ELECTRIC LEAGUE OF MARYLAND, INC.

ELM

Serving all of MD since 1955

Dear Electric League Members: March 13, 2020

The Electric League of Maryland has just become aware of amendments to Senate Bill 994. It seems the bill has been given a favorable review with the intended amendments.

The amendments will give the Maryland Department of Labor the authority to convene a work group to study certain issues regarding the provision of electrical services and low voltage electrical services in the State of Maryland. We understand that the low voltage industry, along with the solar companies, are not satisfied with the present wording of the Bill.

These amendments would give the State complete control as to when to convene meetings, the time and place, as well as who will be invited to participate and what will be discussed.

The League has always felt that the various segments (the State Board, local Licensing Boards, enforcement and administrative officials, as well as contractors) should have the opportunity to give their input into such important issues as licensing and regulation of the electrical industry.

As stated many times before, most electrical people do not want only the State to have complete control.

Therefore, we are asking our members, supporters, and friends to once again contact their local legislative representatives and ask them to table or kill Senate Bill 994 and its companion House Bill 1127.

In 2020, all segments of the industry should work together to produce an electrical law that will protect the public and provide the best means possible to regulate and license our complex electrical industry.

Please make the call or E-mail your comments to legislators as soon as possible.

Sincerely,

Gilbert L. Thompson
Legislative Liaison and Vice President
Electric League of Maryland

Cc: Education, Health, and Environmental Affairs Committee State of Maryland

The League wants to share some informative material with our members, supporters, and readers.

This is a follow up to a recent presentation by Mr. Lee Jolley (Chief Electrical Inspector for Baltimore County) at an ELM Lunch and Learn concerning GFCIs, AFCI, and the new disconnecting means that will be required for the 2020 NEC – hope you did not miss that informative meeting.

Mr. Jolley has compiled comprehensive information concerning NEC Code Sections for GFCIs. What a wealth of information that he is willing to share! Be sure to make a copy; it will help you.

2020 Edition NEC GFCIs

100 Ground-Fault Circuit Interrupter (GFCI).

A device intended for the protection of personnel that functions to de-energize a circuit or portion thereof within an established period of time when a ground-fault current exceeds the values established for a Class A device.

Informational Note: Class A ground-fault circuit interrupters trip when the ground-fault current is 6 mA or higher and do not trip when the ground-fault current is less than 4 mA.

All GFCI's are to be readily accessible

Section 210.8 GFCI protection for personnel (Class A device)

210.8(A) Dwelling units

All 125- through 250-volt, no max amp, receptacles in the following locations that are supplied by 1Ø branch circuits rated 150 volts or less to ground are required to have GFCI protection for personnel.

210.8(A)(1) Bathrooms
210.8(A)(2) Garages and accessory buildings
210.8(A)(3) Outdoors
210.8(A)(4) Crawl spaces
210.8(A)(5) Basements (finished and unfinished)
210.8(A)(6) Kitchens
210.8(A)(7) Sinks
210.8(A)(8) Boathouses
210.8(A)(9) Bathtubs or shower stalls
210.8(A)(10) Laundry areas
210.8(A)(11) Indoor damp and wet locations

Other than dwelling units 210.8(B)

All 125-volt through 250-volt receptacles supplied by 1Ø branch circuits rated 150 volts or less to ground, 50 amperes or less, and all receptacles supplied by 3Ø branch circuits rated 150 volts or less to ground, 100 amperes or less, installed in the following locations are required to have GFCI protection for personnel.

210.8(B)(1) Bathrooms
210.8(B)(2) Kitchens or areas with sink and permanent provisions for food preparation or cooking
210.8(B)(3) Rooftops
210.8(B)(4) Outdoors
210.8(B)(5) Sinks- W/6'
210.8(B)(6) Indoor damp and wet locations
210.8(B)(7) Locker rooms w/shower facilities
210.8(B)(8) Garages and accessory buildings
210.8(B)(9) Crawl spaces — at or below grade
210.8(B)(10) Unfinished areas of basements
210.8(B)(11) Laundry areas (Laundromats)
210.8(B)(12) Bathtubs and shower stalls- W/6'

