November 22, 2022

Ms. Sallie Tanner
Executive Secretary
Georgia Public Service Commission
244 Washington Street, SW
Atlanta, GA 30334-5701

RE: Docket No. 44280: Demonstrative Handouts for GASEIA, SEIA, and Vote Solar

Dear Ms. Tanner:

Enclosed for pre-filing in the above-referenced docket, please find demonstrative handouts to accompany the direct testimony Kevin Lucas, Thatcher Young, and Will Giese on behalf of Georgia Solar Energy Industries Association, Solar Energy Industries Association, and Vote Solar.

If you have any questions, please contact me.

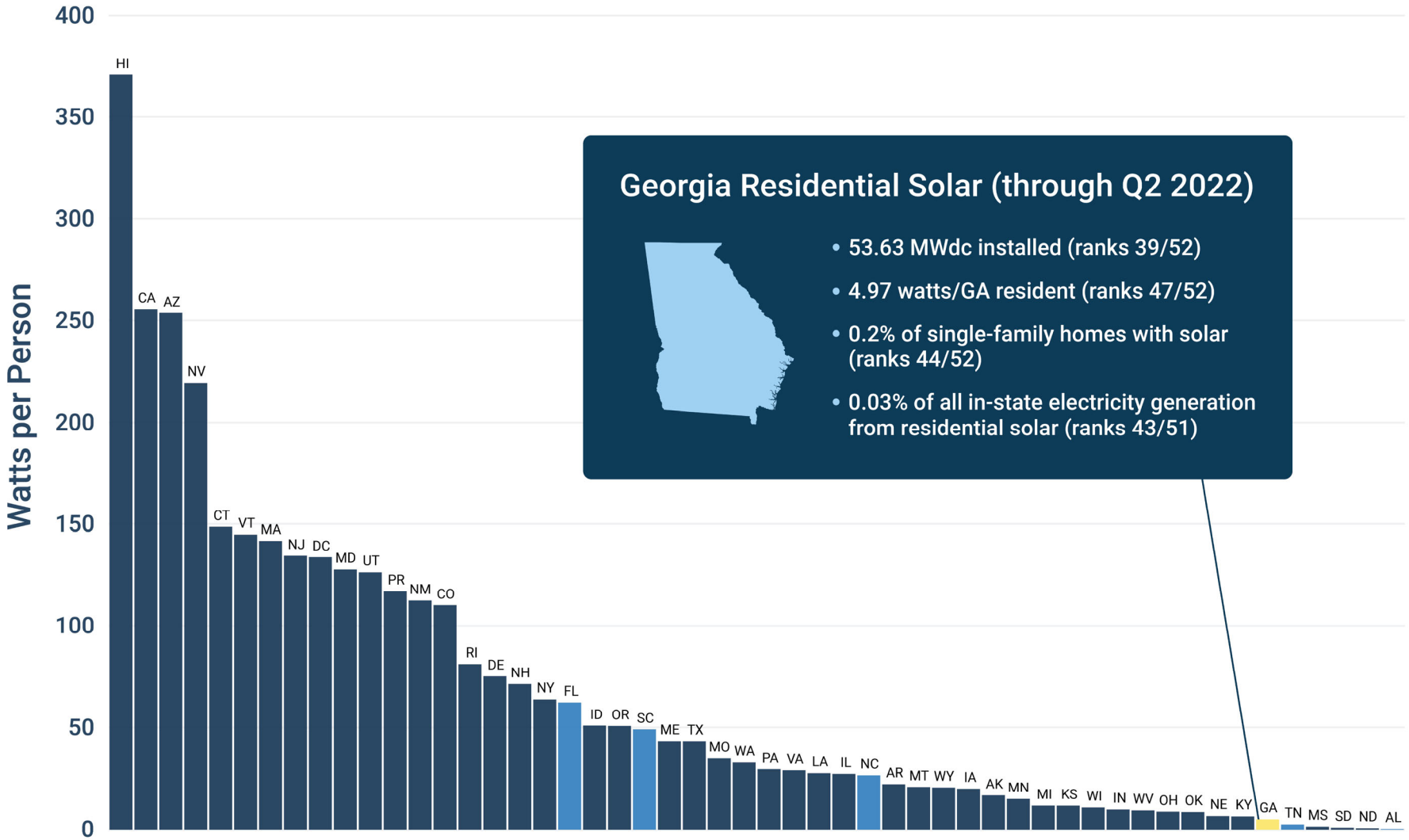
Sincerely,

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Attorney for GASEIA, SEIA, and Vote Solar

