



Nuclear Energy Oversight Project

*"Oversight of the U.S. Nuclear Regulatory Commission
to protect public health and safety and the environment"*

6526 S. Kanner Hwy. Unit 235
Stuart, Florida 34997
Email: NEOP@gmx.com
Phone: (772) 262-0728

Thomas Saporito
Executive Director

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

RE: PETITION FOR HEARING AND LEAVE TO INTERVENE

The Nuclear Energy Oversight Project (NEOP) and its Executive Director, Thomas Saporito (hereinafter "petitioners"), hereby file a Petition for Hearing and Leave to Intervene before the Florida Public Service Commission (FPSC) and state as follows:

BACKGROUND

The Florida Power & Light Company (FPL), owns and operates the Turkey Point Nuclear Units (TPN) 3&4 located near Homestead, Florida. The combined power output of the two nuclear reactors is 1,386 Mega-Watts. Currently, the FPSC continues to authorize FPL to charge its ratepayers for each kilowatt hour Kwh of power consumed from FPL's electric grid which the TPN facility is connected. In addition, the FPSC continues to authorize FPL to charge its ratepayers the costs associated with refueling the TPN facility. Moreover, the FPSC has authorized FPL to recover costs from its ratepayers associated with TPN upgrades over the years as the unit 3&4 nuclear reactors were constructed in approximately 1972 and 1973 respectively.

REQUEST FOR ORDER BY THE FPSC

Petitioners respectively request that the FPSC:

1. DENY any further request by FPL to charge its ratepayers for electricity produced by TPN; and
2. DENY any further request by FPL to charge its ratepayers for the refueling costs associated with the TPN facility; and
3. DENY any further request by FPL to charge its ratepayers for upgrades and/or license extensions associated with the TPN facility.

BASIS AND JUSTIFICATION

1. **First Alternative to FPL's TPN facility exists** - such as residential home solar systems. To estimate the total power generation from homes in Florida if the majority installed 5 kWh solar systems with lithium-ion batteries and inverters, consideration of the following data is required:
 - **Number of Homes in Florida:** According to the U.S. Census Bureau, there were approximately 9.5 million housing units in Florida as of 2020.
 - **Percentage of Homes with Solar:** The percentage of homes that have installed 5 kWh solar systems with lithium-ion batteries and inverters is subject to factors like incentives, regulations, and individual homeowner choices.
 - **Sunlight and Solar Efficiency:** The actual power generation from solar panels depends on factors like sunlight hours and the efficiency of the solar panels. Florida generally receives a good amount of sunlight.
 - Presuming that just 10% of the housing units in Florida installed 5 kWh solar systems with batteries and inverters – the following estimates can be made:
 - 10% of the 9.5 million housing units in Florida is equal to 950,000 housing units.
 - If each of these homes has a 5 kWh solar system, they can generate 5 kWh of electricity per hour when the sun is shining, with an average of 5 hours of sunlight per day.
 - So the Total Power Generation is (950,000 homes x 25 kWh/day) = 23,750,000 kWh/day – or 23,750 MW per day. (This is the amount of power not drawn away from FPL's electric grid – because these homes are essentially self-sustaining and operating off-the-grid.
 - If just 10% of homes in Florida had 5 kWh solar systems with lithium-ion batteries and inverters, and 50% of the generated power was returned FPL's electric grid, they could potentially return approximately 11,875 megawatts of power to FPL's electric grid on a daily basis.
2. **Second, Alternative to FPL's TPN facility exists** such as estimating the total power generation from businesses in Florida if the majority installed 10 kWh solar systems with lithium-ion batteries and inverters involves similar considerations as estimating residential solar power generation as follows:
 - **Number of Businesses in Florida:** According to the U.S. Census Bureau, there were approximately 2.7 million businesses in Florida as of 2020.
 - **Percentage of Businesses with Solar:** We need to estimate the percentage of businesses that could install 10 kWh solar systems with batteries and inverters.
 - **Sunlight and Solar Efficiency:** The actual power generation from solar panels depends on factors like sunlight hours and the efficiency of the solar panels.

- Presuming that only 5% of businesses in Florida installed 10 kWh solar systems with batteries and inverters, that would equate to (2.7 million x 5%) or 135,000 businesses.
- If each of these businesses installed a 10 kWh solar system, they could generate 10 kWh of electricity per hour when the sun is shining. With an average of 5 hours of sunlight per day the daily energy generation for these businesses would be (10 kWh/hour x 5 hours/day) or 50 kWh/day. So the Total Power Generation equates to (135,000 businesses x 50 kWh/day) or 6,750,000 kWh/day which converts to 6,750 Mega-Watts of power per day. (This is the amount of power not drawn away from FPL's electric grid – because these businesses are essentially self-sustaining and operating off-the-grid.
- To estimate the amount of power that could be returned to the electric grid from businesses in Florida if just 5% of them had 10 kWh solar systems with lithium-ion batteries and inverters, we'll use a similar approach as before.
- **Daily Energy Generation per Business:** As previously calculated, each business with a 10 kWh solar system can generate 50 kWh per day during 5 hours of sunlight.
- **Total Daily Energy Generation from Businesses with Solar:** As previously estimated, if 5% of businesses in Florida have solar systems, the 135,000 businesses with solar systems would generate 50 kWh each – resulting in the Total Daily Energy Generation of 6,750,000 kWh/day.
- **Excess Energy Available for Grid Export:** Not all the power generated by these solar systems will be used by the businesses themselves. Some of it will be returned to FPL's electric grid. The exact amount depends on how much power the businesses consume versus how much they generate. Presuming that 60% of the generated power is used within the businesses, and the remaining 40% is returned to the electric grid – the total power returned to FPL's electric grid would be 2,700 Mega-Watts per day.

Conclusion

The two TPN Units produce 693 Mega-Watts of power each for a total power output capacity of 1,386 Mega-Watts.

If just 10% of homes in Florida installed 5 kWh solar systems that would generate approximately 23,750 megawatts of power per day (a power reduction from FPL's electric grid) – and return approximately 11,875 mega-watts of power back to FPL's electric grid every day.

If just 5% of businesses in Florida installed 10 kWh solar systems that would generate approximately 6,750 megawatts of power per day (a power reduction from FPL's electric grid) - and return approximately 2,700 mega-watts of power back to FPL's electric grid every day.

Thus, the total power **reduction** from FPL's electric grid from residential home solar system and business solar systems is approximately (23,750 Mega-Watts + 6,750 Mega-Watts) = a **total of 30,500 Mega-Watts of power.**

Moreover, the combined power generation from just 10% of homes and just 5% of businesses solar systems can return a total of **14,575 Mega-Watts to FPL's electric grid -** and the total power output from the TPN Units is only 1,386 Mega-Watts. Therefore, the FPSC should GRANT petitioner's the right to a hearing in this matter.

For the Nuclear Energy Oversight Project

A handwritten signature in blue ink, appearing to read "Thomas Saporito".

Thomas Saporito
Executive Director