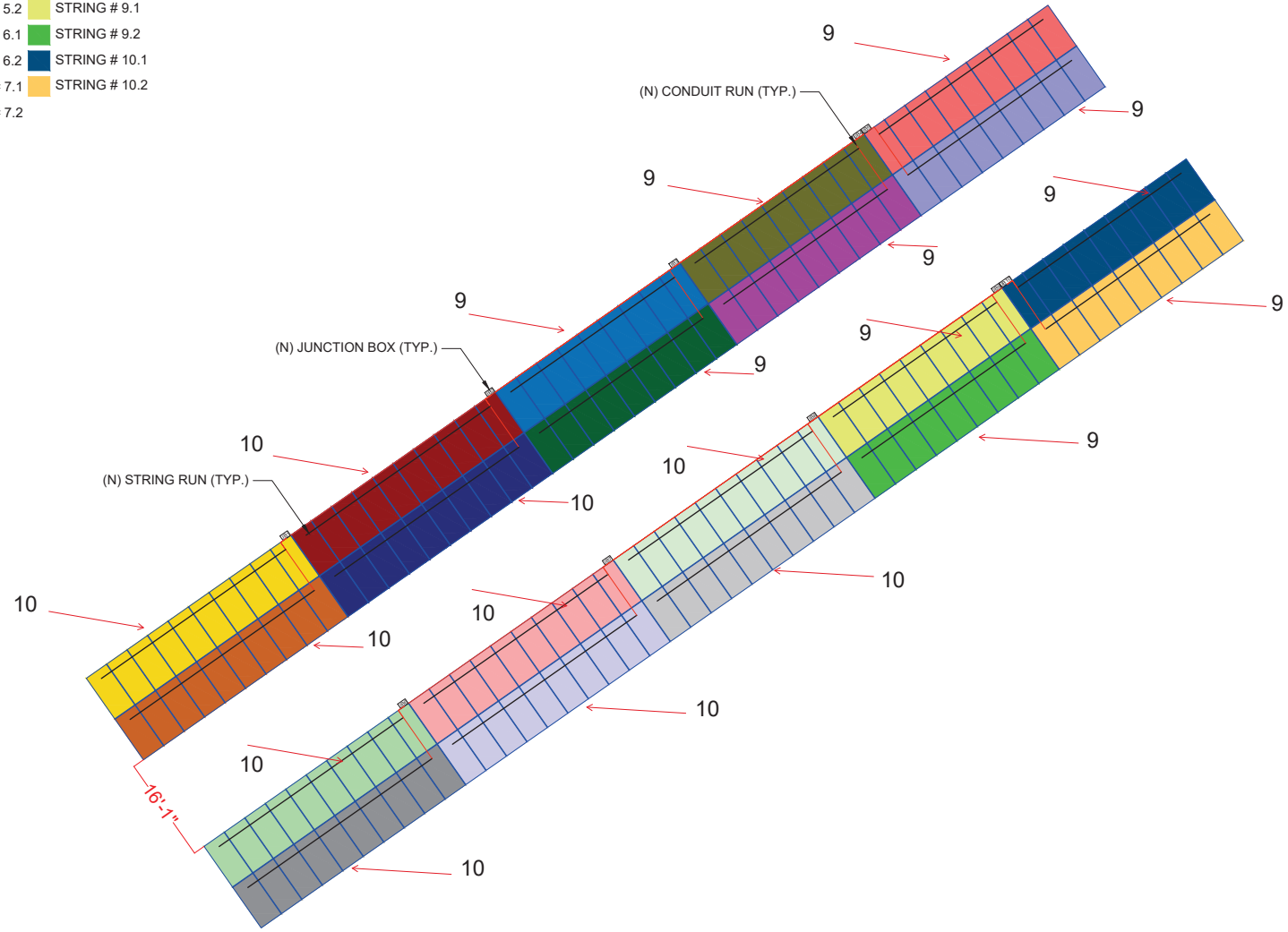
SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-1.1

STRING # 1.1
STRING # 1.2
STRING # 2.1
STRING # 2.2
STRING # 3.1
STRING # 3.2
STRING # 4.1
STRING # 4.2
STRING # 5.1
STRING # 5.2
STRING # 6.1
STRING # 6.2
STRING # 7.1
STRING # 7.2
STRING # 8.1
STRING # 8.2
STRING # 9.1
STRING # 9.2
STRING # 10.1
STRING # 10.2



STRING DETAIL

SCALE: 1/8" = 1'-0"

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW
STC AC : (N) (10) 7680 W = 76.00 kW

- (N) (190) NESE540-72MHB-M10 MODULES
- (N) (10) TESLA SOLAR TECHNOLOGY, TESLA 7.6 kW (240V) INVERTERS
- (N) 10 STRINGS OF 10 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

FIRE SETBACK
NEW PV MODULE
OPTIMIZER
MICRO-INVERTER
ROOF ATTACHMENT
ROOF ACCESS POINT
STRING DETAIL
CONDUIT RUN
DIMENSIONS
PROPERTY LINE
RAFTER/TRUSS
RAIL
FENCE
GATE

LEGEND

MSP	MAIN SERVICE PANEL (EXISTING)	CTC	CENTER TAP CONNECTOR (N/A)	TFO	TRANSFORMER (N/A)
UM	UTILITY METER (EXISTING)	INV	INVERTER (NEW)	AC	AC DISCONNECT UNFUSED (N/A)
PM	PRODUCTION METER (N/A)	LC	LOAD CENTER (NEW)	ACD	AC DISCONNECT FUSED (NEW)
BAT	BATTERY (N/A)	SM	SOLAREDGE METER (N/A)	JB	JUNCTION BOX (NEW)
		BLP	BACKUP LOAD PANEL (N/A)	ATS	AUTO TRANSFER SWITCH (EXISTING)

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA
APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

STRING DETAIL

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

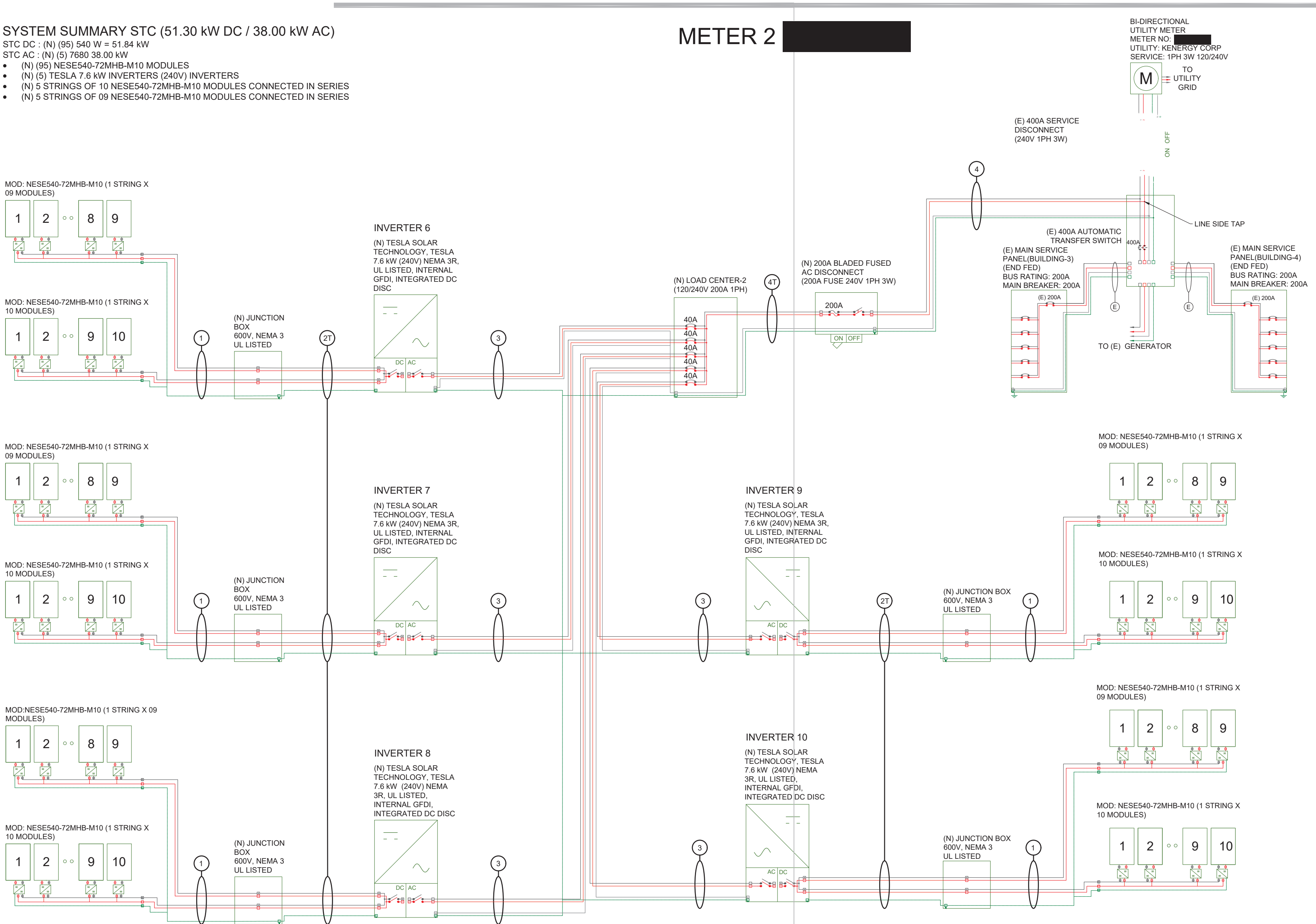
PV-2.0

SYSTEM SUMMARY STC (51.30 kW DC / 38.00 kW AC)

STC DC : (N) (95) 540 W = 51.84 kW
STC AC : (N) (5) 7680 38.00 kW

- (N) (95) NESE540-72MHB-M10 MODULES
- (N) (5) TESLA 7.6 kW INVERTERS (240V) INVERTERS
- (N) 5 STRINGS OF 10 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 5 STRINGS OF 09 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

METER 2 [redacted]



ELECTRICAL THREE LINE DIAGRAM

SCALE: NTS

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA

APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

ELECTRICAL THREE LINE DIAGRAM

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-4.1

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW
STC AC : (N) (10) 7600 W = 76..00 kW

- (N) (190) BOVIET BVM7612M-540-H-HC-BF-DG MODULES
- (N) (10) SMA SOLAR TECHNOLOGY, SB7.7-1TP-US-41 (240V) INVERTERS
- (N) 10 STRINGS OF 10 BOVIET BVM7612M-540-H-HC-BF-DG MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 BOVIET BVM7612M-540-H-HC-BF-DG MODULES CONNECTED IN SERIES

METER 1 (145771356)

WIRE DETAILS

WIRE TAG #	WIRE FROM	CONDUIT	WIRE QTY	WIRE QTY/ CONDUIT	WIRE GAUGE	WIRE TYPE	TEMP RATING	WIRE AMP	TEMP DE-RATE	CONDUIT FILL	WIRE OCP	TERMINAL 75°C RATING	OUTPUT CURRENT	NEUTRAL SIZE	GRND SIZE	GRND WIRE TYPE
1	ARRAY TO JUNCTION BOX	AIR	4	-	10 AWG	PV WIRE	90°	40 x 0.96 x - = 38.40A				35A	13.55 x 1.25 x 1.25 = 21.17A	NONE	6 AWG	BARE CU
2T	JUNCTION BOX TO INVERTER	2" SCH 40 PVC (BELOW GROUND)	20	20	10 AWG	THWN-2	75°	50 x 0.94 x 0.5 = 23.5A				35A	13.55 x 1.25 x 1.25 = 21.17A	NONE	10 AWG	THWN-2
3	INVERTER TO LC	3/4" EMT	3	3	8 AWG	THWN-2	75°	50 x 0.94 x1 = 47A				50A	32 x 1.25 = 40A	8 AWG	10 AWG	THWN-2
4T	LC TO FUSED ACD	2" SCH 40 PVC (BELOW GROUND)	3	3	4/0 AWG ALUMINUM	THWN-2	75°	230 x 0.94 x1 = 216.20A				230A	5 x 32 x 1.25 = 200A	4/0 AWG	4 AWG	THWN-2
4	FUSED ACD TO POI	2" EMT	3	3	4/0 AWG AL	THWN-2	75°	230 x 0.94 x1 = 216.20A				230A	5 x 32 x 1.25 = 200A	4/0 AWG	4 AWG	THWN-2

METER 2 (131384931)

WIRE DETAILS

WIRE TAG #	WIRE FROM	CONDUIT	WIRE QTY	WIRE QTY/ CONDUIT	WIRE GAUGE	WIRE TYPE	TEMP RATING	WIRE AMP	TEMP DE-RATE	CONDUIT FILL	WIRE OCP	TERMINAL 75°C RATING	OUTPUT CURRENT	NEUTRAL SIZE	GRND SIZE	GRND WIRE TYPE
1	ARRAY TO JUNCTION BOX	AIR	4	-	10 AWG	PV WIRE	90°	40 x 0.96 x - = 38.40A				35A	13.55 x 1.25 x 1.25 = 21.17A	NONE	6 AWG	BARE CU
2T	JUNCTION BOX TO INVERTER	2" SCH 40 PVC (BELOW GROUND)	20	20	10AWG	THWN-2	75°	50 x 0.94 x 0.5 = 23.5A				35A	13.55 x 1.25 x 1.25 = 21.17A	NONE	10 AWG	THWN-2
3	INVERTER TO LC	3/4" EMT	3	3	8 AWG	THWN-2	75°	50 x 0.94 x1 = 47A				50A	32 x 1.25 = 40A	8 AWG	10 AWG	THWN-2
4T	LC TO FUSED ACD	2" SCH 40 PVC (BELOW GROUND)	3	3	4/0 AWG ALUMINUM	THWN-2	75°	230 x 0.94 x1 = 216.20A				230A	5 x 32 x 1.25 = 200A	4/0 AWG	4 AWG	THWN-2
4	FUSED ACD TO POI	2" EMT	3	3	4/0 AWG AL	THWN-2	75°	230 x 0.94 x1 = 216.20A				230A	5 x 32 x 1.25 = 200A	4/0 AWG	4 AWG	THWN-2

ELECTRICAL NOTES

1) ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2) ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600V AND 90°C WET ENVIRONMENT.
3) WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
4) WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5) DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6) WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7) ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8) MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9) MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C.VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10) PV EQUIPMENT SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NEC 690.
11) EXACT LOCATION OF AUXILIARY GROUNDING TO BE DETERMINED AT TIME OF INSTALL.
12) EXISTING WIRES MUST BE REPLACED IF SMALLER THAN LISTED MINIMUM SIZES PER NEC 310.15(B)(16).

