DUKE ENERGY
FLORIDA

Matthew R. Bernier
ASSOCIATE GENERAL COUNSEL

May 31, 2018

VIA ELECTRONIC DELIVERY

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

Re: *Application for limited proceeding for recovery of incremental storm restoration costs related to Hurricanes Irma and Nate by Duke Energy Florida, LLC;* Docket No. 20170272-EI

Dear Ms. Stauffer:

Please find enclosed for filing on behalf of Duke Energy Florida, LLC ("DEF"), the following:

- DEF's Petition for approval of actual storm restoration costs and associated recovery process related to Hurricanes Irma and Nate;
- Direct Testimony of W. Brian Buckler with Exhibit Nos. BB-1, BB-2, and BB-3;
- Direct Testimony of Marcia J. Olivier with Exhibit No. MJO-1;
- Direct Testimony of Jason Cutliffe with Exhibit Nos. JC-1 and JC-2;
- Direct Testimony of Robert Matthews.

Thank you for your assistance in this matter. Please feel free to call me at (850) 521-1428 should you have any questions concerning this filing.

Respectfully,

/s/ Matthew R. Bernier

Matthew R. Bernier

MRB/cmk
Enclosures

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition by Duke Energy Florida, LLC, for Limited Proceeding for Recovery of Incremental Storm Restoration Costs Related to Hurricanes Irma and Nate	Docket No. 20170272-EI Filed: May 31, 2018

PETITION BY DUKE ENERGY FLORIDA, LLC, FOR APPROVAL OF ACTUAL STORM RESTORATION COSTS AND ASSOCIATED RECOVERY PROCESS RELATED TO HURRICANES IRMA AND NATE

Duke Energy Florida, LLC ("DEF" or the "Company"), pursuant to Section 366.076(1), Florida Statutes ("F.S."), Rules 25-6.0143 and 25-6.0431, Florida Administrative Code ("F.A.C."), and the Second Revised and Restated Settlement Agreement approved by the Florida Public Service Commission (the "Commission") in Order No. PSC-2017-0451-AS-EU[1] (the "2017 Settlement"), hereby files this petition (the "Petition") requesting approval of (a) DEF's actual recoverable storm restoration costs, including replenishment of DEF's storm reserve as contemplated by the 2017 Settlement and financing costs (the "Recoverable Storm Costs"), in the amount of $510 million; and (b) the process for recovering these Recoverable Storm Costs. In support of this Petition, DEF states as follows:

INTRODUCTION

1. DEF is an investor-owned utility operating under the jurisdiction of the Commission pursuant to the provisions of Chapter 366, F.S. The Company's principal place of business is located at 299 1st Avenue North, St. Petersburg, Florida 33701.

2. This Petition is being filed in accordance with the requirements of Rule 28-106.201, F.A.C.[2]

[1] Docket No. 20170183-EI, issued on November 20, 2017.
[2] Portions of subsections (2)(b)(c) and (f) of Rule 28-106.201, F.A.C., do not apply to this proceeding and are, therefore, not being addressed in this Petition.

3. The Commission, located at 2540 Shumard Oak Boulevard, Tallahassee, Florida 32399, is the agency affected by this Petition. The Commission has jurisdiction over this matter pursuant to Sections 366.04, 366.05, 366.06 and 366.076, F.S., and Rules 25-6.0143 and 25-6.0431, F.A.C.

4. For purposes of this Petition and the resulting proceeding, Petitioner's address shall be that of its undersigned counsel. Any pleading, motion, notice, order or other document required to be served upon DEF or filed by any party to this proceeding should be served upon DEF's undersigned counsel.

5. DEF does not know which, if any, of the issues of material fact set forth in the body of this Petition, or the supporting testimony and exhibits, may be disputed by any others who may plan to participate in this proceeding.

BACKGROUND AND OVERVIEW

6. DEF serves more than 1.8 million retail customers in Florida. Its service area comprises approximately 20,000 square miles, including the densely populated areas of Pinellas and western Pasco Counties and the greater Orlando area in Orange, Osceola and Seminole Counties. DEF supplies electricity at retail to approximately 350 communities and at wholesale to municipalities, utilities, and power agencies in Florida.

7. On December 28, 2017, DEF filed a petition for a limited proceeding seeking authority to implement an interim storm restoration recovery charge to recover estimated Recoverable Storm Costs that DEF incurred in the amount of $513.2 million in connection with Hurricanes Irma and Nate (the "2017 Interim Storm Charge"). In order to mitigate the impact of the 2017 Interim Storm Charge on its customers, DEF proposed in that limited proceeding to

spread the 2017 Interim Storm Charge amount over a thirty-six month period commencing March 1, 2018.

8. On January 24, 2018, DEF filed a Motion to Approve Implementation Stipulation, and on February 5, 2018, DEF filed its Amended Implementation Stipulation (collectively, the "2017 Settlement Implementation Stipulation"). As described further in Ms. Olivier's testimony, the 2017 Settlement Implementation Stipulation allows DEF to apply the revenue requirement impacts of the 2017 Tax Cuts and Jobs Act ("Tax Impacts") toward the recovery of storm costs and the replenishment of the storm reserve effective January 2018 in lieu of increasing customer rates to recover the storm costs and decreasing customer rates to flow back the Tax Impacts.

9. By Order No. PSC-2018-0103-PCO-EI, issued on February 26, 2018 (the "Order"), the Commission authorized DEF to implement the 2017 Interim Storm Charge but also approved the 2017 Settlement Implementation Stipulation, at which time DEF withdrew its proposed tariff including the 2017 Interim Storm Charge. In its Order, the PSC instructed DEF to file documentation demonstrating its actual storm costs incurred in connection with Hurricanes Irma and Nate for the purpose of reconciling those actual costs with the amounts applied from the Tax Impacts and directed that the docket be kept open for that purpose.

10. Pursuant to the Commission's Order Establishing Procedure, PSC-2018-0082-PCO-EI, DEF is filing with this Petition documentation demonstrating the actual storm costs DEF incurred in connection with Hurricanes Irma and Nate. This documentation consists of the pre-filed testimony, with accompanying exhibits, of DEF witnesses Jason Cutliffe, Robert Matthews, Bryan Buckler, and Marcia Olivier which (a) document DEF's actual Recoverable Storm Cost amount of $510 million; (b) demonstrate that those costs were prudently incurred; (c) demonstrate that DEF accounted for those costs in accordance with the Incremental Cost and

Capitalization Approach ("ICCA") contained in Rule 25-6.0143, F.A.C.; and (d) propose a process for recovering this amount by applying the Tax Impacts.

DEF'S STORM RESTORATION PROCESS FOR HURRICANES IRMA AND NATE

11. On August 31, 2017, Hurricane Irma reached hurricane-force winds, and it stayed a hurricane until September 11, 2017. Measured by winds, it was the strongest Atlantic basin hurricane outside the Gulf of Mexico and the Caribbean Sea, with peak sustained winds of 185 miles per hour. It was also massive in size, measuring some 650 miles from east to west, with tropical and hurricane-force winds extending 200 miles from its eye. Unprecedented in terms of damage and devastation, Hurricane Irma caused considerable damage in each of the thirty-five counties in which DEF provides service.

12. DEF began preparing for Hurricane Irma on September 5, 2017 – five days before the storm made landfall in the Florida Keys. In anticipation of this extraordinary storm, DEF mounted the largest deployment of restoration resources in DEF history; approximately 12,528 total contractors and employees were mobilized by DEF to support the restoration work, which began on September 12th. Nearly 1.3 million customers, or nearly three-quarters of all DEF customers, lost power as a result of the damage produced by Hurricane Irma. DEF succeeded in restoring power to one million of these customers in just three days, and it restored power to 99 percent of its customers within just eight days. To accomplish this monumental task, DEF spliced and repaired 800 miles of wire, and it replaced 324 miles of wire, more than 1,100 transformers, 142 transmission poles, and over 2,100 distribution poles. DEF also repaired 71 substations and restored 124 transmission circuits.

13. In contrast with Hurricane Irma, DEF's service territory was spared from a direct hit from Hurricane Nate, though early forecasts predicted it would directly impact Flordia.

Ultimately, Hurricane Nate tracked west of DEF's Florida service area, making landfall near the Mississippi/Alabama border. Strongest wind gusts ranged from 30 to 40 miles per hour for the counties in the western Florida panhandle, including Gulf and Franklin Counties, which led to minimal issues. However, because storm tracks cannot be projected with perfect foresight, prudence required DEF to prepare to respond to the potential impacts of Hurricane Nate, and therefore storm related costs were incurred.

14. In his pre-filed testimony, Jason Cutliffe describes the operation of the Company's storm plan as it relates to DEF's distribution system, including the storm-related preparedness plans and processes that DEF utilized during Hurricanes Irma and Nate, as well as the damage to the distribution system that resulted from the storms. He also provides an overview of the transmission and distribution storm-related costs, including a description of each category of costs that DEF incurred as a result of Hurricanes Irma and Nate.

15. Robert Matthews' pre-filed testimony provides an overview of DEF's transmission department storm plan and the implementation of that plan during Hurricanes Irma and Nate. Mr. Matthews also testifies about the damage that Hurricanes Irma and Nate caused to DEF's transmission system, including a description of the Company's efforts to prepare for, respond to, and recover from the storms.

DEF'S STORM ACCOUNTING PROCESSES AND CONTROLS

16. As detailed in Bryan Buckler's pre-filed testimony, DEF's actual Recoverable Storm Cost amount of $510 million was calculated in accordance with the ICCA methodology required by Rule 25-6.0143, F.A.C. Mr. Buckler describes how DEF tracked, recorded, and accounted storm costs during and after the storms. A key component of Mr. Buckler's testimony is his explanation of the processes DEF has in place to ensure costs assigned to storms are in fact

attributable to those storms. DEF's accounting records thoroughly track all storm restoration costs charged to DEF and the Company's payment of those charges. Mr. Buckler's testimony also includes the costs of the other five storms that impacted DEF's storm reserve since 2012, the date upon which the $132 million storm reserve replenishment amount was established pursuant to Paragraph 38 of the 2017 Settlement.

17. In her pre-filed testimony, Marcia Olivier describes the process for recovering the Recoverable Storm Costs. While Mr. Buckler discusses the actual storm restoration costs, Ms. Olivier explains the basis for the financing and interest costs.

DETERMINATION AND IMPLEMENTATION OF STORM COST RECOVERY

18. Effective January 2018, DEF has been crediting the storm reserve for an amount equal to the estimated Tax Impacts. Once the Commission approves the final amount of Recoverable Storm Costs in this docket and the final amount of the Tax Impacts in Docket No. 20180047, DEF will make a retroactive adjustment back to January 2018 to adjust the amount credited to the storm reserve to be one-twelfth of the annual approved Tax Impacts each month until the final approved Recoverable Storm Costs have been fully recovered. Pursuant to the 2017 Settlement Implementation Stipulation, in the month following the final month of storm cost recovery, DEF will stop crediting the storm reserve and will reduce base rates in the manner prescribed in the 2017 Settlement. DEF will file tariff sheets at least sixty days before that date to reflect the reduced rates.

CONCLUSION

Wherefore, DEF respectfully requests that the Commission determine that (a) DEF's actual Recoverable Storm Cost amount of $510 million was prudently incurred; and (b) enter an order that, pursuant to the 2017 Settlement Implementation Stipulation, DEF shall record a monthly storm reserve accrual equal to one-twelfth of the annual Commission-approved revenue requirement impact of the 2017 Tax Cuts and Jobs Act determined in Docket No. 20180047-EI until the actual Recoverable Storm Costs have been fully recovered.

Respectfully submitted,

/s/ Matthew R. Bernier

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CERTIFICATE OF SERVICE (Dkt. No. 20170272-EI)

I HEREBY CERTIFY that a true and correct copy of the foregoing has been furnished to the following by electronic mail this 31st day of May, 2018, to all parties of record as indicated below.

/s/ Matthew R. Bernier
Attorney

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BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: APPLICATION FOR LIMITED PROCEEDING FOR RECOVERY OF INCREMENTAL STORM RESTORATION COSTS RELATED TO HURRICANES IRMA AND NATE, BY DUKE ENERGY FLORIDA, LLC.

FPSC DOCKET NO. 20170272-EI

DIRECT TESTIMONY OF W. BRYAN BUCKLER

MAY 31, 2018

I. INTRODUCTION AND QUALIFICATIONS.

Q. Please state your name and business address.

A. My name is Bryan Buckler. My current business address is 550 S. Tryon St. Charlotte, North Carolina, 28202.

Q. By whom are you employed and what are your responsibilities?

A. I am employed by Duke Energy Business Services, LLC, a service company affiliate of Duke Energy Florida, LLC ("Duke Energy Florida," "DEF," or the "Company") and a subsidiary of Duke Energy Corporation ("Duke Energy"). My current position is as a Finance Director in the Financial Planning & Analysis department. I oversee a group that has responsibility for the budgeting and forecasting, expense and capital accounting for Distribution Operations and Customer Operations, among other responsibilities. I also collaborate with other finance personnel with similar responsibilities for Transmission Operations and Fossil/Hydro generation plant operations, and thus I am representing the finance and accounting organizations that provide support to the functional groups of DEF that incurred expenses during major storm events.

Q. Please summarize your educational background and professional experience.

A. I have a Bachelor of Business Administration degree with a major in Accounting from the University of Georgia. Following graduation in 1995, I began my career at Ernst & Young in Atlanta, Georgia. I am a Certified Public Accountant in the State of Georgia. I worked eleven years at Ernst & Young, focusing on audits of GAAP and SEC-compliant financial statements. In 2006, I joined Duke Energy as a Director in the Corporate Accounting Research Group where I was responsible for assessing the appropriate accounting and disclosure treatment for significant non-routine matters as well as certain regulatory accounting interpretations. In July 2012, I transferred to Duke Energy's Treasury Department and assumed the role of Director of Corporate Finance and Assistant Treasurer. In 2015, I transferred to the Controller's Department, leading the company's Regulated Accounting organization. In May 2016, I assumed my current position.

II. PURPOSE OF TESTIMONY.

Q. What is the purpose of your direct testimony?

A. On December 28, 2017, DEF filed estimated storm costs associated with Hurricanes Irma and Nate. The purpose of my testimony here is to explain and support the actual storm costs for Hurricanes Irma and Nate as well as the costs for five prior tropical systems that have impacted DEF since 2012.

Q. Do you have any exhibits to your testimony?

A. Yes, I am sponsoring the following exhibits to my testimony:

- Exhibit No. __ (BB-1), "Storm Cost Recovery Total"
- Exhibit No. __ (BB-2), "Storm Costs by Storm"
- Exhibit No. __ (BB-3), "Storm Cost Reserve Activity"

These exhibits were prepared under my direction and control and are true and accurate to the best of my knowledge.

Q. Please describe the net costs for which recovery is sought in this proceeding.

A. DEF is seeking recovery for those costs that are incremental, as defined under the Incremental Cost and Capitalization Approach ("ICCA") methodology required under Rule 25-6.0143, F.A.C., and, as described in Witness Marcia J. Olivier's testimony, to replenish the storm reserve. The Company has prudently incurred $501 million (retail share) of incremental costs from 2012 through December 2017, as shown in Exhibit No. __ (BB-3). These costs exclude all non-incremental costs, as defined under the ICCA methodology, and exclude amounts properly capitalizable under the Company's capitalization policy. These costs, plus bond issuance costs of $1 million and interest costs of $8 million, as further explained in Marcia Olivier's direct testimony, total the $510 million sought for recovery in this proceeding, and will result in full replenishment of the $132 million storm reserve.

Q. Please explain how storm-related costs were tracked and accounted for during and after each storm, and explain the process that the Company uses

to verify that costs assigned to the storms were in fact related to the storms and were incremental.

A. When a potential major storm event is approaching the DEF service territory, DEF creates separate project codes (e.g., distribution, transmission, etc.) to be used by employees for processing and aggregating the total amount of storm restoration costs incurred for financial reporting and regulatory recovery purposes. The Company uses these project codes to account for all costs directly associated with restoration, including costs that will not be recoverable from Duke Energy Florida's storm reserve based on the Commission's requirements under the ICCA methodology. All storm restoration costs charged to these storm projects were initially captured in FERC Account 186, Miscellaneous Deferred Debits. All costs charged to FERC Account 186 are subsequently reviewed, and based on the outcome of that review, are cleared and charged to either the storm reserve (FERC Account 228.1), normal operations and maintenance ("O&M") expense, capital, or below the line expense. See below for further discussion of the Company's process to review incurred costs and ensure only allowable costs as defined in the ICCA methodology are included for recovery.

Q. Please further explain the process for accumulating accounting data related to storm costs.

A. Major storm costs are initially accumulated in FERC Account 186, including charges that are considered non-incremental or capital. There are separate storm projects for each function (transmission, distribution, customer operations, fossil/hydro generation) charged during storm restoration. Using the ICCA methodology, non-incremental amounts are identified and subsequently credited from FERC Account 186 and debited to either a base rate O&M expense or below the line expense. Capital costs are also identified and subsequently credited from FERC Account 186 and debited to FERC Account 107, Construction Work in Progress. After non-incremental and capital costs are removed from FERC Account 186, the remaining balance is then credited and a debit is placed in FERC Account 228.1 bringing the FERC Account 186 to zero, and leaving only allowable costs for recovery in Account 228.1.

