BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In Re: Petition for Determination of Need for Levy Units 1 and 2 Nuclear Power Plants.	))))	Docket No: 080148-EI Submitted for Filing: June 5, 2008

NOTICE OF FILING LATE-FILED HEARING EXHIBIT

Progress Energy Florida, Inc. hereby gives notice that it has filed and served Late-Filed Hearing Exhibit No. 78 to counsel and parties of record as indicated on the attached service list via electronic and U.S. Mail this 5th day of June, 2008.

Respectfully submitted,

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Subject Matter at Issue

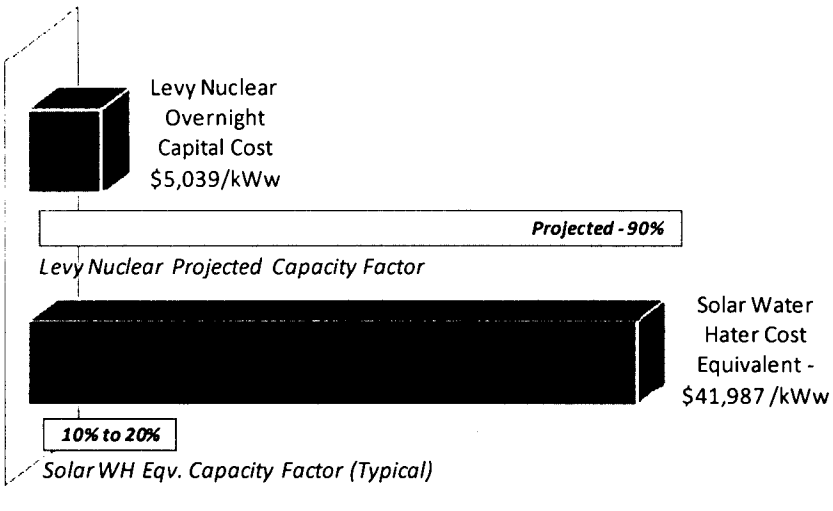
During the hearing of this matter, Commissioner Argenziano stated that customers have asked whether PEF could avoid building Levy Units 1&2 by spending $17 billion on residential solar thermal hot water heaters and installing those devices in homes within PEF's service territory. Based on these questions, Commissioner Argenziano asked whether spending $17 billion in the manner suggested would avoid entirely or defer some or all of the need for the base load generation that Levy Units 1&2 will provide. Commissioner Argenziano asked that PEF provide an answer to this question along with information and data supporting PEF's response.

Summary Response to Commissioner Argenziano's Question

Q. Would spending $17 billion on residential solar thermal hot water heaters and installing those devices in homes within PEF's service territory avoid entirely or defer some portion of the need for the base load generation that Levy Units 1&2 will provide?

A. No. Investments in residential solar thermal hot water heaters would not have a measurable impact on PEF's base load generation need. As can be seen from the information provided in this response, these systems would have a minimal impact on PEF's peak load and little to no impact on its base load requirements. In our estimate, only about $2 billion (in current dollars) could theoretically be spent on residential solar thermal hot water heaters based on the projected number of single family homes in PEF's service territory by 2018. Looking just at the cost equivalent for these applications (on a kW basis), solar thermal water heaters would be over 8 times more expensive than the Levy units. In addition, they would not provide the reliable capacity benefits of the proposed nuclear power generating option.

Chart 1: Cost Comparison for Resources in PEF's Service Area



Detailed Response to Commissioner Argenziano's Question

According to research conducted with the Florida Solar Energy Research in Education Foundation (FlaSEREF) and contractors in the solar water heating field, the average cost of a residential solar thermal water heater ("WH") is $4,500 to $5,000. In evaluating PEF's Solar WH w/ Energy Wise ("EW") participants, the average cost was $4,895. Therefore, PEF has assumed $4,895 as a reasonable installed cost estimate for these applications.