For dwellings and non-dwellings

210.8(C) 120-volt Crawl space lighting
210.8(D) Specific appliances, see 422.5
210.8(E) Receptacles for equipment requiring servicing, see 210.63
210.8(F) Dwelling outdoor outlets A/C units etc..- Does not include lighting

Feeders

215.9 Feeders can have GFCI protection in lieu of protection required per 210.8

422 Appliances
422.5(A) Appliances rated 150 volts or less to ground and 60 amperes or less, 1Ø or 3Ø, shall be provided with Class A GFCI protection for personnel.
422.5(A)(1) Automotive vacuums
422.5(A)(2) Water coolers and bottle fill stations
422.5(A)(3) High-pressure spray washers
422.5(A)(4) Tire inflation machines
422.5(A)(6) Sump pumps
422.5(A)(7) Dishwashers

525.23 GFCI protection for Carnivals and Fairs
547.5(G) GFCI protection for Agricultural Buildings
555 Marinas
555.9 Boat hoist outlets max 240 volts
555.33(B)(1) Receptacles for other than shore Power GFCI Class A
555.35(A)(1) Shore power receptacles GFPE max 30 mA
555.35(A)(3) Feeder and Branch Circuit w/GFPE - MAX 100 mA
590 Temporary Wiring
590.6 Temporary receptacles GFCI for personnel- 125 volt, 1Ø, 15, 20, or 30 Amps

620.6	GFCI protection for Elevators
625.54	All receptacles installed for Electric Vehicle Charging require GFCI protection.
647	Sensitive Electronic Equipment
647.7(A)(1)	Receptacles shall be GFCI protected
680	Pools
680.21(C)	Outlets for pool motors, 150 volts to ground and up to 60 amps, 1Ø or 3Ø protected by GFCI
680.22(A)(2)	Circulation and sanitation pump motor receptacles need GFCI protection
680.22(A)(4)	All 125 volt, 1Ø, 15 or 20 amp receptacles w/20' of pools need to be GFCI protected
680.22(A)(5)	All 150 volts to ground or less receptacles in a pool equipment room shall be GFCI protected
680.22(B)	Rules for GFCI protection for lighting in around pools
680.43	Hot tub GFCI rules
680.58,59	Fountain GFCI rules
680.62(A)	Therapeutic tub GFCI rules
680.82	Pool lift GFCI rules
682.15	GFCI rules for natural and artificial bodies of water

Several other sections throughout the NEC refer back to 210.8.

There are multiple rules for GFPE also.

ELECTRIC LEAGUE OF MARYLAND, INC.

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To Our Members, Supporters, Readers, and Friends: April, 2020

We know that the Covid-19 Virus has curtailed a large segment of our industry and makes doing business difficult. The League has been fielding calls about these problems and pondering what we can do to help the situation.

Hopefully, you are aware that guidelines established by President Trump and Governor Hogan allow the building trades to continue providing essential services to the public and also the supply houses to furnish materials.

Our serving utilities have been, and are working, diligently to keep electrical and communications systems functional, secure, and serviceable for the public's welfare and use.

Most subdivisions have put into place innovative and critical methods to help builders and contractors, etc. to secure proper permits and necessary inspections (see each subdivision's websites for further information).

Please Note – The Board of Directors of the League has been sending responses to proposed legislation, public service requests, and other matters that affect our industry (please review our prior *News and Notes*).

Because of the 10-person and six-foot distancing rules, classroom instruction for exam prep code changes and reviews has been temporarily suspended. So, at this time, the Board thought it might be a good idea to start of a new category on our website which will be called **"ELM Code Helps".**

Milford Badders, Lee Jolley, Marty Schumacher, and Gil Thompson have agreed to provide some helpful information until those courses can resume. They feel that this type of continuing education will help designers and installers in their ability to provide safe electrical installations.

Although these persons are well-versed in the subjects presented and may give comments based on their years of experience, do not take the material presented as an official interpretation of the Codes. The final approval for materials and electrical systems being installed rests with the local jurisdiction that has authority. Remember, before you start any work, request a copy of any local amendments and find out what year or edition of the NEC is being enforced in that particular local area.

Now, click on the drop down menu titled **ELM Code Helps** to view important information that could be useful in these challenging times.