Q. Please explain the costs incurred by DEF for the seven major storms from 2012 through 2017.

A. Exhibit No. __ (BB-2) outlines the significant costs by cost category incurred by DEF for each of the seven named storms that impacted DEF's service territory during 2012-2017. Exhibit No. __ (BB-3) summarizes total recoverable costs by major storm, as follows (in millions):

Year	Storm	Amount
2012	Tropical Storm Debby	$8.0
2012	Hurricane Isaac	5.2
2016	Tropical Storm Colin	2.3
2016	Hurricane Hermine	24.3
2016	Hurricane Matthew	35.3
2017	Hurricane Irma	420.5
2017	Hurricane Nate	5.1
Total		$500.7

While the vast majority of costs were incurred by DEF's Distribution Operations function as a result of Hurricane Irma, and thus the commentary below at times is written from the standpoint of that hurricane, the Company's cost accumulation and review processes were very similar for all storms. As previously noted, initially storm-related costs incurred were recorded to FERC Account 186, at which point DEF completed a review to determine the amounts which would be considered non-incremental under the ICCA methodology, and thus removed those non-incremental costs from the storm reserve recovery request.

In discussing the nature of the costs incurred for these major storms, it is essential to have a clear understanding of the guidelines of Rule 25-6.0143, F.A.C. First I will focus on allowable costs, and the next section of my testimony will address the types of costs specifically prohibited under the ICCA methodology.

As outlined in Exhibit No. __ (BB-2), the Company's incurred costs fall into the following primary categories, and, once netted with costs the Company has removed as non-incremental, are consistent with the ICCA recoverable categories.

1. Regular payroll – amounts represent regular payroll for employee time spent in direct support of storm restoration, and exclude bonuses. During the storms, payroll costs were incurred related to DEF employees as well as Duke Energy affiliate employees from outside of Florida assisting in the storm response. All regular payroll amounts associated with DEF employees have been removed from our recovery request as either non-incremental or

capitalized. All amounts related to Duke Energy affiliates, such as linemen from Duke Energy affiliates in the Carolinas and Midwest that were utilized in lieu of third party contractors, are recoverable in this filing or were part of the capitalized amounts for the units of property replaced.

2. Overtime payroll – represents overtime payroll for employee time spent in direct support of storm restoration for DEF personnel as well as Duke Energy affiliates, such as linemen from Duke Energy affiliates in the Carolinas and Midwest. All overtime paid to employees of Duke Energy affiliates was incremental to DEF and thus is included for recovery in this filing, similar to contractor costs. While the majority of overtime for DEF employees incurred due to storm restoration-related activities was also deemed incremental and thus included for recovery in this filing, a portion has been removed to estimate the overtime that would typically be incurred during that period.

3. Labor burdens and bonuses – There are two cost categories in this line item of Exhibit No. __ (BB-2), (1) bonuses and (2) labor burdens. First, while bonuses were paid to many employees for their extraordinary efforts and dedication to DEF's customers, all bonuses have been removed from the recovery request. Note, while the Company believes the bonuses paid to employees of Duke Energy Affiliates, such as the linemen employed by the Duke Energy entities from the Carolinas and Midwest, are properly recoverable, DEF is not seeking recovery of those costs.

With respect to the second category of costs, labor burdens represents the costs associated with the direct payroll and overtime charges, such as 401-K and pension match, medical, payroll tax and other benefits. Labor burdens tied to non-incremental payroll and overtime as discussed in numbers 1 and 2 above have been removed from this recovery request or capitalized, leaving only labor burdens associated with incremental payroll and overtime included for recovery.

4. Other costs associated with the workforce (Overhead allocations) – includes overhead allocations related to management and supervision as well as service company costs that are allocated to this project based on payroll and overtime charges incurred. All these costs associated with DEF employees are removed from this recovery request, with the conservative assumption that those costs are within base rates. With respect to the overhead costs associated with employees from Duke Energy affiliates in the Carolinas and the Midwest, these costs represent the Utility Affiliate Overhead loader which captures all the costs outlined in Duke Energy's Cost Allocation Manual. Once the Overhead loader is applied to the labor costs of Duke Energy utility employees working for an affiliate, the fully loaded costs of those affiliate employees are then captured in the total costs charged to DEF. Therefore, all costs that are recorded within DEF's books and records from the affiliates are truly incremental to DEF.

5. Employee expenses - includes the cost of lodging such as hotel rooms, as well as other employee expenses such as meals and various storm-related expenses for employees and thousands of linemen that directly supported storm restoration activities.

6. Contractor costs – includes actual incurred costs associated with mutual aid utilities, line contractors, vegetation contractors, staging and logistics personnel and other outside contractors used in storm-restoration related activities.

7. Materials and supplies – includes the materials and supplies used to repair and restore service and facilities to pre-storm condition, and excludes the portion of materials and supplies used in restoration activities that are included in capitalized cost.

8. Internal fleet costs – the costs included in the net recoverable request include only the fuel component in this filing.

9. Uncollectible account expenses – refer to the section below regarding the impacts to our Customer Operations organization.

10. Other expenses – include other minor amounts of storm-related expenses not coded to one of the categories above, as explained in the footnotes in Exhibit No. __ (BB-2).

For each major storm, the cost category amounts are outlined in Exhibit No. __ (BB-2), and the Company has detailed support for all costs incurred available for the Commission and other appropriate stakeholders' review.

Q. Please explain whether the Company is including for recovery through this filing any of the costs prohibited from recovery under the ICCA methodology.

A. In the preceding section of my testimony, I discussed allowable costs as well as amounts DEF excluded from this recovery request based on DEF's determination that certain of the costs were non-incremental or capitalizable. In this section, I will address the types of costs prohibited for recovery through the storm reserve based on the following sections of Rule 25-6.0143, F.A.C.

Prohibited costs under the ICCA methodology:

(1)(f) The types of storm related costs prohibited from being charged to the reserve under the ICCA methodology include, but are not limited to, the following:

1. Base rate recoverable regular payroll and regular payroll-related costs for utility managerial and non-managerial personnel;
    - *Company response – as discussed in the previous section, DEF has excluded from its recovery request all base payroll and related costs associated with the employees of Duke Energy Florida.*
2. Bonuses or any other special compensation for utility personnel not

eligible for overtime pay

- *Company response – as previously discussed, while bonuses were paid to many employees for their extraordinary efforts and dedication to DEF's customers, all bonuses have been removed from the recovery request. Note, although the Company believes the bonuses paid to employees of Duke Energy Affiliates are properly recoverable, DEF is not seeking recovery of those costs in this filing.*

3. Base rate recoverable depreciation expenses, insurance costs and lease expenses for utility-owned or utility-leased vehicles and aircraft;

- *Company response – DEF has not included these types of costs in this cost recovery filing. Regarding fleet costs, fleet allocations that follow the payroll and overtime labor were adjusted to only allow the fuel component to be considered incremental and included for recovery in this filing. The remaining parts of the fleet allocation were considered non-incremental. With respect to aircraft, only direct incremental charges were recorded to the storm project. These costs represent incremental jet and transportation expenses, as well as charter flights when additional aircraft were needed. Other similar incremental expenses that supported restoration efforts included drone expenses and contractor drone operators, as well as helicopter expenses.*

4. Utility employee assistance costs;

- *Company response – DEF has not included these types of costs in this cost recovery filing.*

5. Utility employee training costs incurred prior to 72 hours before the

storm event;

- *Company response – DEF has not included these types of costs in this cost recovery filing.*

6. Utility advertising, media relations or public relations costs, except for public service announcements regarding key storm-related issues as listed above in subparagraph (1)(e)10.;

- *Company response – DEF has not included these types of costs in this cost recovery filing, except for allowable public service announcements. For example, advertisements that were placed to distribute needed information related to power restoration and/or safety precautions were charged to the storm reserve. This would have included messaging such as how to report power outages, and to urge customers not to touch downed power lines. However, advertisements that related to corporate image were not charged to the storm reserve. This would have included all "Thank You" ads that were placed.*

7. Utility call center and customer service costs, except for non-budgeted overtime or other non-budgeted incremental costs associated with the storm event;

- *Company response – DEF has only included the non-budgeted overtime and other incremental costs associated with its Customer Operations organization in this cost recovery filing; see below for further discussion of the cost impacts of major storms to DEF's Customer Operations organization.*

8. Tree trimming expenses, incurred in any month in which storm damage restoration activities are conducted, that are less than the actual monthly average

of tree trimming costs charged to operation and maintenance expense for the same month in the three previous calendar years;

- *Company response – DEF has performed the necessary calculations required by this rule and has properly removed vegetation management costs consistent with this rule, resulting in recovery amounts that comply with the ICCA methodology.*

9. Utility lost revenues from services not provided; and

- *Company response – DEF has not included lost revenues in this cost recovery filing.*

10. Replenishment of the utility's materials and supplies inventories.

- *Company response – DEF has not included these types of costs in this cost recovery filing.*

Q. Please explain the amounts capitalized to property, plant and equipment by the Company.

A. The ICCA methodology states, "…capital expenditures for the removal, retirement and replacement of damaged facilities charged to cover storm-related damages shall exclude the normal cost for the removal, retirement and replacement of those facilities in the absence of a storm."

The Company has a process to ensure all units of property installed during storm restoration are capitalized at reasonable material and labor amounts (i.e., resulting in capital amounts at the normal cost for the removal, retirement and replacement of those facilities), thus resulting in a storm cost reserve recovery request that is incremental under the ICCA methodology. During major storm events, only the Company's Distribution Operations and Transmission Operations installed capital units of property.

For Transmission Operations, given the much smaller number of individual repair and replace events, specific projects were issued for capital versus O&M work, allowing real-time tracking of those capital projects. As capital work was performed, those associated material and equipment costs were charged to capital projects. Additionally, an analysis of historical capital labor rate amounts was performed to quantify the appropriate amount of labor costs for the capital projects. Storm restoration labor costs originally charged to the storm cost tracking account were then reallocated to the respective capital projects, based on the capital labor analysis.

With respect to Distribution Operations, the nature of repair work is so voluminous and time of the essence that the issuance of individual projects for capital versus O&M work is not feasible. However, the Company's tracking of materials allows it to do an accounting of all units of property used during storm restoration, resulting in the proper capitalization of those units of property. This is accomplished by having DEF's Supply Chain organization issue the materials directly to the storm project as they ship them from the distribution center to the various base camps and also having Supply Chain personnel at the operating centers issue materials used during the storm to the storm project. Once the restoration effort has been completed all materials from the base camps are picked up and brought back to the distribution center where it is placed in a specific area for return processing. All of the returned materials are segregated and tagged so that they can be identified as materials initially charged to the storm restoration. The material is returned to the same accounting that was used during the restoration effort, properly resulting in only the actual units installed during storm restoration being capitalized.

Once the number of units of property were confirmed, the Company's Finance organization determined a normal, reasonable total dollar amount to capitalize for those units of property.

- Materials cost –as noted above, first the number of units of property ("UOP") were identified and grouped (i.e. poles, transformers, wire, etc.). Then, the material costs associated with the UOP and the number of UOP become the basis of the calculation to determine the estimated total capital amount. A material burden is applied to all materials which represents the cost associated with warehousing, handling and shipping and is reflected in the capital calculation.
- Employee labor - for each grouping of UOP, DEF's Resource Optimization group estimated the average number of hours to install under normal conditions that type of UOP and number of line resources needed. The average number of hours multiplied by the number of resources generated the total hours to install that UOP. Then a blended internal line personnel labor rate was multiplied by the number of hours for each UOP to come up with the estimated capital employee labor component.

- Contractor and Duke Energy affiliate labor – during major storm events, contractor resources, as well as linemen from Duke Energy affiliates from the Carolinas and the Midwest, are utilized extensively to return the electrical grid back to operations. Accordingly, their costs should be incorporated into the overall capital calculation. DEF calculated the average hourly native line contractor and fleet rate (i.e., the costs of work done under normal conditions with native contractors), reduced it by the rate already capitalized as discussed above under the "Employee labor" bullet point, and multiplied this adder rate by the total UOP hours. This generated the contractor/affiliate adder that was included in our capitalized amount.
- Other costs – as part of the normal amount of capital cost for a UOP, a fleet and overhead allocation is applied to the employee labor. The fleet allocation and overhead percentage applied is consistent with the average percentage associated with DEF's Maintain and Restore processes capital activities.
- Note, the Company is not able to determine with precision the portion of capital work completed by DEF employees versus contractors and other Duke Energy affiliates, and therefore the capitalization amount represents a mix of those costs. However, after our methodology was completed, we were able to conclude that our mix of total dollars capitalized resulted in a reasonable level of total capitalized costs for the total units of property installed during storm restoration, which also resulted in the proper amount of storm costs being excluded from recovery through the storm reserve in this filing.

For each major storm, the amount of storm costs capitalized are outlined in Exhibit No. __ (BB-2).

Q. In additional to Transmission and Distribution Operations, please describe the other functional areas that incurred costs related to the seven named storms.

A. In addition to the Company's Distribution Operations and Transmission Operations areas, the Company's generation plants (Fossil/Hydro Operations, or "FHO") were damaged during several of the aforementioned storms. And, as further described below, the Company's Customer Operations organization incurred significant costs directly related to the storms.

With respect to FHO, wind and related water damage impacted several of our generation facilities, resulting in incremental contractor costs, overtime and materials to repair the damaged facilities. Total recoverable costs for FHO from Hurricane Irma were approximately $2.7 million, with the majority of the costs incurred at the Company's Crystal River coal-fired units and the Anclote station. None of the other named storms caused damage in excess of $1 million to DEF's generation facilities. The Company followed a similar process as that described above to ensure only incremental FHO costs as defined under the ICCA methodology are being requested for recovery in this filing.

With respect to Customer Operations, incremental costs include the same categories of costs as noted above (overtime costs, contractor costs, payroll of Duke Energy affiliate employees, employee travel expenses, etc.). The Company followed a similar process as that described above to ensure only incremental Customer Operations costs as defined under the ICCA methodology are being requested for recovery in this filing. The area of costs incurred that are unique to DEF's Customer Operations organization relates to uncollectible accounts expenses as referenced in ICCA Rule 25-6.0143(1)(g)2. As indicated in the ICCA rules, any uncollectible accounts costs from a major storm that are deferred for recovery are limited to those incurred through May 31st of the following year. The only storm for which Customer Operations incurred significant uncollectible account expenses was Hurricane Irma. The Company estimates that it has incurred at least $1.64 million in incremental accounts receivable charge-offs in the months of January, February, and March 2018. The Company continues to evaluate whether incremental charge-offs were incurred in April and May 2018.

The incremental amount of charge-offs due to Hurricane Irma was calculated as the difference between forecasted charge-offs for the months of January 2018 through March 2018, as compared to the actual level of charge-offs in those months. The Company believes this methodology is reasonable and appropriate given our historical accuracy in forecasting charge-offs, which is in excess of 95%. As background, the Company during and subsequent to Hurricane Irma made accommodations in its processes to aid our customers that may have been in financial distress because of the hurricane. For instance, certain collection activities were temporarily ceased beginning September 11, and were phased in beginning in mid-October. Non-pay disconnects resumed November 2 and collection activity for defaulted arrangements was phased back in beginning in mid-November. Further, in addition to the standard short-term credit extension, monthly installment payment terms were offered through January 2018. The general negative impact to DEF's customers from the hurricane as well as from the aforementioned accommodations for the benefit of DEF's customers resulted in the incremental charge-offs experienced through March 31, 2018 of approximately $1.64 million.

Other than Hurricane Irma, no other storms in the 2012-2017 time period resulted in Customer Operations incremental costs greater than $1 million, and with respect to incremental account charge-offs, the Company is only seeking recovery for such costs from Hurricane Irma.

Q. Please explain why there could be further adjustments to the costs for which DEF is seeking recovery in this filing.

A. As of the date of this filing, the Company has not yet finalized payment for all contractor services related to Hurricane Irma. We expect to finalize our review and payment for these invoices by the end of August 2018. Also, as noted above, the Company's Customer Operations organization is evaluating whether incremental uncollectible account charge-offs are continuing to be incurred beyond the March 2018 initial cut-off used to determine such amounts for this filing. We will file supplemental schedules in this proceeding reflecting any necessary adjustments should they arise on or before August 24, 2018.