PEF estimates that it will have approximately 1 million single family homes in its service territory by 2018. Of these homes, a portion would have unobstructed solar exposure (e.g. no shading from trees, buildings, or other structures), have electric water heating, have no deed restrictions, and have good southern/solar alignment, which are all necessary elements for efficient solar water heating system applications. Based on customer surveys, approximately 40% of the homes would fit within these operational parameters, resulting in approximately 400,000 potentially eligible single family homes.

The next step is to take the 400,000 potential single family homes and multiply by the average installed solar WH cost. This results in a potential investment amount of $1,958,000,000 in 2008 dollars.

Per discussions with the Florida Solar Energy Center (FSEC), the Florida Department of Environmental Protection (FDEP), Florida Solar Energy Industries Association (FlaSEIA), Florida Solar Energy Research in Education Foundation (FlaSEREF) and the Florida Energy Office (FEO), the average expected annual energy savings from solar water heaters is 2,000 kWh/yr. It should be noted that water heater demand is greater during the winter peak period, however there is limited solar water heating potential during these hours of system peak. Winter peak reduction potential would be approximately 0.117 kWw per installation (6 -10 am/November to February). Summer peak reduction potential would be approximately 0.178 kWs per installation (12 – 9 pm).

The following tables summarize, tabulate, and graphically illustrate the information discussed above:

Table 1
Overview and Calculations

Solar WH Potential		Year 2018	
Homes		1,000,000	
Technical Potential		40%*	
Annual Energy (kWh)	2000	800,000,000	kWh (In 2018)
Winter Peak (kWw)	0.12	46,634	wkW
Summer Peak (kWs)	0.18	71,246	skW
cost / system	$4,895	$1,958,000,000	
Solar WH Cost	($/kWw)	$41,987	
Solar WH Cost	($/kWs)	$27,482	
Levy Nuclear Cost	($/kWw)	$ 5,039	(Total Overnight)
		$ 7,664	(Total In-Service)
Comparison of Cost Factor	($/kWw)	8.3	(Overnight $/kWw)

* (Based on 90% electric WH, 68% low shade, 66% southern orientation option. Deed restrictions and customer acceptance not considered as factors)

Table 2
Average Winter Electricity Usage for Water Heaters (By Hour)

HR	Mean WH	Mean SWH	SWH Impact		
0	0.132	0.087	0.045		
1	0.095	0.106	-0.011		
2	0.074	0.096	-0.022		
3	0.067	0.095	-0.027		
4	0.071	0.099	-0.028		
5	**0.106**	**0.087**	**0.019**		
6	**0.194**	**0.115**	**0.079**	Avg	AM Peak Hrs
7	**0.305**	**0.165**	**0.139**	0.117	6am-10am
8	**0.354**	**0.202**	**0.152**		
9	**0.341**	**0.245**	**0.096**		
10	0.303	0.387	-0.084		
11	0.288	0.427	-0.139		
12	0.252	0.334	-0.082		
13	0.229	0.192	0.037		
14	0.215	0.080	0.135		
15	0.198	0.053	0.145		
16	0.216	0.038	0.177		
17	0.251	0.055	0.196		
18	**0.288**	**0.055**	**0.233**		
19	**0.312**	**0.061**	**0.251**		
20	**0.319**	**0.093**	**0.226**		
21	**0.304**	**0.095**	**0.209**		
22	0.236	0.094	0.143		
23	0.188	0.089	0.099		
Sum =	5.337	3.349	1.988		
mean =	0.222	0.140	0.083		

