Address:	10914 Montrose Avenue, Garrett Park	Meeting Date:	11/18/2020
<b>Resource:</b>	Non-Contributing/Out-of-Period Resource	Report Date:	11/11/2020
Applicant:	(Garrett Park Historic District) Andrew and Alicia Prevost	Public Notice:	11/4/2020
Review:	HAWP	Tax Credit:	No Mishael Kuna
Case Number:	30/13-20A	Stan:	Michael Kyne
PROPOSAL:	Solar panel installation		

# MONTGOMERY COUNTY HISTORIC PRESERVATION COMMISSION STAFF REPORT

# **STAFF RECOMMENDATION:**

Staff recommends that the HPC **<u>approve</u>** the HAWP application.

# **ARCHITECTURAL DESCRIPTION:**

SIGNIFICANCE: Non-Contributing/Out-of-Period Resource within the Garrett Park Historic District c. 1990



Fig. 1: Subject property.

# **PROPOSAL:**

The applicant proposes to install 36 flush mounted solar panels on the roof of the subject property house.

# **APPLICABLE GUIDELINES:**

When reviewing alterations and new construction within the Garrett Park Historic District, several documents are to be utilized as guidelines to assist the Commission in developing their decision. These documents include the *Comprehensive Amendment to the North Bethesda-Garrett Park Master Plan (1992), Montgomery County Code Chapter 24A-8 (Chapter 24A-8), the Secretary of the Interior's Standards for Rehabilitation (Standards), and Historic Preservation Commission Policy No. 20-01: ADDRESSING EMERGENCY CLIMATE MOBILIZATION THROUGH THE INSTALLATION OF ROOF-MOUNTED SOLAR PANELS (Policy No. 20-01).* The pertinent information in these documents is outlined below.

# Comprehensive Amendment to the North Bethesda-Garrett Park Master Plan (1992)

Non-Contributing or out-of-period resource: A resource which is an intrusion in the district because of its lack of architectural and historical significance and/or because of major alterations that have eliminated most of the resource's original architectural integrity. Or a resource that is a newer building, which possibly contributes to the overall streetscape, but is out of the district's primary historical and architectural context.

# Montgomery County Code; Chapter 24A-8

- (b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to ensure conformity with the purposes and requirements of this chapter, if it finds that:
  - (1) The proposal will not substantially alter the exterior features of an historic site or historic resource within an historic district; or
  - (2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter; or
  - (3) The proposal would enhance or aid in the protection, preservation and public or private utilization of the historic site or historic resource located within an historic district in a manner compatible with the historical, archeological, architectural or cultural value of the historic site or historic district in which an historic resource is located; or
  - (4) The proposal is necessary in order that unsafe conditions or health hazards be remedied; or
  - (5) The proposal is necessary in order that the owner of the subject property not be deprived of reasonable use of the property or suffer undue hardship; or
  - (6) In balancing the interests of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit

of the alternative proposal, the general public welfare is better served by granting the permit.

- (c) It is not the intent of this chapter to limit new construction, alteration or repairs to any 1 period or architectural style.
- (d) In the case of an application for work on an historic resource located within an historic district, the commission shall be lenient in its judgment of plans for structures of little historical or design significance or for plans involving new construction, unless such plans would seriously impair the historic or architectural value of surrounding historic resources or would impair the character of the historic district. (*Ord. No. 94, § 1; Ord. No. 11-59.*)

# Secretary of Interior's Standards for Rehabilitation

The Secretary of the Interior defines rehabilitation as "the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features, which convey its historical, cultural, or architectural values." The *Standards* are as follows:

- 2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
- 9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

# Historic Preservation Commission Policy No. 20-01: ADDRESSING EMERGENCY CLIMATE MOBILIZATION THROUGH THE INSTALLATION OF ROOF-MOUNTED SOLAR PANELS

On December 5, 2017, the Montgomery Council adopted an Emergency Climate Mobilization resolution (Resolution No.: 18-974) which declared a climate emergency and charged the County Executive, Montgomery County Public Schools, and the Maryland-National Capital Park and Planning Commission to advise the Council on methods to reduce greenhouse gas emissions.

As a body established by the County Executive, it is incumbent on the Historic Preservation Commission (HPC) to undertake steps to achieve the goals of the Emergency Climate Mobilization resolution.