Q. Does this conclude your testimony?

A. Yes, it does.

Line No.	Description	REF.	(A) Storm Costs ($000's)	(B) Storm Reserve Balance ($000's)
1	**Reserve Balance (Pre-2017 Storm) - Retail**	BB-3 line 7 column D		**($56,734)**
2				
3	**Total Storm Costs (2017)**			
4	Irma	BB-2p2 line 32 column H	$420,478	
5	Nate	BB-2p1 line 32 column H	5,085	
6	**Total Recoverable Restoration Costs - Retail**	lines 4:5		**425,563**
7				
8	**Net Recoverable Retail Restoration Costs**	line 1 + line 6		**368,828**
9				
10	Bond Issuance Costs	Exh. No. MJO-1		1,264
11				
12	**Beginning Balance for Recovery**	lines 8:10		**370,093**
13				
14	Plus: Interest on Unamortized Reserve Deficiency Balance	Exh. No. MJO-1 line 46		8,543
15				
16	Plus: Amount to Replenish Reserve	BB-3 line 1 column D		131,847
17				
18	**Total Retail Storm Recovery Amount**	lines 12:16		**$510,483**

Notes:

Pursuant to Rule No. 25-6.0431(3), F.A.C., line 12 reflects the rate base component on which DEF seeks recover interest expense.

Pursuant to Rule No. 25-6.0431(4), F.A.C., lines 12 and 14 reflect the amortization and interest expense, respectively, that DEF seeks to recover.

			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
			Storm Costs By Function ($000's)							
Line No.	**Description**	**REF.**	**Transmission**	**Distribution**	**Generation Base**	**Generation Intermediate**	**Generation Peaking**	**Customer Service**	**Total**	**Storm Reserve Balance**
1	**Pre-Storm Reserve Balance**	BB-3 line 8 column D								**($363,744)**
2										
3	**Storm Related Restoration Costs**									
4	Regular Payroll		3	33	-	-	-	-	36	
5	Overtime Payroll		5	193	-	-	-	-	199	
6	Labor Burdens/Incentives		3	76	-	-	-	-	79	
7	Overhead Allocations		26	28	-	-	-	-	54	
8	Employee Expenses		1	26	-	-	-	-	28	
9	Contractor Costs		361	4,386	-	-	-	-	4,747	
10	Materials & Supplies		0	168	-	-	-	-	168	
11	Internal Fleet Costs		0	12	-	-	-	-	12	
12	Uncollectible Account Expenses		-	-	-	-	-	-	-	
13	Other		-	-	-	-	-	-	-	
14	**Subtotal - Storm Related Restoration Costs**	lines 4:13	**400**	**4,923**	**-**	**-**	**-**	**-**	**5,323**	
15										
16	**Less: Estimated Non-Incremental Costs**									
17	Regular Payroll		(3)	(21)	-	-	-	-	(24)	
18	Overtime Payroll		-	(4)	-	-	-	-	(4)	
19	Incentives		(3)	(14)	-	-	-	-	(17)	
20	Overhead Allocations		(25)	(28)	-	-	-	-	(53)	
21	Internal Fleet Costs		(0)	(9)	-	-	-	-	(9)	
22	Vegetation Management Costs		-	-	-	-	-	-	-	
23	Other		-	-	-	-	-	-	-	
24	**Subtotal - Estimated Non-Incremental Costs**	lines 17:23	**(31)**	**(76)**	**-**	**-**	**-**	**-**	**(107)**	
25										
26	Less: Capitalizable Costs		-	-	-	-	-	-	-	
27										
28	**Total Recoverable Restoration Costs - System**	lines (14 + 24 + 26)	**369**	**4,847**	**-**	**-**	**-**	**-**	**5,216**	
29										
30	Jurisdictional Factor (Order PSC-2017-0451-FOF-EI)		70.203%	99.561%	92.885%	72.703%	95.924%	100%		
31										
32	**Total Recoverable Restoration Costs - Retail**	lines (28 x 30)	**$259**	**$4,826**	**$0**	**$0**	**$0**	**$0**	**$5,085**	**$5,085**
33										
34	**Net Recoverable Retail Restoration Costs**	lines (32 - 1)								**(368,828)**

Line No.	Description	REF.	(A) Transmission	(B) Distribution	(C) Generation Base	(D) Generation Intermediate	(E) Generation Peaking	(F) Customer Service	(G) Total	(H) Storm Reserve Balance
			Storm Costs By Function ($000's)							
1	**Pre-Storm Reserve Balance**	BB-3 line 7 column D								**$56,734**
2										
3	**Storm Related Restoration Costs**									
4	Regular Payroll		1,385	5,397	-	-	-	895	7,677	
5	Overtime Payroll		2,147	14,908	549	87	77	1,471	19,240	
6	Labor Burdens/Incentives		1,137	7,679	-	-	-	621	9,437	
7	Overhead Allocations		1,188	5,508	(21)	-	-	581	7,256	
8	Employee Expenses		1,642	20,644	39	11	2	649	22,986	
9	Contractor Costs		21,078	355,063	662	215	148	895	378,061	
10	Materials & Supplies		2,176	12,998	389	501	47	49	16,159	
11	Internal Fleet Costs		151	1,358	-	-	-	-	1,509	
12	Uncollectible Account Expenses		-	-	-	-	-	1,642	1,642	
13	Other [a]		12	110	-	-	-		122	
14	**Subtotal - Storm Related Restoration Costs**	lines 4:13	**30,917**	**423,665**	**1,617**	**814**	**275**	**6,801**	**464,088**	
15										
16	**Less: Estimated Non-Incremental Costs**									
17	Regular Payroll		(1,140)	(1,145)	-	-	-	(119)	(2,404)	
18	Overtime Payroll		(194)	(467)	-	-	-	-	(662)	
19	Incentives		(1,126)	(1,711)	-	-	-	(91)	(2,928)	
20	Overhead Allocations		(229)	(26)	21	-	-	-	(234)	
21	Internal Fleet Costs		(66)	-	-	-	-	-	(66)	
22	Vegetation Management Costs		(289)	(1,806)	-	-	-	-	(2,096)	
23	Other[b]		(12)	(245)	-	-	-	(5)	(262)	
24	**Subtotal - Estimated Non-Incremental Costs**	lines 17:23	**(3,057)**	**(5,400)**	**21**	**-**	**-**	**(216)**	**(8,651)**	
25										
26	Less: Capitalizable Costs		(6,143)	(20,248)	-	-	-	-	(26,391)	
27										
28	**Total Recoverable Restoration Costs - System**	lines (14 + 24 + 26)	**21,717**	**398,017**	**1,638**	**814**	**275**	**6,585**	**429,046**	
29										
30	Jurisdictional Factor (Order PSC-2017-0451-FOF-EI)		70.203%	99.561%	92.885%	72.703%	95.924%	100%		
31										
32	**Total Recoverable Restoration Costs - Retail**	lines (28 x 30)	**$15,246**	**$396,270**	**$1,522**	**$592**	**$264**	**$6,585**	**$420,478**	**$420,478**
33										
34	**Net Recoverable Retail Restoration Costs**	lines (32 - 1)								**(363,744)**

Notes:

[a] Transmission - $12k relates to damage billing. Distribution - $75k relates to vehicle fuel; $13k relates to Federal, State and Local tax on undyed diesel; $20k in purchase card.

[b] Transmission - $12k relates to damage billing. Distribution - $182k relates to material expense and $63k relates to employee expenses.

			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
			Storm Costs By Function ($000's)							
Line No.	**Description**	**REF.**	**Transmission**	**Distribution**	**Generation Base**	**Generation Intermediate**	**Generation Peaking**	**Customer Service**	**Total**	**Storm Reserve Balance**
1	**Pre-Storm Reserve Balance**	BB-3 line 6 column D								**$91,990**
2										
3	**Storm Related Restoration Costs**									
4	Regular Payroll		104	749	20	-	4	28	904	
5	Overtime Payroll		211	3,108	26	-	3	246	3,593	
6	Labor Burdens/Incentives		99	1,436	2	-	0	206	1,742	
7	Overhead Allocations		1	587	18	-	1	208	815	
8	Employee Expenses		478	2,921	1	-	-	48	3,448	
9	Contractor Costs		911	25,900	-	-	276	62	27,149	
10	Materials & Supplies		116	1,311	1	-	36	1	1,465	
11	Internal Fleet Costs		-	867	-	-	-	-	867	
12	Uncollectible Account Expenses		-	-	-	-	-	-	-	
13	Other		-	-	-	-	-	-	-	
14	**Subtotal - Storm Related Restoration Costs**	lines 4:13	**1,920**	**36,879**	**68**	**-**	**319**	**799**	**39,984**	
15										
16	**Less: Estimated Non-Incremental Costs**									
17	Regular Payroll		(102)	(392)	(20)	-	(4)	(2)	(519)	
18	Overtime Payroll		-	(74)	-	-	-	-	(74)	
19	Incentives		(99)	(216)	(2)	-	(0)	-	(317)	
20	Overhead Allocations		0	(287)	(18)	-	(1)	-	(305)	
21	Internal Fleet Costs		-	(462)	-	-	-	-	(462)	
22	Vegetation Management Costs		(62)	(413)	-	-	-	-	(475)	
23	Other		-	-	-	-	-	-	-	
24	**Subtotal - Estimated Non-Incremental Costs**	lines 17:23	**(263)**	**(1,844)**	**(40)**	**-**	**(5)**	**(2)**	**(2,153)**	
25										
26	Less: Capitalizable Costs		(6)	(1,917)	-	-	-	-	(1,923)	
27										
28	**Total Recoverable Restoration Costs - System**	lines (14 + 24 + 26)	**1,651**	**33,118**	**28**	**-**	**314**	**797**	**35,908**	
29										
30	Jurisdictional Factor (Order PSC-2012-0104-FOF-EI)		70.203%	99.561%	92.885%	72.703%	95.924%	100%		
31										
32	**Total Recoverable Restoration Costs - Retail**	lines (28 x 30)	**$1,159**	**$32,972**	**$26**	**$0**	**$302**	**$797**	**$35,256**	**$35,256**
33										
34	**Net Recoverable Retail Restoration Costs**	lines (32 - 1)								**56,734**

			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
			Storm Costs By Function ($000's)							
Line No.	**Description**	**REF.**	**Transmission**	**Distribution**	**Generation Base**	**Generation Intermediate**	**Generation Peaking**	**Customer Service**	**Total**	**Storm Reserve Balance**
1	**Pre-Storm Reserve Balance**	BB-3 line 5 column D								**$116,299**
2										
3	**Storm Related Restoration Costs**									
4	Regular Payroll		85	451	(9)	-	-	21	548	
5	Overtime Payroll		191	2,003	94	-	-	96	2,384	
6	Labor Burdens/Incentives		88	1,015	2	-	-	82	1,187	
7	Overhead Allocations		3	1,285	17	-	-	26	1,331	
8	Employee Expenses		30	1,348	5	-	-	46	1,428	
9	Contractor Costs		594	19,323	448	-	-	-	20,365	
10	Materials & Supplies		91	872	122	-	-	0	1,085	
11	Internal Fleet Costs		-	242	-	-	-	-	242	
12	Uncollectible Account Expenses		-	-	-	-	-	-	-	
13	Other		(0)	-	-	-	-	0	(0)	
14	**Subtotal - Storm Related Restoration Costs**	lines 4:13	**1,080**	**26,540**	**678**	**-**	**-**	**271**	**28,570**	
15										
16	**Less: Estimated Non-Incremental Costs**									
17	Regular Payroll		(80)	(275)	9	-	-	(12)	(358)	
18	Overtime Payroll		-	(40)	-	-	-	-	(40)	
19	Incentives		(88)	(192)	(2)	-	-	-	(282)	
20	Overhead Allocations		(3)	(1,125)	(17)	-	-	-	(1,145)	
21	Internal Fleet Costs		-	(99)	-	-	-	-	(99)	
22	Vegetation Management Costs		(72)	(685)	-	-	-	-	(757)	
23	Other		(0)	-	-	-	-	-	(0)	
24	**Subtotal - Estimated Non-Incremental Costs**	lines 17:23	**(243)**	**(2,416)**	**(10)**	**-**	**-**	**(12)**	**(2,681)**	
25										
26	Less: Capitalizable Costs		-	(1,182)	-	-	-	-	(1,182)	
27										
28	**Total Recoverable Restoration Costs - System**	lines (14 + 24 + 26)	**837**	**22,943**	**669**	**-**	**-**	**259**	**24,707**	
29										
30	Jurisdictional Factor (Order PSC-2012-0104-FOF-EI)		70.203%	99.561%	92.885%	72.703%	95.924%	100%		
31										
32	**Total Recoverable Restoration Costs - Retail**	lines (28 x 30)	**$588**	**$22,842**	**$621**	**$0**	**$0**	**$259**	**$24,309**	**$24,309**
33										
34	**Net Recoverable Retail Restoration Costs**	lines (32 - 1)								**91,990**

			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
			Storm Costs By Function ($000's)							
Line No.	**Description**	**REF.**	**Transmission**	**Distribution**	**Generation Base**	**Generation Intermediate**	**Generation Peaking**	**Customer Service**	**Total**	**Storm Reserve Balance**
1	**Pre-Storm Reserve Balance**	BB-3 line 4 column D								**$118,660**
2										
3	**Storm Related Restoration Costs**									
4	Regular Payroll		24	171	-	-	-	-	195	
5	Overtime Payroll		8	427	-	-	-	-	435	
6	Labor Burdens/Incentives		9	245	-	-	-	-	254	
7	Overhead Allocations		0	388	-	-	-	-	388	
8	Employee Expenses		1	89	-	-	-	-	90	
9	Contractor Costs		15	2,066	-	-	-	-	2,081	
10	Materials & Supplies		1	-	-	-	-	-	1	
11	Internal Fleet Costs		-	144	-	-	-	-	144	
12	Uncollectible Account Expenses		-	-	-	-	-	-	-	
13	Other		-	-	-	-	-	-	-	
14	**Subtotal - Storm Related Restoration Costs**	lines 4:13	**57**	**3,531**	**-**	**-**	**-**	**-**	**3,588**	
15										
16	**Less: Estimated Non-Incremental Costs**									
17	Regular Payroll		(24)	(132)	-	-	-	-	(156)	
18	Overtime Payroll		-	(32)	-	-	-	-	(32)	
19	Incentives		(9)	(24)	-	-	-	-	(33)	
20	Overhead Allocations		(0)	(388)	-	-	-	-	(388)	
21	Internal Fleet Costs		-	(83)	-	-	-	-	(83)	
22	Vegetation Management Costs		(12)	(510)	-	-	-	-	(522)	
23	Other		-	-	-	-	-	-	-	
24	**Subtotal - Estimated Non-Incremental Costs**	lines 17:23	**(45)**	**(1,169)**	**-**	**-**	**-**	**-**	**(1,214)**	
25										
26	Less: Capitalizable Costs		-	-	-	-	-	-	-	
27										
28	**Total Recoverable Restoration Costs - System**	lines (14 + 24 + 26)	**12**	**2,362**	**-**	**-**	**-**	**-**	**2,374**	
29										
30	Jurisdictional Factor (Order PSC-2012-0104-FOF-EI)		70.203%	99.561%	92.885%	72.703%	95.924%	100%		
31										
32	**Total Recoverable Restoration Costs - Retail**	lines (28 x 30)	**$9**	**$2,352**	**$0**	**$0**	**$0**	**$0**	**$2,360**	**$2,360**
33										
34	**Net Recoverable Retail Restoration Costs**	lines (32 - 1)								**116,299**

			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
			Storm Costs By Function ($000's)							
Line No.	**Description**	**REF.**	**Transmission**	**Distribution**	**Generation Base**	**Generation Intermediate**	**Generation Peaking**	**Customer Service**	**Total**	**Storm Reserve Balance**
1	**Pre-Storm Reserve Balance**	BB-3 line 3 column D								**$123,839**
2										
3	**Storm Related Restoration Costs**									
4	Regular Payroll		73	297	-	-	-	-	370	
5	Overtime Payroll		16	386	-	-	-	-	402	
6	Labor Burdens/Incentives		5	291	-	-	-	-	297	
7	Overhead Allocations		-	-	-	-	-	-	-	
8	Employee Expenses		8	327	-	-	-	-	334	
9	Contractor Costs		37	3,492	-	-	-	-	3,529	
10	Materials & Supplies		1	55	-	-	-	-	56	
11	Internal Fleet Costs		37	99	-	-	-	-	136	
12	Uncollectible Account Expenses		-	-	-	-	-	-	-	
13	Other [a]		-	954	-	-	-	-	954	
14	**Subtotal - Storm Related Restoration Costs**	lines 4:13	**177**	**5,901**	**-**	**-**	**-**	**-**	**6,078**	
15										
16	**Less: Estimated Non-Incremental Costs**									
17	Regular Payroll		(70)	(243)	-	-	-	-	(313)	
18	Overtime Payroll		-	(25)	-	-	-	-	(25)	
19	Incentives		(5)	(61)	-	-	-	-	(67)	
20	Overhead Allocations		-	-	-	-	-	-	-	
21	Internal Fleet Costs		(37)	(63)	-	-	-	-	(100)	
22	Vegetation Management Costs		-	(248)	-	-	-	-	(248)	
23	Other		-	-	-	-	-	-	-	
24	**Subtotal - Estimated Non-Incremental Costs**	lines 17:23	**(113)**	**(641)**	**-**	**-**	**-**	**-**	**(754)**	
25										
26	Less: Capitalizable Costs		-	(103)	-	-	-	-	(103)	
27										
28	**Total Recoverable Restoration Costs - System**	lines (14 + 24 + 26)	**64**	**5,157**	**-**	**-**	**-**	**-**	**5,222**	
29										
30	Jurisdictional Factor (Order PSC-2012-0104-FOF-EI)		70.203%	99.561%	92.885%	72.703%	95.924%	100%		
31										
32	**Total Recoverable Restoration Costs - Retail**	lines (28 x 30)	**$45**	**$5,135**	**$0**	**$0**	**$0**	**$0**	**$5,180**	**$5,180**
33										
34	**Net Recoverable Retail Restoration Costs**	lines (32 - 1)								**118,660**

Notes:

[a] $711k relates to contract services provided by KAM Serv Inc. (staging and logistics); $133k relates to vehicle fuel; $51k relates to Karl's Rentals (staging and logistics), $56k for informational adverstising and the remaining $2k is miscellaneous.