CODE HELP

Always know that you can contact Lee Jolley (Supervisor of Electrical Inspections for Baltimore County Government) at 717-779-5869 or Marty Schumacher (Electrical Training Instructor) at 410-790-8993, as they have developed some special computer courses that can help you with the calculations listed below. In addition, there are programs and code change books that can further explain topics listed below and can be obtained from Mike Holt by calling 1-888-632-2633 or 1-800-786-4234 (IAEI).

After reviewing some previously shared material from a few years ago, I decided to provide some information that might prove helpful in solving everyday workplace problems. You will find formulas, wire, raceway, ampacity charts, and a few commonly asked questions below.

Additionally, you might wish to examine Chapter 9 (Tables and Annexes) carefully. Pay particular attention to the notes and headings, as you will find guidance on: percent of fill for conduit, tubing, etc.; ampacity and properties of conductors; examples to use for load calculations of various equipment and occupancies; materials used for construction types; critical operation systems; tightening torque; and handicap or accessible design diagrams. Chapter 9 of the Code is often overlooked or not reviewed, but it is a very important part of the NEC.

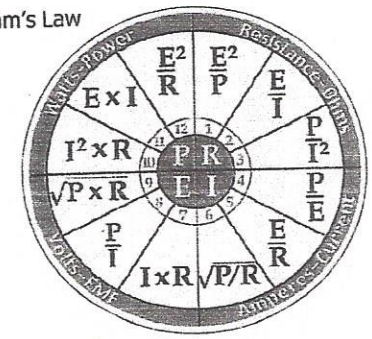
Commercial Wire and Raceway Chart

Overcurrent Protection Size	Copper [1] Wire 60°C Terminal	Copper [2] Wire 75°C Terminal	Maximum [3] Continuous Ampere Load	Raceway [4]	Copper [5] Ground Wire	Max. Continuous 1-Phase VA Load [3]					Max. Continuous 3-Phase VA Load [3]		
						120 V	208 V	240 V	277 V	480 V	208 V	240 V	480 V
15	14	14	12	1/2"	14	1,440	2,496	2,880	3,324	5,760	4,323	4,988	9,976
20	12	12	16	1/2"	12	1,920	3,328	3,840	4,432	7,680	5,764	6,651	13,302
25	10	10	20	3/4"	10	2,400	4,160	4,800	5,540	9,600	7,205	8,314	16,627
30	10	10	24	3/4"	10	2,880	4,992	5,760	6,648	11,520	8,646	9,976	19,953
35	8	8	28	1"	10	3,360	5,824	6,720	7,756	13,440	10,087	11,639	23,278
40	8	8	32	1"	10	3,840	6,656	7,680	8,864	15,360	11,528	13,302	26,604
45	6	8	36	1"	10	4,320	7,488	8,640	9,972	17,280	12,969	14,964	29,929
50	6	8	40	1"	10	4,800	8,320	9,600	11,080	19,200	14,410	16,627	33,254
60	4	6	48	1"	10	5,760	9,984	11,520	13,296	23,040	17,292	19,953	39,905
70	4	4	56	1 1/4"	8	6,720	11,648	13,440	15,512	26,880	20,174	23,278	46,556
80	3	4	64	1 1/4"	8	7,680	13,312	15,360	17,728	30,720	23,056	26,604	53,207
90	2 (1 1/2")	3	72	1 1/4"[7]	8	8,640	14,976	17,280	19,944	34,560	25,938	29,929	59,858
100	1 (2")	3	80	1 1/4"[7]	8	9,600	16,640	19,200	22,160	38,400	28,820	33,254	66,509
110		2	88	1 1/2"	6	10,560	18,304	21,120	24,376	42,240	31,703	36,580	73,160
125		1	100	2"	6	12,000	20,800	24,000	27,700	48,000	36,026	41,568	83,136
150		1/0	120	2"	6	14,400	24,960	28,800	33,240	57,600	43,231	49,882	99,763
175		2/0	140	2"	6	16,800	29,120	33,600	38,780	67,200	50,436	58,195	116,390
200		3/0	160	2 1/2"	6	19,200	33,280	38,400	44,320	76,800	57,641	66,509	133,018
225		4/0	180	2 1/2"	4	21,600	37,440	43,200	49,860	86,400	64,846	74,822	149,645
250		250 kcmil	200	3"	4	24,000	41,600	48,000	55,400	96,000	72,051	83,136	166,272
300		350 kcmil	240	3 1/2"	4	28,800	49,920	57,600	66,480	115,200	86,461	99,763	199,526
350		400 kcmil	268[6]	3 1/2"	3	32,160	55,744	64,320	74,236	128,640	96,549	111,402	222,804
400		500 kcmil	304[6]	4"	3	36,480	63,232	72,960	84,208	145,920	109,518	126,367	252,733
400		600 kcmil	320	4"	3	38,400	66,560	76,800	88,640	153,600	115,282	133,108	266,035