INTERCONNECTION 120% RULE (MAIN PANEL)

INTERCONNECTION 120% RULE NOT REQUIRED

EXTREME CASE MODULE OUTPUT (BOVIET BVM7612M-540-H-HC-BF-DG)

Isc(25°C) = 13.55A, Tisc = 0.050%/°C
Isc(T) = Isc(25°C) x [1 + Tisc x (T-25°C)]
Isc(-19°C) = 13.25A, Isc(35°C) = 13.61A

Voc(25°C) = 49.89V, Tvoc = -0.285%/°C
Voc(T) = Voc(25°C) x [1 + Tvoc x (T-25°C)]
Voc(-19°C) = 56.14V, Voc(35°C) = 48.46V

WIRING CALCULATION

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA

APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

WIRING CALCULATION

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-4.2

SOLAR MODULE SPECIFICATIONS

MANUFACTURER / MODEL	BOVIET BVM7612M-540-H-HC-BF-DG
MAX. POWER-POINT VOLTAGE (VMP)	42.40A
MAX. POWER-POINT CURRENT (IMP)	12.76A
OPEN-CIRCUIT VOLTAGE (VOC)	49.89V
SHORT-CIRCUIT CURRENT (ISC)	13.55A
MODULE DIMENSION	90.40"L x 44.65"W x 1.38"D

INVERTER SPECIFICATIONS

MANUFACTURER / MODEL	SMA SOLAR TECHNOLOGY, SB7.7-1TP-US-41
MAX. INPUT DC VOLT	600VOLTS
MAX. CONTINUOUS OUTPUT POWER	7680W
NOMINAL AC VOLTAGE	240VOLTS
MAX. AC OUTPUT CURRENT	32AMPS
MAX. OCPD RATING	40AMPS
SHORT CIRCUIT CURRENT(DC)	18AMPS

RECORD LOW TEMP	-19°
AMBIENT TEMP (HIGH TEMP 2%)	35°
CONDUCTOR TEMPERATURE RATE	90°

Ground conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(2)(a), 310.15(B)(3)(a), 310.15(B)(3)(c), 310.15(B)(16), Chapter 9 Table 4, 5, & 9. Location specific temperature obtained from ASHRAE 2020 data tables.

PERCENT OF VALUES	NUMBER OF CONDUCTORS
.80	4-6
.70	7-9
.50	10-20

DC VOLTAGE DROP PERCENTAGE FROM STRING TERMINATION TO JUNCTION BOX

10 AWG	VOLTAGE-240					
STRING TERMINATION TO JB	MODULE (Imp)	RESISTANCE IN ohm/ft	NO. OF MODULES IN A STRING	MODULE (Voc) AT MIN. TEMP.	1 WAY WIRE LENGTH(FT)	V RISE(%)
BRANCH # 1	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 2	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 3	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 4	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 5	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 6	12.76	0.00124	9	56.14	10	0.06 %
BRANCH # 7	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 8	12.76	0.00124	9	56.14	10	0.06 %
BRANCH # 9	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 10	12.76	0.00124	9	56.14	10	0.06 %
BRANCH # 11	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 12	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 13	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 14	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 15	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 16	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 17	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 18	12.76	0.00124	9	56.14	10	0.06 %
BRANCH # 19	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 20	12.76	0.00124	9	56.14	10	0.06 %
					MAX V DROP(%)	0.06 %

DC VOLTAGE DROP PERCENTAGE FROM JUNCTION BOX TO INVERTER

8 AWG						
JB TO INVERTER	MODULE (Imp)	RESISTANCE IN ohm/ft	NO. OF MODULES IN A STRING	MODULE (Voc) AT MIN. TEMP.	1 WAY WIRE LENGTH(FT)	V DROP(%)
JB1 TO INV1	12.76	0.000778	10	56.14	400	1.41 %
JB2 TO INV2	12.76	0.000778	10	56.14	381	1.35 %
JB3 TO INV3	12.76	0.000778	10	56.14	357	1.26 %
JB4 TO INV4	12.76	0.000778	10	56.14	323	1.14 %
JB5 TO INV5	12.76	0.000778	10	56.14	323	1.14 %
JB6 TO INV6	12.76	0.000778	10	56.14	400	1.41 %
JB7 TO INV7	12.76	0.000778	10	56.14	381	1.35 %
JB8 TO INV8	12.76	0.000778	10	56.14	357	1.26 %
JB9 TO INV9	12.76	0.000778	10	56.14	323	1.14 %
JB10 TO INV10	12.76	0.000778	10	56.14	323	1.14 %
					MAX V DROP(%)	1.41 %

AC VOLTAGE DROP PERCENTAGE FROM INVERTER TO LOAD CENTER

8 AWG	VOLTAGE-240			
INVERTER TO LOAD CENTER	INVERTER OUTPUT CURRENT	RESISTANCE IN OHM/FT	1 WAY WIRE LENGTH(FT)	V DROP(%)
INV1 TO LC1	32	0.000778	2	0.04 %
INV2 TO LC1	32	0.000778	4	0.08 %
INV3 TO LC1	32	0.000778	6	0.12 %
INV4 TO LC1	32	0.000778	8	0.17 %
INV5 TO LC1	32	0.000778	10	0.21 %
INV6 TO LC2	32	0.000778	2	0.04 %
INV7 TO LC2	32	0.000778	4	0.08 %
INV8 TO LC2	32	0.000778	6	0.12 %
INV9 TO LC2	32	0.000778	8	0.17 %
INV10 TO LC2	32	0.000778	10	0.21 %
			MAX V DROP(%)	0.21 %

TOTAL DC VOLTAGE RISE PERCENTAGE

VOLTAGE DROP PERCENTAGE FROM STRING TERMINATION TO JUNCTION BOX	0.06 %
VOLTAGE DROP PERCENTAGE FROM JUNCTION BOX TO INVERTER	1.41 %
TOTAL DC SYSTEM VOLTAGE DROP	1.47 %

TOTAL AC VOLTAGE RISE PERCENTAGE

AC VOLTAGE DROP PERCENTAGE FROM INVERTER TO LOAD CENTER	0.21 %
AC VOLTAGE DROP PERCENTAGE FROM LOAD CENTER TO FUSED ACD	0.41 %
AC VOLTAGE DROP PERCENTAGE FROM FUSED ACD TO POI	0.04 %
TOTAL AC SYSTEM VOLTAGE DROP	0.66 %

AC VOLTAGE DROP PERCENTAGE FROM FUSED ACD TO POI

4/0 AWG	VOLTAGE-240			
FUSED AC DISCONNECT TO POI	INVERTER OUTPUT CURRENT	RESISTANCE IN OHM/FT	1 WAY WIRE LENGTH(FT)	V DROP(%)
ACD1 TO POI	160	0.0000608	5	0.04 %
ACD2 TO POI	160	0.0000608	5	0.04 %
			MAX V DROP(%)	0.04 %

AC VOLTAGE DROP PERCENTAGE FROM LOAD CENTER TO FUSED ACD

4/0 AWG	VOLTAGE-240			
LOAD CENTER TO FUSED ACD	INVERTER OUTPUT CURRENT	RESISTANCE IN OHM/FT	1 WAY WIRE LENGTH(FT)	V DROP(%)
LC1 TO ACD1	160	0.0000608	50	0.41 %
LC2 TO ACD2	160	0.0000608	50	0.41 %
			MAX V DROP(%)	0.41 %

VOLTAGE DROP CALCULATION

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA
APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

VOLTAGE DROP CALCULATION

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

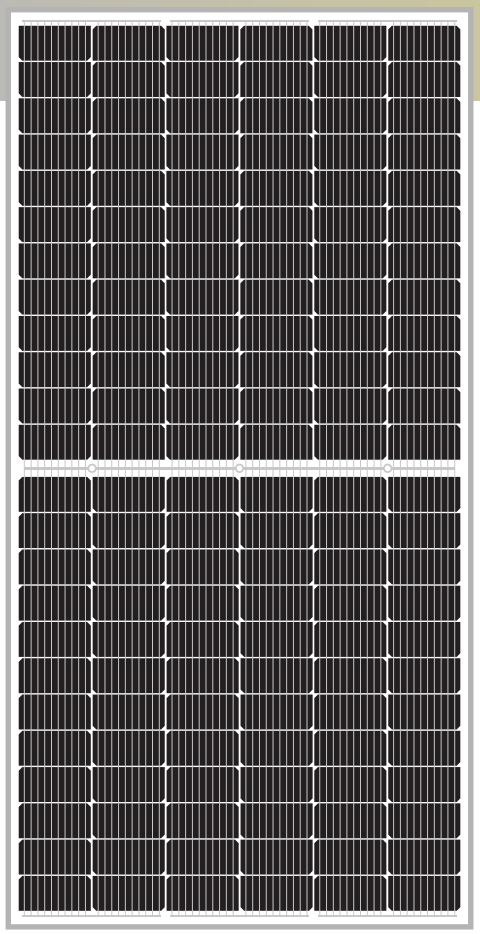
PV-5.0

FROM STRENGTH TO STRENGTH IN NATURE

NESE 545-72MHB-M10

MONO PERC HALF-CELL BIFACIAL SOLAR MOUDLE

FROM CAMBODIA



KEY FEATURES

High efficiency PERC

A high efficiency 182 (M10) PERC solar cell with 10 busbars technology to ensure the efficiency of the solar module up to 21.10% and stable operation.

Bifacial power generation

Increases 10-30% power generation revenue.

Excellent performance with weak light

More power output with a weak light condition-through advanced glass and solar cells.

Wind/Snow load

Wind load 2400 pa, snow load 5400 pa.

Pid Free

Excellent Anti-PID performance, minimized the degradation of power.

Resistance of extreme environment conditions

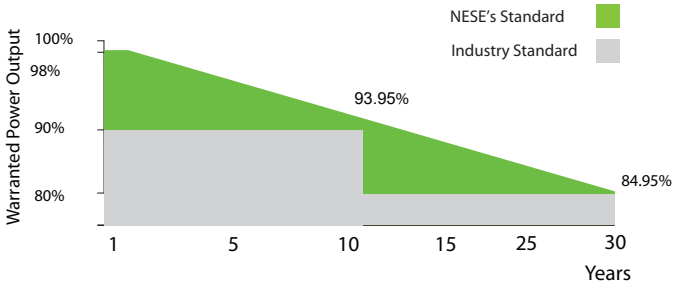
High Salt Mist and Ammonia resistance certified by TUV.

INSURED BY

CHUBB® Munich RE

LINEAR PERFORMANCE WARRANTY

12 years product warranty. 30 years linear power warranty.



MANAGEMENT SYSTEM CERTIFICATES

ISO 9001:2015/QUALITY MANAGEMENT SYSTEM
ISO 14001:2015/STANDARDS FOR ENVIRONMENTAL MANAGEMENT SYSTEM

PRODUCT CERTIFICATES

IEC 61215/IEC 61730:VDE/CE/CEC AU
UL 61730: CSA

PHUM TANOUN, SANGKAT KOMBOUL, KHAN POSENCHEY, PHNOM PENH, KINGDOM OF CAMBODIA
WWW.NESOLAR.COM.KH

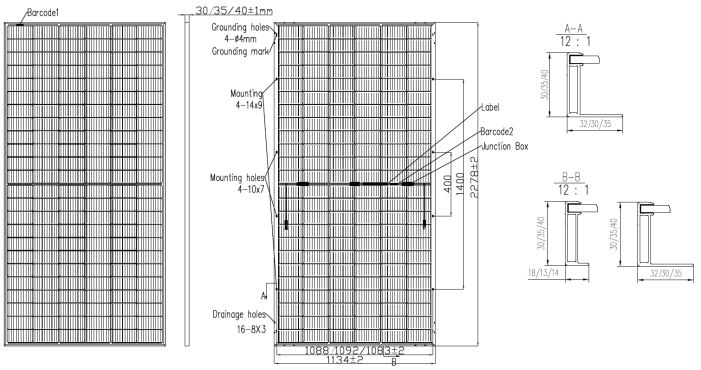
SPECIFICATIONS

Module type	NESE 525-72MHB-M10		NESE530-72MHB-M10		NESE535-72MHB-M10		NESE540-72MHB-M10		NESE545-72MHB-M10	
	STC	(NOCT)	STC	(NOCT)	STC	(NOCT)	STC	(NOCT)	STC	(NOCT)
Maximum power(Pmax)	525Wp	393Wp	530Wp	397Wp	535Wp	400Wp	540Wp	404Wp	545Wp	408Wp
Maximum power voltage(Vmp)	40.9V	37.8V	41.1V	38.0V	41.3V	38.1V	41.5V	38.3V	41.7V	38.5V
Maximum power current (Imp)	12.85A	10.40A	12.91A	10.45A	12.96A	10.50A	13.02A	10.55A	13.08A	10.60A
Open-circuit voltage(Voc)	49.2V	45.9V	49.4V	46.1V	49.6V	46.3V	49.8V	46.5V	51.0V	46.7V
Short-circuit current(Isc)	13.59A	10.98A	13.65A	11.02A	13.71A	11.07A	13.77A	11.12A	13.83A	11.17A
Module efficiency STC (%)	20.32%		20.52%		20.71%		20.90%		21.10%	
Operating temperature(℃)	-40℃ ~ 85℃									

ELECTRICAL CHARACTERISTICS WITH 25% REAR SIDE POWER GAIN

Front power Pmax/W	525	530	535	540	545
Total power Pmax/W	656	663	669	675	681
Vmp/V(Total)	41.0	41.2	41.4	41.6	41.8
Imp/A(Total)	16.01	16.08	16.15	16.23	16.30
Voc/V(Total)	49.3	49.5	49.7	49.9	50.1
Isc/A(Total)	16.75	16.82	16.90	16.97	17.05