			(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
			Storm Costs By Function ($000's)							
Line No.	Description	REF.	Transmission	Distribution	Generation Base	Generation Intermediate	Generation Peaking	Customer Service	Total	Storm Reserve Balance
1	**Pre-Storm Reserve Balance**	BB-3 line 1 column D								**$131,847**
2										
3	**Storm Related Restoration Costs**									
4	Regular Payroll		283	643	5	-	-	122	1,052	
5	Overtime Payroll		118	1,489	10	-	-	88	1,704	
6	Labor Burdens/Incentives		23	449	1	-	-	-	473	
7	Overhead Allocations		22	-	0	-	-	-	23	
8	Employee Expenses		337	160	0	-	-	143	640	
9	Contractor Costs		1,306	5,182	139	-	-	66	6,693	
10	Materials & Supplies		125	382	3	-	-	13	523	
11	Internal Fleet Costs		78	273	-	-	-	6	357	
12	Uncollectible Account Expenses		-	-	-	-	-	-	-	
13	Other [a]		140	184	-	-	-	-	324	
14	**Subtotal - Storm Related Restoration Costs**	lines 4:13	**2,431**	**8,761**	**158**	**-**	**-**	**438**	**11,788**	
15										
16	**Less: Estimated Non-Incremental Costs**									
17	Regular Payroll		(114)	(456)	(5)	-	-	(122)	(696)	
18	Overtime Payroll		-	(91)	-	-	-	-	(91)	
19	Incentives		(23)	(154)	(1)	-	-	-	(178)	
20	Overhead Allocations		-	-	(0)	-	-	-	(0)	
21	Internal Fleet Costs		(78)	(100)	-	-	-	-	(177)	
22	Vegetation Management Costs		-	(419)	-	-	-	-	(419)	
23	Other		-	-	-	-	-	-	-	
24	**Subtotal - Estimated Non-Incremental Costs**	lines 17:23	**(214)**	**(1,220)**	**(6)**	**-**	**-**	**(122)**	**(1,562)**	
25										
26	Less: Capitalizable Costs		(527)	(1,149)	-	-	-	-	(1,676)	
27										
28	**Total Recoverable Restoration Costs - System**	lines (14 + 24 + 26)	**1,690**	**6,392**	**152**	**-**	**-**	**316**	**8,550**	
29										
30	Jurisdictional Factor (Order PSC-2012-0104-FOF-EI)		70.203%	99.561%	92.885%	72.703%	95.924%	100%		
31										
32	**Total Recoverable Restoration Costs - Retail**	lines (28 x 30)	**$1,187**	**$6,364**	**$141**	**$0**	**$0**	**$316**	**$8,008**	**$8,008**
33										
34	**Net Recoverable Retail Restoration Costs**	lines (32 - 1)								**123,839**

Notes:

[a] Tranmission - $137k relates to capital true-up and misc costs; $3k related to storm claims settlements. Distribution - $81k relates to informational advertising; $98k relates to vehicle fuel and the remaining is miscellaneous.

Docket No. 20170272-EI
Storm Cost Reserve Activity
Exhibit BB-3, Page 1 of 1

	($000's)	(A)	(B)	(C)	(D)	
Line No.	**Description**	**Retail Storm Costs per Estimated Filing Appendix A p.7**	**Change [a]**	**Storm Costs Adjusted**	**Account 228.100 Retail Storm Reserve Balance (Post Storm)**	
1	Reserve Balance - February 2012				$131,847	
2	Storm Costs:					
3	Tropical Storm Debby (2012)	($10,483)	$2,475	($8,008)	$123,839	
4	Hurricane Isaac (2012)	(5,114)	(66)	(5,180)	$118,660	
5	Tropical Storm Colin (2016)	(2,377)	17	(2,360)	$116,299	
6	Hurricane Hermine (2016)	(24,468)	159	(24,309)	$91,990	
7	Hurricane Matthew (2016)	(35,387)	131	(35,256)	$56,734	
8	Hurricane Irma (2017)			(420,478)	($363,744)	[b]
9	Hurricane Nate (2017)			(5,085)	**(368,828)**	[b]
10	Total Storm Costs:	($77,830)	$2,717	($500,676)		

Notes:
[a] After making the Estimated Cost Filing, certain costs were adjusted to be consistent with the approach that Irma and Nate costs were recorded.
[b] These costs were recorded to a regulatory asset account and will be reclassified to account 228.1 at a later time

Jurisdictional Factor (Order PSC-2012-0104-FOF-EI)

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: APPLICATION FOR LIMITED PROCEEDING FOR RECOVERY OF INCREMENTAL STORM RESTORATION COSTS RELATED TO HURRICANES IRMA AND NATE, BY DUKE ENERGY FLORIDA, LLC.

FPSC DOCKET NO. 20170272-EI

DIRECT TESTIMONY OF MARCIA J. OLIVIER

MAY 31, 2018

I. INTRODUCTION AND QUALIFICATIONS.

Q. Please state your name and business address.

A. My name is Marcia J. Olivier. My current business address is 299 First Avenue North, Saint Petersburg, FL 33701.

Q. By whom are you employed and what are your responsibilities?

A. I am employed by Duke Energy Florida, LLC, as Director of Rates and Regulatory Planning. I am currently responsible for overseeing rate cases, reporting actual and projected earnings surveillance results, overseeing filings related to storm cost recovery, impacts from the 2017 Tax Cuts and Jobs Act, and ensuring compliance with the 2017 Second Revised and Restated Settlement Agreement.

Q. Please summarize your educational background and professional experience.

A. I hold a Bachelor of Science degree in Accounting and a Bachelor of Science degree in Finance from the University of South Florida and have over 20 years of utility experience, primarily in the regulatory area.

II. PURPOSE OF TESTIMONY.

Q. What is the purpose of your direct testimony?

A. The purpose of my testimony is to describe the process for recovering storm costs, including replenishment of the storm reserve, under the 2017 Second Revised and Restated Settlement Agreement ("2017 Settlement") approved in Order No. PSC-2017-0451-AS-EU and the 2017 Settlement Implementation Stipulation ("Implementation Stipulation") approved in Order No. PSC-2018-0103-PCO-EI. Witness Bryan Buckler will present testimony explaining and supporting the actual storm costs incurred by DEF.

Q. Do you have any exhibits to your testimony?

A. Yes, I am sponsoring the following exhibit to my testimony:

- Exhibit No. __ (MJO-1) "Storm Cost Amortization"

This exhibit was prepared under my direction and control and is true and accurate to the best of my knowledge.

Q. Please explain the aspects of the 2017 Settlement that are relevant to storm cost recovery.

A. Paragraph 38 of the 2017 Settlement provides that "...recovery from customers for storm damage costs will begin, subject to Commission approval on an interim basis, sixty (60) days following the filing of a cost recovery petition with the Commission, and subject to true-up pursuant to further proceedings before the Commission...” Paragraph 38 also states that storm-related costs will be limited to costs resulting from a named tropical system plus replenishment of DEF’s retail storm reserve up to $132 million, which was the approximate balance of the reserve as of the Implementation Date of the 2012 Settlement Agreement. On December 28, 2017, DEF filed a petition for a limited proceeding to recover storm restoration costs related to Hurricanes Irma and Nate and to replenish its retail storm reserve. That filing was based on estimated costs, as it takes months to review and pay the actual costs and to determine which costs are eligible for recovery through the storm reserve. DEF is now filing its actual costs for Commission review and approval as further explained by witness Bryan Buckler.

Q. You mention replenishing the Storm Reserve to $132 million. Other than as a result of Hurricanes Irma and Nate, has DEF charged costs to its retail storm reserve since the Implementation Date of the 2012 Settlement Agreement?

A. Yes. As noted on Exhibit A to DEF’s December 28, 2017 petition, DEF has charged costs to the storm reserve for named tropical systems Debbie (2012), Isaac (2012), Colin (2016), Hermine (2016), and Matthew (2016). As noted above, pursuant to the 2017 Settlement, DEF is permitted to replenish the retail storm reserve to the level as of the Implementation Date of the 2012 Settlement Agreement. The costs DEF incurred to prepare for and respond to each of these named storms were properly debited from the storm reserve pursuant to

Commission Rule 25-6.0143, F.A.C. These storms are addressed in the direct testimony and exhibits of witness Bryan Buckler.

Q. Please summarize the effects of the Implementation Stipulation.

A. The Implementation Stipulation allows DEF to apply the impacts of the 2017 Tax Cuts and Jobs Act ("Tax Impacts") toward the recovery of storm costs and the replenishment of the storm reserve effective January 2018 in lieu of increasing customer rates to recover the storm costs and decreasing customer rates to flow back the Tax Impacts. The Commission's approval of the Tax Impacts will take place in Docket No. 20180047. Effective January 2018, DEF will apply one-twelfth of the annual final Commission-approved Tax Impacts to the storm reserve each month until DEF has fully recovered the final storm recovery amount approved by the Commission in this proceeding. Attached as Exhibit No. __ (MJO-1) is an example of that calculation based on DEF's total storm costs in Exhibit No. __ (BB-1) and the Tax Impacts included in my direct testimony filed in Docket No. 20180047. As shown in Exhibit No. __ (MJO-1), the total amount of amortization is $510 million, including a storm reserve deficiency of $369 million after incurring all incremental storm costs (as further explain in Bryan Buckler's testimony), replenishment of the storm reserve to $132 million, recovery of bond issuance costs of $1 million and interest expense of $9 million. Pursuant to the Implementation Stipulation, in the month following full recovery of the final Commission-approved storm recovery amount, DEF will cease recording the storm reserve accrual and will reduce base rates in the manner set forth in the 2017 Settlement by the Tax Impacts to be approved by the

Commission in Docket No. 20180047. DEF will file tariff sheets for Staff's approval sixty days prior to that date.

Q. Please explain the bond issuance costs and interest expense.

A. The 2017 Settlement provides for a 12-month recovery period. However, due to the magnitude of the storm costs from Hurricane Irma, DEF expects to recover these costs over approximately three years via offsetting storm costs with the Tax Impacts consistent with the Implementation Stipulation. Since the recovery period is longer than the 12-month recovery period provided for in the 2017 Settlement, DEF issued 2-year senior unsecured amortizing bonds in December 2017 for $400 million at a 2.1% interest rate. DEF has included those bond issuance costs and interest recovery beginning in March 2018, which was the date the rate surcharge would have become effective absent the Implementation Stipulation.

Q. Is DEF planning to file any further filings related to the storm costs in this proceeding?

A. Possibly. As further explained by Mr. Buckler, while almost all of the storm costs are known and final, there are some costs that have not been finalized. DEF expects that those costs will be final in August 2018, and if there is a change from the amounts in this filing, then DEF will file supplemental schedules reflecting the final costs.

Q. Does this conclude your testimony?

A. Yes, it does.

($ thousands)

Beginning Storm Reserve Balance per Exh. BB-1	($368,828)
Bond Issuance Costs	(1,264)
Adjusted Beginning Storm Reserve Balance	(370,093)
Interest	(8,543)
Amortization	510,483
Ending Storm Reserve Balance per 2017 Settlement Par. 38	$131,847

Line	(A) Month	(B) Beginning Storm Reserve Balance	(D) Amortization (Exh. MJO-2 Docket No. 20180047)	(E) Interest (2.10% APR)	(F) Net Monthly Activity col. (D) + (E)	(G) Ending Storm Reserve Balance
1	Jan-18	($370,093)	$12,579		$12,579	($357,514)
2	Feb-18	(357,514)	12,579		12,579	(344,935)
3	Mar-18	(344,935)	12,579	(593)	11,986	(332,949)
4	Apr-18	(332,949)	12,579	(572)	12,007	(320,941)
5	May-18	(320,941)	12,579	(551)	12,028	(308,913)
6	Jun-18	(308,913)	12,579	(530)	12,049	(296,864)
7	Jul-18	(296,864)	12,579	(509)	12,070	(284,793)
8	Aug-18	(284,793)	12,579	(487)	12,092	(272,702)
9	Sep-18	(272,702)	12,579	(466)	12,113	(260,589)
10	Oct-18	(260,589)	12,579	(445)	12,134	(248,455)
11	Nov-18	(248,455)	12,579	(424)	12,155	(236,300)
12	Dec-18	(236,300)	12,579	(403)	12,176	(224,124)
13	Annual Total		150,947	(4,978)	145,969	
14	Jan-19	(224,124)	12,579	(381)	12,198	(211,926)
15	Feb-19	(211,926)	12,579	(360)	12,219	(199,707)
16	Mar-19	(199,707)	12,579	(338)	12,240	(187,467)
17	Apr-19	(187,467)	12,579	(317)	12,262	(175,205)
18	May-19	(175,205)	12,579	(296)	12,283	(162,921)
19	Jun-19	(162,921)	12,579	(274)	12,305	(150,617)
20	Jul-19	(150,617)	12,579	(253)	12,326	(138,290)
21	Aug-19	(138,290)	12,579	(231)	12,348	(125,942)
22	Sep-19	(125,942)	12,579	(209)	12,370	(113,573)
23	Oct-19	(113,573)	12,579	(188)	12,391	(101,182)
24	Nov-19	(101,182)	12,579	(166)	12,413	(88,769)
25	Dec-19	(88,769)	12,579	(144)	12,435	(76,334)
26	Annual Total		150,947	(3,157)	147,790	
27	Jan-20	(76,334)	12,579	(123)	12,456	(63,878)
28	Feb-20	(63,878)	12,579	(101)	12,478	(51,400)
29	Mar-20	(51,400)	12,579	(79)	12,500	(38,900)
30	Apr-20	(38,900)	12,579	(57)	12,522	(26,378)
31	May-20	(26,378)	12,579	(35)	12,544	(13,834)
32	Jun-20	(13,834)	12,579	(13)	12,566	(1,268)
33	Jul-20	(1,268)	12,579	-	12,579	11,311
34	Aug-20	11,311	12,579	-	12,579	23,889
35	Sep-20	23,889	12,579	-	12,579	36,468
36	Oct-20	36,468	12,579	-	12,579	49,047
37	Nov-20	49,047	12,579	-	12,579	61,626
38	Dec-20	61,626	12,579	-	12,579	74,205
39	Annual Total		150,947	(408)	150,539	
40	Jan-21	74,205	12,579	-	12,579	86,784
41	Feb-21	86,784	12,579	-	12,579	99,363
42	Mar-21	99,363	12,579	-	12,579	111,942
43	Apr-21	111,942	12,579	-	12,579	124,521
44	May-21	124,521	7,326	-	7,326	131,847
45	Annual Total		57,642	-	57,642	
46	Totals		$510,483	($8,543)	$501,940	

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: APPLICATION FOR LIMITED PROCEEDING FOR RECOVERY OF INCREMENTAL STORM RESTORATION COSTS RELATED TO HURRICANES IRMA AND NATE, BY DUKE ENERGY FLORIDA, LLC.

FPSC DOCKET NO. 20170272-EI

DIRECT TESTIMONY OF JASON CUTLIFFE

MAY 31, 2018

I. INTRODUCTION AND QUALIFICATIONS.

Q. Please state your name and business address.

A. My name is Jason Cutliffe. I am employed by Duke Energy Florida, LLC ("DEF" or the "Company"). My business address is 100 Central Avenue, St. Petersburg, Florida.

Q. Please tell us your position with DEF, and describe your duties and responsibilities in that position.

A. I am the Director of Power Quality and Reliability ("PQR") in DEF's Distribution Engineering organization. I direct and manage the engineering and technical staff responsible for performance and capacity expansion of the distribution grid. I am also the Planning Section Chief in DEF's Incident Command Structure ("ICS") and will provide testimony regarding the Company's distribution storm plan and the execution of that plan for Hurricanes Irma and Nate.

Q. Please summarize your educational background and employment experience.

A. I have a MBA from the University of Richmond, a Bachelor of Science in Electrical Engineering from the University of Maine, and I am a licensed professional engineer. Prior to assuming my current roles for DEF, I have held various engineering, operational, and leadership positions over a 32 year electric utility career.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony in this proceeding?