One method for reducing greenhouse gas emissions is to replace carbon-heavy methods of energy production, like coal and natural gas power plants, with renewable sources like wind and solar power. Current historic preservation best practice is to limit the locations solar panels may be installed to preserve the character of the building above all other considerations. Chapter 24A-8(b)(6) of County Code establishes a balancing test for approval of a HAWP where there is an apparent conflict between the desired impact on the historic resource compared to the public benefit of the proposal. Because the widespread use of solar panels, both for hot water and for electricity production, will reduce greenhouse gases in the county, it is the position of the HPC that solar panels may be installed on all roof elevations of historic sites or historic resources located within a historic district provided:

1. The identified preferred location (on the rear of the property, building additions, accessory structures, or ground-mounted arrays) is not feasible due to resource orientation or other site limitations and;

- 2. The roof is not either architecturally significant or a slate or tile roof unless it can be demonstrated that the solar array will be installed without damaging the historic character of the resource or historic fabric; and
- 3. A Historic Area Work Permit (HAWP) is required for all work referenced in this policy.

# Now, THEREFORE:

WHEREAS, Historic Area Work Permit decisions are guided by the criteria in Section 24A, The Secretary of the Interior's Standards for Rehabilitation, and pertinent guidance from applicable master plan amendments and/or site or district-specific studies;

WHEREAS, The Secretary of the Interior's Standards for Rehabilitation as interpreted by the National Park Service limit the placement of rooftop solar panels under Standards 2, 9, and 10 to less conspicuous locations;

WHEREAS, the County Council has established a Climate Emergency;

WHEREAS, the Historic Preservation is a body established by the County Executive and County Council;

WHEREAS, Section 24-8(b)(6) states, "In balancing the interest of the public in preserving the historic site or historic resource located within an historic district, with the interests of the public from the use and benefit of the alternative proposal, the general public welfare is better served by granting the permit;"

WHEREAS, the widespread use of solar panels, both for hot water and for electricity production, will reduce greenhouse gases in the county, in accordance with the aims of the Emergency Climate Mobilization resolution (Resolution No.: 18-974), it shall be the policy of the Historic Preservation Commission that:

- 1. The preferred locations for solar panel installation(s) on a designated historic site or an historic resource located within an historic district is a) on the rear of the property, b) on non-historic building additions, c) on accessory structures, or d) in ground-mounted arrays;
- 2. If it is not feasible to install solar panels in one of the identified preferred locations due to resource orientation or other site limitations; and,
- 3. The roof is determined to be neither architecturally significant, nor a character-defining feature of the resource, nor is it a slate or tile roof, that unless it can be demonstrated that the solar array will be installed without damaging the historic character of the resource or historic fabric; then
- 4. The public welfare is better served by approving a Historic Area Work Permit for solar panels on all visible side or front roof slopes under Section 24A-8(b)(6).
- 5. A Historic Area Work Permit (HAWP) is required for all work referenced in this policy.

# **STAFF DISCUSSION:**

The subject property is classified a Non-Contributing/Out-of-Period Resource within the Garrett Park Historic District. The subject property house, which was constructed c. 1990, is oriented with its front

facing Montrose Avenue to east. The house a front gable roof, with its sides sloping to the north and south. The applicant proposes to install 36 flush mounted solar panels on the southern (left, as viewed from the public right-of-way of Montrose Avenue) roof slope.

In accordance with the Commission's solar policy (*Historic Preservation Commission Policy No. 20-01*), staff requested additional information from the applicant's agent regarding the preferred locations for the proposed solar panels (on the rear of the property, building additions, accessory structures, or ground-mounted arrays). The applicant's agent provided the following statement regarding the preferred locations:

"Due to tree shading, the current location of the panels is the only part of the roof with solar access that meets minimum efficiency. The ridge of the roof runs perpendicular to the street, so there is no rear roof mounting plane. The accessory structure is too shaded, and there is no available space for a ground mount."

Based upon the information provided the applicant's agent, staff is supportive of the proposed solar panel installation, finding it consistent with the Commission's solar policy (*Historic Preservation Commission Policy No. 20-01*). Likewise, staff finds that, due to the subject property's sloping lot, the moderate setback of the subject property house from the street, and the height of house's roof, staff finds that the proposed solar panels will be minimally visible from the public right-of-way. Therefore, staff finds that the proposal will not remove or alter character-defining features of the subject property or surrounding streetscape, in accordance with *Standards #2* and #9.