ENGINEERING DRAWING



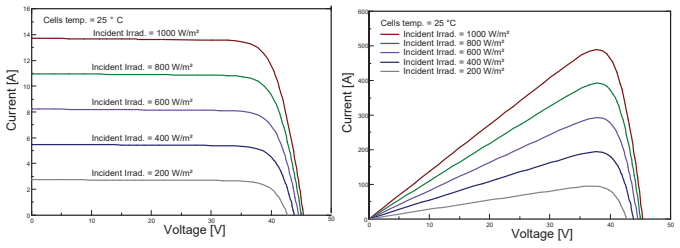
TEMPERATURE RATINGS

NOCT	44 ± 2℃
Temperature coefficients of Pmax	-0.35%/℃
Temperature coefficients of Voc	-0.29%/℃
Temperature coefficients of Isc	+0.05%/℃
Refer. Bifacial Factor	70 ±5%

MATERIAL CHARACTERISTICS

Number of cell	144 (6 * 24)
Dimensions	2278*1134*30/35/40
Weight	33.5/34/34.5kg
Front glass	2.0mm+2.0mm heat strengthened glass
Frame	Anodized aluminium alloy
Junction box	Ip68 , 3 diodes
Cables	12 AWG, length: 350 mm or Customized
Connectors	MC4-Compatible

IV CURVES OF THE PV MODULES



Electrical performance vs Incident Irradiance
Current-voltage & power-voltage curves (545W)

WORKING CONDITIONS

Maximum system voltage	1000/1500 VDC
Maximum series fuse rating	30A

PACKAGING CONFIGURATION

40HQ	720/620/540PCS

PHUM TANOUN, SANGKAT KOMBOUL, KHAN POSENCHEY, PHNOM PENH, KINGDOM OF CAMBODIA
WWW.NESOLAR.COM.KH

SOLAR INVERTER

3.8 kW | 7.6 kW

Tesla Solar Inverter completes the Tesla home solar system, converting DC power from solar to AC power for home consumption. Tesla's renowned expertise in power electronics has been combined with robust safety features and a simple installation process to produce an outstanding solar inverter that is compatible with both Solar Roof and traditional solar panels. Once installed, homeowners use the Tesla mobile app to manage their solar system and monitor energy consumption, resulting in a truly unique ecosystem experience.

KEY FEATURES

- Built on Powerwall 2 technology for exceptional efficiency and reliability
- Wi-Fi, Ethernet, and cellular connectivity with easy over-the-air updates
- Designed to integrate with Tesla Powerwall and Tesla App
- 3.8 kW and 7.6 kW models available

SOLAR INVERTER

Tesla Solar Inverter provides DC to AC conversion and integrates with the Tesla ecosystem, including Solar Panels, Solar Roof, Powerwall, and vehicle charging, to provide a seamless sustainable energy experience.

KEY FEATURES

- Integrated rapid shutdown, arc fault, and ground fault protection
- No neutral wire simplifies installation
- 2x the standard number of MPPTs for high production on complex roofs

ELECTRICAL SPECIFICATIONS

OUTPUT (AC)	3.8 kW	7.6 kW
Nominal Power	3,800 W	7600 W
Maximum Apparent Power	3,328 VA at 208 V 3,840 VA at 240 V	6,656 VA at 208 V 7,680 VA at 240 V
Maximum Continuous Current	16 A	32 A
Breaker (Overcurrent Protection)	20 A	40 A
Nominal Power Factor	1 - 0.85 (leading / lagging)	
THD (at Nominal Power)	<5%	
INPUT (DC)		
MPPT	2	4
Input Connectors per MPPT	1+2	1+2+1+2
Maximum Input Voltage	600 VDC	
DC Input Voltage Range	60 - 550 VDC	
DC MPPT Voltage Range[1]	60 - 480 VDC	
Maximum Current Per MPPT (I_{mp})	11 A	
Maximum Short Circuit Current per MPPT (I_{sc})	15 A	

PERFORMANCE SPECIFICATIONS

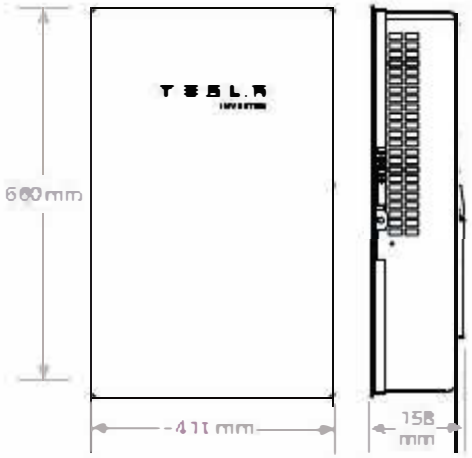
Peak Efficiency[2]	97.5%	98.0%
CEC Efficiency[2]	97.5%	
Allowable DC/AC Ratio	1.4	
Customer Interface	Tesla Mobile App	
Internet Connectivity	Wi-Fi (2.4 GHz, 802.11 b/g/n), Ethernet, Cellular (LTE/4G)[3]	
AC Remote Metering Support	Wi-Fi (2.4 GHz, 802.11 b/g/n), RS-485	
Protections	Integrated arc fault circuit interrupter (AFCI), Rapid shutdown	
Supported Grid Types	60 Hz, 240 V Split Phase 60 Hz, 208 V Wye	
Required Number of Tesla Solar Shutdown Devices per Solar Module	see *Solar Shutdown Device Requirements per Module* on page 3	
Warranty	12.5 years	

[1] Maximum current.
[2] Expected efficiency pending final CEC listing.
[3] Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 158 mm (26 in x 16 in x 6 in)
Weight	52 lb[4]
Mounting options	Wall mount (bracket)

[4] Door and bracket can be removed for a mounting weight of 37 lb.



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature[5]	-30°C to 45°C (-22°F to 113°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Rating	Type 3R
Ingress Rating	IP55 (Wiring compartment)
Pollution Rating	PD2 for power electronics and terminal wiring compartment, PD3 for all other components
Operating Noise @ 1 m	< 40 dB(A) nominal, < 50 dB(A) maximum

[5] For the 7.6 kW Solar Inverter, performance may be derated to 6.2 kW at 240 V or 5.37 kW at 208 V when operating at temperatures greater than 45°C.

COMPLIANCE INFORMATION

Grid Certifications	UL 1741, UL 1741 SA, IEEE 1547, IEEE 1547.1
Safety Certifications	UL 1699B, UL 1741, UL 1998 (US)
Emissions	EN 61000-6-3 (Residential), FCC 47CFR15.109 (a)

SOLAR INVERTER

Tesla Solar Inverter provides DC to AC conversion and integrates with the Tesla ecosystem, including Solar Panels, Solar Roof, Powerwall, and vehicle charging, to provide a seamless sustainable energy experience.

KEY FEATURES

- Integrated rapid shutdown, arc fault, and ground fault protection
- No neutral wire simplifies installation
- 2x the standard number of MPPTs for high production on complex roofs

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Maximum Apparent Power	3,328 VA at 208 V 3,840 VA at 240 V	6,656 VA at 208 V 7,680 VA at 240 V
Maximum Continuous Current	16 A	32 A
Breaker (Overcurrent Protection)	20 A	40 A
Nominal Power Factor	1 - 0.85 (leading / lagging)	
THD (at Nominal Power)	<5%	
INPUT (DC)		
MPPT	2	4
Input Connectors per MPPT	1+2	1-2-1-2
Maximum Input Voltage	600 VDC	
DC Input Voltage Range	60 - 550 VDC	
DC MPPT Voltage Range[1]	60 - 480 VDC	
Maximum Current Per MPPT (I_{mp})	11 A	
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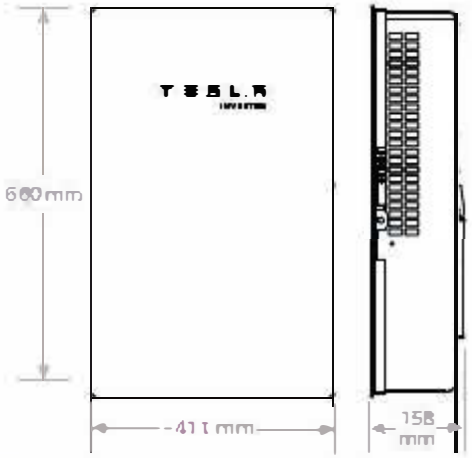

PERFORMANCE SPECIFICATIONS

Peak Efficiency[1]	97.5%	98.0%
CEC Efficiency[2]	97.5%	
Allowable DC/AC Ratio	1.4	
Customer Interface	Tesla Mobile App	
Internet Connectivity	Wi-Fi (2.4 GHz, 802.11 b/g/n), Ethernet, Cellular (LTE/4G)[3]	
AC Remote Metering Support	Wi-Fi (2.4 GHz, 802.11 b/g/n), RS-485	
Protections	Integrated arc fault circuit interrupter (AFCI), Rapid Shutdown	
Supported Grid Types	60 Hz, 240 V Split Phase 60 Hz, 208 V Wye	
Required Number of Tesla Solar Shutdown Devices per Solar Module	see *Solar Shutdown Device Requirements per Module* on page 3	
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Operating Humidity (RH)	Up to 100%, condensing
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Rating	Type 3R
Ingress Rating	IP55 (Wiring compartment)
Pollution Rating	PD2 for power electronics and terminal wiring compartment, PD3 for all other components
Operating Noise @ 1 m	< 40 dB(A) nominal, < 50 dB(A) maximum

[4] For the 7.6 kW Solar Inverter, performance may be de-rated to 6.2 kW at 240 V or 5.37 kW at 208 V when operating at temperatures greater than 45°C.

COMPLIANCE INFORMATION

Grid Certifications	UL 1741, UL 1741 SA, IEEE 1547, IEEE 1547.1
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Emissions	EN 61000-6-3 (Residential), FCC 47CFR15.109 (a)

Attachment 5 E (Redacted)

APPLICATION AND APPROVAL PROCESS

Applications will be submitted by the Member and reviewed and processed by Kenergy according to either Level 1 or Level 2 processes defined below.
Kenergy may reject an Application for violations of any applicable code, standard, or regulation related to reliability or safety; however, Kenergy will work with the Member to resolve those issues to the extent practicable. Members may contact Kenergy regarding status of an Application or with questions prior to submitting an Application.

An eligible Member-generator shall mean a retail electric Member of Kenergy with a generating facility that:

(1) Has a rated capacity of not greater than (100) kilowatts;
(2) Is located on the Member's premises;
(3) Is owned and operated by the Member;
(4) Is connected in parallel with Kenergy's electric distribution system; and
(5) Has the primary purpose of supplying all or part of the Member's own electricity requirements.

Should Kenergy determine, in its sole discretion, that the proposed generating facility does not meet all the above criteria, the Kenergy reserves the right to reject the Application and deny service.

LEVEL 1

A Level 1 Application shall be used if the generating facility is inverter-based and is certified by a nationally recognized testing laboratory to meet the requirements of Underwriters Laboratories Standard 1741 "Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources" (UL 1741). Kenergy will approve the Level 1 Application if the generating facility also meets all of the following conditions:

(1) For interconnection to a radial distribution circuit, the aggregated generation on the circuit, including the proposed generating facility, will not exceed 15% of the Line Section's most recent annual one-hour peak load. A line section is the smallest part of the primary distribution system the generating facility could remain connected to after operation of any sectionalizing devices.

(2) If the proposed generating facility is to be interconnected on a single-phase shared secondary, the aggregate generation capacity on the shared secondary, including the proposed generating facility, will not exceed the smaller of 20 kVA or the nameplate rating of the transformer.

(3) If the proposed generating facility is single-phase and is to be interconnected on a center tap neutral of a 240-volt service, its addition shall not create an imbalance between the two sides of the 240-volt service of more than 20% of the manufacturer's rating of the service transformer.

(4) If the generating facility is to be connected to three-phase, three wire primary utility distribution lines, the generator shall appear as a phase-to-phase connection at the primary utility distribution line.

(5) If the generating facility is to be connected to three-phase, four wire primary utility distribution lines, the generator shall appear to the primary utility distribution line as an effectively grounded source.

(6) The interconnection will not be on an "area" or "spot network". "Area" and "spot networks" are systems in which multiple transformers are interconnected on the secondary side and multiple primary voltage circuits are used to feed the transformers. A "spot network" is typically used to serve a single building and all the transformers are in one location. An "area network" typically serves multiple members with secondary conductors covering multiple city blocks and with transformers at various locations.

(7) Kenergy does not identify any violations of any applicable provisions of Institute of Electrical and Electronics Engineers Standard 1547(IEEE 1547), "Standard for Interconnecting Distributed Resources with Electric Power Systems."

(8) No construction of facilities by Kenergy on its own system will be required to accommodate the generating facility.

If the generating facility does not meet all of the above listed criteria, Kenergy, in its sole discretion, may either: 1) approve the generating facility under the Level 1 Application if Kenergy determines that the generating facility can be safely and reliably connected to Kenergy's system; or 2) deny the Application as submitted under the Level 1 Application.

Kenergy shall notify the Member whether the Application is approved or denied, based on the criteria provided in this section.

If the Application lacks complete information, Kenergy shall notify the Member that additional information is required, including a list of such additional information. The time between notification and receipt of required additional information will add to the time to process the Application.

The approval will be subject to successful completion of an initial installation inspection and witness test. The Member shall notify Kenergy within 3 business days of completion of the

generating facility installation and schedule an inspection and witness test with Kenergy to occur within 10 business days of completion of the generator facility installation or as otherwise agreed to by Kenergy and the Member. The Member may not operate the generating facility until successful completion of such inspection and witness test, unless Kenergy expressly permits operational testing not to exceed two hours. If the installation fails the inspection or witness test due to noncompliance with any provision in the Application and Kenergy approval, the Member shall not operate the generating facility until any and all noncompliance is corrected and re-inspected by Kenergy.