A. I am testifying on behalf of the Company in support of recovery of the Company's incremental storm-related costs incurred due to Hurricanes Irma and Nate. I will begin by providing an overview of the total transmission and distribution storm-related costs and cost categories. In order to provide some historical context for my testimony, I will summarize the DEF's storm hardening efforts since 2006 as they relate to the Company's distribution facilities. The hardening investments I will reference significantly limited the overall restoration costs associated with these storm events. I will discuss the operation of the Company's storm plan as it relates to DEF's distribution system, including the Company's goals and priorities as it prepares for, responds to, and recovers from a storm's impact on its distribution facilities. I will conclude my testimony by describing the DEF's successful efforts at implementing its plan in response to the storms and, ultimately, to restore electric service safely and efficiently to its customers.

Q. Are you sponsoring any exhibits to your testimony?

A. Yes. I am sponsoring the following exhibits to my testimony:

- Exhibit No. __ (JC-1) – Forensic Analysis of Storm Damage to DEF's Distribution System as a Result of Hurricane Irma ("Accenture Report"); and
- Exhibit No. __ (JC-2) – Paths of Hurricanes Irma and Nate.

Q. Can you please explain the purpose of the Accenture Report?

A. Yes. In the wake of Hurricane Irma, DEF gathered forensic data pole failures as a result of the storm and then contracted with Accenture Consulting to determine the major causes of those pole failures. DEF is using this report to gain a better understanding of the factors that cause the greatest amount of damage during a storm event, with the ultimate goal of determining what steps, if any, can be taken to mitigate against such damage in the future.

Q. Please summarize your testimony.

A. Hurricanes Irma and Nate presented unique challenges as DEF implemented its storm plan to prepare for, respond to, and recover from the two hurricanes. The vast majority of the storm costs incurred by the Company in 2017 resulted from Hurricane Irma. During that storm, DEF mobilized approximately 12,528 total contractors and employee resources to support the restoration work, which is the largest mobilization in DEF's history. At its height, nearly 1.3 million customers, roughly three quarters of all DEF customers, lost power. The incremental storm-related costs incurred by the Company in connection with Irma and Nate totaled approximately $425 million, as shown on Mr. Buckler's Exhibit No. __ (BB-1).

Hurricane Irma represents the most significant hurricane event to impact the state of Florida in recent history from the standpoints of both the storm's scale and size, and also its path along and up through the peninsula impacting such a large percentage of Florida's people and communities. As depicted on Exhibit No. __ (JC-2), Hurricane Nate's forecasted path threatened to impact a large portion of DEF's service territory right behind Irma driving needed preparations, but ultimately the storm shifted paths and did not impact DEF's service territory.

During Irma, DEF spliced and repaired 800 miles of wire, and replaced 324 miles of wire, more than 1100 transformers, 142 transmission poles, and over 2100 distribution poles. DEF also repaired 71 substations and restored 124 transmission circuits. DEF restored power to 1 million customers in three days, and restored power to essentially all customers by September 19th. Restoration work was very labor intensive often requiring vegetation clearing, accessing areas on foot, and climbing poles where bucket trucks could not access. As I explain in my testimony, DEF's storm plan proved to be an effective and efficient tool to restore customer service as quickly and safely as possible following Irma.

DEF also found that the investments made in storm hardening and smart grid technology helped the restoration efforts after Irma. Since 2006, the Company has spent more than $2 billion maintaining and strengthening the power delivery system, including inspecting and replacing poles and trimming vegetation and trees. For example, the self-healing grid technology helped avoid over 5 million minutes of customer interruptions during Hurricane Irma. No hardened transmission structure failed, and DEF's distribution pole inspection and replacement program resulted in less than half the pole breakage compared to Hurricane Charley in 2004 – a hurricane that affected much less of our service territory.

III. INCREMENTAL COSTS INCURRED BY DEF AS A RESULT OF HURRICANE IRMA

Q. Please identify what incremental costs the Company incurred in connection with Hurricanes Irma.

A. The incremental storm-related costs incurred by the Company in connection with Irma totaled over $420 million. These costs are described in detail in Mr. Buckler's testimony and exhibits.

Q. Please describe the Company's process for seeking mutual aid from outside sources and identify the dates on which the Company communicated with mutual aid organizations with respect to Hurricane Irma.

A. Once a tropical system is identified that could impact DEF's service territory, mutual aid calls are initiated for additional resources including native and non-native contractors and mutual assistance organizations. The mutual aid calls are to discuss the availability of resources outside the projected impacted area that may be able to provide assistance to our service territory should it be necessary. Resources typically include: linemen, vegetation management, damage assessment, support, and logistics for both Distribution and Transmission restoration efforts. Depending on the projected event timing and intensity, the objective is to have some resources mobilized and pre-positioned ahead of the impact. The Company's communications with mutual aid organizations for Irma occurred between September 5, 2017, and September 13, 2017. As set forth in the table below, mutual assistance was requested from several sources in connection with Hurricane Irma.

Irma	**Nature of Request**
9/5/17	Distribution Line & Veg- Non-native Contractors
9/5/17	Distribution Line & Veg- Mutual Assistance Organization
9/6/17	Distribution & Trans Line & Veg- Mutual Assistance Organization
9/7/17	Distribution & Trans Line & Veg- Mutual Assistance Organization
9/8/17	Distribution & Trans Line & Veg- Mutual Assistance Organization
9/9/17	Distribution & Trans Line & Veg- Mutual Assistance Organization
9/11/17	Distribution Line & Veg- Mutual Assistance Organization
9/12/17	Distribution Line & Veg- Mutual Assistance Organization
9/13/17	Distribution Line - Mutual Assistance Organization

Q. Did the Company utilize non-DEF labor to address customer contacts during Hurricanes Irma?

A. Yes, the Company utilized an additional 1,667 persons during Hurricane Irma to address customer contacts.

Q. How many customer calls did the Company receive during Hurricane Irma?

A. The Company received 2,169,289 calls as a result of Hurricane Irma.

Q. Did the Company issue public announcements in connection with Hurricane Irma?

A. Yes. To keep customers and the general public updated on our restoration efforts, we issued 15 news releases (several of which were issued in Spanish). In addition, we published 90 social media posts which covered several topics including safety, storm damage, crews/resources, updated outage and restoration numbers and estimated times of restoration. We also issued public service announcements through local radio stations and pushed out messaging using the "screen crawler" on the Weather Channel.

Q. How does the Company communicate information to its customers prior to, during and after a storm?

A. Before a storm, the Company issues news releases, posts social media information related to storm and safety tips, issues public service announcements, sends customers emails focused on preparedness, and proactively pitches stories to the media focused on our preparedness efforts and to encourage customers to be prepared. To address the needs of customers with medical or special needs, we conduct outbound call campaigns to ensure these customers are aware of pending severe weather and to prepare for potentially extended outages. We also launch a dedicated webpage focused on the specific storm event where the public can find news releases, safety tips, videos, restoration information and links to other valuable resources. Banners on the Company's main page direct customers to the storm and safety information and eventually to the new webpage once its launched.

All pre-storm communications include storm and safety tips and instructions on how to report outages through numerous options. Our proactive outreach to the media often results in interviews and stories focused on storm preparedness. As storm communication is an ongoing and continuous process, numerous communications via multiple channels are shared.

During a storm, the Company develops daily messages to be used with media, customers, social customer care and field personnel. The Company publishes daily updates via news releases and social media on various topics, including storm damage, estimated times of restoration, and out of town resources. We secure TV, print and radio advertising where we provide restoration updates. Customers participating in our proactive outage communications programs receive updates via email, phone and text on restoration progress and estimated times of restoration. Ongoing updates regarding the storm are also provided on the Company's dedicated storm page which includes updated outage maps. Furthermore, during a storm event updates are continuously provided to elected officials, community leaders and other stakeholders to ensure they have the information they need to share with their audiences and to plan accordingly.

After a storm, the Company prepares wrap-up messages to share with customers, community leaders and other stakeholders. News release are published to provide final outage-related numbers, thank customers for their patience, and to thank local first responders and the companies that provided off-system resources. Messages of appreciation are also provided to customers, first responders, community agencies and other utilities that provided assistance via email, social media posts, and paid advertisements.

Q. Did the Company utilize contract labor to help restore power following Hurricane Irma?

A. Yes. DEF utilized a total of 5,282 Line Contractors; 2,257 Tree Trimmers and 511 Damage Assessors.

Q. How does the Company on-board crews and what steps does the Company take to ensure that they are effectively utilized?

A. The Company on-boards newly arriving crews at staging and logistics sites where actual roster complements are verified and arrival times documented. Crews go through a detailed overview of Company safety rules and protocols, as well as information on construction standards. Once on the system, crews are assigned to feeder coordinators. For DEF the feeder coordinators are a key oversight resource responsible for managing the work of off-system restoration crews, including contractors. Each feeder coordinator assigns their crews daily work packages prepared in advance and monitors progress of restoration as the day progresses. They review time sheets daily, and provide feedback to the storm center about crew effectiveness. This information is used by Operations and Logistics during demobilization to sequence crew releases so that less productive crews are released first and high productivity, high value crews are released last.

Q. How was vehicle fuel procured for Company personnel and mutual aid partners in preparation for Hurricane Irma?

A. Fuel tanks are staged at most operations yards and depending on the size, strength and path of the storm, the tanks are filled 2-5 days in advance of landfall. In addition, the Company's fuel vendor is under contract to fill several fuel tankers with diesel and unleaded fuel in advance of landfall to ensure fuel will be immediately available to the Company in the event the Company's fuel tanks are exhausted. Due to the magnitude of Hurricane Irma, efforts to assure fuel for restoration efforts were increased and three additional sets of pre-staged fuel teams were located within the state and at a staging area in South Georgia. As a result of the Company's preparation efforts, DEF had a sufficient supply of fuel and there were no delays to restoration resulting from fuel supply issues during Hurricane Irma.

Q. When did the Company's mutual aid costs for Hurricane Irma begin to accrue?

A. As is industry standard, mutual aid costs begin to accrue when the responding entities begin taking actions towards providing mutual aid in response to a request (including, for example, preparing employees and equipment for travel). Costs for Hurricane Irma began to accrue on September 5, 2017.

Q. How did the Company determine when mutual aid was no longer needed to assist in responding to Hurricane Irma?

A. Mutual aid resources are accepted throughout the duration of each storm and are deemed to be no longer needed when they can no longer contribute to achievement or acceleration of restoration times at a reasonable cost. With respect to Hurricane Irma, the last remaining mutual aid resources were released on September 25, 2017.

Q. When was the Company fully-restored from Hurricane Irma?

A. Restoration is considered complete when all customers able to receive power have been restored. DEF restored a million customers within three days of Hurricane Irma leaving the state of Florida, and achieved full restoration on September 19, 2017.

IV. THE COMPANY'S DISTRIBUTION SYSTEM STORM HARDENING ACTIVITIES SINCE 2006

Q. Can you please summarize the Company's distribution system storm hardening efforts since 2006?

A. As provided each year in DEF's Annual Service Reliability Report (filed with the Commission) and set forth every three years in its Storm Hardening Plan, DEF utilizes a systematic approach to harden its distribution system. Since 2004, DEF has invested more than $2 billion to harden its electrical system. Since 2006, DEF has implemented several initiatives, including small wire or conductor upgrades, which involves the conversion of an existing overhead line with either #4 or #6 Cu conductor to a thicker gauge conductor of 1/0 or greater. DEF has converted 67 miles of primary lines, and completed 31 feeder ties, which involves tying radial feeders together to provide switching capabilities to reduce outage duration. DEF has worked to make access improvements, including moving back lot facilities to the road for easier access and requiring new construction to be located along the front of properties, where feasible.

Q. Can you please describe the Company's distribution wood pole inspection and replacement plan?

A. DEF's inspects Company-owned wood poles on an average eight-year cycle. These inspections determine the extent of any pole decay and any associated loss of strength. The information gathered from these inspections is used to determine pole replacements and to effectuate the extension of pole-life through treatment and reinforcement. DEF is currently in the middle of the second eight-year cycle. Inspections by year are shown in the following table

2006	64,208
2007	96,553
2008	96,054
2009	95,867
2010	106,546
2011	99,292
2012	91,306
2013	97,071
2014	108,475
2015	100,651
2016	103,684
2017	100,038

Q. Did the Company assess the performance of hardened versus non-hardened facilities following Hurricane Irma?

A. Yes. Post-Irma forensic data indicates that vegetation outside of the right of way caused a significant portion of the broken poles experienced by the distribution system. Neither pole maintenance nor decay were predominant causal factors of outages in the wake of Hurricane Irma. DEF engaged Accenture to conduct a thorough post-Irma forensic analysis of the damage to the Distribution system. Accenture found that DEF experienced less damage to its pole infrastructure when compared to similar events experienced by other utilities. In addition, a forensic assessment of 526 randomly selected poles across DEF's service territory, which were broken during Hurricane Irma, demonstrated that none of these poles had been hardened and most were the result of direct impact from trees. Said differently, of the 526 poles locations studied, the only poles that failed were in non-hardened sections of the system. Accenture performed a separate assessment of 29 randomly selected Storm Hardened projects and found no broken poles. The complete Accenture report is attached to my testimony as Exhibit No. __ (JC-1).

Q. Can you please describe the Company's distribution system vegetation management program?

A. DEF is responsible for maintaining approximately 46,000 miles of power lines in Florida and proactively manages trees and other vegetation to help ensure safe, reliable service for 1.8 million customers across our 20,000 square-mile service area. Maintaining trees and vegetation along rights of way helps reduce outages on a day-to-day basis as well as during storm events, and enhances safety for customers, the public, and DEF's employees and contractors. DEF maintains a rigorous inspection process that identifies vegetation encroachments and ensures vegetation management activities follow required pruning and clearance specifications. In addition, pre-hurricane season patrols are performed prior to June 1st each year to identify any conditions that could impact feeder performance during a major event.

In 2014, DEF adopted an expanded technical specification to allow for an integrated vegetation management approach which includes careful pruning, selective herbicide application and hazard tree felling. This allows the Company to evaluate power line areas and determine the best method for maintaining reliable service. In order to reduce the outage risk during severe weather, diseased or dead trees outside of the right of way are targeted for removal as they are less stable than healthy, live trees and have a greater chance for failure in even minor storm events; however, DEF requires the property owner's permission to remove these "hazard" trees. All tree trimming activities and herbicide program activities are performed by a contract workforce. Tree trimming occurs throughout the entire year and herbicide application typically occurs between March and November of each year.

Q. Does the Company perform any quality control review of the vegetation management services provided by contractors?

A. Yes, the Company performs a 100% quality audit for each circuit to ensure clearing specifications and contract terms and conditions have been fully satisfied.

Quality results are provided to contractors, and work that does not meet technical specifications must be remedied within a defined period of time.

V. THE COMPANY'S DISTRIBUTION STORM PLAN AND ITS EXECUTION DURING THE 2017 STORM SEASON

Q. Please describe DEF's distribution system storm plan.

A. Preparing for major storms is a year-round activity. Hurricane season readiness begins several months before the start of the season and includes training, drills, and implementation of lessons learned from the prior year. Our comprehensive storm plan is modeled on Homeland Security's Incident Command Structure ("ICS") and incorporates the best practices we have developed from experiences with past storms. The ICS affords rapid scalability in response to a specific threat.

The scalability of ICS is reflected in DEF's four distinct levels of restoration response (Level I – IV). Level I corresponds with typical summer storms, whereas level IV is designed for restoration on the scale of a hurricane. The same basic functions are performed at all storm levels, but as resources increase to match the storm's anticipated threat, the organization expands to ensure efficient restoration of our system. While it is appropriate for an individual to perform parts of several storm roles in a lower level event, those same roles are broken out and staffed by an increasing number of dedicated resources as the scope of restoration work increases. The decision to activate at a particular response level is made by the storm management team, and is guided by weather forecasts, resource modeling, and expected restoration duration. The flexibility of the storm plan is such that, for any given restoration event, we may have a region that is operating within the Level IV model while another region is operating within a Level I model. This allows regions within the Company operating at a lower restoration level to finish sooner and release resources to work in regions operating at a higher restoration.

At a high level, the ICS plan is built around three phases of storm restoration; pre-storm activation, outage restoration, and returning the distribution grid to normal. Pre-storm activation begins as early as 120 hours prior to landfall, and includes detailed weather forecasting, modeling of damage and resource requirements, and preparation for support of logistics needs. The outage restoration phase includes the operational activities following impact from the storm that restore service to all customers capable of receiving it. Returning the grid to normal is necessary to restore our electrical infrastructure to its pre-hurricane condition.

Q. Can you please describe the different roles within DEF's storm plan?

A. Yes, within the storm plan there are a multitude of roles that facilitate an efficient restoration process. These roles are organized along four functional lines: (1) Operations; (2) Planning; (3) Logistics; and (4) External Coordination. Operations is focused on restoration of service; Planning on forecasts, modeling, and situation awareness; Logistics on staging, material, and supplies; and External Coordination on outreach and communication to customers, local EOCs, state and local leaders.