Staff notes that the Town of Garrett Park's Historic Preservation Committee reviewed the applicant's proposal and found no objection to the proposed solar panel installation. In reaching their decision, the Committee cited the minimal visibility of the proposed solar panels and negligible impact on the surrounding historic district, due to the substantial height of the house and the configuration of the proposed solar panels.

After full and fair consideration of the applicant's submission staff finds the proposal as being consistent with the Criteria for Issuance in Chapter 24A-(b) 1 and 2, and (d), having found the proposal is consistent with the *Secretary of the Interior's Standards for Rehabilitation #2* and *#9* outlined above.

# **STAFF RECOMMENDATION:**

Staff recommends that the Commission approve the HAWP application under the Criteria for Issuance in Chapter 24A-8(b), having found that the proposal will not substantially impact the historic resource(s) and is compatible in character with the district and the purposes of Chapter 24A;

and with the Secretary of the Interior's Standards for Rehabilitation #2 and #9;

and with the general condition that the applicant shall present the 3 permit sets of drawings, if applicable to Historic Preservation Commission (HPC) staff for review and stamping prior to submission for the Montgomery County Department of Permitting Services (DPS) building permits;

and with the general condition that final project design details, not specifically delineated by the Commission, shall be approved by HPC staff or brought back to the Commission as a revised HAWP application at staff's discretion;

and with the general condition that the applicant shall notify the Historic Preservation Staff if they propose to make any alterations to the approved plans. Once the work is completed the applicant will

contact the staff person assigned to this application at 301-563-3400 or michael.kyne@montgomeryplanning.org to schedule a follow-up site visit.





DPS - #8

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HISTORIC PRESERVATION COMMISSION 301/563-3400

# APPLICATION FOR HISTORIC AREA WORK PERMIT

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# THE FOLLOWING ITEMS MUST BE COMPLETED AND THE REQUIRED DOCUMENTS MUST ACCOMPANY THIS APPLICATION.

#### 1. WRITTEN DESCRIPTION OF PROJECT

a. Description of existing structure(s) and environmental setting, including their historical features and significance:

b. General description of project and its effect on the historic resource(s), the environmental setting, and, where applicable, the historic district:

### 2. SITE PLAN

Site and environmental setting, drawn to scale. You may use your plat. Your site plan must include;

- a. the scale, north arrow, and date;
- b. dimensions of all existing and proposed structures; and
- c. site features such as walkways, driveways, fences, ponds, streams, trash dumpsters, mechanical equipment, and landscaping.

### 3. PLANS AND ELEVATIONS

You must submit 2 copies of plans and elevations in a format no larger than 11" x 17". Plans on 8 1/2" x 11" paper are preferred.

- a. Schemetic construction plans, with marked dimensions, indicating location, size and general type of walls, window and door openings, and other fixed features of both the existing resource(s) and the proposed work.
- b. Elevations (facades), with marked dimensions, clearly indicating proposed work in relation to existing construction and, when appropriate, context. All materials and fixtures proposed for the exterior must be noted on the elevations drawings. An existing and a proposed elevation drawing of each facade affected by the proposed work is required.

### 4. MATERIALS SPECIFICATIONS

General description of materials and manufactured items proposed for incorporation in the work of the project. This information may be included on your design drawings.

#### 5. PHOTOGRAPHS

- a. Clearly labeled photographic prints of each facade of existing resource, including details of the affected portions. All labels should be placed on the front of photographs.
- b. Clearly label photographic prints of the resource as viewed from the public right-of-way and of the adjoining properties. All labels should be placed on the front of photographs.

# 6. TREE SURVEY

If you are proposing construction adjacent to or within the dripline of any tree 6" or larger in diameter (at approximately 4 feet above the ground), you must file an accurate tree survey identifying the size, location, and species of each tree of at least that dimension.

# 7. ADDRESSES OF ADJACENT AND CONFRONTING PROPERTY OWNERS

For <u>ALL</u> projects, provide an accurate list of adjacent and confronting property owners (not tenants), including names, addresses, and zip codes. This list should include the owners of all lots or parcels which adjoin the parcel in question, as well as the owner(s) of lot(s) or parcel(s) which lie directly across the street/highway from the parcel in question.