[1] Conductor size based on 60°C terminal rating. Ampacity based on four 90°C THHN current-carrying conductors [110.14(C), 310.15, Table 310.16].
[2] Conductor size based on 75°C terminal rating. Ampacity based on four 90°C THHN current-carrying conductors [110.14(C), 310.15, Table 310.16].
[3] Maximum continuous nonlinear load in an ambient temperature of 30°C limited to 80 percent of the overcurrent device rating [210.19(A), 240.6(A)].
[4] To ensure ease of installation, raceways are sized to six THHN conductors (based on 75°C column, Note 3) in rigid nonmetallic conduit [Annex C].
[5] Copper equipment grounding conductor is sized in accordance with Table 250.122.
[6] Maximum continuous load limited to 80 percent of 75°C conductor ampacity, because conductor ampacity is lower than the overcurrent protection device rating.
[7] Raceway size is based on 75°C conductor size, not the 60°C conductor size.

Question No. 3

- Ohm's Law



Formulas

Conversion Formulas

Area of Circle = πr^2
Breakeven Dollars = Overhead Cost $/Gross Profit %
Busbar Ampacity AL = 700A Sq. in. and CU = 1000A Sq. in.
Centimeters = Inches x 2.54
Inch = 0.0254 Meters
Inch = 2.54 Centimeters
Inch = 25.4 Millimeters
Kilometer = 0.6213 Miles
Length of Coiled Wire = Diameter of Coil (average) x Number of Coils x π
Lightning Distance in Miles = Seconds between flash and thunder/4.68
Meter = 39.37 Inches
Mile = 5280 ft, 1760 yards, 1609 meters, 1.609 km
Millimeter = 0.03937 Inch
Selling Price = Estimated Cost $/(1 - Gross Profit %)
Speed of Sound (Sea Level) = 1128 fps or 769 mph
Temp C = (Temp F - 32)/1.8
Temp F = (Temp C x 1.8) + 32
Yard = 0.9144 Meters

Electrical Formulas Based on 60 Hz

Capacitive Reactance (X_C) in Ohms = $1/(2\pi f C)$
Effective (RMS) AC Amperes = Peak Amperes x 0.707
Effective (RMS) AC Volts = Peak Volts x 0.707
Efficiency (percent) = Output/Input x 100
Efficiency = Output/Input
Horsepower = Output Watts/746
Inductive Reactance (X_L) in Ohms = $2\pi f L$
Input = Output/Efficiency
Neutral Current (Wye) = $\sqrt{A^2 + B^2 + C^2 - (AB + BC + AC)}$
Output = Input x Efficiency
Peak AC Volts = Effective (RMS) AC Volts x $\sqrt{2}$
Peak Amperes = Effective (RMS) Amperes x $\sqrt{2}$
Power Factor (PF) = Watts/VA
VA (apparent power) = Volts x Ampere or Watts/Power Factor
VA 1-Phase = Volts x Amperes
VA 3-Phase = Volts x Amperes x $\sqrt{3}$
Watts (real power) Single-Phase = Volts x Amperes x Power Factor
Watts (real power) Three-Phase = Volts x Amperes x Power Factor x $\sqrt{3}$

Parallel Circuits

Note 1: Total resistance is always less than the smallest resistor
RT = 1/(1/R1 + 1/R2 + 1/R3 +...)
Note 2: Total current is equal to the sum of the currents of all parallel resistors
Note 3: Total power is equal to the sum of power of all parallel resistors
Note 4: Voltage is the same across each of the parallel resistors

