April 16, 2018

-VIA ELECTRONIC FILING-

Re: Docket No. 20170215-EU

Ms. Carlotta S. Stauffer, Commission Clerk
Office of Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Dear Ms. Stauffer:

Enclosed for filing is Florida Power & Light Company’s Power Point presentation for the Commission Workshop scheduled for May 2-3, 2018.

If you should have any questions regarding this transmittal, please contact me at (561) 691-2512.

Respectfully submitted,

/s/ Kenneth M. Rubin
Kenneth M. Rubin
Fla. Bar No. 349038

Enclosures
cc: Counsel for Parties of Record (w/encl.)
FPL Power Delivery (Transmission and Distribution)

3,000 employees

75,000 miles of power lines

1.2 million poles and structures

600+ substations

serving more than half of Florida

vast majority of customers live within 20 miles of coast
Requested Workshop Presentation Topics

► Overview - Prevention & Restoration
► Infrastructure Performance – Hardened vs. Non-hardened / Other
► Infrastructure Performance – Overhead vs. Underground Facilities
► Impediments to Restoration
► Customer and Stakeholder Communication
► Suggested Improvements
FPL’s service territory threatened with Category 4 and 5 storms

Hurricanes Matthew and Irma were massive storms that impacted FPL’s entire service territory

For both Matthew and Irma, FPL’s infrastructure hardening investments, storm preparedness initiatives and well-tested storm restoration processes resulted in improved infrastructure resiliency performance and reduced restoration times
Overview - Prevention & Restoration

- Infrastructure hardening
- Smart grid / technology
- Pole/structure inspections
- Tree trimming / vegetation management
- Storm preparedness
- Restoration
Investments in feeder hardening have reduced outages and restoration times
► Day-to-day and storm reliability benefits
► 95% of CIF/Community feeders hardened
► >40% of all feeders hardened / UG
► By 2024, 100% of feeders hardened / UG

Consistently supports municipal OH to UG conversions

Hardening does not prevent all outages, but provides for faster restoration when outages occur
Infrastructure Hardening - Transmission

- Two initiatives completed
  - Replaced all ceramic post insulators (line protective device) – Wilma lesson learned
  - Installed flood monitoring/mitigation equipment in over one-third of FPL’s substations - Sandy lesson learned

- Replacing all wood structures
  - >90% are now steel / concrete
  - 100% steel / concrete by 2022

- Hardened transmission system performed well during Matthew and Irma
Smart Grid / Technology

- **Automated Feeder Switches (AFS)**
  - Self-healing technology
  - Help avoid customer interruptions – day-to-day and storms

- **Drones**
  - Facilitate damage assessments

- **Mobile Command Centers/Community Response Vehicles/Mobile Office Containers**
  - Deployed to storm impacted areas

- **Smart Meters**
  - Help reduce restoration time – day-to-day / storms
Pole / Structure Inspections

► FPL annually inspects / tests for strength and loading

► 1.2 million distribution poles
  ► Annually inspect/test 1/8 of system (wood/concrete)
  ► First 8-year cycle completed; 50% through second cycle

► 65,000 transmission structures
  ► Visually inspect 100% of structures annually
  ► Strength/load test: Wood (6-year cycle); concrete (10-yr. cycle)
Tree Trimming / Vegetation Management

► Distribution
► Trim 15,000 miles annually
► Feeders: 3-yr. avg. cycle
► Laterals: 6-yr. avg. cycle
► Before peak of storm season – inspect/trim all CIF feeders

► Transmission
► Meet mandatory NERC-established requirements
► Inspect at least 2 times per year
► Maintain clearances on all 6,900 miles annually
Storm Preparedness

► Preparations

► Storm preparedness is a year-round focus
► Train all storm functions for understanding / process efficiency
► Conduct annual corporate-wide storm drill
► Conduct annual staging site drill
► Secure contractor/mutual aid agreements
► Secure staging sites/logistics agreements
► Increase material and supply inventories
Restoration

