Docket No. 20170215-EU
Staff's First Data Request
Request No. 29 - Third Supplemental Amended

QUESTION:
Please complete the table below summarizing hardened facilities that required repair or replacement as a result of Hurricanes Matthew, Hermine, Irma, Maria, and Nate.

RESPONSE:
FPL does not maintain its accounting records at the level of detail required to provide the requested information as they do not differentiate hardened facilities from non-hardened facilities, nor do they track which assets were repaired. However, FPL does track certain assets, at the total system level, that were requested and replaced during each hurricane as reflected in the tables below. Note, FPL did not track storm repairs/replacements for Hurricanes Maria and Nate as Hurricane Maria did not impact FPL's service territory and Nate had limited impact. Also, Hurricanes Matthew and Irma capital details associated with follow-up work are not yet available by plant account as these costs have not yet been unitized from account 106 to account 101 by plant account.

Hurricane Matthew	**Number of Facilities Requiring**	
	Repair	**Replacement**
Transmission		
Structures	N/A	0
Substations	N/A	0
Total	N/A	0
Distribution		
Poles	N/A	656
Substation	N/A	0
Feeder OH	N/A	0
Feeder UG	N/A	0
Feeder Combined	N/A	0
Lateral OH	N/A	N/A
Lateral UG	N/A	N/A
Lateral Combined	N/A	N/A
Total	N/A	N/A
Service		
Service OH	N/A	N/A
Service UG	N/A	N/A
Service Combined	N/A	N/A
Total	N/A	N/A

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Hurricane Hermine	Number of Facilities Requiring	
	Repair	**Replacement**
Transmission		
Structures	N/A	0
Substations	N/A	0
Total	N/A	0
Distribution		
Poles	N/A	19
Substation	N/A	0
Feeder OH	N/A	0
Feeder UG	N/A	0
Feeder Combined	N/A	0
Lateral OH	N/A	N/A
Lateral UG	N/A	N/A
Lateral Combined	N/A	N/A
Total	N/A	N/A
Service		
Service OH	N/A	N/A
Service UG	N/A	N/A
Service Combined	N/A	N/A
Total	N/A	N/A

Hurricane Irma	**Number of Facilities Requiring**	
	Repair	**Replacement**
Transmission		
Structures	N/A	0
Substations	N/A	0
Total	N/A	0
Distribution		
Poles	N/A	3,562
Substation	N/A	0
Feeder OH	N/A	0
Feeder UG	N/A	0
Feeder Combined	N/A	0
Lateral OH	N/A	N/A
Lateral UG	N/A	N/A
Lateral Combined	N/A	N/A
Total	N/A	N/A
Service		
Service OH	N/A	N/A
Service UG	N/A	N/A
Service Combined	N/A	N/A
Total	N/A	N/A

Notes:
For Hurricane Matthew, there is a difference of 248 poles between what is provided in this discovery response for total poles replaced (656 poles) and what is provided in FPL's post-storm forensic review report for Hurricane Matthew (provided in FPL's response to Staff's Second Data Request No. 2 in this same docket) for poles that failed and needed to be replaced to restore service (408 poles). The difference is associated with poles replaced during "follow-up" - i.e., poles that were damaged (e.g., a cracked pole) as a result of the storm and needed to be replaced to restore the pole to its pre-storm condition - but did not fail during the storm and, thus, did not need to be replaced to restore service. As mentioned above in FPL's response to this data request, FPL's accounting records do not differentiate hardened facilities from non-hardened facilities and FPL did not track or maintain forensic information on the 248 distribution poles replaced as a result of follow-up work. As a result, FPL does not have a hardened vs. non-hardened breakdown for the 248 distribution poles replaced during follow-up work.

The distribution pole and transmission structure counts provided above represent the amount of pole/structure replacements FPL has recorded on its books and records associated with Hurricane Irma as of December 31, 2017. These amounts should be considered preliminary at this time as they are subject to change (e.g., the counts do not reflect poles that will be replaced during follow-up work, which has yet to be completed).

N/A – Information is not available at this level of detail in FPL's accounting records.

For substations and feeders, FPL has stated 0 since no entire substation or feeder was replaced. However, these facilities consist of many pieces of equipment (e.g., wire, cable, breakers, transformers, cross arms and arrestors) some of which may have been replaced.

2016/2017 Hurricanes - FPL Restoration/Infrastructure Performance

FPL's infrastructure/restoration performance for Hurricanes Matthew (2016) and Irma (2017) demonstrates that the implementation and execution of its FPSC-approved (1) ten storm preparedness initiatives (which includes vegetation management): (2) pole inspection programs; (3) storm hardening plans; and (4) tariffs to incent municipal overhead to underground conversions have provided great benefits to FPL's customers and to the State of Florida.

During 2016 and 2017, FPL's service territory was threatened with massive Category 4 and 5 storms. The size and scale of these storms impacted FPL's infrastructure throughout its entire service territory (which encompasses 35 counties in the State of Florida). For both Matthew and Irma, FPL's infrastructure storm resiliency and smart grid investments resulted in improved infrastructure resiliency performance and reduced restoration times.