PLEASE PRINT (IN BLUE OR BLACK INK) OR TYPE THIS INFORMATION ON THE FOLLOWING PAGE. PLEASE STAY WITHIN THE GUIDES OF THE TEMPLATE, AS THIS WILL BE PHOTOCOPIED DIRECTLY ONTO MAILING LABELS.

# HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFING [Owner, Owner's Agent, Adjacent and Confronting Property Owners] Owner's mailing address Owner's Agent's mailing address Adjacent and confronting Property Owners mailing addresses

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Detail:	 	 

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Applicant:\_\_\_\_\_

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ABBREVIATIONS	ELECTRICAL NOTES	JURISDICTION NOTES	
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		VICINITY MAP	INDEX
LICENSE	GENERAL NOTES		Sheet 1 COVER SHEET Sheet 2 SITE PLAN Sheet 3 STRUCTURAL VIEWS Sheet 4 UPLIFT CALCULATIONS Sheet 5 THREE LINE DIAGRAM Cutsheets Attached
#11805 MASTER ELECTRICIAN Nicholaus Meyers	1. ALL WORK SHALL COMPLY WITH THE 2018 IBC AND 2018 IRC. 2. ALL ELECTRICAL WORK SHALL COMPLY WITH THE 2008 NATIONAL ELECTRIC CODE.		
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TESLA EQUIPMENT, WITHOUT THE WRITTEN PERMISSION OF TESLA INC.	INVERTER: SolarEdge Technologies Ltd. # SE11400H-US [240V]	3015121082	STRUCTURAL VIEWS

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			Job	site Speci
Design Code		ASCE_7_16		
Importance Factor	I	1		
Ultimate Wind Speed	V–Ult	115	Fig. 1609A	]
Exposure Category		С	Section 26.7	
Ground Snow Load	pg	30	Table 7–1	

			MP	Specific Design Informa	tion		
MP Name	MP1						
Roofing	Comp Shingle						
Standoff	ZS Comp V4 w Flashing—Insert						
Pitch	43						
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SL/RLL: Non-PV	17.2 psf						
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Landscape Y-Spacing	41"						
Landscape Y—Cantilever	-						
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Portrait X–Cantilever	20"						
Portrait Y-Spacing	69"						
Portrait Y-Cantilever	-						
Layout	Staggered						
X and Y are maximums that are always relative to the structure framing that supports the PV. X is across rafters and Y is along rafters.							

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THE SALE AND USE OF THE RESPECTIVE TESLA EQUIPMENT, WITHOUT THE WRITTEN PERMISSION OF TESLA INC.	(36) Hanwha Q-CELLS # Q.Peak DUO BLK-G6+ 340 INVERTER: SolarEdge Technologies Ltd. # SE11400H-US [240V]	3015121082	page name: UPLIFT CALCULATIONS

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	(36) Hanwha Q-CELLS # Q.Peak DUO BLK-G6+ 340 INVERTER: SolarEdge Technologies Ltd. # SE11400H-US [240V]	3015121082	page name: SITE PLAN PLACARD

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WARNING: PHOTOVOLTAIC POWER SOURCE	Label Location: (C)(CB)(JB) Per Code: NEC 690.31.G.3 Label Location: (DC) (INV) Per Code: NEC 690.13.B	WARNING ELECTRIC SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION	Label Location: (AC)(POI) Per Code: NEC 690.13.B	WARNING ELECTRIC SHOCK HAZARD THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED	Label Location: (DC) (INV)
MAXIMUM POWER- POINT CURRENT (Imp) MAXIMUM POWER- POINT VOLTAGE (Vmp) MAXIMUM SYSTEM VOLTAGE (Voc)	Label Location: (DC) (INV) Per Code: NEC 690.53	PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN	Label Location: (INV) Per Code: NEC 690.56.C.3		
SHORT-CIRCUIT CURRENT (Isc) A WARNING ELECTRIC SHOCK HAZARD IF A GROUND FAULT IS INDICATED	Label Location: (DC) (INV) Per Code: 690.41.B	WARNING INVERTER OUTPUT CONNECTION DO NOT RELOCATE THIS OVERCURRENT DEVICE	Label Location: (POI) Per Code: NEC 705.12.B.2.3.b		
	Label Location: (DC) (CB)	CAUTION PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED	Label Location: (D) (POI) Per Code: NEC 690.64.B.4		
ELECTRICAL SHOCK HAZARD DO NOT TOUCH TERMINALS TERMINALS ON BOTH LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT	Per Code: CEC 690.13.B	CAUTION DUAL POWER SOURCE SECOND SOURCE IS PHOTOVOLTAIC SYSTEM	Label Location: (POI) Per Code: NEC 705.12.B.3		
PHOTOVOLTAIC AC DISCONNECT	Label Location: (AC) (POI) Per Code: NEC 690.13.B	PHOTOVOLTAIC POINT OF INTERCONNECTION WARNING: ELECTRIC SHOCK HAZARD. DO NOT TOUCH TERMINALS. TERMINALS ON BOTH THE LINE AND LOAD SIDE MAY BE ENERGIZED IN THE OPEN POSITION. FOR SERVICE DE-ENERGIZE BOTH SOURCE	Label Location: (POI) Per Code: CEC 690.13.B		
MAXIMUM AC OPERATING CURRENT MAXIMUM AC OPERATING VOLTAGE	Label Location: (AC) (POI) Per Code: NEC 690.54	AND MAIN BREAKER. PV POWER SOURCE MAXIMUM AC OPERATING CURRENT MAXIMUM AC OPERATING VOLTAGE			