The participants are assigned roles under the storm plan that may differ from their regular daily responsibilities and, as a result, it is imperative that they are effectively trained. This training is normally completed in the second quarter of each year throughout the system and within each of the functional areas of responsibility. To further ensure our storm preparedness, we conduct storm readiness drills in order to test the effectiveness of the training program and the employees' ability to execute their assigned storm role. Our storm restoration plan is coordinated with the state-wide storm preparedness efforts through participation in the state Emergency Operations Center ("EOC") coordinated storm drill conducted each May in Tallahassee.

Q. When and how do you activate your ICS major storm organization?

A. Duke Energy meteorologists continuously monitor the Atlantic basin and Tropics and begin to issue alerts as early as 2 weeks before expected landfall. Our formal ICS activation process kicks off 120 hours prior to projected landfall. Our initial focus is to ascertain the most detailed weather information available including date, time, and strength of the storm, when it is forecasted to impact our system, forecasted path of the storm, size and strength of the wind fields, associated amount of precipitation, when the wind is anticipated to exceed and fall below 39 mph, and strength of gusts.

With each forecast update we use storm modeling tools to predict the amount of damage to our system, where that damage will likely occur, and the amount of resources required to restore the projected outages. More specifically, the tools estimate the number of personnel required, such as linemen, tree trimmers, and damage assessors. This gives us an estimate of the necessary scale of restoration response. With that information we conduct a system storm call that includes management teams representing the four functional areas of our storm response plan. As noted above, storm plan activation typically occurs 120 hours before landfall. At this point the efforts are more focused upon notifications to our customers and employees of a potential impact and the beginning of our storm readiness activities and our initial efforts to procure resources. A progression of checklists follow each day thereafter prior to system impact.

Q. How does DEF use the information from predictive storm models?

A. Once we have estimated the amount of resources required, where and to what extent each region within our territory will be impacted, several processes begin in unison. Our Resource Management function secures commitments for restoration manpower and Staging and Logistics prepares to open mustering and base camp sites to receive them.

Resource Management first secures internal line and tree resource commitments from the other states served by Duke Energy. Internal Duke Energy personnel are available immediately and can be moved into forward positions to expedite restoration. Next, we contact the Southeastern Electric Exchange ("SEE") Mutual Assistance Group to secure commitments from the participating companies for remaining needs. SEE Mutual Assistance is governed by an existing agreement between all participating utilities. Most Mutual Assistance utilities are also assessing impact to their systems and will hold resources until in the clear. Those utilities not in the storm's projected path typically must travel from significant distance and must be activated several days prior to landfall.

Depending on the time, path, and confidence in the storm's expected impact, decisions are made concerning when committed crews are activated, paid to be mobilized, and sent to an off-site mustering location are made prior to landfall. To expedite restoration we mobilize crews to mustering sites located along Interstates 75, 4 & 95. Safety is our highest priority, so the sites ultimately used depend upon the path of the storm; we want sites that are as close as possible to expected damage without unnecessarily placing anyone in harm's way. The number of crews mobilized and where they are mustered depends greatly on confidence in the forecast. Several resource plan shifts were made as Irma's track changed with each new forecast.

Concurrent with the acquisition of resources, our Logistics function establishes a coordinated schedule to open mustering sites, base camps, and secures anticipated lodging needs. The use of mustering sites allows us to validate rosters and crew compliments for billing, orient non-native crews to our safety policies, switching practices, technical specifications, and to prepare them for reassignment to a forward base camp. Base camps accommodate truck parking, inventory storage, refueling, meals, and lodging.

Q. What occurs as the storm begins to impact DEF's service territory?

A. When the storm-force winds commence in DEF's service territory, the Distribution Control Center (“DCC”) is in constant communication with the Energy Control Center ("ECC") and the transmission storm center. The ECC gives both storm centers a thorough description of what transmission lines and substations are dropping out of service as the storm passes, giving us a real-time assessment of the location of the storm damage. Crews in Irma’s direct path sheltered in place, while crews on the eastern edge of our territory responded to emergency calls. The ECC and the distribution and transmission storm centers jointly establish restoration priorities and coordinate the distribution and transmission restoration strategy to maintain grid stability.

Q. What happens after the storm passes?

A. Our initial response has three main components: (1) governmental and EOC support and response; (2) statistical damage assessment; and (3) feeder backbone restoration efforts. These three components enable the local and state governments to respond to the storm's impact, and enables DEF to both estimate the amount of storm damage actually incurred by the distribution system and begin restoration of the highest priority feeders.

As local governments and county EOCs encounter issues that require our immediate attention, we can promptly respond. These issues may involve, for example, support for road clearing teams, or removing a downed power line with police personnel standing by at the site. By having our personnel assigned to the county EOCs we can facilitate communication with the various governmental agencies, such as fire departments also represented at the EOCs, to quickly respond to the site, take care of the downed line, and allow the government agency staff to pursue other critical assignments.

Concurrent with these activities we rapidly assess a statistically valid sample of our total facilities to validate the damage and associated resources that were predicted by the model and to provide operations management more information for determining the best restoration methodology. As part of our pre-storm season preparation, we identify segments of feeders and their associated branch lines in each area served by an operations center that are representative of the overall network of feeders and branch lines for the local area. As soon as the storm winds drop below 39 miles per hour, damage assessment teams are activated to get a better understanding of the damage to the distribution system. The previously identified representative distribution line segments are assigned to damage assessment teams who are responsible for a pole-by-pole survey of those representative segments, to inventory the extent of damage incurred and return that damage information to be entered in a database. Based upon the storm damage found in this representative sample, we extrapolate the amount of storm damage for the rest of the local distribution network and aggregate these assessments to get a system-wide storm damage estimate. These estimates are used to confirm damage and to make adjustments as needed to the pre-landfall resource mobilization plan.

The feeder backbone process is a method by which we restore service and catalogue storm damage for further repair. This process is intended to quickly restore the feeder backbone through the operation of switches only, inventory sections of the feeder that we are not able to immediately restore, and identify what devices off the feeder are not in service. We begin planning for this Isolate-and-Restore effort prior to the storm season when each of the local management teams prioritize the order of restoration for critical feeders within their jurisdiction. Highest priority is assigned to feeders that are crucial to the health, safety, and welfare of the general public.

Q. How is the restoration phase of the storm plan carried out?

A. At this juncture of our restoration efforts, we are beginning to deploy restoration resources to the local operating areas to include them in the storm restoration plan. To efficiently use this first wave of resources, we assign them to the storm damage that was identified through our feeder Isolate and Restore process. This allows us to assign them to the highest priority work on the most critical components of our distribution infrastructure.

Based upon the information collected from the statistical assessment, any aerial storm damage assessments using helicopters, information reported to our outage management system, and the knowledge of local management, the management team has the information it needs to determine what feeders require detailed damage assessment. When the detailed assessment of a feeder segment is complete, the results of that effort are compiled into an associated work package.

This work package allows us to effectively communicate the scope of the work to be done and further assists us in managing productivity expectations of our line and tree crew resources. Additionally, the work package information assists local management in allocating resources and determining estimated times of restoration ("ETRs").

Q. Does the Company update ETRs during the restoration process?

A. Yes. We have three levels of ETRs: 1) an initial system level ETR; 2) a view of ETRs by city and county; and 3) device level ETRs. As the storm restoration progresses, we move from higher level ETRs to increasing levels of detail, letting customers know what we know when we know it. ETRs are continuously updated and expanded to greater levels of detail during restoration. Factors that influence the ETR updates include integrating any new information we have collected, the extent and severity of the storm damage, the critical and priority restoration needs we may receive from ECC, state and local governments and EOCs, and the availability of resources. Additionally, timing of resource arrival can be impacted by a number of external factors such as road and bridge closures, crews that have to travel through the path of the storm (after it has cleared), roads, hotels and lodging clogged by evacuees, and lack of fuel along major routes into the state. As required, we shift line and tree crews, equipment, and material to address new priorities or to increase productivity. We are constantly striving during the restoration to improve our ETRs and meet or exceed our own ETR goals.

Q. How does the Company wind down its restoration process?

A. As we near the completion of storm restoration work within any part of our service territory, we begin demobilization efforts. DEF believes it is imperative to use the most productive and cost-effective resources during our restoration efforts. As a part of our demobilization efforts, we survey local management and feeder coordinators to get their assessment on the productivity of the non-native line and tree personnel. Combining this information with the daily cost of the personnel, we build a plan that retains the safest, most productive, and most cost effective resources are no longer needed.

Q. Is there anything else that must be done after restoration of customers is complete?

A. Yes, the final phase of our hurricane response is the restoration of the system to its pre-storm status. When in the storm outage restoration phase, we intend to perform the essential work necessary to restore the fundamental operating characteristics of our distribution infrastructure. The primary focus is getting "lights on" and safety considerations rather than correcting all damaged facilities that are still capable of functioning. For example, during the storm outage restoration phase, DEF will leave in place poles that are damaged and in need of repair but are able to safely provide service to our customers in the short term, capacitor banks and reclosers are returned to service only if immediately required, and animal mitigation hardware is not installed pursuant to our day-to-day standards. After the restoration efforts are concluded, we conduct electrical and physical condition sweeps of the feeder backbone and identify the issues that require mitigation to return the distribution system to its pre-storm state.

The Company also conducts a "tree sweep" which is a detailed vegetation sweep of our feeder backbones to identify any storm damage to trees that was not mitigated during the storm restoration phase. The tree sweep is focused on cracked or broken limbs that are tenuously hanging over-top of facilities and will eventually come down. The lead and associated vegetation management personnel are responsible for identifying trees or branches damaged by the storm and immediately mitigating any such damage. This process requires considerable subject matter expertise because these issues can be camouflaged when the leaves are still green, meaning that only the most obvious can be easily identified.

Q. Can you please explain the function of the Company's Outage Management System ("OMS")?

A. Yes. The OMS is a series of complex interfacing systems that collect and analyze multiple inputs in order to provide a source for discrete outage level data and ETRs. Outage level data and ETRs are then communicated to customers via several channels including the online outage map, VRU, and outbound email and text.

Q. Did the Company's OMS function properly during Hurricane Irma?

A. In short, no. A latent defect in the vendor's core product was exposed by the overwhelming volume of information. This defect was unknown to both DEF and the vendor that designed the system; in fact, OMS operated properly during each storm event that preceded Irma.

Q. How did the Company compensate for the loss of the OMS during Hurricane Irma?

A. The most significant impact of the loss of OMS was our inability to communicate granular level outage data to our customers. For example, OMS provides information to the software that sends text messages, email messages, and places automated phone calls to customers to provide customers with more specific information about the outage at their location. Unfortunately, due to the loss of OMS, we could not send those specific messages. The loss of OMS also impacted the iFactor outage map maintained on the Duke Energy website. Without OMS data we had to leverage other methods of communication, such as social media and press releases, to communicate broad messages about our general restoration efforts. In addition, given these communication limitations, we experienced a much higher call volume than projected, triggering volume-driven system issues at our call centers. OMS was made operational and phased back into service toward the end of Irma restoration.

Q. How was restoration impacted by the loss of OMS?

A. Length of restoration was not impacted by the loss of OMS. In a major event DEF decentralizes oversight of restoration. Feeder Coordinators are assigned to specific circuits with dedicated resources for damage assessment and restoration. Work packets prepared with damage information are assigned by the Feeder

Coordinator to multiple crews. Progress of the crews is monitored and new packets are assigned as repairs are completed. Crews "leap frog" for efficiency from one location to another until all outages on a circuit are restored. When all repairs are completed behind an interrupting device and power is restored, status is normally updated in OMS; however this could not be done in Irma while OMS was unavailable.

Q. How were ETRs impacted by the loss of OMS?

A. Achievement of ETRs was not affected by the loss of OMS. ETRs were based on damage assessment information collected in the field by DEF. Estimates were developed regarding both the overall amount of damage and the amount of time it would take to repair the system and restore all customers. Restoration estimates in many areas, including the hardest hit counties in central Florida, were set and achieved. The Company restored power to 1.3 million customers during Hurricane Irma, with more than 75 percent of its customers restored in just three days and 99 percent within eight days. In a few cases – most notably Pinellas County – we communicated aggressive intermediate completion times that were not met. Upon review, we did not fully account for all the factors affecting restoration on a large scale in a short period of time resulting in inaccurate ETRs for certain areas.

Q. What has the Company done to remedy the issues with OMS, the setting of restoration times, and communication that it experienced during Hurricane Irma?

A. We have been working tirelessly with our vendor to ensure that these issues do not occur again. We have identified the latent defect in the vendor's core product and developed a patch to correct it. The solution has been tested on the core product, and we continue to stress test the system end-to-end with volume greater than Irma in advance of the 2018 storm season. We have also revised our process for setting estimated restoration times. We recognize that customers expect and deserve accurate restoration times, and we are determined to improve. Finally, we have increased our communications capability by expanding our social media presence and doubling the number of customers that can receive outage updates directly via text or email.

Q. Can you please describe Hurricane Irma and how you implemented the plan you describe above?

A. A total of 1.28 million customers were left without electric service at the peak of Hurricane Irma's impact on DEF's service territory, representing approximately 71% of DEF's total customers. As a result of Hurricane Irma, the outage events went beyond simply clearing lines, but into extensive infrastructure damage to its distribution system. We frequently found damage that required rebuilding facilities rather than repairing them. The biggest driver of these impacts were trees coming down completely and falling across our facilities.

Notwithstanding this amount of damage, we implemented our storm plan as described. We had strong adherence to plan processes and methods including storm planning and management, resource mobilization & de-mobilization, materials and supply chain, damage assessment, work prioritization and work package development, and isolate and restore processes and methods. Communications to customers did not occur as expected due to previously discussed OMS issues limiting our ability to provide ETRs at a "premise and device" level as the restoration effort progressed. This impacted the transition from high level area ETRs to more granular device level ETRs as well as the on-going "course correction" of this information.

Q. How do you measure the effectiveness of your storm planning and restoration process?

A. Beginning with restoration effectiveness, one of the main measures that we use is the cumulative percentage of customers restored versus our projection of where we should be at the end of each day. Moving backward from our final ETR goals, we set milestones that must be achieved each day in order for us to achieve our overall goal. We generate these milestones down to the operations center level based on the amount of storm damage on our system, the level of resources that we have at our disposal, and our own restoration history. This analysis tells us whether we are being as effective as we need to be and, if not, helps to highlight or correct any issues that may be impacting our performance.

Effective planning comes down to ensuring we have the processes in place to provide maximum flexibility. Due to the nature of these storms, we will never be able to precisely predict the location and timing of storms, nor the extent of damage they will create. It is more important that our planning process ensures we have the flexibly to adapt to inevitable changes in the location, timing, and intensity of storms as they arise. In our judgment, our planning process did in fact provide us with the needed flexibility to cope effectively even with this extraordinary hurricane season.

Finally, another critically important measure of effectiveness is safety; in Hurricanes Irma and Nate, we recorded zero injuries. This is a remarkable accomplishment considering the vast number of people working during these restoration efforts. DEF is proud of the fact that all its workers, and the workers from outside the state, returned home safely to their families after the events.

VI. INCREMENTAL COSTS INCURRED BY DEF AS A RESULT OF HURRICANE NATE

Q. Please identify what incremental costs the Company incurred in connection with Hurricane Nate.

A. The incremental storm-related costs incurred by the Company in connection with Nate totaled approximately $5.1 million, as detailed in the testimony and exhibits of Mr. Buckler.

Q. Can you please describe your planning and response to Hurricane Nate and its impact on your system?

A. Hurricane Nate was a serious threat, at one point projected to impact a similar portion of DEF's service territory as Irma (see Exhibit No. ____ (JC-2)). Further, a significant number of mutual aid resources were already committed and working in Texas from Hurricane Harvey, in south Florida completing re-build work where Irma made landfall, and in Puerto Rico from Hurricane Maria. Resources for Hurricane Nate were mobilized in response to the imminent threat, and in order to have an effective restoration response based on the forecast track and potential impact to Florida. Ultimately, Hurricane Nate moved west, making landfall near the Mississippi/Alabama border. As a result there were minimal outage impacts seen across Florida. Strongest wind gusts ranged from 30-40 miles per hour for the farthest west counties in the panhandle of Florida, including Gulf and Franklin, which led to minimal issues.

VII. CONCLUSION

Q. Do you have an assessment of the Company's implementation of its Storm Plan during the 2017 hurricane season?

A. Yes, it is clear that the Company's storm hardening efforts resulted in less damage and fewer outages than otherwise would have occurred, that the Company's restoration efforts were reasonable and prudent and resulted in the restoration of service to the vast majority of customers as quickly and safely as reasonably possible, and the Company's restoration costs were prudently incurred.

I believe the strength of a storm plan is its flexibility to adapt to unexpected conditions. Loss of some OMS functions was an unexpected condition that impacted our ability to communicate granular outage information to customers. The problem has been corrected and we are determined to make further improvements and get better. The Company faced a significant challenge as a result of Hurricane Irma and the storm plan proved to be an effective and efficient tool to achieve our goal of restoring customer service as safely and expeditiously as possible. Restoring over one million customers in the first three days of restoration and full restoration within our original system level ETR of eight days demonstrates that fact. The storm plan proved to be invaluable to us in preparing for and responding to Hurricane Irma. We proved the implementation of the storm plan works to meet our obligation to safely and promptly restore electric service.