GASEIA SEIA VOTE SOLAR
Docket No. 44280
Exhibit ____

Cumulative Residential Solar Per-Capita



SEIA Solar Energy Industries Association®

Georgia ranks 47th in residential solar capacity per capita (watts/person)

Rank	State	Cumulative Residential Solar Capacity (MW)	Residential Solar Capacity per Capita (W/person)
1	Hawaii	534.21	370.58
2	California	10,035.73	255.77
3	Arizona	1,846.32	253.74
4	Nevada	689.53	219.32
5	Connecticut	535.65	148.56
6	Vermont	93.47	144.78
7	Massachusetts	989.80	141.71
8	New Jersey	1,245.49	134.40
9	Washington DC	89.59	133.71
10	Maryland	787.04	127.66
11	Utah	421.88	126.39
12	Puerto Rico	382.30	117.14
13	New Mexico	237.93	112.45
14	Colorado	639.93	110.10
15	Rhode Island	88.90	81.14
16	Delaware	75.40	75.14
17	New Hampshire	99.14	71.37
18	New York	1,267.53	63.90
19	Florida	1,359.46	62.41
20	Idaho	96.81	50.93
21	Oregon	215.46	50.74
22	South Carolina	254.58	49.04
23	Maine	59.35	43.25
24	Texas	1,276.57	43.23
25	Missouri	215.36	34.91
26	Washington	254.77	32.92
27	Pennsylvania	383.87	29.61
28	Virginia	250.91	29.03
29	Louisiana	128.15	27.71
30	Illinois	346.34	27.33
31	North Carolina	280.89	26.62
32	Arkansas	67.12	22.18
33	Montana	22.92	20.75
34	Wyoming	11.86	20.50
35	Iowa	63.56	19.91
36	Alaska	12.20	16.65
37	Minnesota	84.63	14.83
38	Michigan	115.95	11.54
39	Kansas	33.80	11.52
40	Wisconsin	62.71	10.64
41	Indiana	65.75	9.66
42	West Virginia	16.42	9.21
43	Ohio	101.14	8.59
44	Oklahoma	33.54	8.41
45	Nebraska	12.83	6.54
46	Kentucky	28.77	6.38
47	Georgia	53.63	4.97
48	Tennessee	17.21	2.47
49	Mississippi	4.07	1.38
50	South Dakota	0.80	0.89
51	North Dakota	0.51	0.65
52	Alabama	1.36	0.27

Georgia ranks 44th in percentage of homes with solar

Rank	State	% of Single-Family Homes with Solar
1	Hawaii	27.0%
2	California	15.4%
3	Nevada	9.4%
4	Arizona	9.0%
5	Washington DC	8.5%
6	Massachusetts	7.3%
7	Connecticut	6.4%
8	Utah	6.4%
9	New Jersey	6.0%
10	Colorado	5.2%
11	New Mexico	5.0%
12	Puerto Rico	4.9%
13	Maryland	4.3%
14	Rhode Island	4.3%
15	New York	3.8%
16	Vermont	3.4%
17	New Hampshire	2.3%
18	Delaware	2.2%
19	Oregon	2.2%
20	Florida	2.0%
21	Idaho	2.0%
22	Texas	2.0%
23	Missouri	1.5%
24	South Carolina	1.4%
25	Washington	1.3%
26	Illinois	1.1%
27	Louisiana	1.1%
28	Virginia	1.1%
29	Pennsylvania	1.0%
30	North Carolina	0.8%
31	Alaska	0.7%
32	Maine	0.7%
33	Wyoming	0.7%
34	Montana	0.6%
35	Arkansas	0.6%
36	Iowa	0.6%
37	Minnesota	0.5%
38	Wisconsin	0.5%
39	Michigan	0.4%
40	Ohio	0.3%
41	Kansas	0.3%
42	Oklahoma	0.3%
43	Indiana	0.3%
44	Georgia	0.2%
45	Kentucky	0.2%
46	Nebraska	0.2%
47	West Virginia	0.2%
48	Tennessee	0.1%
49	Mississippi	0.1%
50	South Dakota	0.0%
51	North Dakota	0.0%
52	Alabama	0.0%