If the Application is denied, Kenergy will supply the Member with reasons for denial. The Member may resubmit under Level 2 if appropriate

LEVEL 2

A Level 2 Application is required under any of the following:

(1) The generating facility is not inverter based;
(2) The generating facility uses equipment that is not certified by a nationally recognized testing laboratory to meet the requirements of UL, 1741; or
(3) The generating facility does not meet one or more of the additional conditions under Level 1.

Kenergy will approve the Level 2 Application if the generating facility meets Kenergy's technical interconnection requirements, which are based on IEEE 1547.

Kenergy will process the Level 2 Application within 30 business days of receipt of a complete Application. Within that time Kenergy will respond in one of the following ways:

(1) The Application is approved and Kenergy will provide the Member with an interconnection Agreement to sign.
(2) If construction or other changes to Kenergy's distribution system are required, the cost will be the responsibility of the Member. Kenergy will give notice to the Member and offer to meet to discuss estimated costs and construction timeframe. Should the Member agree to pay for costs and proceed, Kenergy will provide the Member with an interconnection Agreement to sign within a reasonable time.
(3) The Application is denied. Kenergy will supply the Member with reasons for denial and offer to meet to discuss possible changes that would result in Kenergy approval. Member may resubmit Application with changes.

If the Application lacks complete information, Kenergy shall notify the Member that additional information is required, including a list of such additional information.
The Member may not operate the generating facility until an Interconnection Agreement is signed by the Member and all necessary conditions stipulated in the agreement are met.

TERMS AND CONDITIONS FOR INTERCONNECTION

To interconnect to Kenergy's distribution system, the Member's generating facility shall comply with the following terms and conditions:

(1) Kenergy shall provide the Member metering services, without charge for standard metering equipment, through a standard kilowatt-hour metering system capable of measuring the flow of electricity in two (2) directions. If the Member requests any additional meter or meters or distribution upgrades are needed to monitor the flow in each direction, such installations shall be at the Member's expense.

(2) The Member shall install, operate, and maintain, at Member's sole cost and expense, any control, protective, or other equipment on the Member's system required by Kenergy's technical interconnection requirements based on IEEE 1547, the National Electric Code "NEC", accredited testing laboratories such as Underwriters Laboratories, and the manufacturer's suggested practices for safe, efficient and reliable operation of the generating facility is parallel with Kenergy's electric system. Member shall bear full responsibility for the installation, maintenance and safe operation of the generating facility. Upon reasonable request from Kenergy, the Member shall demonstrate generating facility compliance.

(3) The generating facility shall comply with, and the Member shall represent and warrant its compliance with: (a) any applicable safety and power quality standards established by IEEE and accredited testing laboratories such as Underwriters Laboratories; (b) the NEC as may be revised from time to time; (c) Kenergy's rules, regulations, and Kenergy's Service Regulations as contained in Kenergy's Retail Electric Tariff as may be revised from time to time with the approval of the Kentucky Public Service Commission (Commission); (d) the rules and regulations of the Commission, as such rules and regulations may be revised from time to time by the Commission; and (e) all other applicable local, state, and federal codes and laws, as the same may be in effect from time to time. Where required by law, Member shall pass an electrical inspection of the generating facility by a local authority having jurisdiction over the installation.

(4) Any changes or additions to Kenergy's system required to accommodate the generating facility shall be considered excess facilities. Member shall agree to pay Kenergy for actual costs incurred for all such excess facilities prior to construction.

(5) Member shall operate the generating facility in such a manner as not to cause undue fluctuations in voltage, intermittent load characteristics or otherwise interfere with the operation of Kenergy's electric system. At all times when the generating facility is being operated in parallel with Kenergy's electric system, Member shall so operate the generating facility in such a manner that no adverse impacts will be produced thereby to the service quality rendered by Kenergy to any of its other Members or to any electric system

interconnected with Kenergy's electric system. Member shall agree that the interconnection and operation of the generating facility is secondary to, and shall not interfere with, Kenergy's ability to meet its primary responsibility of furnishing reasonably adequate service to its Members.

(6) Member shall be responsible for protecting, at Member's sole cost and expense, the generating facility from any condition or disturbance on Kenergy's electric system, including, but not limited to, voltage sags or swells, system faults, outages, loss of a single phase of supply, equipment failures, and lightning or switching surges, except that Kenergy shall be responsible for repair of damage caused to the generating facility resulting solely from the negligence or willful misconduct on the part of Kenergy.

(7) After initial installation, Kenergy shall have the right to inspect and/or witness commissioning tests, as specified in the Level 1 or Level 2 Application and approval process. Following the initial testing and inspection of the generating facility and upon reasonable advance notice to Member, Kenergy shall have access at reasonable times to the generating facility to perform reasonable onsite inspections to verify that the installation, maintenance, and operation of the generating facility comply with the requirements of this tariff.

(8) For Level 1 and 2 generating facilities, where required by Kenergy, an eligible Member shall furnish and install on Member's side of the point of common coupling a safety disconnect switch which shall be capable of fully disconnecting the Member's energy generating equipment from Kenergy's electric service under the full rated conditions of the Member's generating facility. The external disconnect switch (EDS) shall be located adjacent to Kenergy's meters or the location of the EDS shall be noted by placing a sticker on the meter, and shall be of the visible break type in a metal enclosure which can be secured by a padlock. If the EDS is not located directly adjacent to the meter, the Member shall be responsible for ensuring that the location of the EDS is properly and legibly identified for so long as the generating facility is operational. The disconnect switch shall be accessible to Kenergy personnel at all times. Kenergy may waive the requirement for an EDS for a generating facility at its sole discretion, and on a case-by-case basis, upon review of the generating facility operating parameters and if permitted under Kenergy's safety and operating protocols. Kenergy shall establish a training protocol for line workers on the location and use of the EDS, and shall require that the EDS be used when appropriate, and that the switch be turned back on once the disconnection is no longer necessary.

(9) Kenergy shall have the right and authority at Kenergy's sole discretion to isolate the generating facility or require the Member to discontinue operation of the generating facility if Kenergy believes that: (a) continued interconnection and parallel operation of the generating facility with Kenergy's electric system creates or contributes(or may create or contribute) to a system emergency on either Kenergy's or Member's electric system; (b) the generating facility is not in compliance with the requirements of this agreement, and the noncompliance adversely affects the safety, reliability, or power quality of Kenergy's electric system; or (c) the generating facility interferes with the operation of Kenergy's electric system. In non-

emergency situations, Kenergy shall give Member notice of noncompliance including a description of the specific noncompliance condition and allow Member a reasonable time to cure the noncompliance prior to isolating the generating facilities. In emergency situations, when Kenergy is unable to immediately isolate or cause the Member to isolate only the generating facility, Kenergy may isolate the Member's entire facility.

(10) Member shall agree that, without the prior written permission from Kenergy, no changes shall be made to the generating facility as initially approved. Increases in generating facility capacity will require a new "Application for Interconnection " which will be evaluated on the same basis as any other new application. Repair and replacement of existing generating facility components with like components that meet UL 1741 certification requirements for Level 1 facilities and not resulting in increases in generating facility capacity is allowed without approval.

(11) To the extent permitted by law, the Member shall protect, indemnify, and hold harmless Kenergy and its directors, officers, employees, agents, representatives and contractors against and from all loss, claims, actions or suits, including costs and attorney's fees, for or on account of any injury or death of persons or damage to property caused by the Member or the Member's employees, agents, representatives and contractors in tampering with, repairing, maintaining, or operating the Member's generating facility or any related equipment or any facilities owned by Kenergy except where such injury, death or damage was caused or contributed to by the fault or negligence of Kenergy or its employees, agents, representatives, or contractors. The liability of Kenergy to the Member for injury to person and property shall be governed by the tariff(s) for the class of service under which the Member is taking service.

(12) The Member shall maintain general liability insurance coverage (through a standard homeowner's, commercial, or other policy) for both Level 1 and Level 2 generating facilities. Member shall, upon request, provide Kenergy with proof of such insurance at the time that application is made.

(13) By entering into an Interconnection Agreement, or by inspection, if any, or by non-rejection, or by approval, or in any other way, Kenergy does not give any warranty, express or implied, as to the adequacy, safety, compliance with applicable codes or requirements, or as to any other characteristics, of the generating facility equipment, controls, and protective relays and equipment.

(14) A Member's generating facility is transferable to other persons or service locations only after notification to Kenergy has been made and verification that the installation is in compliance with this tariff. Upon written notification that an approved generating facility is being transferred to another person, Member, or location, Kenergy will verify that the installation is in compliance with this tariff and provide written notification to the Member(s) within 20 business days. If the installation is no longer in compliance with this tariff, Kenergy will notify the Member in writing and list what must be done to place the facility in compliance.

(15) The Member shall retain any and all Renewable Energy Credits (RECs) that may be generated by their generating facility.

Application for Interconnection

Use this application form only for a generating facility that is inverter based and certified by a nationally recognized testing Laboratory to meet the requirements of UL 1741.

Submit this Application to:

Kenergy Corp,
P. 0. Box 18,
Henderson, KY 42419-0018

If you have questions regarding this Application or its status, contact Kenergy at: (800)844-4832

Member Name: ROGER D SHOCKLEE Account Number: [redacted]

Member Address: 666 BARRETT HILL RD. LIVERMORE, KY 42352

Member Phone No.: _____ Project Contact Person: Solar Energy Solutions

Phone No.: E-mail Address (Optional): [redacted]

Provide names and contact information for other contractors, installers, or engineering firms involved in the design and installation of the generating Facilities: _____

SOLAR ENERGY SOLUTIONS

Member E-Mail Address: [redacted]

Energy Source: Solar Wind Hydro Biogas Biomass SOLAR

Inverter Manufacturer and Model #: Tesla, Tesla 7.6 kW Inverter, QTY:5

Inverter Power Rating: 7.6 kW, 38.00 kW AC TOTAL KW

Power Rating of Energy Source (ie., solar panels, wind turbine): 51.30, (95) 540W Modules KW

Attach documentation showing that inverter is certified by a nationally recognized testing laboratory to meet the requirements of UL 1741.

Attach site drawing or sketch showing location of Kenergy's meter, energy source, Kenergy accessible disconnect switch, and inverter.

Attach single line drawing showing all electrical equipment from Kenergy's metering location to the energy source including switches, fuses, breakers, panels, transformers, inverters, energy source, wire size, equipment ratings, and transformer connections.

Expected Start-up Date: 12/4/23

PHOTOVOLTAIC GROUND MOUNT SYSTEM

190 MODULES-SYSTEM SIZE STC (102.60 kW DC / 76.00 kW AC)

650 BARRETT HILL RD, LIVERMORE, KY, 42352 USA (37.53897, -87.09644)

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW

STC AC : (N) (10) 7600 W = 76.00 kW

- (N) (190) NE SOLAR, NESE540-72MHB-M10 MODULES
- (N) (10) TESLA SOLAR INVERTERS, TESLA 7.6 kW (240V) INVERTERS
- (N) 10 STRINGS OF 10 NE SOLAR NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 NE SOLAR NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

GOVERNING CODES

- [2017 NEC] 2017 NFPA 70 - NATIONAL ELECTRICAL CODE
- [2015 IMC] 2015 INTERNATIONAL MECHANICAL CODE
- [2015 IBC] 2015 INTERNATIONAL BUILDING CODE
- [2015 IPC] 2015 INTERNATIONAL PLUMBING CODE
- [2015 IECC] 2015 INTERNATIONAL ENERGY CONSERVATION CODE

GENERAL NOTES

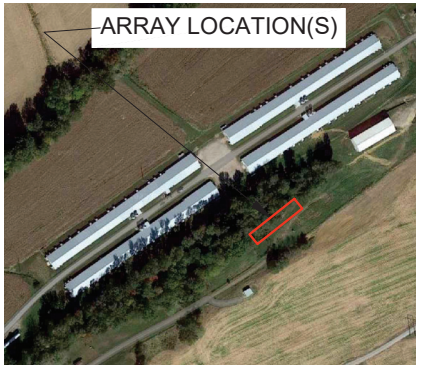
1) ALL PANELS, SWITCHES, ETC. SHALL HAVE SUFFICIENT GUTTER SPACE AND LUGS IN COMPLIANCE WITH UL REQUIREMENTS TO ACCOMMODATE CONDUCTORS SHOWN.
2) THIS SYSTEM WILL NOT BE INTERCONNECTED UNTIL APPROVAL FROM THE LOCAL JURISDICTION AND UTILITY IS OBTAINED.
3) ALL EXTERIOR ELECTRICAL DEVICES AND EQUIPMENT INCLUDING THOSE THAT ARE EXPOSED TO OUTSIDE ENVIRONMENT SHALL BE WEATHERPROOF AND SHALL BE LISTED BY 'UL' FOR THE TYPE OF APPLICATION AND 'UL' LABEL SHALL APPEAR ON ALL ELECTRICAL EQUIPMENT.
4) WIRING METHOD SHALL BE EMT ABOVE GROUND MOUNTED IN CONCEALED SPACES (UNLESS APPROVED OTHERWISE) AND SCHEDULE-40 PVC FOR BELOW GROUND INSTALLATIONS UNLESS NOTED OTHERWISE.
5) IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE CONDUCTOR IF NECESSARY.