(AC): AC Disconnect
(C): Conduit
(CB): Combiner Box
(D): Distribution Panel
(DC): DC Disconnect
(IC): Interior Run Conduit
(INV): Inverter With Integrated DC Disconnect
(LC): Load Center
(M): Utility Meter
(POI): Point of Interconnection

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# SolarEdge Power Optimizer -**Zep Compatible™** Module Add-On

For North America P300-ZEP, P400-ZEP



# Compatible with Zep Groove framed modules

- Certified Zep Compatible<sup>™</sup> bracket
- Attaches to module frame without screws reduces on-roof labor and mounting costs
- Power optimizer equipment grounded through the bracket
- Up to 25% more energy
- Superior efficiency (99.5%)

- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Next generation maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety

USA - CANADA - GERMANY - ITALY - FRANCE - JAPAN - CHINA - AUSTRALIA - THE NETHERLANDS - UK - ISRAEL - TURKEY - HUNGARY - BELGIUM - ROMANIA - BULGARIA www.solaredge.us

# POWER OPTIMIZER

# solaredge

Module Add-On For North America P400-ZEP

	P300-ZEP (for 60-cell PV modules)	P400-ZEP (for 72 & 96-cell modules)					
INPUT		· · · · · · · · · · · · · · · · · · ·					
Rated Input DC power <sup>(1)</sup>	300	400	W				
Absolute Maximum Input Voltage (Voc at lowest temperature)	48	80	Vdc				
MPPT Operating Range	8 - 48	8-80	Vdc				
Maximum Short Circuit Current (Isc)	10	10.1	Adc				
Maximum DC Input Current	12.5	12.63	Adc				
Maximum Efficiency	99	9.5	%				
Weighted Efficiency	98	3.8	%				
Overvoltage Category	ervoltage Category II						
OUTPUT DURING OPERATION (POWER OP	TIMIZER CONNECTED TO OPERATII	NG INVERTER)					
Maximum Output Current	1	5	Adc				
Maximum Output Voltage	60						
OUTPUT DURING STANDBY (POWER OPTIN	<b>AIZER DISCONNECTED FROM INVE</b>	RTER OR INVERTER OFF)					
Safety Output Voltage per Power Optimizer		1	Vdc				
STANDARD COMPLIANCE	·						
EMC	FCC Part15 Class B, IEC6	51000-6-2, IEC61000-6-3					
Safety	IEC62109-1 (class	II safety), UL1741					
RoHS	Y	es					
INSTALLATION SPECIFICATIONS							
Maximum Allowed System Voltage	1000		Vdc				
Dimensions including mounting bracket (WxLxH)	128 x 196 x 27.5 / 5 x 7.71 x 1.08	128 x 196 x 35 / 5 x 7.71 x 1.37	mm / in				
Dimensions excluding mounting bracket (WxLxH)	128 x 152 x 27.5 / 5 x 5.97 x 1.08	128 x 152 x 35 / 5 x 5.97 x 1.37	mm / in				
Weight (including cables and mounting bracket)	720 / 1.6	840 / 1.9	kg / lb				
Input Connector	MC4 Col	mpatible					
Output Connector	Double Insulated;	; MC4 Compatible					
Output Wire Length	0.95 / 3.0	1.2 / 3.9	m/ft				
Operating Temperature Range	-40 - +85 /	-40 - +185	°C/°F				
Protection Rating	IP68 / N	IEMA 6P					
Relative Humidity	0 -	100	%				