Series Circuits

Note 1: Total resistance is equal to the sum of all the resistors
Note 2: Current in the circuit remains the same through all the resistors
Note 3: Voltage source is equal to the sum of voltage drops of all resistors
Note 4: Power of the circuit is equal to the sum of the power of all resistors

Transformer Amperes

Secondary Amperes 1-Phase = VA/Volts
Secondary Amperes 3-Phase = VA/Volts x $\sqrt{3}$
Secondary Available Fault 1-Phase = VA/(Volts x %impedance)
Secondary Available Fault 3-Phase = VA/(Volts x $\sqrt{3}$ x %Impedance)
Delta 4-Wire: Line Amperes = Phase (one winding) Amperes x $\sqrt{3}$
Delta 4-Wire: Line Volts = Phase (one Winding) Volts
Delta 4-Wire: High-Leg Voltage (L-to-G) = Phase (one winding) Volts x 0.5 x $\sqrt{3}$
Wye: Line Volts = Phase (one winding) Volts x $\sqrt{3}$
Wye: Line Amperes = Phase (one winding) Amperes

Voltage Drop

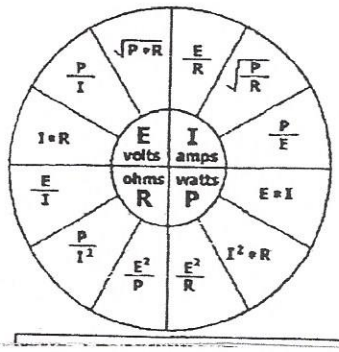
VD (1-Phase) = 2KID/CM
VD (3-Phase) = $\sqrt{3}$ KID/CM

CM (1-Phase) = 2KID/VD
CM (3-Phase) = $\sqrt{3}$ KID/VD

Code Rules

Breaker/Fuse Ratings – 240.6(A)
Conductor Ampacity – 310.15 and Table 310.16
Equipment Grounding Conductor – 250.122
Grounding Electrode Conductor – 250.66
Motor Conductor Size – 430.22 (Single) 430.24 (Multiple)
Motor Short-Circuit Protection – 430.52
Transformer Overcurrent Protection – 450.3

π (Pi) = (3.142 approximately), $\sqrt{2}$ = 1.414 (approximately), $\sqrt{3}$ = 1.732 (approximately), f = Frequency, r = radius, d = diameter, C = Capacitance (farads), L = Inductance (henrys), CM = Circular Mils (Chpt. 9, Tbl. 8), VD = Volts Drop, K75°C = (12.9 ohms CU) (21.2 ohms AL), I = Amperes of load, D = Distance one way



Question No. 3

- 658,289 volt-amperes equals how many amperes at the following voltages?
  - A. 120/240 1Ø volts = _____ amperes
  - B. 120/208 3Ø volts = _____ amperes
  - C. 277/480 3Ø volts = _____ amperes

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Question No. 3

- 658,289 volt-amperes equals how many amperes at the following voltage?
  - A. 120/240 1Ø volts = _____ amperes
  - 658,289 ÷ 240 = 2743

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Question No. 3

- 658,289 volt-amperes equals how many amperes at the following voltage?
  - B. 120/208 3Ø volts = _____ amperes
  - $\frac{658,289}{208 \times 1.73} = 1829.39$
  - $\frac{658,289}{360} = 1828.58$

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Question No. 3

- 658,289 volt-amperes equals how many amperes at the following voltage?
  - C. 277/480 3Ø volts = _____ amperes
  - $\frac{658,289}{480 \times 1.73} = 792.74$
  - $\frac{658,289}{830} = 793.12$

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Using Ohms Law, you can see why a 277/480 3-phase voltage system provides an answer so that smaller conductors can be used and it also helps the grid system survive the ever-growing demand for power. However, it makes our industry aware of the problems associated in arc flash, proper gear, and personnel protection (PPE), as well as larger fault currents – all of which can be very dangerous.

Question No. 5

- What is the unbalanced current flowing in the neutral of the following 3 phase, 4-wire, 480/277 volt system?

  A = 137 amps, B = 126 amps, C = 151 amps, N = ?