2016/2017 Hurricanes - Restoration Performance

FPL saw significant improvements in overall restoration results. As can be seen in the table below, restoration results for Hurricanes Matthew and Irma show significant improvement vs. Hurricane Wilma. FPL attributes these significant improvements in restoration to the investments made to make its system smarter and more storm-resilient as well as its well-tested restoration processes. This includes FPL's distribution and transmission storm hardening and storm preparedness initiatives, pole inspection programs, smart grid initiatives, vegetation management programs and continuous efforts to improve its restoration processes.

	Wilma 2005	Matthew 2016	Irma 2017
Customer Outages	3.2M	1.2M	4.4M
% Restored / days	50% / 5	99% / 2	50% /1
All restored / days	18	4	10
Avg. to restore / days	5.4	<1	2.1

2016/2017 Hurricanes – Infrastructure Performance

To assess the effectiveness of FPL's infrastructure storm hardening investments, the Company utilizes information collected through post-storm forensic data collection and various systems (e.g., FPL's outage management system) to conduct post-storm infrastructure performance analysis. These efforts and analysis allow FPL to quantify and assess its distribution and transmission infrastructure performance including the performance of: hardened and non-hardened facilities; overhead and underground facilities; and smart grid performance. For distribution, this includes reviewing the storm performance of poles, feeders and laterals. For transmission, this includes reviewing the storm performance of poles/structures, line sections and substations. The data demonstrates that hardened infrastructure performed better than non-hardened infrastructure, underground facilities performed better than overhead facilities and smart grid devices prevented a significant number of outages from occurring.

Distribution/Transmission Poles/ Structures Performance

The performance of FPL's approximately 1.2 million distribution and transmission poles/structures during Hurricanes Matthew and Irma was excellent, as hardened poles and structures performed as expected by minimizing outages and reducing restoration times. The total number of distribution/transmission poles that failed (i.e., had to be repaired/replaced in order to restore service) during Hurricanes Matthew and Irma was a mere fraction of 1% of the 1.2 million pole/structure pole population.

Additionally, hardened distribution and transmission pole performance was significantly better than non-hardened pole performance, as hardened pole failures were either non-existent (e.g., Hurricane Matthew) or significantly less than non-hardened pole failures (e.g., during Hurricane Irma, hardened feeder poles had a 0.02% failure rate, while non-hardened feeder poles had a 0.20% failure rate). Also, total poles replaced (i.e., poles that failed + poles that were replaced during follow-up work) were also a mere fraction of 1% of the total pole population and significantly less than the number of poles replaced during Hurricane Wilma.

FPL notes that for Hurricanes Matthew and Irma, while it did track hardened vs. non-hardened pole performance during restoration, it did not track poles replaced (hardened vs. non-hardened) during follow-up work, since these poles had accomplished their intended purpose of not failing during the storms. Therefore, FPL cannot provide the number of hardened poles replaced during follow up work in Hurricanes Matthew and Irma. Based on the performance of hardened poles that failed during these storms (see table below), it is highly unlikely that there would be a significant number of hardened poles, if any, that needed to be replaced during follow-up work. However, going forward, should the Commission want FPL to track replacement of hardened vs. non-hardened poles during follow-up work, FPL will begin to track this information.

FPL attributes this excellent pole performance to its FPSC-approved distribution and transmission storm hardening plan initiatives (e.g., extreme wind load construction standards for distribution poles and replacing wood transmission poles/structures) and its pole inspection programs.

Distribution Poles 12/31/17
Total Number 1,188,202
Total Hardened 124,518*

* This number is understated as it includes only poles hardened as a result of FPL's approved hardening plan projects, as FPL does not track or maintain the number of hardened poles installed as a result of new construction (e.g., new feeders or laterals) and/or daily work activities (e.g., maintenance, pole line extensions, relocation projects). There are also other existing poles throughout FPL's service territory that would currently meet the NESC's extreme wind loading criteria and therefore qualify as a hardened pole, however, FPL does not currently track or maintain that information.

Distribution Pole Failures*	Hardened	Non-Hardened	Total
Matthew - 2016	0	408	408
Irma - 2017	26	2834	2860

*Broken/Fallen poles that must be repaired/replaced to restore service

Transmission Pole/Structures 12/31/17
Total 66, 685
Concrete 60,694 (91%)
Wood 5,991 (9%)

Transmission Pole Failures*	Hardened	Non-Hardened	Total
Matthew - 2016	0	0	0
Irma - 2017	0	5	5

*Broken/Fallen poles that must be repaired/replaced to restore service

Distribution Feeders/Laterals Performance

As demonstrated below, FPL's hardened feeders performed significantly better than non-hardened feeders and underground feeders/laterals performed significantly better than overhead feeders/laterals. Performance was compared considering feeder and lateral outages that occurred during Hurricanes Matthew and Irma. It is also important to note that during Hurricane Irma, the Construction Man Hours ("CMH") to restore hardened feeders was 50% less than non-hardened feeders, primarily due to hardened feeders experiencing less damage than non-hardened feeders.

It is important to note that the majority of outages for overhead facilities resulted from trees that broke and/or fell into FPL's facilities. Many of these trees were outside of easements or public rights of way where FPL is generally allowed to trim. As a result, no additional amount of