Chart 2

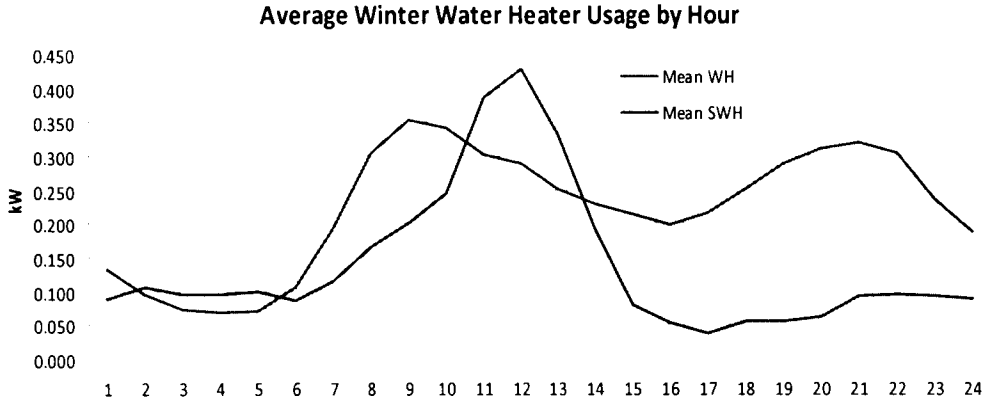
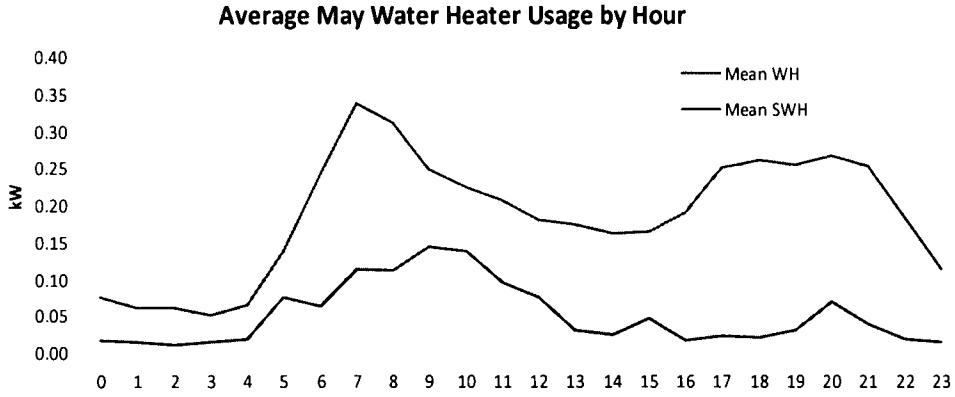

Average Winter Water Heater Usage by Hour
kW
0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Mean WH
Mean SWH

Table 3
Average May Electricity Usage for Water Heaters (By Hour)

HR	Mean WH	Mean SWH	SWH Impact		
0	0.073	0.013	0.060		
1	0.058	0.013	0.045		
2	0.058	0.008	0.050		
3	0.049	0.011	0.038		
4	0.063	0.017	0.045		
5	0.135	0.072	0.062		
6	0.241	0.061	0.180		
7	0.336	0.110	0.225		
8	0.309	0.110	0.199		
9	0.246	0.141	0.105		
10	0.223	0.135	0.088		
11	0.203	0.094	0.109		
12	**0.177**	**0.072**	**0.105**		
13	**0.172**	**0.029**	**0.143**	Avg	Peak Hrs
14	**0.159**	**0.022**	**0.137**	0.178	Noon-9 PM
15	**0.162**	**0.043**	**0.119**		
16	**0.187**	**0.015**	**0.172**		
17	**0.249**	**0.020**	**0.229**		
18	**0.258**	**0.019**	**0.239**		
19	**0.253**	**0.028**	**0.225**		
20	**0.265**	**0.067**	**0.198**		
21	**0.251**	**0.037**	**0.214**		
22	0.180	0.016	0.164		
23	0.111	0.013	0.098	Solar %	
sum=	4.418	1.168	3.250	74%	
mean=	0.184	0.049	0.135		

Chart 3



The data above demonstrate that for approximately $2 billion (in 2008 dollars), PEF could conceivably install approximately 400,000 solar thermal hot water heaters in residential homes within PEF's service territory. These devices would potentially offset approximately 46 megawatts in the winter and 71 megawatts in the summer at a cost of approximately $42,000 per kilowatt and $27,000 per kilowatt respectively. From general experience, solar resources tend to operate with capacity factors in the range of 10 to 20% which is more in line with peaking resources than baseload resources.