PV SYSTEM DESIGN USING A SOLAREDGE INVERTER <sup>(2)</sup>	SINGLE PHASE HD-WAVE	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	8		10	18	
Maximum String Length (Power Optimizers)	25		25	50	
Maximum Power per String	5700 (6000 with SE7600H-US)	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations	Yes				

(2) For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string\_sizing\_na.pdf

**CE** 

# SolarEdge Power Optimizer - Zep Compatible™

# Single Phase Inverter with HD-Wave Technology

# for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US / SE7600H-US / SE10000H-US / SE11400H-US



I2-25 VEAR WARRANTY

# Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12

- / UL1741 SA certified, for CPUC Rule 21 grid compliance
- Extremely small
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)



NVERTERS

# Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER		SEXXXXH-XXXXBXX4						
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage MinNomMax. (211 - 240 - 264)	~	~	~	✓	√	~	~	Vac
AC Output Voltage MinNomMax. (183 - 208 - 229)	-	~	-	√	-	-	~	Vac
AC Frequency (Nominal)				59.3 - 60 - 60.5 <sup>(1)</sup>				Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor			. 1	, adjustable -0.85 to 0	).85			
GFDI Threshold				1				A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds		Yes						
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded				Yes				
Maximum Input Voltage				480				Vdc
Nominal DC Input Voltage		38	80			400		Vdc
Maximum Input Current @240V <sup>(2)</sup>	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Maximum Input Current @208V <sup>(2)</sup>	-	9	-	13.5	-	-	27	Adc
Max. Input Short Circuit Current				45				Adc
Reverse-Polarity Protection				Yes				
Ground-Fault Isolation Detection				600kΩ Sensitivity				
Maximum Inverter Efficiency	99			9	9.2			%
CEC Weighted Efficiency			ç	99			99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption				< 2.5				W

<sup>(1)</sup> For other regional settings please contact SolarEdge support

<sup>(2)</sup> A higher current source may be used; the inverter will limit its input current to the values stated

solaredge.com

# OGY for North America 0H-US / SE6000H-US/ 400H-US

# Single Phase Inverter with HD-Wave Technology for North America

# SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/ SE7600H-US / SE10000H-US / SE11400H-US

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US			
ADDITIONAL FEATURES										
Supported Communication Interfaces		RS485, Ethernet, ZigBee (optional), Cellular (optional)								
Revenue Grade Data, ANSI C12.20				Optional <sup>(3)</sup>						
Inverter Commissioning		with the SetApp mobile application using built-in Wi-Fi station for local connection								
Rapid Shutdown - NEC 2014 and 2017 690.12		Automatic Rapid Shutdown upon AC Grid Disconnect								
STANDARD COMPLIANCE										
Safety		UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07								
Grid Connection Standards		IEEE1547, Rule 21, Rule 14 (HI)								
Emissions				FCC Part 15 Class B						
INSTALLATION SPECIFICAT	TIONS									
AC Output Conduit Size / AWG Range		3/	/4″ minimum / 14-6 A	WG		3/4" minimu	m /14-4 AWG			
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG 3/4" minimum / 1-3 strings / 14-6 AWG						3 strings / 14-6 AWG			
Dimensions with Safety Switch (HxWxD)		17.7 x 14.6 x 6.8 / 450 x 370 x 174 21.3 x 14.6 x 7.3 / 540 x 370 x				/ 540 x 370 x 185	in / mm			
Weight with Safety Switch	22 .	/ 10	25.1 / 11.4	26.2	/ 11.9	38.8	/ 17.6	lb / kg		
Noise		<	25			<50		dBA		
Cooling				Natural Convection						
Operating Temperature Range				40 to +140 / -40 to +6	iO <sup>(4)</sup>			°F / °C		
Protection Rating			NEMA	4X (Inverter with Safet	y Switch)					

<sup>(3)</sup> Revenue grade inverter P/N: SExxxxH-US000BNC4

<sup>(4)</sup> Full power up to at least 50°C / 122°F; for power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf

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**ENDURING HIGH** PERFORMANCE



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Q.ANTUM TECHNOLOGY: LOW LEVELIZED COST OF ELECTRICITY

Higher yield per surface area, lower BOS costs, higher power classes, and an efficiency rate of up to 19.5%.