  - A. 21.52 amperes
  - B. 10.25 amperes
  - C. 18.00 amperes
  - D. 21.70 amperes

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Question No. 5

Hint:

$$I_n = \sqrt{A^2 + B^2 + C^2 - ((AxB) + (BxC) + (CxA))}$$

Question No. 5

$$I_n = \sqrt{A^2 + B^2 + C^2 - ((AxB) + (BxC) + (CxA))}$$

A^2 = 137 x 137 = 18,769	A x B = 137 x 126 = 17,262
B^2 = 126 x 126 = 15,876	B x C = 126 x 151 = 19,026
C^2 = 151 x 151 = 22,801	C x A = 151 x 137 = 20,687
57,446	56,975

57,446 – 56,975 = 471 $\quad\quad$ $\sqrt{471} = 21.70$

- Answer: D

This shows that a neutral conductor, although not having voltage, still carries all the unbalanced current. It can kill you if, as a person, you will get in series between that conductor and ground. **It is carrying amperes** – *an old rule was that you should never carry more than a ten (10) percent unbalance; 5 (five) percent is really the norm (branch circuits should be rearranged to accomplish the 5 (five) percent unbalance – you can see it would lessen the heat generated.*

Question No. 20

- A single-phase, 240-volt, 5,000-watt duct heater is connected to a 208-volt system. What is the connected wattage and full-load current?

  - Wattage _____ F. L. A. _____

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Question No. 20

- R = E x E/P (watts)
- R = 240 x 240 ÷ 5,000 = 11.52 ohms (resistance of element)
- I = E/R = 208 ÷ 11.52 = 18.06 amps
  18.06 x 208 = 3756 watts

- OR -- When 240 rated and connected at 208,
- $208 \div 240 = .866^2 = .7511$ x nameplate watts
- 5,000 x .7511 = 3755.5 watts at 208
  3756 ÷ 208 = 18.06 amps
- Answer: Wattage = 3,756 F.L.A. = 18

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You can see that the use of regular voltage and wattage equipment can be used on distribution systems that is not of the same classification, so load calculations should be adjusted.

In addition to material coming from Lee Jolley and Marty Schumaker, we will be offering other diagrams and questions in the near future. I am hopeful that these practical helps will assist all of you as you weather the storm of the electrical industry.

From: badders, milford
Sent: Tuesday, March 24, 2020 12:14 PM
To: Sue Thompson (susanjeanne@verizon.net)
Subject: FW: Solar Energy Industry Association Request to MD Public ServiceCommission

Please pass this info to Gil.

From: Mirabile, James A:(BGE) <James.A.Mirabile@bge.com>
Sent: Tuesday, March 24, 2020 11:35 AM
To: badders, milford <mlbadders@harfordcountymd.gov>
Subject: Solar Energy Industry Association Request to MD Public Service Commission

[EXTERNAL SENDER]

Mr Badders.

I would like to bring a matter to your attention and to the organization of electrical inspectors. SEIA has petitioned the Maryland Public Service Commission to require electric utilities to approve applications for solar installations within 48 hours AND grant Permission to Operate at the same time.

I believe that this petition will violate MD law by bypassing the electrical permitting and inspection process. BGE, as you know, does not issue permits or approve work on the customer side of the meter and we respect our local AHJ's jurisdiction over this work. BGE is not allowed to issue a Permission to Operate until the developer presents a final electrical inspection certificate from the AHJ. SEIA is asking the MD PSC to force BGE to grant PTO without a local electrical final inspection.

If you believe that this is an issue that your organization would like to comment on, please read the attached documents, and file comments by March 30, 2020 with the MD PSC.

If you have any questions for me, please feel free to reach out to me.

Thanks.

James A Mirabile, P.E.
Principal Engineer
Baltimore Gas and Electric Co
(410) 470-7355

STATE OF MARYLAND

PUBLIC SERVICE COMMISSION

March 20, 2020

Request of the Maryland-DC-Virginia Solar Energy Industries Association for an Emergency Order During COVID-19 Crisis	* * * * * * * * * *	ML# 229295

NOTICE OF OPPORTUNITY TO COMMENT

On March 19, 2020, the Maryland-DC-Virginia Solar Energy Industries Association ("MDV-SEIA") requested that the Maryland Public Service Commission ("Commission") issue "an emergency order calling for regulated utilities in the state of Maryland to expedite approval of interconnection applications of Level 1 customer generator systems and provide permission-to-operate notices within 48 hours of application submission, over the next six months."