SHEET INDEX

PV-0.0	COVER SHEET
PV-1.0	SITE PLAN WITH MODULES
PV-1.1	ELECTRICAL EQUIPMENT DETAIL
PV-2.0	STRING DETAIL
PV-3.0	RACKING PLAN VIEW
PV-3.1	RACKING SIDE ELEVATION
PV-4.0	ELECTRICAL THREE LINE DIAGRAM
PV-4.1	ELECTRICAL THREE LINE DIAGRAM
PV-4.2	WIRING CALCULATION
PV-5.0	VOLTAGE DROP CALCULATION
PV-6.0	PLACARDS
PV-7+	EQUIPMENT SPECIFICATION

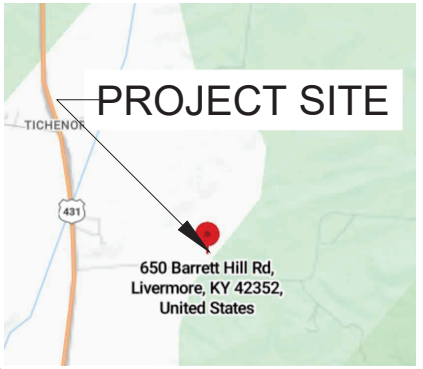
AHJ: MCLEAN (COUNTY OF), KENTUCKY

UTILITY: KENERGY CORP



BUILDING PHOTO

SCALE: NTS



VICINITY MAP

SCALE: NTS

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA

APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

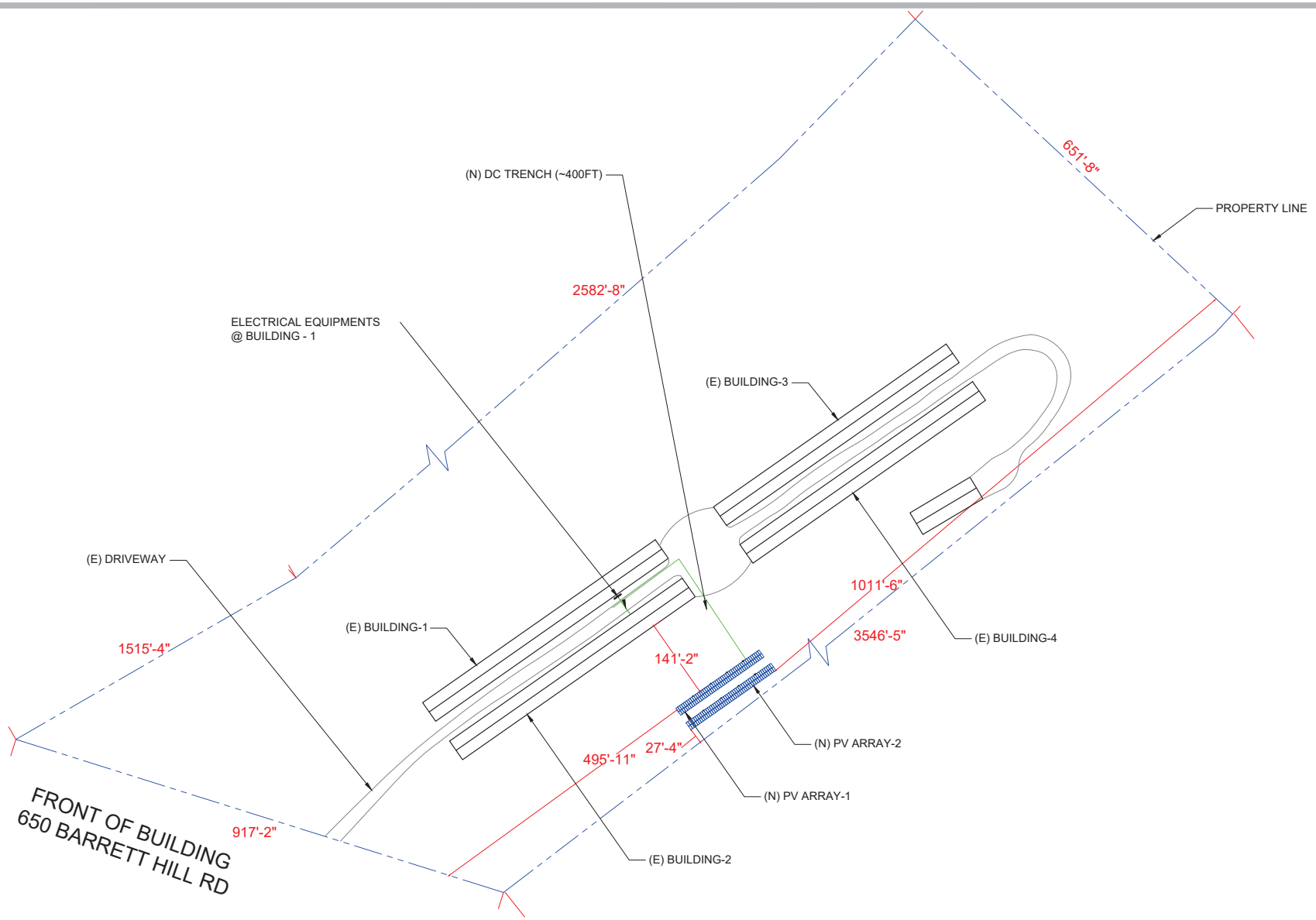
COVER SHEET

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-0.0



SITE PLAN WITH MODULES

SCALE: NTS

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW
STC AC : (N) (10) 7600 W = 76.00 kW

- (N) (190) NE SOLAR NESE MODULES, NESE540-72MHB-M10
- (N) (10) TESLA SOLAR TECHNOLOGY, TESLA 7.6 kW (240V) INVERTERS
- (N) 10 STRINGS OF 10 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

LEGEND

- FIRE SETBACK
- NEW PV MODULE
- OPTIMIZER
- MICRO-INVERTER
- ROOF ATTACHMENT
- ROOF ACCESS POINT
- STRING DETAIL
- CONDUIT RUN
- DIMENSIONS
- PROPERTY LINE
- RAFTER/TRUSS
- RAIL
- FENCE
- GATE

MSP	MAIN SERVICE PANEL (EXISTING)	CTC	CENTER TAP CONNECTOR (N/A)	TFO	TRANSFORMER (N/A)
UM	UTILITY METER (EXISTING)	INV	INVERTER (NEW)	AC	AC DISCONNECT UNFUSED (N/A)
PM	PRODUCTION METER (N/A)	LC	LOAD CENTER (NEW)	ACD	AC DISCONNECT FUSED (NEW)
BAT	BATTERY (N/A)	SM	SOLAREDGE METER (N/A)	JB	JUNCTION BOX (NEW)
		BLP	BACKUP LOAD PANEL (N/A)	ATS	AUTO TRANSFER SWITCH (EXISTING)

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

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BUILDING OWNER INFO

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650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA

APN: 68-27B
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PHONE: N/A

SHEET NAME

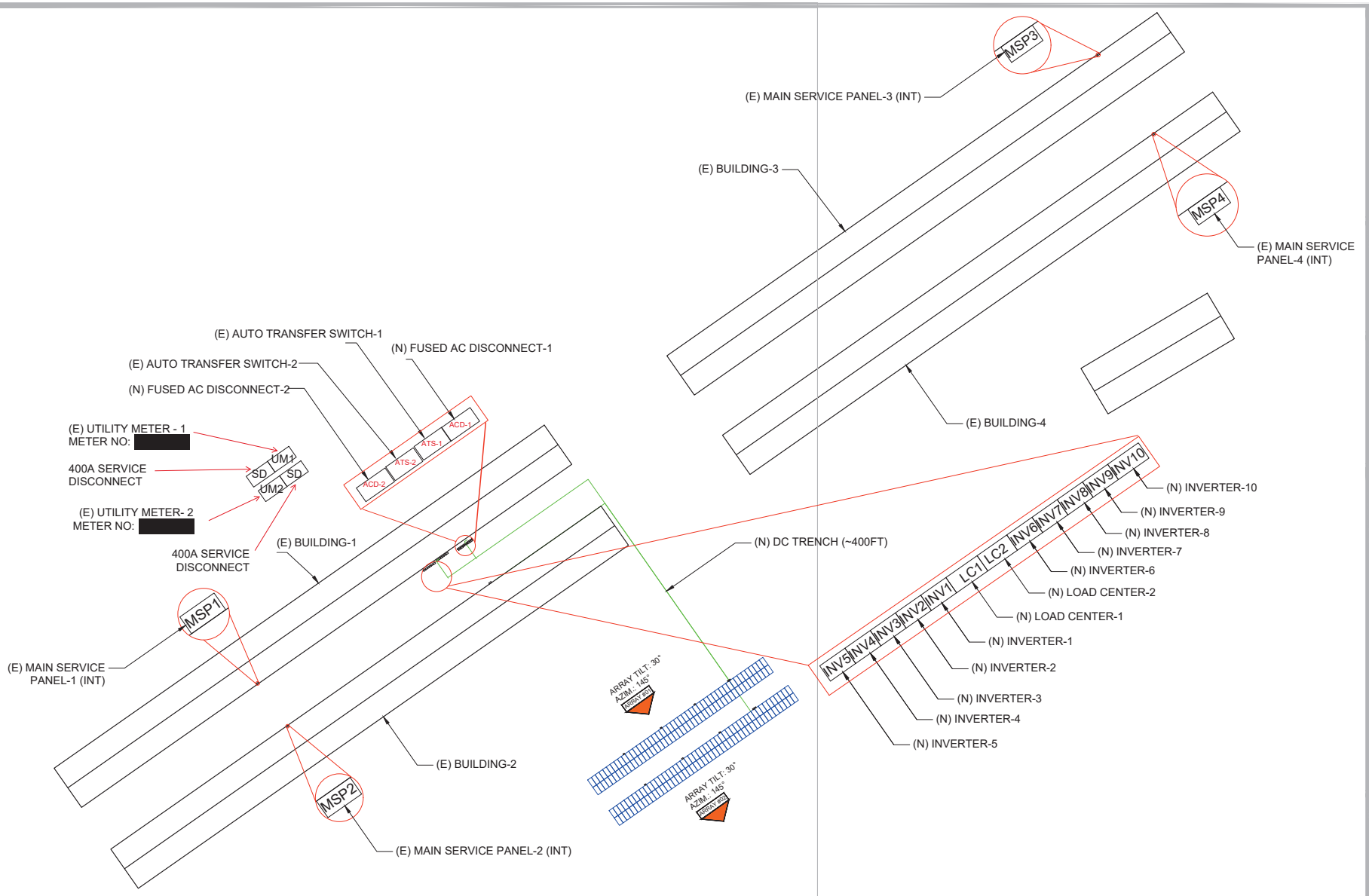
SITE PLAN WITH MODULES

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-1.0



ELECTRICAL EQUIPMENT DETAIL

SCALE: NTS

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW
STC AC : (N) (10) 7600 W = 76.00 kW

- (N) (190) NE SOLAR NESE540-72MHB-M10 MODULES
- (N) (10) TESLA SOLAR TECHNOLOGY, TESLA 7.6 kW (240V) INVERTERS
- (N) 10 STRINGS OF 10 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 BOVIET NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

FIRE SETBACK
NEW PV MODULE
OPTIMIZER
MICRO-INVERTER
ROOF ATTACHMENT
ROOF ACCESS POINT
STRING DETAIL
CONDUIT RUN
DIMENSIONS
PROPERTY LINE
RAFTER/TRUSS
RAIL
FENCE
GATE

LEGEND

MSP	MAIN SERVICE PANEL (EXISTING)	CTC	CENTER TAP CONNECTOR (N/A)	TFO	TRANSFORMER (N/A)
UM	UTILITY METER (EXISTING)	INV	INVERTER (NEW)	AC	AC DISCONNECT UNFUSED (N/A)
PM	PRODUCTION METER (N/A)	LC	LOAD CENTER (NEW)	ACD	AC DISCONNECT FUSED (NEW)
BAT	BATTERY (N/A)	SM	SOLAREDGE METER (N/A)	JB	JUNCTION BOX (NEW)
		BLP	BACKUP LOAD PANEL (N/A)	ATS	AUTO TRANSFER SWITCH (EXISTING)

SOLAR ENERGY SOLUTIONS

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SOLAR ENERGY SOLUTIONS
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EMAIL: N/A
PHONE: N/A

SHEET NAME

ELECTRICAL EQUIPMENT DETAIL

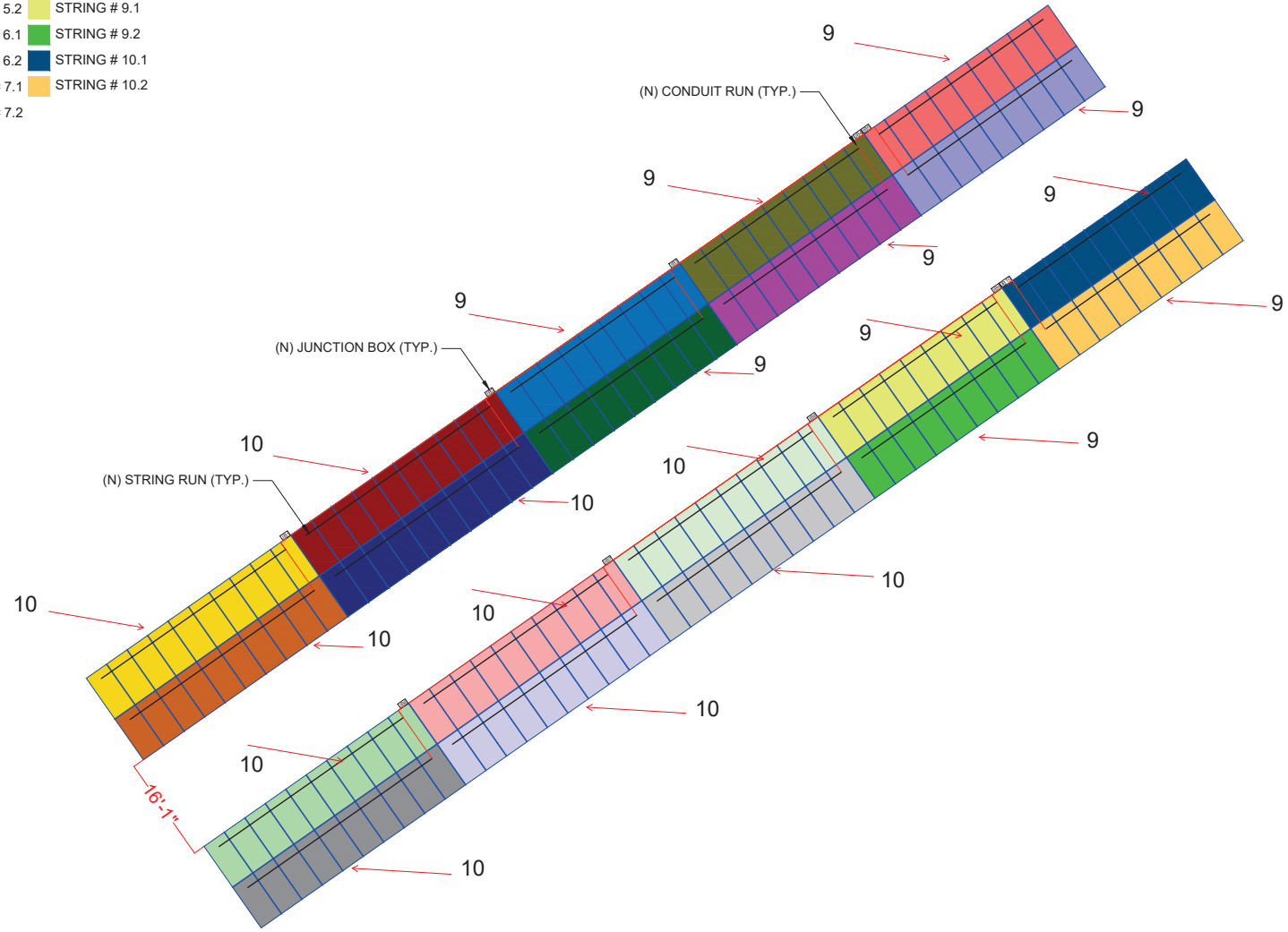
SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-1.1