- Hurricanes Matthew & Irma
  - Most severe storms to impact FPL in recent history
  - Both impacted FPL’s entire service territory
  - Irma, slow moving & much more damaging
  - Largest resource pre-staging events in FPL’s history

<table>
<thead>
<tr>
<th></th>
<th>Wilma</th>
<th>Matthew</th>
<th>Irma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer outages</td>
<td>3.2M</td>
<td>1.2M</td>
<td>4.4M</td>
</tr>
<tr>
<td>Staging sites</td>
<td>20</td>
<td>22</td>
<td>29</td>
</tr>
<tr>
<td>% Restored / days</td>
<td>50% / 5</td>
<td>99% / 2</td>
<td>50% / 1</td>
</tr>
<tr>
<td>All restored (days)</td>
<td>18</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Avg. days to restore</td>
<td>5.4</td>
<td>&gt;1</td>
<td>2.1</td>
</tr>
</tbody>
</table>
Requested Workshop Presentation Topics

- Overview - Prevention & Restoration
- Infrastructure Performance – Hardened vs. Non-hardened / Other
- Infrastructure Performance – Overhead vs. Underground Facilities
- Impediments to Restoration
- Customer and Stakeholder Communication
- Suggested Improvements
Infrastructure Performance –
Hardened vs. Non-hardened / Other

- Distribution Poles / Feeders
- Transmission Structures / Flood Mitigation
- Smart Grid / Technology
# Infrastructure Performance – Distribution

## Poles / Feeders

<table>
<thead>
<tr>
<th>Pole failures</th>
<th>Hardened</th>
<th>Non-hardened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matthew</td>
<td>0</td>
<td>408</td>
</tr>
<tr>
<td>Irma</td>
<td>26</td>
<td>2,834</td>
</tr>
</tbody>
</table>

**Feeders (outages) – Hardened vs. Non-hardened**

<table>
<thead>
<tr>
<th></th>
<th>Hardened</th>
<th>Non-hardened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matthew</td>
<td></td>
<td>- 32% better</td>
</tr>
<tr>
<td>Irma</td>
<td></td>
<td>- 16% better</td>
</tr>
</tbody>
</table>

**Feeders (restoration) - Hardened vs. Non-hardened**

<table>
<thead>
<tr>
<th></th>
<th>Hardened</th>
<th>Non-hardened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irma</td>
<td></td>
<td>- 50% faster</td>
</tr>
</tbody>
</table>

Hardened facilities performed significantly better than non-hardened facilities.
Infrastructure Performance – Transmission Structures & Flood Mitigation

<table>
<thead>
<tr>
<th>Structure failures</th>
<th>Hardened</th>
<th>Non-hardened</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matthew</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Irma</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

Substations pro-actively de-energized as a result of flood monitoring system notifications

<table>
<thead>
<tr>
<th>Matthew</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irma</td>
<td>2</td>
</tr>
</tbody>
</table>

Transmission system performed well overall, with hardened facilities performing better than non-hardened facilities.
Infrastructure Performance – Smart Grid / Technology

► Self-healing AFS avoided customer outages
  ► Matthew 118,000
  ► Irma 546,000

► Drones facilitated damage assessments, reducing restoration time

► Mobile Command Centers & Community Response Vehicles enabled situational awareness and improved customer interactions

► Smart meters reduced restoration times
Requested Workshop Presentation Topics

► Overview - Prevention & Restoration
► Infrastructure Performance – Hardened vs. Non-hardened / Other
► Infrastructure Performance – Overhead vs. Underground Facilities
► Impediments to Restoration
► Customer and Stakeholder Communication
► Suggested Improvements
Infrastructure Performance – Overhead vs. Underground Facilities

- Feeders
- Laterals
- Outage Causes
Infrastructure Performance – Overhead vs. Underground Facilities

### Feeder Outages

<table>
<thead>
<tr>
<th></th>
<th>Matthew</th>
<th>Irma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hybrid vs. Underground</td>
<td>Underground 94% better</td>
<td>Underground 66% better</td>
</tr>
<tr>
<td>Overhead vs. Underground</td>
<td>Underground 96% better</td>
<td>Underground 78% better</td>
</tr>
</tbody>
</table>