Comments on MDVSEIA's request shall be filed by March 30, 2020, in accordance with the Commission's new, relaxed filing requirements.[1]

By Direction of the Commission,

/s/ Andrew S. Johnston

Andrew S. Johnston
Executive Secretary

[1] Maillog No. 229226.

March 19, 2020

VIA ELECTRONIC MAIL

Jason M. Stanek
Chairman
Maryland Public Service Commission
William Donald Schaefer Tower
6 St. Paul Street, 16th Floor
Baltimore, Maryland 21202

Re: Maryland Solar Industry Emergency Request for Relief during COVID-19 Crisis

Dear Chairman:

The members of the Maryland-DC-Virginia Solar Energy Industries Association ("MDV-SEIA") respectfully request your issuance of an emergency order calling for regulated utilities in the state of Maryland to expedite approval of interconnection applications of Level 1 customer-generator systems and provide permission-to-operate notices within 48 hours of application submission, over the next six months.

In no uncertain terms, the COVID-19 ("Coronavirus") has already caused significant operational disruption to the residential solar industry which provides thousands of jobs and resiliency for Maryland residents. Given that national and international medical experts, namely the Centers for Disease Control and the World Health Organization, all have confirmed that the spread of Coronavirus will worsen without accelerated testing and there will likely be a need for ongoing social distancing and quarantining, the solar industry's ability to provide the essential service of customer-sited solar could come to a halt. Maryland could lose countless jobs and achievement of clean energy goals will be substantially stalled. Our installers, who typically earn hourly wages, are most vulnerable, as they depend on hands-on work to provide a regular paycheck.

Fortunately, the Public Service Commission has an opportunity to mitigate the impact to the solar industry and deployment statewide. Section 20.07.01.01-1 of the Code of Maryland Regulations allows for the waiver of regulations with good cause shown. As Maryland's utility regulator, the PSC can require utilities to give Level 1 systems permission to operate – within 2 days of receipt of an interconnection application – provided that the interconnections have sign-off by a licensed electrician and otherwise comply with the regulatory requirements outlined in the COMAR. Such an emergency measure would still allow for utilities to inspect the systems at a later date.

We have seen a drastic slowdown in interconnection approvals within only the past week. Without regulatory intervention – and these systems are not allowed to operate quickly during this time – our state's residential solar industry will grind to a halt. Thus, the solar industry is in urgent need of emergency action by the Maryland Public Service Commission ("PSC") to allow for expedited interconnection of residential solar systems to prevent possible shutdown of our ability to provide the essential service of home solar.

There is precedent for this action from other jurisdictions. After the 2017 hurricanes in Puerto Rico, Governor Rossello signed an Executive Order (OE-2017-64) allowing companies to energize solar and storage systems without going through utility interconnection processes. We are only requesting a temporary emergency order that would be in effect for six months, or when business in Maryland resumes normal course. We need to be able to continue on with business as usual, to the greatest extent possible, during these times.

Thank you for your consideration of MDV-SEIA's request. We would be happy to have a conference call with you or your staff to discuss this situation request further.

Sincerely,

David Murray
Executive Director
MDV-SEIA

CC:
Commissioner Michael T. Richard
Commissioner Anthony J. O'Donnell
Commissioner Odogwu Obi Linton
Commissioner Mindy L. Herman

ELECTRIC LEAGUE OF MARYLAND, INC.

ELM

Serving all of MD since 1955

March 26, 2020

RE: ML229295

Mr. Jason Stanek, Chairman
Maryland Public Service Commission
William Donald Schaefer Tower
6 St. Paul Street, 16th Floor
Baltimore, MD 21202-6806

RE: MD Solar Industry Emergency Relief during COVID-19 Crisis

Dear Chairman:

The Board of Directors of the Electric League of Maryland would like to comment on the request of the MD Solar Industry Emergency Request for Relief during the COVID-19 Crisis. We do not believe that it is even necessary to consider their request, as according to the emergency resource guide from Governor Hogan, all businesses that do not have more than 10 people for gatherings would be allowed to continue, such as the building trades. This would encompass electricians, plumbers, heating and air conditioning contractors, masons, and (solar installers). In addition, implementing innovative ideas, small businesses would be able to continue in their normal practices of complying with rules and regulations governing licensing, permits, and inspections.