Q. Does this conclude your testimony?

A. Yes.

DUKE FL POLE FORENSICS SUPPORT REPORT

FINAL ANALYSIS

DUKE ENERGY FLORIDA

accentureconsulting

TABLE OF CONTENTS

EXECUTIVE SUMMARY

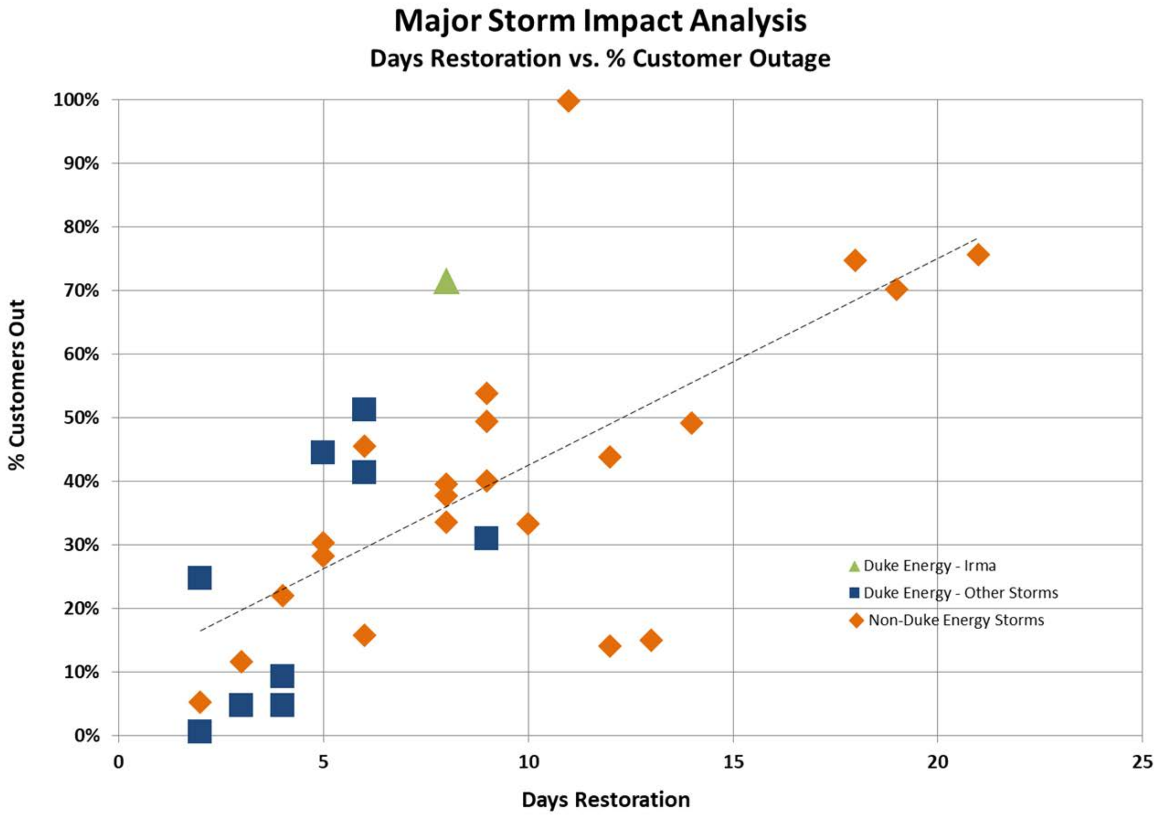
accentureconsulting

EXECUTIVE SUMMARY

- Hurricane Irma impacted Duke Energy Florida (DEF) service territory on September 10, 2017 as a Category 4 storm causing more than 70% of customers to lose power
- DEF collected forensic information on the broken poles in the early stages of the restoration and retained Accenture to conduct statistical and benchmark analysis using that data
- Accenture analysis focused on three key components:
  - **Benchmark Analysis** – leveraging “storm benchmark database” compared DEF performance against comparable storms
  - **Forensic Analysis** – using simple regression, multiple regression and multiple logistic analyses assessed the cause and effect of pole failures
  - **Storm Hardening Effectiveness** – applying visual and locational analysis evaluated the association of any broken poles to the hardening program established in 2006

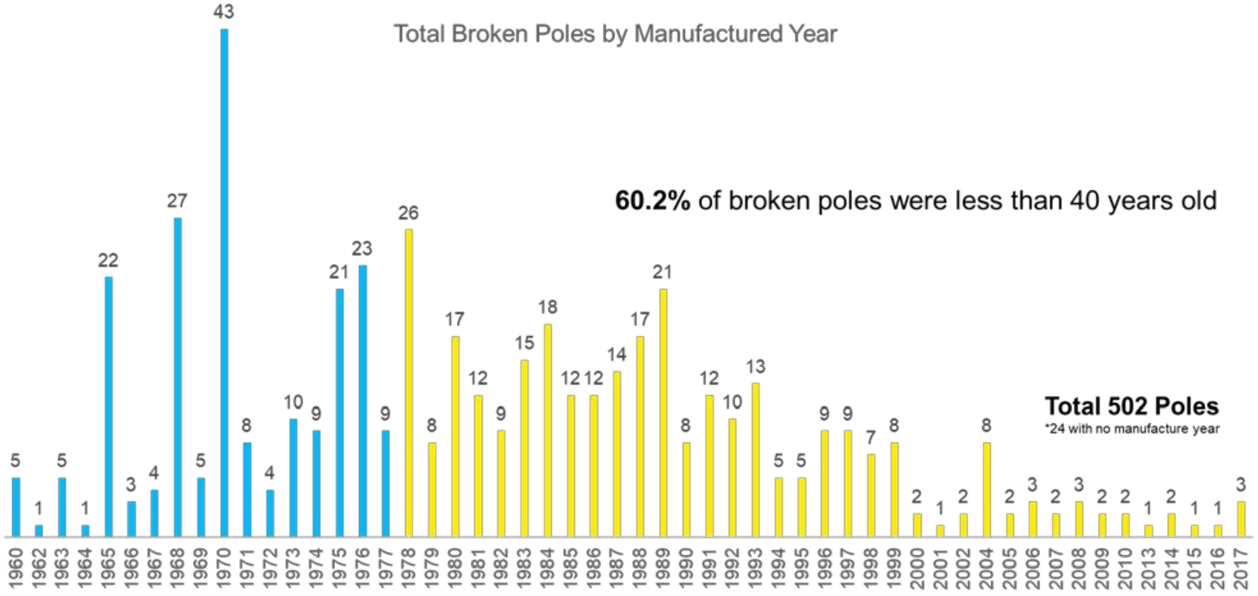
EXECUTIVE SUMMARY – BENCHMARK

- DEF deployed a large contingent of resources to this storm to ensure fast restoration
- DEF experienced less damage to its pole infrastructure when compared to similar events
- The number of poles replaced per customers out at peak was relatively low despite the high percentage of customers being affected
- DEF's Hurricane Irma restoration restored power to all customers faster than previous hurricane events as well as previous major storm events



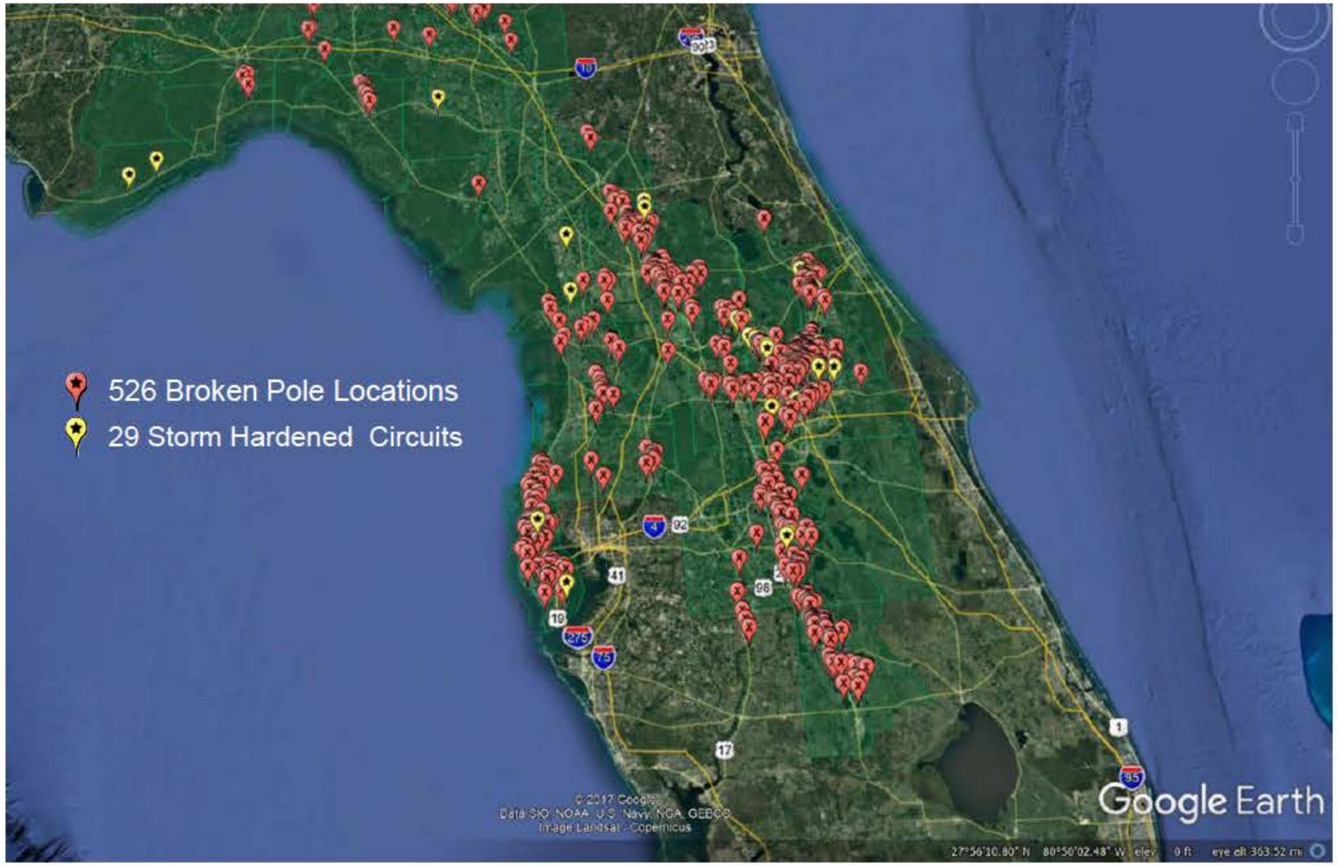
EXECUTIVE SUMMARY – FORENSIC

- Linear regression results indicated that age and pole height were correlated with failure rate.
- Multiple linear regression results suggested that the last inspection year and vegetation maintenance were not good indicators of pole failure rates.
- Results from both the simple and multiple analyses did not have a high correlation with the actual cause of pole failures. This suggests that other causal factors contributed to pole failures, e.g., damage to surrounding vegetation and additional loading on distribution facilities.
- The practice of conducting pole failure forensic analyses during major events is not yet widely used within the utility industry.



EXECUTIVE SUMMARY – SYSTEM HARDENING

- A forensic assessment of five hundred twenty-six (526) randomly selected poles was made across DEF's total broken pole population. None of these poles were a part of the 29 Storm Hardening projects.
- A separate assessment of twenty-nine (29) randomly selected Storm Hardening projects was made. No broken poles were identified.



OVERVIEW/ PURPOSE

OVERVIEW/PURPOSE

- Duke Energy Florida ("Duke FL") conducted a comprehensive analysis of forensic data on pole failures that the company collected in the aftermath of Hurricane Irma
- The purpose of the study is to determine the correlations and major causes of failure
- Accenture was retained to perform the analysis and performed the following tasks:
  - **Mobilized the Project**
    - Organize the available data into a single electronic database (table) to allow for analysis
    - Identify any gaps in the data and develop strategies to gather the missing information
  - **Performed Storm Benchmark Comparison**
    - Gather key statistics from the Duke FL response to Hurricane Irma
    - Identify the comparable events from Accenture's storm benchmarking database to compare against Duke FL's response
    - Conduct benchmark comparison and identify key metrics
    - Develop conclusions based on the benchmark analysis
  - **Conducted data analysis**
    - Define Duke FL's hypotheses
    - Conduct the regression analysis or apply other analytic methods to allow for statistically valid assessment of the correlations of the different factors
    - Identify the key drivers or pole failures and determine the overall cause and effect
    - Develop conclusions based on the statistical analysis
  - **Synthesize and Summarized**
    - Prepare a summary report that describes the methodology and conclusions based on the pole failure data analysis and the benchmark comparison

BENCHMARKING COMPARISON

accentureconsulting

METHODOLOGY/APPROACH

Two methods were used to collect data for benchmarking:

- Surveys
  - Duke FL provided metrics surrounding the restoration efforts of Hurricane Irma
  - Additional surveys were completed by other utilities for storms over the past 25+ years
  - The survey focused on three areas:
    - System Information
    - Storm Magnitude
    - Restoration Performance

- Historical/Archival Research
  - Additional research completed to enhance the benchmarking for restorations performed by other North American utilities that was not collected through surveys
  - These sources were collected from public filings with the commission and archival news feeds from the utility websites

METHODOLOGY/APPROACH

- Identified similar category 1 – 4 hurricanes to perform the analysis of Duke FL's restoration efforts versus other utility companies captured in Accenture's storm benchmarking database from 1989 – 2017
- Highlighted restoration performances from Duke Energy and Progress Energy
- Accenture is using statistics that allow comparison without disclosing specific system information

DATA COLLECTION DEMOGRAPHICS

- 26 of 51 utilities included in the benchmarking
- 23 of 56 major events are included in the analysis
- 45 out of 119 unique restorations

Storm Type	Storm Name	Total
Hurricane Category 1	Fran	2
	Frances	2
	Hermine	1
	Hugo	1
	Humberto	1
	Irene	10
	Katrina	1
	Sandy	5
Hurricane Category 2	Elvis	1
	Georges	1
	Gustav	1
	Gustav + Ike	3
	Juan	1
	Isabel	2

Storm Type	Storm Name	Total
Hurricane Category 3	Ivan	2
	Jeanne	2
	Rita	2
	Wilma	1
Hurricane Category 4	Charley	2
	Hugo	1
	Irma	1
	Matthew	1
Hurricane Category 5	Floyd	1
Grand Total		**45**

Customers Served Range	# of Companies
0 – 500k	8
500k – 1 mil	2
1 mil – 1.5 mil	5
1.5 mil – 2 mil	2
2 mil – 2.5 mil	6
Over 2.5 mil	3
Grand Total	**26**

DATA COLLECTION
DUKE FL - IRMA STATISTICS

Company Information	
Total Number of Customers Served	1.8M
Total Overhead Distribution Line miles	18,000 miles
Total Underground Distribution Miles	14,000 miles

Storm Description	
Storm Name	Hurricane Irma
Storm Type	Hurricane
Storm Category	4
Start Date	September 10, 2017

Storm Damage Information	
Number of Customers Out at Peak	1,284,816
Number of Customers Out	1,738,030
Number of T&D Poles Replaced	2,271
Number of Transformers Replaced	1,106
Number of Conductor Feet Replaced	939,840 feet
Total Spans of Wire Down	> 26,000

Restoration Resources	
Total Line FTEs	7,500
Total Veg. Management FTEs	2,500
Total Damage Assessment Resources	2,408
Peak Number of Field Resources Deployed	12,500