### Lateral Outages

<table>
<thead>
<tr>
<th></th>
<th>Matthew</th>
<th>Irma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overhead vs. Underground</td>
<td>Underground 95% better</td>
<td>Underground 83% better</td>
</tr>
</tbody>
</table>

Note – Hybrid feeders consist of both OH and UG facilities

Underground facilities performed significantly better than overhead facilities
Infrastructure Performance – Primary Outage Causes
Infrastructure Performance – Primary Outage Causes
Requested Workshop Presentation Topics

► Overview - Prevention & Restoration

► Infrastructure Performance – Hardened vs. Non-hardened / Other

► Infrastructure Performance – Overhead vs. Underground Facilities

► Impediments to Restoration

► Customer and Stakeholder Communication

► Suggested Improvements
Impediments to Restoration

- **Uprooted / broken trees**
  - Wrong trees in the wrong place was the primary cause of outages
  - Downed trees also required clearing to gain access, extending restoration

- **Storm surge / flooding**
  - Delayed restoration access / repairs

- **Traffic congestion**
  - Extended crews travel time
Requested Workshop Presentation Topics

- Overview - Prevention & Restoration
- Infrastructure Performance – Hardened vs. Non-hardened / Other
- Infrastructure Performance – Overhead vs. Underground Facilities
- Impediments to Restoration
- Customer and Stakeholder Communication
- Suggested Improvements
Customer and Stakeholder Communication

- Traditional Media
- Social Media
- Email
- Customer Care Center
- Auto Voice Calls
- Mobile Website App
- Outreach
- Advertising
Expanded digital/face-to-face communications

- Frequently used Facebook Live broadcasts to provide broad restoration updates
- Targeted social posts with area-specific information
- Pushed texted communications to update customers
- Launched new FPL Mobile App for easy access to information
- Established community response kiosks in hardest hit areas
Proactive local stakeholder engagement

► FPL personnel, staffed at 32 EOCs, maintained steady contact with 100% of counties served
► FPL President/CEO hosted multiple conference calls with key local government leaders to provide updates/obtain input
► Company leaders (at times accompanied by local leaders) made daily in-person site visits to impacted areas
► Sent daily e-mail updates and provided hourly updates to Governmental Portal website with franchise-level information
Key communication improvements

Digital Systems

• Completed initial system improvements to ensure the capacity of our digital systems can now handle extreme volumes of customer traffic – even beyond the volume experienced during Hurricane Irma.

Restoration Information

• Working to provide more consistent, accurate and timely restoration information to our customers and stakeholders.
Requested Workshop Presentation Topics

- Overview - Prevention & Restoration
- Infrastructure Performance – Hardened vs. Non-hardened / Other
- Infrastructure Performance – Overhead vs. Underground Facilities
- Impediments to Restoration
- Customer and Stakeholder Communication
- Suggested Improvements
Suggested Improvements

- **2018-2020 Underground Lateral Pilot**
  - Initiated primarily as a result of Matthew/Irma learnings
  - Will provide valuable insight for future lateral overhead to underground conversions
    - Barriers
    - Experience with infrastructure design options
    - Customer acceptance/resistance/participation
    - Customer property repairs/meter can conversions
    - Easements/land rights
    - Permitting/municipal coordination
    - Project duration
    - Resource/cost impacts
    - Pole attachment considerations
  - Involves laterals spread throughout all 16 FPL management areas and 10 of the most populated counties in FPL’s service territory
  - Estimating construction to begin July 2018
Suggested Improvements (continued)

► Vegetation Management
  ► Change state laws/local ordinances to adopt/enforce “Right Tree, Right Place” philosophy and provide utilities’ rights to clear/remove vegetation near electric facilities – including outside of rights-of-way or easements

► Pole Inspections
  ► Work with legislature to enact law requiring pole inspection program for non-electric utilities that own poles with electric facilities attached
Questions?