STRING # 1.1
STRING # 1.2
STRING # 2.1
STRING # 2.2
STRING # 3.1
STRING # 3.2
STRING # 4.1
STRING # 4.2
STRING # 5.1
STRING # 5.2
STRING # 6.1
STRING # 6.2
STRING # 7.1
STRING # 7.2
STRING # 8.1
STRING # 8.2
STRING # 9.1
STRING # 9.2
STRING # 10.1
STRING # 10.2



STRING DETAIL

SCALE: 1/8" = 1'-0"

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW
STC AC : (N) (10) 7680 W = 76.00 kW

- (N) (190) NESE540-72MHB-M10 MODULES
- (N) (10) TESLA SOLAR TECHNOLOGY, TESLA 7.6 kW (240V) INVERTERS
- (N) 10 STRINGS OF 10 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES

FIRE SETBACK
NEW PV MODULE
OPTIMIZER
MICRO-INVERTER
ROOF ATTACHMENT
ROOF ACCESS POINT
STRING DETAIL
CONDUIT RUN
DIMENSIONS
PROPERTY LINE
RAFTER/TRUSS
RAIL
FENCE
GATE

LEGEND

MSP	MAIN SERVICE PANEL (EXISTING)	CTC	CENTER TAP CONNECTOR (N/A)	TFO	TRANSFORMER (N/A)
UM	UTILITY METER (EXISTING)	INV	INVERTER (NEW)	AC	AC DISCONNECT UNFUSED (N/A)
PM	PRODUCTION METER (N/A)	LC	LOAD CENTER (NEW)	ACD	AC DISCONNECT FUSED (NEW)
BAT	BATTERY (N/A)	SM	SOLAREDGE METER (N/A)	JB	JUNCTION BOX (NEW)
		BLP	BACKUP LOAD PANEL (N/A)	ATS	AUTO TRANSFER SWITCH (EXISTING)

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

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BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA
APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

STRING DETAIL

SHEET SIZE

ANSI D
24" X 36"

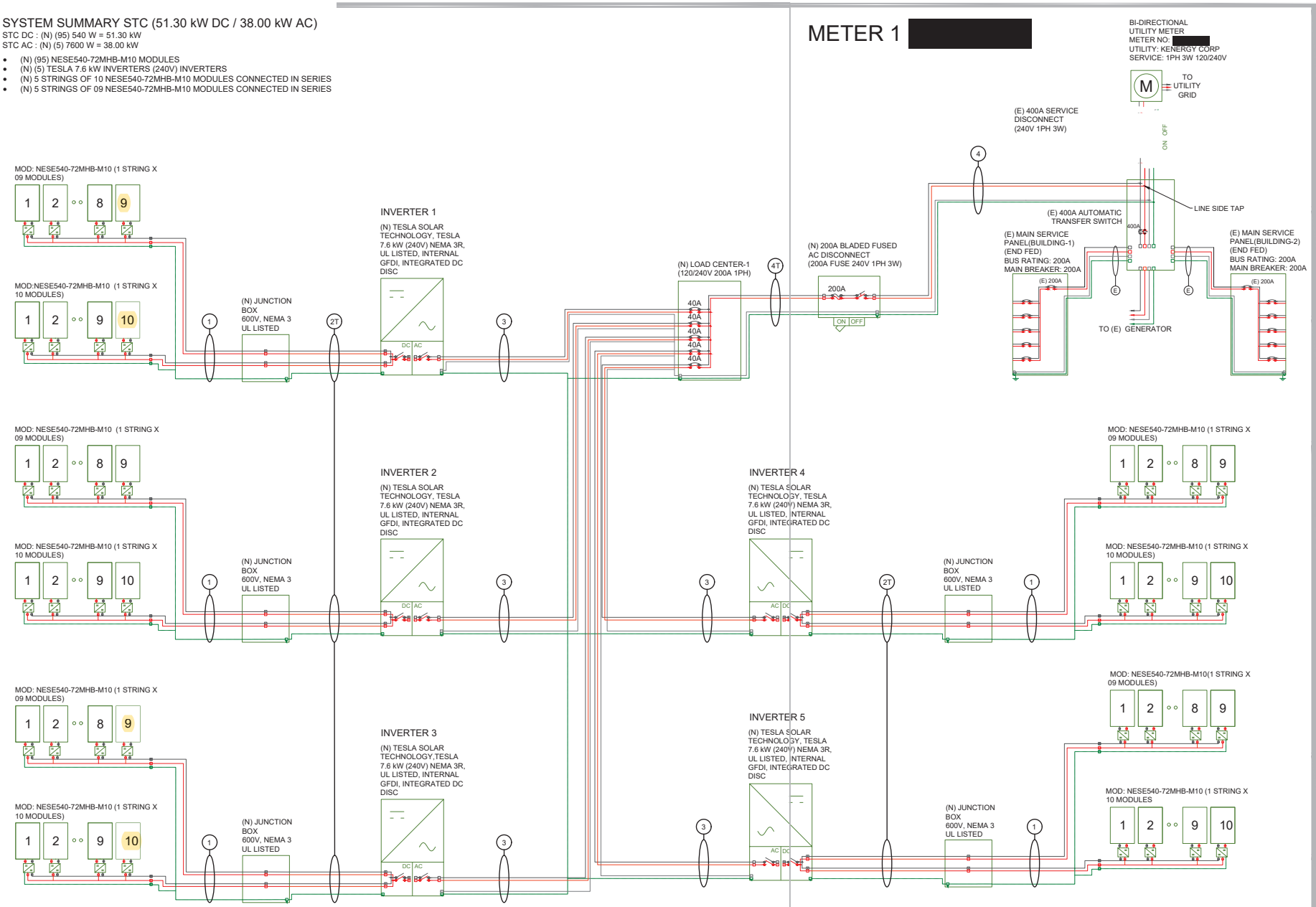
SHEET NUMBER

PV-2.0

SYSTEM SUMMARY STC (51.30 kW DC / 38.00 kW AC)

STC DC : (N) (95) 540 W = 51.30 kW
STC AC : (N) (5) 7600 W = 38.00 kW

- (N) (95) NESE540-72MHB-M10 MODULES
- (N) (5) TESLA 7.6 kW INVERTERS (240V) INVERTERS
- (N) 5 STRINGS OF 10 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES
- (N) 5 STRINGS OF 09 NESE540-72MHB-M10 MODULES CONNECTED IN SERIES



ELECTRICAL THREE LINE DIAGRAM

SCALE: NTS

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

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BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA
APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

ELECTRICAL THREE LINE DIAGRAM

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-4.0

SYSTEM SUMMARY STC (102.60 kW DC / 76.00 kW AC)

STC DC : (N) (190) 540 W = 102.60 kW
STC AC : (N) (10) 7600 W = 76..00 kW

- (N) (190) BOVIET BVM7612M-540-H-HC-BF-DG MODULES
- (N) (10) SMA SOLAR TECHNOLOGY, SB7.7-1TP-US-41 (240V) INVERTERS
- (N) 10 STRINGS OF 10 BOVIET BVM7612M-540-H-HC-BF-DG MODULES CONNECTED IN SERIES
- (N) 10 STRINGS OF 09 BOVIET BVM7612M-540-H-HC-BF-DG MODULES CONNECTED IN SERIES

METER 1 (145771356)

WIRE DETAILS

WIRE TAG #	WIRE FROM	CONDUIT	WIRE QTY	WIRE QTY/ CONDUIT	WIRE GAUGE	WIRE TYPE	TEMP RATING	WIRE AMP	TEMP DE-RATE	CONDUIT FILL	WIRE OCP	TERMINAL 75°C RATING	OUTPUT CURRENT	NEUTRAL SIZE	GRND SIZE	GRND WIRE TYPE
1	ARRAY TO JUNCTION BOX	AIR	4	-	10 AWG	PV WIRE	90°	40 x 0.96 x - = 38.40A				35A	13.55 x 1.25 x 1.25 = 21.17A	NONE	6 AWG	BARE CU
2T	JUNCTION BOX TO INVERTER	2" SCH 40 PVC (BELOW GROUND)	20	20	10 AWG	THWN-2	75°	50 x 0.94 x 0.5 = 23.5A				35A	13.55 x 1.25 x 1.25 = 21.17A	NONE	10 AWG	THWN-2
3	INVERTER TO LC	3/4" EMT	3	3	8 AWG	THWN-2	75°	50 x 0.94 x1 = 47A				50A	32 x 1.25 = 40A	8 AWG	10 AWG	THWN-2
4T	LC TO FUSED ACD	2" SCH 40 PVC (BELOW GROUND)	3	3	4/0 AWG ALUMINUM	THWN-2	75°	230 x 0.94 x1 = 216.20A				230A	5 x 32 x 1.25 = 200A	4/0 AWG	4 AWG	THWN-2
4	FUSED ACD TO POI	2" EMT	3	3	4/0 AWG AL	THWN-2	75°	230 x 0.94 x1 = 216.20A				230A	5 x 32 x 1.25 = 200A	4/0 AWG	4 AWG	THWN-2

METER 2 (131384931)

WIRE DETAILS

WIRE TAG #	WIRE FROM	CONDUIT	WIRE QTY	WIRE QTY/ CONDUIT	WIRE GAUGE	WIRE TYPE	TEMP RATING	WIRE AMP	TEMP DE-RATE	CONDUIT FILL	WIRE OCP	TERMINAL 75°C RATING	OUTPUT CURRENT	NEUTRAL SIZE	GRND SIZE	GRND WIRE TYPE
1	ARRAY TO JUNCTION BOX	AIR	4	-	10 AWG	PV WIRE	90°	40 x 0.96 x - = 38.40A				35A	13.55 x 1.25 x 1.25 = 21.17A	NONE	6 AWG	BARE CU
2T	JUNCTION BOX TO INVERTER	2" SCH 40 PVC (BELOW GROUND)	20	20	10AWG	THWN-2	75°	50 x 0.94 x 0.5 = 23.5A				35A	13.55 x 1.25 x 1.25 = 21.17A	NONE	10 AWG	THWN-2
3	INVERTER TO LC	3/4" EMT	3	3	8 AWG	THWN-2	75°	50 x 0.94 x1 = 47A				50A	32 x 1.25 = 40A	8 AWG	10 AWG	THWN-2
4T	LC TO FUSED ACD	2" SCH 40 PVC (BELOW GROUND)	3	3	4/0 AWG ALUMINUM	THWN-2	75°	230 x 0.94 x1 = 216.20A				230A	5 x 32 x 1.25 = 200A	4/0 AWG	4 AWG	THWN-2
4	FUSED ACD TO POI	2" EMT	3	3	4/0 AWG AL	THWN-2	75°	230 x 0.94 x1 = 216.20A				230A	5 x 32 x 1.25 = 200A	4/0 AWG	4 AWG	THWN-2

ELECTRICAL NOTES

1) ALL EQUIPMENT TO BE LISTED BY UL OR OTHER NRTL, AND LABELED FOR ITS APPLICATION.
2) ALL CONDUCTORS SHALL BE COPPER, RATED FOR 600V AND 90°C WET ENVIRONMENT.
3) WIRING, CONDUIT, AND RACEWAYS MOUNTED ON ROOFTOPS SHALL BE ROUTED DIRECTLY TO, AND LOCATED AS CLOSE AS POSSIBLE TO THE NEAREST RIDGE, HIP, OR VALLEY.
4) WORKING CLEARANCES AROUND ALL NEW AND EXISTING ELECTRICAL EQUIPMENT SHALL COMPLY WITH NEC 110.26.
5) DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS. CONTRACTOR SHALL FURNISH ALL NECESSARY OUTLETS, SUPPORTS, FITTINGS AND ACCESSORIES TO FULFILL APPLICABLE CODES AND STANDARDS.
6) WHERE SIZES OF JUNCTION BOXES, RACEWAYS, AND CONDUITS ARE NOT SPECIFIED, THE CONTRACTOR SHALL SIZE THEM ACCORDINGLY.
7) ALL WIRE TERMINATIONS SHALL BE APPROPRIATELY LABELED AND READILY VISIBLE.
8) MODULE GROUNDING CLIPS TO BE INSTALLED BETWEEN MODULE FRAME AND MODULE SUPPORT RAIL, PER THE GROUNDING CLIP MANUFACTURER'S INSTRUCTION.
9) MODULE SUPPORT RAIL TO BE BONDED TO CONTINUOUS COPPER G.E.C.VIA WEEB LUG OR ILSCO GBL-4DBT LAY-IN LUG.
10) PV EQUIPMENT SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NEC 690.
11) EXACT LOCATION OF AUXILIARY GROUNDING TO BE DETERMINED AT TIME OF INSTALL.
12) EXISTING WIRES MUST BE REPLACED IF SMALLER THAN LISTED MINIMUM SIZES PER NEC 310.15(B)(16).