TOP 10 REASONS TO REJECT GEORGIA POWER'S COST-SHIFT ANALYSIS

1. No cost of service analysis for RNR customers

- Georgia Power's analysis is based only on revenue erosion, not the cost to serve RNR customers.

2. Unrealistic assumptions that overstate solar production.

- GPC assumed that every PV system had a 16.3% capacity factor and a 120% AC-to-DC ratio.
- These assumptions are only accurate for ideal, unshaded, south-facing roofs with insolation attainable in only some parts of the state.

3. Over-simplified data for non-solar customers: only 4 customers analyzed.

- GPC decided to compress 1,110 customers into 4 customers, then expands its conclusions from those 4 to present results for 5,000 customers
- Averaging 1,110 customers into 4 removes all the variation inherent in individual customer's usages.

4. Unjustified selection of 4 "representative" non-solar customers

- GPC provides no explanations of whether these 4 customers are representative of broader customers, or anything about their usage profile (electric vs gas heat, EVs, work from home, kids, etc.)
- GPC confirmed that "there is not a formal model or worksheet that would be considered to be 'analysis,'" and it only performed a perfunctory screen to ensure that the four customers were "in line with the annual usage targets from the RNR group." No analysis of load shape, monthly usage, or peak/off peak usage was considered.

5. Unusual usage patterns in hourly meter data for the 4 customers.

- Hourly data reveals usage values that unexpectedly spike to extremely high levels for one hour before returning to more typical usage. The 2nd quartile representative customer has repeated spikes from 1-2 PM throughout the year when load increase from 2-3 kW to over 10 kW, before falling back rapidly.
- It is highly unlikely that this load pattern is reflective of a broad set of customers.

6. Incorrectly scaled results from those 4 customers to all 5,000 customers.

- The Company expands the results from the 4 "representative" customers back to the 1,110 customer RNR Monthly Netting set as well as to a hypothetical set of 5,000 customers.
- The Company provided no evidence that the 5,000 customers were sufficiently similar to the 4 representative customers to justify this expansion.
- The total "cost shift" also assumes all 5,000 customers would be residential, which is not accurate.

7. Incorrectly uses PVWatts "typical year" instead of actual single-year data.

- Mixing apples and oranges: using "typical meteorological year" instead of actual weather-specific data, even though it is using actual customer data for that year, not data for a "typical" year.

8. Fails to correct PVWatts solar generation data to Daylight Savings Time.

- PVWatts hourly data is in Standard Time. GPC's customer is in Daylight Prevailing Time.
- GPC doesn't correct for this mismatch, as evidenced in the blank value for 2-3 AM on March 14, 2021, when clocks "sprang forward."
- Between March and November, solar generation is calculated one hour too early, so it does not reflect the higher amounts of solar available during late summer afternoon hours when loads are high.

9. Conflates avoided energy savings and fuel savings in presentation of results

- GPC reports that customers only produce $21 in annual "avoided energy savings / benefits". This value is calculated from the non-fuel variable O&M costs, but does not include the $254 in annual fuel savings that the Company itself identified.

10. Incorrectly doubles the cost-shift impact due to a spreadsheet error

- GPC has presented cost-shift results that are twice what their own numbers support.