# **INNOVATIVE ALL-WEATHER TECHNOLOGY**

Optimal yields, whatever the weather with excellent low-light and temperature behavior.

# ENDURING HIGH PERFORMANCE

Long-term yield security with Anti LID and Anti PID Technology<sup>1</sup>, Hot-Spot Protect and Traceable Quality Tra.Q™.

## ZEP COMPATIBLE<sup>™</sup> FRAME DESIGN

High-tech black Zep Compatible<sup>™</sup> frame, for improved aesthetics, easy installation and increased safety.

# A RELIABLE INVESTMENT

Inclusive 25-year product warranty and 25-year linear performance warranty<sup>2</sup>.

# STATE OF THE ART MODULE TECHNOLOGY

Q.ANTUM DUO combines cutting edge cell separation and innovative wiring with Q.ANTUM Technology.

 $^1$  APT test conditions according to IEC/TS 62804-1:2015, method B (–1500V, 168h)  $^2$  See data sheet on rear for further information

#### THE IDEAL SOLUTION FOR:



Rooftop arrays on commercial and industrial buildings

Engineered in Germany

	- GOLLE	3		
	- Industry	standard for lines	ar warranties'	
	- Industry	standard for tiere	ed warranties"	
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	_			
	_			
5	10	15	20	25

Q CELLS PERFORMANCE WARRANTY

At least 98% of nominal power during first year. Thereafter max. 0.54% degradation per year. At least 93.1% of nominal power up to 10 years. At east 85% of nominal power up to 25 vears.

All data within measurement tolerances. Full warranties in accordance with the warranty terms of the Q CELLS sales organization of your respective country.

<sup>1</sup>Measurement tolerances P<sub>MRP</sub> ± 3%; I<sub>so</sub>: V<sub>oo</sub> ± 5% at STC: 1000 W/m<sup>2</sup>, 25 ± 2°C. AM 1.5 ac

TEMPERATURE COEFFICIENTS Temperature Coefficient of Ise α [%/K]

#### +0.04-0.36 Temperature Coefficient of PMR γ [%/K]

# **PROPERTIES FOR SYSTEM DESIGN**

Maximum System Voltage $\rm V_{\rm SYS}$	[V]	1000 (IEC) / 1000 (UL)	Protection Class	II
Maximum Series Fuse Rating	[A DC]	20	Fire Rating based on ANSI / UL 1703	C (IEC) / TYPE 2 (UL)
Max. Design Load, Push / Pull (UL) <sup>3</sup>	[lbs/ft <sup>2</sup> ]	50 (2400 Pa)/50 (2400 Pa)	Permitted Module Temperature	-40°F up to +185°F
Max. Test Load, Push / Pull (UL) <sup>3</sup>	[lbs/ft <sup>2</sup> ]	75 (3600 Pa)/75 (3600 Pa)	on Continuous Duty	(-40 °C up to +85 °C)
<sup>3</sup> See Installation Manual				

#### **QUALIFICATIONS AND CERTIFICATES**

UL 1703, CE-compliant, IEC 61215:2016, IEC 61730:2016, Application Class II, U.S. Patent No. 9 893 215 (solar cells)



Note: Installation instructions must be followed. See the installation and operating manual or contact our technical service department for further information on approved installation and use of this product.

#### Hanwha Q CELLS America Inc.

400 Spectrum Center Drive, Suite 1400, Irvine, CA 92618, USA | TEL +1 949 748 59 96 | EMAIL inquiry@us.q-cells.com | WEB www.q-cells.us

Format	68.5 × 40.6 × 1.57 in (including frame) (1740 × 1030 × 40 mm)
Weight	47.4 lbs (21.5 kg)
Front Cover	0.13 in (3.2 mm) thermally pre-stressed glass with anti-reflection technology
Back Cover	Composite film
Frame	Black anodized aluminum
Cell	6 × 20 monocrystalline Q.ANTUM solar half cells
Junction Box	2.09-3.98 × 1.26-2.36 × 0.59-0.71 in (53-101 × 32-60 × 15-18 Protection class IP67, with bypass diodes
Cable	$4 \text{ mm}^2$ Solar cable; (+) $\ge 43.3 \text{ in (}1100 \text{ mm)}$ , (-) $\ge 43.3 \text{ in (}1100 \text{ mm)}$
Connector	Stäubli MC4: IP68