INTERCONNECTION 120% RULE (MAIN PANEL)

INTERCONNECTION 120% RULE NOT REQUIRED

EXTREME CASE MODULE OUTPUT (BOVIET BVM7612M-540-H-HC-BF-DG)

Isc(25°C) = 13.55A, Tisc = 0.050%/°C
Isc(T) = Isc(25°C) x [1 + Tisc x (T-25°C)]
Isc(-19°C) = 13.25A, Isc(35°C) = 13.61A

Voc(25°C) = 49.89V, Tvoc = -0.285%/°C
Voc(T) = Voc(25°C) x [1 + Tvoc x (T-25°C)]
Voc(-19°C) = 56.14V, Voc(35°C) = 48.46V

WIRING CALCULATION

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

DESCRIPTION	DATE	REV
INITIAL	10/17/2023	0

SIGNATURE & SEAL

BUILDING OWNER INFO

ROGER SHOCKLEE
650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA

APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

WIRING CALCULATION

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

PV-4.2

SOLAR MODULE SPECIFICATIONS

MANUFACTURER / MODEL	BOVIET BVM7612M-540-H-HC-BF-DG
MAX. POWER-POINT VOLTAGE (VMP)	42.40A
MAX. POWER-POINT CURRENT (IMP)	12.76A
OPEN-CIRCUIT VOLTAGE (VOC)	49.89V
SHORT-CIRCUIT CURRENT (ISC)	13.55A
MODULE DIMENSION	90.40"L x 44.65"W x 1.38"D

INVERTER SPECIFICATIONS

MANUFACTURER / MODEL	SMA SOLAR TECHNOLOGY, SB7.7-1TP-US-41
MAX. INPUT DC VOLT	600VOLTS
MAX. CONTINUOUS OUTPUT POWER	7680W
NOMINAL AC VOLTAGE	240VOLTS
MAX. AC OUTPUT CURRENT	32AMPS
MAX. OCPD RATING	40AMPS
SHORT CIRCUIT CURRENT(DC)	18AMPS

RECORD LOW TEMP	-19°
AMBIENT TEMP (HIGH TEMP 2%)	35°
CONDUCTOR TEMPERATURE RATE	90°

Ground conductor ampacities designed in compliance with art. 690.8, Tables 310.15(B)(2)(a), 310.15(B)(3)(a), 310.15(B)(3)(c), 310.15(B)(16), Chapter 9 Table 4, 5, & 9. Location specific temperature obtained from ASHRAE 2020 data tables.

PERCENT OF VALUES	NUMBER OF CONDUCTORS
.80	4-6
.70	7-9
.50	10-20

DC VOLTAGE DROP PERCENTAGE FROM STRING TERMINATION TO JUNCTION BOX

10 AWG	VOLTAGE-240					
STRING TERMINATION TO JB	MODULE (Imp)	RESISTANCE IN ohm/ft	NO. OF MODULES IN A STRING	MODULE (Voc) AT MIN. TEMP.	1 WAY WIRE LENGTH(FT)	V RISE(%)
BRANCH # 1	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 2	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 3	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 4	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 5	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 6	12.76	0.00124	9	56.14	10	0.06 %
BRANCH # 7	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 8	12.76	0.00124	9	56.14	10	0.06 %
BRANCH # 9	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 10	12.76	0.00124	9	56.14	10	0.06 %
BRANCH # 11	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 12	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 13	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 14	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 15	12.76	0.00124	10	56.14	3	0.02 %
BRANCH # 16	12.76	0.00124	10	56.14	10	0.06 %
BRANCH # 17	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 18	12.76	0.00124	9	56.14	10	0.06 %
BRANCH # 19	12.76	0.00124	9	56.14	3	0.02 %
BRANCH # 20	12.76	0.00124	9	56.14	10	0.06 %
					MAX V DROP(%)	0.06 %

DC VOLTAGE DROP PERCENTAGE FROM JUNCTION BOX TO INVERTER

8 AWG						
JB TO INVERTER	MODULE (Imp)	RESISTANCE IN ohm/ft	NO. OF MODULES IN A STRING	MODULE (Voc) AT MIN. TEMP.	1 WAY WIRE LENGTH(FT)	V DROP(%)
JB1 TO INV1	12.76	0.000778	10	56.14	400	1.41 %
JB2 TO INV2	12.76	0.000778	10	56.14	381	1.35 %
JB3 TO INV3	12.76	0.000778	10	56.14	357	1.26 %
JB4 TO INV4	12.76	0.000778	10	56.14	323	1.14 %
JB5 TO INV5	12.76	0.000778	10	56.14	323	1.14 %
JB6 TO INV6	12.76	0.000778	10	56.14	400	1.41 %
JB7 TO INV7	12.76	0.000778	10	56.14	381	1.35 %
JB8 TO INV8	12.76	0.000778	10	56.14	357	1.26 %
JB9 TO INV9	12.76	0.000778	10	56.14	323	1.14 %
JB10 TO INV10	12.76	0.000778	10	56.14	323	1.14 %
					MAX V DROP(%)	1.41 %

AC VOLTAGE DROP PERCENTAGE FROM INVERTER TO LOAD CENTER

8 AWG	VOLTAGE-240			
INVERTER TO LOAD CENTER	INVERTER OUTPUT CURRENT	RESISTANCE IN OHM/FT	1 WAY WIRE LENGTH(FT)	V DROP(%)
INV1 TO LC1	32	0.000778	2	0.04 %
INV2 TO LC1	32	0.000778	4	0.08 %
INV3 TO LC1	32	0.000778	6	0.12 %
INV4 TO LC1	32	0.000778	8	0.17 %
INV5 TO LC1	32	0.000778	10	0.21 %
INV6 TO LC2	32	0.000778	2	0.04 %
INV7 TO LC2	32	0.000778	4	0.08 %
INV8 TO LC2	32	0.000778	6	0.12 %
INV9 TO LC2	32	0.000778	8	0.17 %
INV10 TO LC2	32	0.000778	10	0.21 %
			MAX V DROP(%)	0.21 %

TOTAL DC VOLTAGE RISE PERCENTAGE

VOLTAGE DROP PERCENTAGE FROM STRING TERMINATION TO JUNCTION BOX	0.06 %
VOLTAGE DROP PERCENTAGE FROM JUNCTION BOX TO INVERTER	1.41 %
TOTAL DC SYSTEM VOLTAGE DROP	1.47 %

TOTAL AC VOLTAGE RISE PERCENTAGE

AC VOLTAGE DROP PERCENTAGE FROM INVERTER TO LOAD CENTER	0.21 %
AC VOLTAGE DROP PERCENTAGE FROM LOAD CENTER TO FUSED ACD	0.41 %
AC VOLTAGE DROP PERCENTAGE FROM FUSED ACD TO POI	0.04 %
TOTAL AC SYSTEM VOLTAGE DROP	0.66 %

AC VOLTAGE DROP PERCENTAGE FROM FUSED ACD TO POI

4/0 AWG	VOLTAGE-240			
FUSED AC DISCONNECT TO POI	INVERTER OUTPUT CURRENT	RESISTANCE IN OHM/FT	1 WAY WIRE LENGTH(FT)	V DROP(%)
ACD1 TO POI	160	0.0000608	5	0.04 %
ACD2 TO POI	160	0.0000608	5	0.04 %
			MAX V DROP(%)	0.04 %

AC VOLTAGE DROP PERCENTAGE FROM LOAD CENTER TO FUSED ACD

4/0 AWG	VOLTAGE-240			
LOAD CENTER TO FUSED ACD	INVERTER OUTPUT CURRENT	RESISTANCE IN OHM/FT	1 WAY WIRE LENGTH(FT)	V DROP(%)
LC1 TO ACD1	160	0.0000608	50	0.41 %
LC2 TO ACD2	160	0.0000608	50	0.41 %
			MAX V DROP(%)	0.41 %

VOLTAGE DROP CALCULATION

SOLAR ENERGY SOLUTIONS

CONTRACTOR:
SOLAR ENERGY SOLUTIONS
ADDRESS:
1038 BRENTWOOD COURT STE B
LEXINGTON KY US 40511
PHONE: N/A
LICENSE #: N/A

REVISIONS

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SIGNATURE & SEAL

BUILDING OWNER INFO

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650 BARRETT HILL RD
LIVERMORE, KY, 42352, USA
APN: 68-27B
EMAIL: N/A
PHONE: N/A

SHEET NAME

VOLTAGE DROP CALCULATION

SHEET SIZE

ANSI D
24" X 36"

SHEET NUMBER

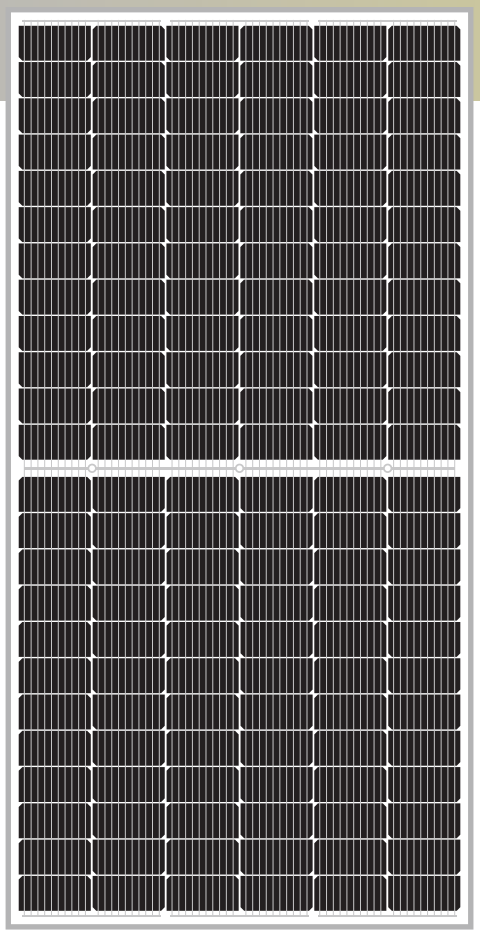
PV-5.0

FROM STRENGTH TO STRENGTH IN NATURE

NESE 545-72MHB-M10

MONO PERC HALF-CELL BIFACIAL SOLAR MOUDLE

FROM CAMBODIA



KEY FEATURES

High efficiency PERC

A high efficiency 182 (M10) PERC solar cell with 10 busbars technology to ensure the efficiency of the solar module up to 21.10% and stable operation.

Bifacial power generation

Increases 10-30% power generation revenue.

Excellent performance with weak light

More power output with a weak light condition-through advanced glass and solar cells.

Wind/Snow load

Wind load 2400 pa, snow load 5400 pa.

Pid Free

Excellent Anti-PID performance, minimized the degradation of power.

Resistance of extreme environment conditions

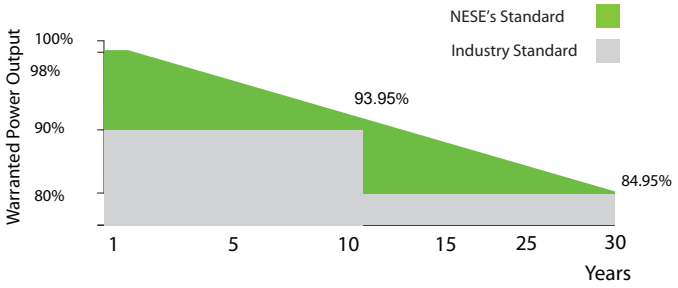
High Salt Mist and Ammonia resistance certified by TUV.

INSURED BY

CHUBB® Munich RE

LINEAR PERFORMANCE WARRANTY

12 years product warranty. 30 years linear power warranty.



MANAGEMENT SYSTEM CERTIFICATES

ISO 9001:2015/QUALITY MANAGEMENT SYSTEM
ISO 14001:2015/STANDARDS FOR ENVIRONMENTAL MANAGEMENT SYSTEM

PRODUCT CERTIFICATES

IEC 61215/IEC 61730:VDE/CE/CEC AU
UL 61730: CSA

PHUM TANOUN, SANGKAT KOMBOUL, KHAN POSENCHEY, PHNOM PENH, KINGDOM OF CAMBODIA
WWW.NESOLAR.COM.KH

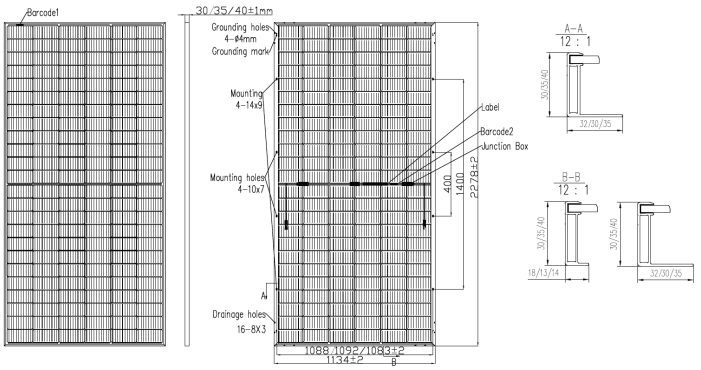
SPECIFICATIONS

Module type	NESE 525-72MHB-M10		NESE530-72MHB-M10		NESE535-72MHB-M10		NESE540-72MHB-M10		NESE545-72MHB-M10	
	STC	(NOCT)	STC	(NOCT)	STC	(NOCT)	STC	(NOCT)	STC	(NOCT)
Maximum power(Pmax)	525Wp	393Wp	530Wp	397Wp	535Wp	400Wp	540Wp	404Wp	545Wp	408Wp
Maximum power voltage(Vmp)	40.9V	37.8V	41.1V	38.0V	41.3V	38.1V	41.5V	38.3V	41.7V	38.5V
Maximum power current (Imp)	12.85A	10.40A	12.91A	10.45A	12.96A	10.50A	13.02A	10.55A	13.08A	10.60A
Open-circuit voltage(Voc)	49.2V	45.9V	49.4V	46.1V	49.6V	46.3V	49.8V	46.5V	51.0V	46.7V
Short-circuit current(Isc)	13.59A	10.98A	13.65A	11.02A	13.71A	11.07A	13.77A	11.12A	13.83A	11.17A
Module efficiency STC (%)	20.32%		20.52%		20.71%		20.90%		21.10%	
Operating temperature(℃)	-40℃ ~ 85℃									