We have been informed by all local subdivisions that they are continuing to take requests for permits and are making inspections as necessary. Therefore, we see no need for this request. **However, if it is considered it could be very dangerous to the public's safety.**

To be clear, an entire article of the National Electrical Code is set aside to regulate and set standards for solar, photovoltaic (PV systems). The solar industry is certainly growing, and many innovative concepts must be integrated into the complex electrical industry. Concerning the 2020 National Electrical Code, there are over 36 revisions and changes, and even some new material added to this particular section of the electrical code. All are intended to provide for the safety of the public, the installers, and even first responders in case of fire. There is a new requirement for emergency disconnects that will disconnect the power to the dwelling so first responders are protected from electrical shock and possible injury. There are also requirements for proper clearance and spacing on roof areas from property lines, and even weight distribution requirements so that buildings are protected when trying to fight fires.

Some jurisdictions have very thorough and comprehensive plans review before PV installations are allowed to even proceed, and there is no reason to have necessary safety procedures bypassed.

The Board of Directors of the Electric League of Maryland sympathize with the solar industry, and our electrical members as well, for the curtailing of our industry and the many resulting hardships, but we know that we all must cooperate for the common good. Thank you for considering our comments.

Sincerely,

Gilbert L. Thompson, Vice President
Electric League of Maryland
Legislative Liaison for Such Groups as
The MD Inspectors,
The Chesapeake Chapter of IAEI
and Code and Standards Committee
7716 Chapman Road (Home Address)
Kingsville, MD 21087
410-592-7676

CC:
Board Members of ELM
Solar Panel Industry
Public Service Commission

From: Rich Vittek
Sent: Sunday, April 12, 2020 6:10 PM
To: Association
Subject: Fwd: City of Hagerstown - Virtual Residential Inspections

Wanted to pass this on for anyone that may be doing work in Hagerstown.

Subject: City of Hagerstown - Virtual Residential Inspections

The City of Hagerstown is currently operating under the Mayor's Declaration of a Civil Emergency. Permit inspections will continue as normal while City Hall is closed to the public, with the exception of City Staff will not enter the interior of occupied residential structures or facilities for inspections. City staff are offering virtual inspections for occupied residential structures starting on Monday, April 13th.

Virtual inspections are an alternative to in-person inspections, enable prompt service, productive follow-ups, and scheduling for occupied residential structures during the Civil Emergency. Virtual inspections are conducted between a Virtual Inspection (VI) Representative and City inspector by using a video call on a smart phone, tablet, or other webcam enabled device.

Minimum Requirements for a Virtual Inspection:

- All building-related inspections (building, electrical, mechanical, and plumbing) for occupied residential structures may be considered for virtual inspections; however, based on the size and/or complexity of the project it may not be possible to conduct virtually. Note:
    - Inspection complexity will be determined by the inspector
    - For inspections deemed too complex for virtual completion, the City will discuss other options that will permit the project to have inspections in a safe manner.
- Customers must have a host device such as a smartphone, tablet, or webcam enabled device connected to Wi-Fi or 4G wireless service.
- FaceTime (Apple OS device) or Goggle Duo (all devices) is required to host the video call. Check your mobile device's app store to download.
- If the project has a building permit for work being conducted, all approved plans must be onsite and available for review to the inspection staff during the video call.

- Ensure you have the necessary tools (based on the inspection type) readily available. For example, a tape measure, screwdriver, level (4ft for building & plumbing/torpedo for plumbing), thermometer, GFCI tester/voltage tester, ladder, device to test smoke/carbon monoxide alarms and/or flashlight.

Please review the attached Virtual Inspections document for more information on these inspections.

Planning and Code Administration Department

Committed to Safety, Dedicated to Partnership and Progress

Connect with PCAD!

Please do not print this e-mail unless necessary