# QCELLS

Product and

erformance Warranty



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YEARS

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# MECHANICAL SPECIFICATION



# **ELECTRICAL CHARACTERISTICS**

POV	VER CLASS			330	335	340	345			
MIN	MINIMUM PERFORMANCE AT STANDARD TEST CONDITIONS, STC <sup>1</sup> (POWER TOLERANCE +5 W / -0 W)									
	Power at MPP <sup>1</sup>	P <sub>MPP</sub>	[W]	330	335	340	345			
_	Short Circuit Current <sup>1</sup>	I <sub>SC</sub>	[A]	10.41	10.47	10.52	10.58			
mu	Open Circuit Voltage <sup>1</sup>	V <sub>oc</sub>	[V]	40.15	40.41	40.66	40.92			
Minir -	Current at MPP	I <sub>MPP</sub>	[A]	9.91	9.97	10.02	10.07			
	Voltage at MPP	V <sub>MPP</sub>	[V]	33.29	33.62	33.94	34.25			
	Efficiency1	η	[%]	≥18.4	≥18.7	≥19.0	≥19.3			
MIN	IMUM PERFORMANCE AT NORMAL OP	ERATING COND	DITIONS, N	IMOT <sup>2</sup>						
	Power at MPP	P <sub>MPP</sub>	[W]	247.0	250.7	254.5	258.2			
Ę	Short Circuit Current	I <sub>SC</sub>	[A]	8.39	8.43	8.48	8.52			
Minimu	Open Circuit Voltage	V <sub>oc</sub>	[V]	37.86	38.10	38.34	38.59			
	Current at MPP	I <sub>MPP</sub>	[A]	7.80	7.84	7.89	7.93			
	Voltage at MPP	V	[V]	31.66	31.97	32.27	32.57			
1Mea	asurement tolerances P + 3%: I: V + 5%	at STC: 1000W/m <sup>2</sup>	25+2°C A	M 1.5 according to JEC 609	04-3 • 2800 W/m2 NMOT	spectrum AM 1.5				

PERFORMANCE AT LOW IRRADIANCE



Typical module performance under low irradiance conditions in comparison to STC conditions (25 °C, 1000 W/m2)

Temperature Coefficient of $V_{\text{oc}}$	β	[%/K]	-0.27
Normal Module Operating Temperature	NMOT	[°F]	109±5.4 (43±3°C)



each product. The end-user documentation shipped with Zep Solar's products constitutes the sole specifications referred to in the product warranty. The customer is solely responsible for verifying the suitability of ZepSolar's products for each use. Specifications are subject to change without notice. Patents and Apps: zspats.com.

Document # 800-1839-001 Rev D

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Document # 800-1839-001 Rev D

# Next-Level PV Mounting Technology



Interlock

Part No. 850-1388 or 850-1613 Listed to UL 2703



Ground Zep V2

Part No. 850-1511 Listed to UL 467 and UL 2703



**DC Wire Clip** 

Part No. 850-1509 Listed to UL 1565

each product. The end-user documentation shipped with Zep Solar's products constitutes the sole specifications referred to in the product warranty. The customer is solely responsible for verifying the suitability of ZepSolar's products for each use. Specifications are subject to change without notice. Patents and Apps: zspats.com.

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# Town of Garrett Park Historic Preservation Committee <u>Statement on 10914 Montrose Avenue</u> <u>October 15, 2020</u>

# **To: Montgomery County Historic Preservation Office**

# Regarding: 10914 Montrose, Garrett Park, Solar Panels

The owners of the property have applied for a Historic Area Work Permit (HAWP) for installation of solar panels. The property, built in 1991, is a non-contributing resource within the Historic District of Garrett Park.

GPHPC has reviewed the HAWP application and supporting materials. The solar panels will be installed, flush to the roof, on the south-facing side of the 2.5 story house. The substantial height of the property and the configuration of the panels will minimize their visibility and impact on the surrounding historic neighborhood.

The committee finds no objection to the HAWP for this project.

Please let me know if you need any further information.

On behalf of the committee,

Nancy Walz Chair Garrett Park Historic Preservation Committee