ELECTRICAL CHARACTERISTICS WITH 25% REAR SIDE POWER GAIN

Front power Pmax/W	525	530	535	540	545
Total power Pmax/W	656	663	669	675	681
Vmp/V(Total)	41.0	41.2	41.4	41.6	41.8
Imp/A(Total)	16.01	16.08	16.15	16.23	16.30
Voc/V(Total)	49.3	49.5	49.7	49.9	50.1
Isc/A(Total)	16.75	16.82	16.90	16.97	17.05

ENGINEERING DRAWING



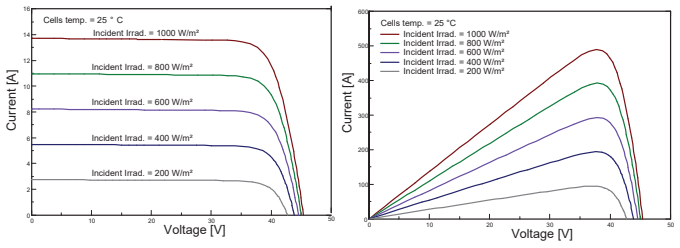
TEMPERATURE RATINGS

NOCT	44 ± 2℃
Temperature coefficients of Pmax	-0.35%/℃
Temperature coefficients of Voc	-0.29%/℃
Temperature coefficients of Isc	+0.05%/℃
Refer. Bifacial Factor	70 ±5%

MATERIAL CHARACTERISTICS

Number of cell	144 (6 * 24)
Dimensions	2278*1134*30/35/40
Weight	33.5/34/34.5kg
Front glass	2.0mm+2.0mm heat strengthened glass
Frame	Anodized aluminium alloy
Junction box	Ip68 , 3 diodes
Cables	12 AWG, length: 350 mm or Customized
Connectors	MC4-Compatible

IV CURVES OF THE PV MODULES



Electrical performance vs Incident Irradiance
Current-voltage & power-voltage curves (545W)

WORKING CONDITIONS

Maximum system voltage	1000/1500 VDC
Maximum series fuse rating	30A

PACKAGING CONFIGURATION

40HQ	720/620/540PCS

PHUM TANOUN, SANGKAT KOMBOUL, KHAN POSENCHEY, PHNOM PENH, KINGDOM OF CAMBODIA
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SOLAR INVERTER

3.8 kW | 7.6 kW

Tesla Solar Inverter completes the Tesla home solar system, converting DC power from solar to AC power for home consumption. Tesla's renowned expertise in power electronics has been combined with robust safety features and a simple installation process to produce an outstanding solar inverter that is compatible with both Solar Roof and traditional solar panels. Once installed, homeowners use the Tesla mobile app to manage their solar system and monitor energy consumption, resulting in a truly unique ecosystem experience.

KEY FEATURES

- Built on Powerwall 2 technology for exceptional efficiency and reliability
- Wi-Fi, Ethernet, and cellular connectivity with easy over-the-air updates
- Designed to integrate with Tesla Powerwall and Tesla App
- 3.8 kW and 7.6 kW models available

SOLAR INVERTER

Tesla Solar Inverter provides DC to AC conversion and integrates with the Tesla ecosystem, including Solar Panels, Solar Roof, Powerwall, and vehicle charging, to provide a seamless sustainable energy experience.

KEY FEATURES

- Integrated rapid shutdown, arc fault, and ground fault protection
- No neutral wire simplifies installation
- 2x the standard number of MPPTs for high production on complex roofs

ELECTRICAL SPECIFICATIONS

OUTPUT (AC)	3.8 kW	7.6 kW
Nominal Power	3,800 W	7600 W
Maximum Apparent Power	3,328 VA at 208 V 3,840 VA at 240 V	6,656 VA at 208 V 7,680 VA at 240 V
Maximum Continuous Current	16 A	32 A
Breaker (Overcurrent Protection)	20 A	40 A
Nominal Power Factor	1 - 0.85 (leading / lagging)	
THD (at Nominal Power)	<5%	
INPUT (DC)		
MPPT	2	4
Input Connectors per MPPT	1+2	1+2+1+2
Maximum Input Voltage	600 VDC	
DC Input Voltage Range	60 - 550 VDC	
DC MPPT Voltage Range[1]	60 - 480 VDC	
Maximum Current Per MPPT (I_{mp})	11 A	
Maximum Short Circuit Current per MPPT (I_{sc})	15 A	

PERFORMANCE SPECIFICATIONS

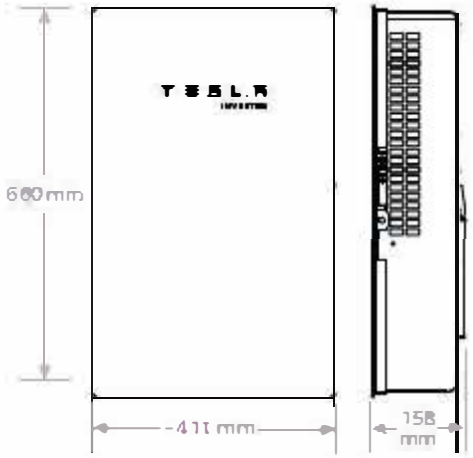
Peak Efficiency[2]	97.5%	98.0%
CEC Efficiency[2]	97.5%	
Allowable DC/AC Ratio	1.4	
Customer Interface	Tesla Mobile App	
Internet Connectivity	Wi-Fi (2.4 GHz, 802.11 b/g/n), Ethernet, Cellular (LTE/4G)[3]	
AC Remote Metering Support	Wi-Fi (2.4 GHz, 802.11 b/g/n), RS-485	
Protections	Integrated arc fault circuit interrupter (AFCI), Rapid shutdown	
Supported Grid Types	60 Hz, 240 V Split Phase 60 Hz, 208 V Wye	
Required Number of Tesla Solar Shutdown Devices per Solar Module	see *Solar Shutdown Device Requirements per Module* on page 3	
Warranty	12.5 years	

[1] Maximum current.
[2] Expected efficiency pending final CEC listing.
[3] Cellular connectivity subject to network operator service coverage and signal strength.

MECHANICAL SPECIFICATIONS

Dimensions	660 mm x 411 mm x 158 mm (26 in x 16 in x 6 in)
Weight	52 lb[4]
Mounting options	Wall mount (bracket)

[4] Door and bracket can be removed for a mounting weight of 37 lb.



ENVIRONMENTAL SPECIFICATIONS

Operating Temperature[5]	-30°C to 45°C (-22°F to 113°F)
Operating Humidity (RH)	Up to 100%, condensing
Storage Temperature	-30°C to 70°C (-22°F to 158°F)
Maximum Elevation	3000 m (9843 ft)
Environment	Indoor and outdoor rated
Enclosure Rating	Type 3R
Ingress Rating	IP55 (Wiring compartment)
Pollution Rating	PD2 for power electronics and terminal wiring compartment, PD3 for all other components
Operating Noise @ 1 m	< 40 dB(A) nominal, < 50 dB(A) maximum

[5] For the 7.6 kW Solar Inverter, performance may be derated to 6.2 kW at 240 V or 5.37 kW at 208 V when operating at temperatures greater than 45°C.

COMPLIANCE INFORMATION

Grid Certifications	UL 1741, UL 1741 SA, IEEE 1547, IEEE 1547.1
Safety Certifications	UL 1699B, UL 1741, UL 1998 (US)
Emissions	EN 61000-6-3 (Residential), FCC 47CFR15.109 (a)

SOLAR INVERTER

Tesla Solar Inverter provides DC to AC conversion and integrates with the Tesla ecosystem, including Solar Panels, Solar Roof, Powerwall, and vehicle charging, to provide a seamless sustainable energy experience.

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- Integrated rapid shutdown, arc fault, and ground fault protection
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MPPT	2	4
Input Connectors per MPPT	1+2	1+2+1+2
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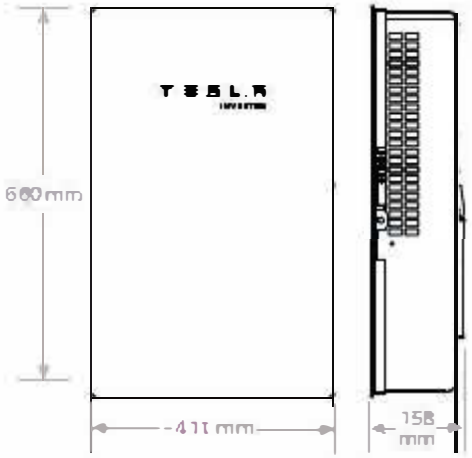

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Emissions	EN 61000-6-3 (Residential), FCC 47CFR15.109 (a)

Attachment 5 F (Redacted)

STROBO | BARKLEY PLLC

November 27, 2023

Via Electronic Mail Only

J. Christopher Hopgood
Dorsey, Gray, Norment & Hopgood
318 Second Street
Henderson, Kentucky 42420
chopgood@dkgnlaw.com

RE: Kenergy Corp. – Roger Shocklee Applications for Interconnection

Dear Mr. Hopgood:

Strobo Barkley PLLC represents Roger Shocklee, a Kenergy Corp. ("Kenergy") member seeking net metering service for two (2) meters on property owned or occupied by Mr. Shocklee. He is working with Solar Energy Solutions on each project. On behalf of our client, we seek information and documents concerning Kenergy's responses to his efforts.

It is our understanding that Solar Energy Solutions, on behalf of Mr. Shocklee, filed two (2) applications for interconnection for net metering service on or about November 9, 2023. One application for interconnection was filed for Account Number [redacted] ("Application One"). A second application for interconnection was filed for Account Number [redacted] ("Application Two"). It is our understanding that each application was rejected by Kenergy by no later than November 14, 2023. Scott Health, on behalf of Kenergy, advised Solar Energy Solutions on November 27, 2023, that he was not able to discuss the matter with Solar Energy Solutions (listed as the Project Contact Person on each application) but that he had "informed Mr. Shockley [sic] directly."

For Application One, please provide the following:

1. Confirm that Kenergy received Application One submitted by Solar Energy Solutions;
2. State whether Application One was rejected;
3. State the reason(s) for rejection;
4. State the date upon which Application One was rejected;
5. State whether Kenergy provided Mr. Shocklee with notice of the rejection;
6. State the date upon which the reason(s) for rejection were communicated to Mr. Shocklee;
7. Identify the individual who provided notice of the rejection; and
8. State whether the reason(s) for rejection were conveyed to Mr. Shocklee in writing and, if applicable, supply a copy of the communication(s) with Mr. Shocklee.

For Application Two, please provide the following:

1. Confirm that Kenergy received Application Two submitted by Solar Energy Solutions;
2. State whether Application Two was rejected;
3. State the reason(s) for rejection;
4. State the date upon which Application Two was rejected;
5. State whether Kenergy provided Mr. Shocklee with notice of the rejection;
6. State the date upon which the reason(s) for rejection were communicated to Mr. Shocklee;
7. Identify the individual who provided notice of the rejection; and
8. State whether the reason(s) for rejection were conveyed to Mr. Shocklee in writing and, if applicable, supply a copy of the communication(s) with Mr. Shocklee.

For Application One, if it was not rejected, provide the following:

1. State whether Application One was denied;
2. State the date upon which Application One was denied;
3. State the reason(s) for denial;
4. State the date upon which the reason(s) for denial were communicated to Mr. Shocklee;
5. Identify the individual who provided notice of the denial;
6. State whether the reason(s) for denial were conveyed to Mr. Shocklee in writing and, if applicable, supply a copy of the communication(s) with Mr. Shocklee;
7. State whether Kenergy conducted a review of the project to determine if the generating facility can be safely and reliably connected to Kenergy's system;
8. If Kenergy did not conduct a review, state why not;
9. If Kenergy conducted a review, provide the review; and
10. State whether Kenergy provided Mr. Shocklee with the review and the date the review was provided.

For Application Two, if it was not rejected, provide the following:

1. State whether Application Two was denied;
2. State the date upon which Application Two was denied;
3. State the reason(s) for denial;
4. State the date upon which the reason(s) for denial were communicated to Mr. Shocklee;
5. Identify the individual who provided notice of the denial;
6. State whether the reason(s) for denial were conveyed to Mr. Shocklee in

writing and, if applicable, supply a copy of the communication(s) with Mr. Shocklee;
7. State whether Kenergy conducted a review of the project to determine if the generating facility can be safely and reliably connected to Kenergy's system;
8. If Kenergy did not conduct a review, state why not;
9. If Kenergy conducted a review, provide the review; and
10. State whether Kenergy provided Mr. Shocklee with the review and the date the review was provided.

Please note that the information and documents sought through these requests do not require the production of new information; rather, each response sought through these requests should be readily known and available. Please note that Kenergy appears to have sought declaratory relief from the Kentucky Public Service Commission regarding Mr. Shocklee's requests and/or requests of a remarkably similar nature.

We ask that you supply this office with a written response by electronic mail message (dspenard@strobobarkley.com and rstrobo@strobobarkley.com) by no later than the close of business on November 30, 2023. If Kenergy is currently reviewing either Application One or Application Two, state (by application) the date upon which Kenergy will approve or deny the application. If an application under review is denied subsequent to this letter, we ask that you address each denial through responding the requests set forth above.

Best regards,

/s/ David E. Spenard

Randal A. Strobo
David E. Spenard
STROBO BARKLEY PLLC
730 West Main Street, Suite 202
Louisville, Kentucky 40202
Phone: 502-290-9751
Facsimile: 502-378-5395
Email: rstrobo@strobobarkley.com
Email: dspenard@strobobarkley.com

Counsel for Roger Shocklee

Attachment 5 G

P.O. Box 18 ♦ 6402 Old Corydon Road
Henderson, Kentucky 42419-0018
(270) 826-3991 ♦ FAX (270) 826-3999
(800) 844-4832

November 30, 2023

Mr. David Spenard
Strobo Barkley
730 W. Main Street
Suite 202
Louisville, KY 40202

Re: Kenergy/Roger Shocklee

Dear Mr. Spenard:

I am in receipt of your November 27, 2023, letter addressed to our counsel. Mr. Shocklee's application was rejected because he is not the owner of the property where the proposed solar facility was to be installed. KRS 278.465 defines an "eligible customer-generator" as one who owns and operates an electric generating facility. . . located on the customer's premises.

Sincerely,

Rob Stumph, PE
Vice President, Eng./Ops.