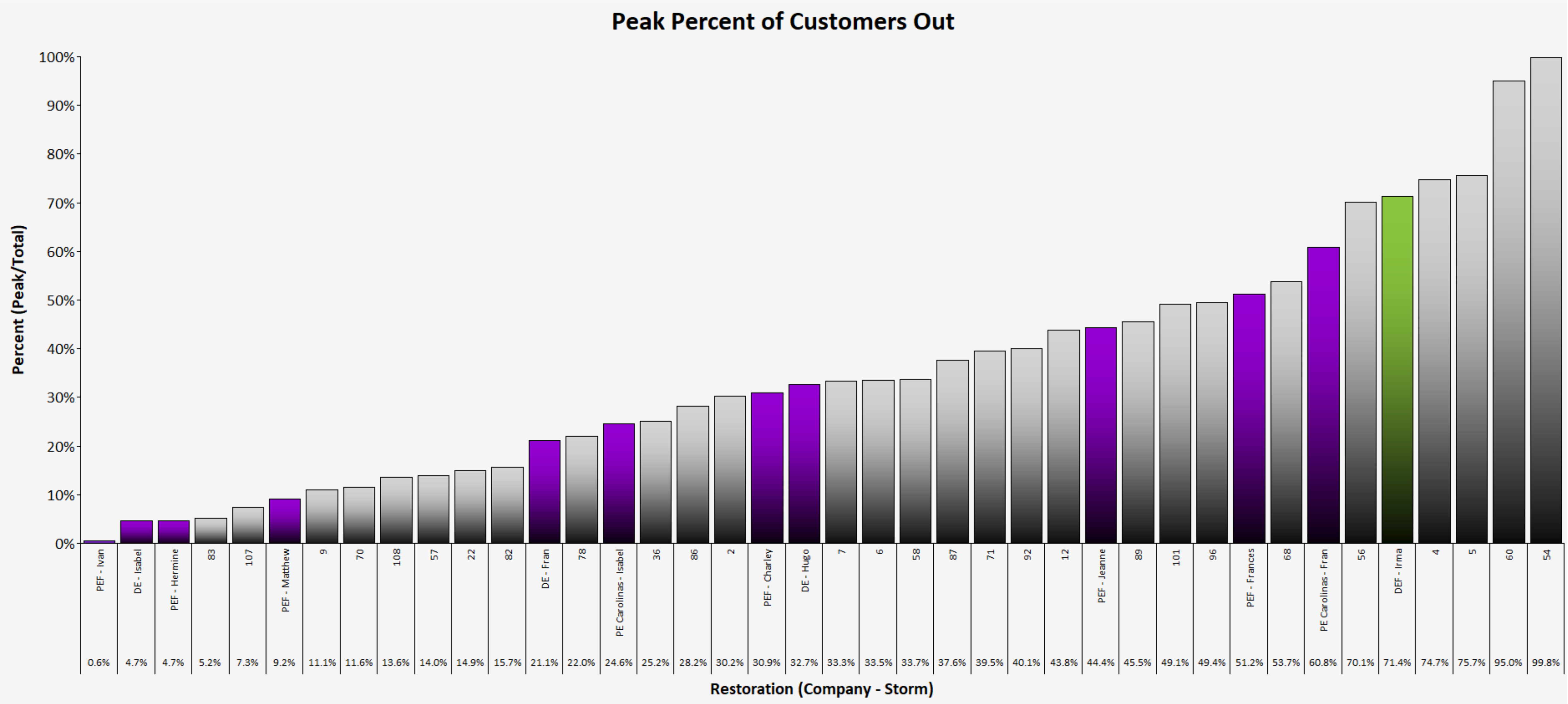
Restoration Duration	
Restoration Duration (# Days)	8 days

Restoration Costs	
Total Restoration Cost	$500M - $550M

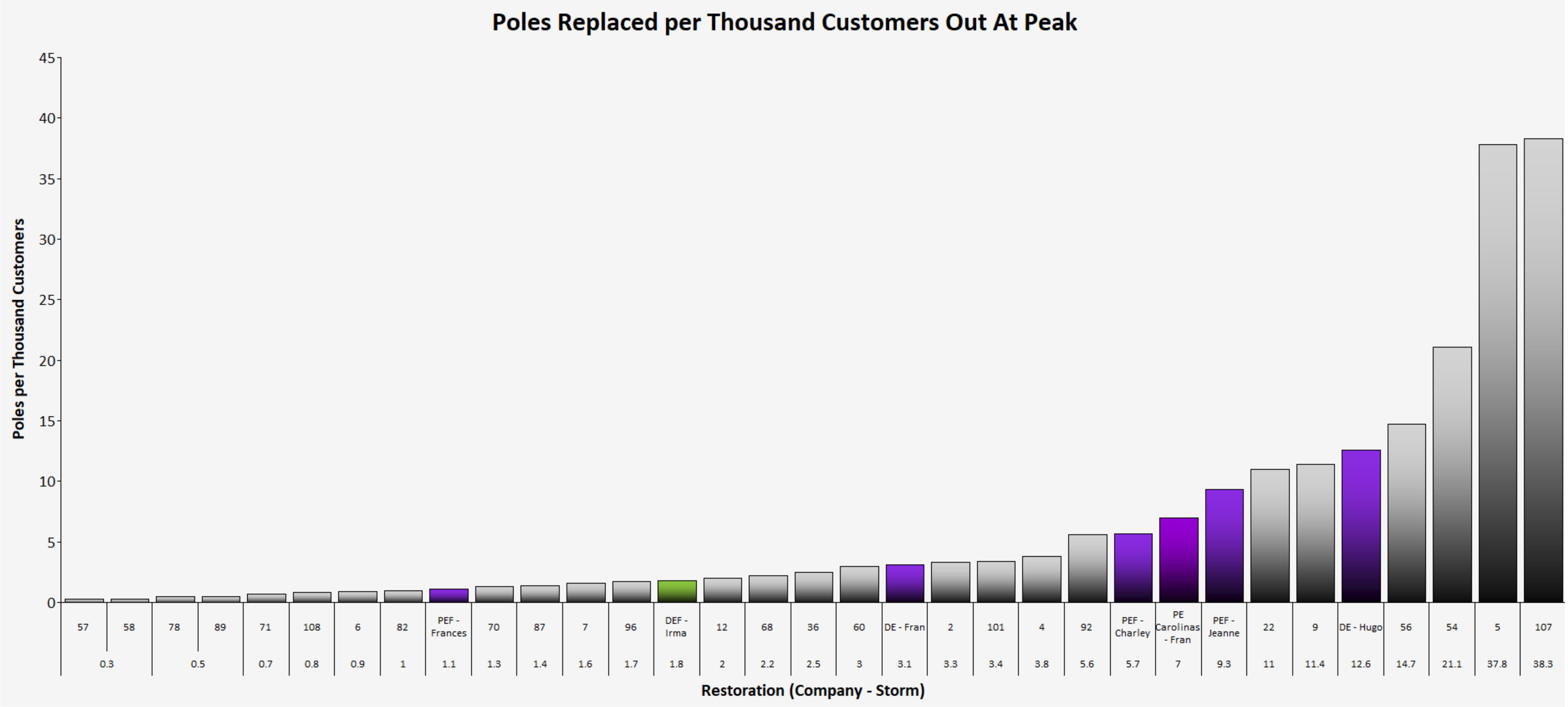
Storm Drills	
Number of Storm Drills Per Year	1
Number of Table Top Exercises Per Year	2

Vegetation Management	
Average Tree-Trimming Cycle	3yr backbone / 5yr branchlines

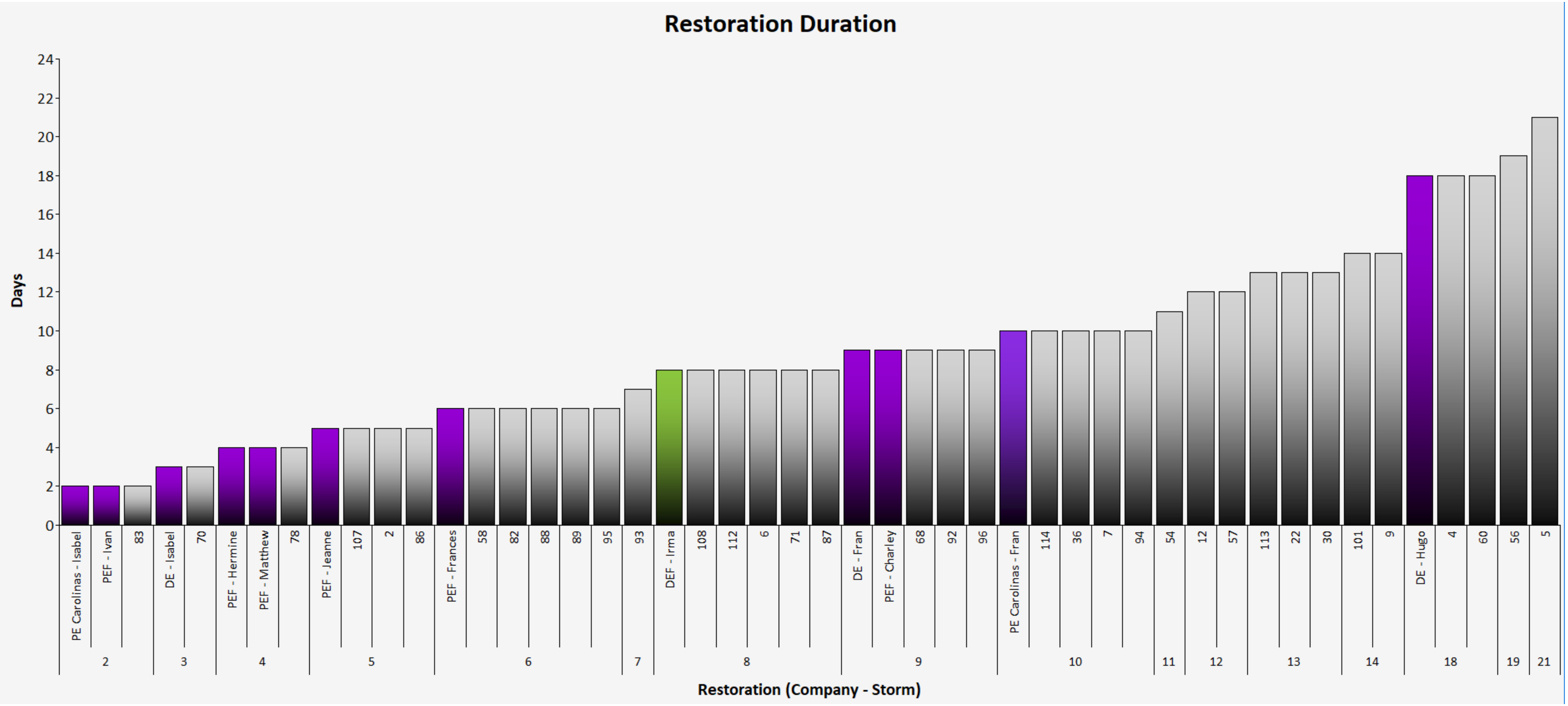
BENCHMARK RESULTS



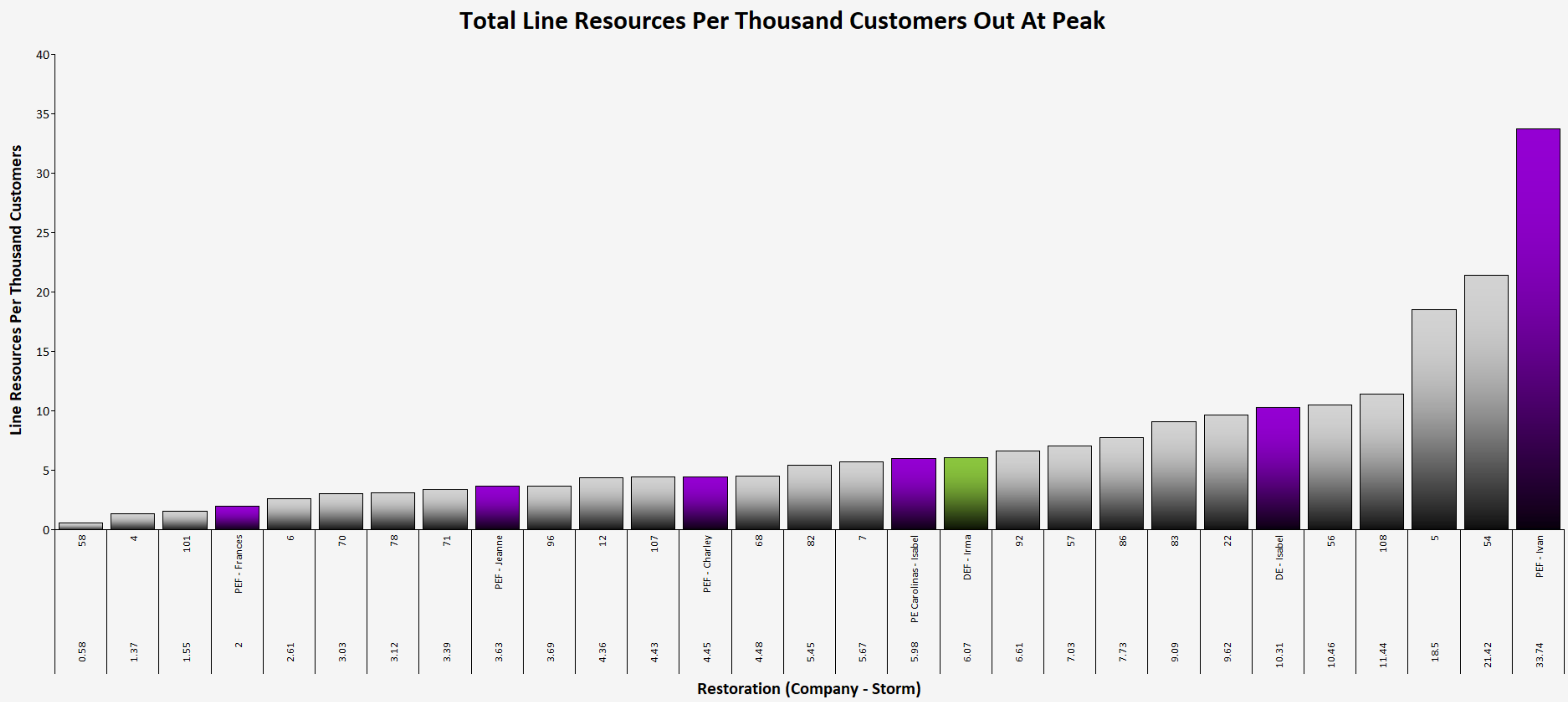
BENCHMARK RESULTS



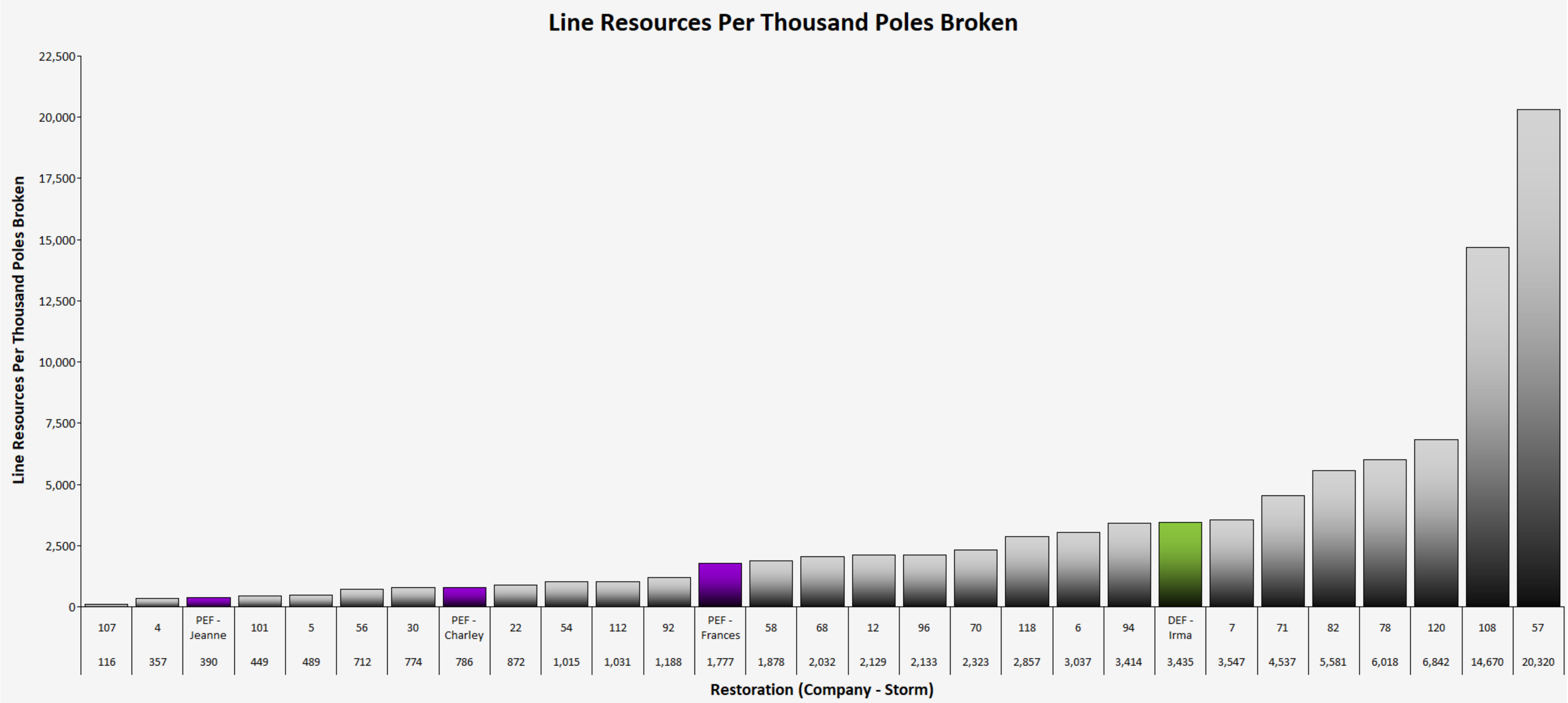
BENCHMARK RESULTS



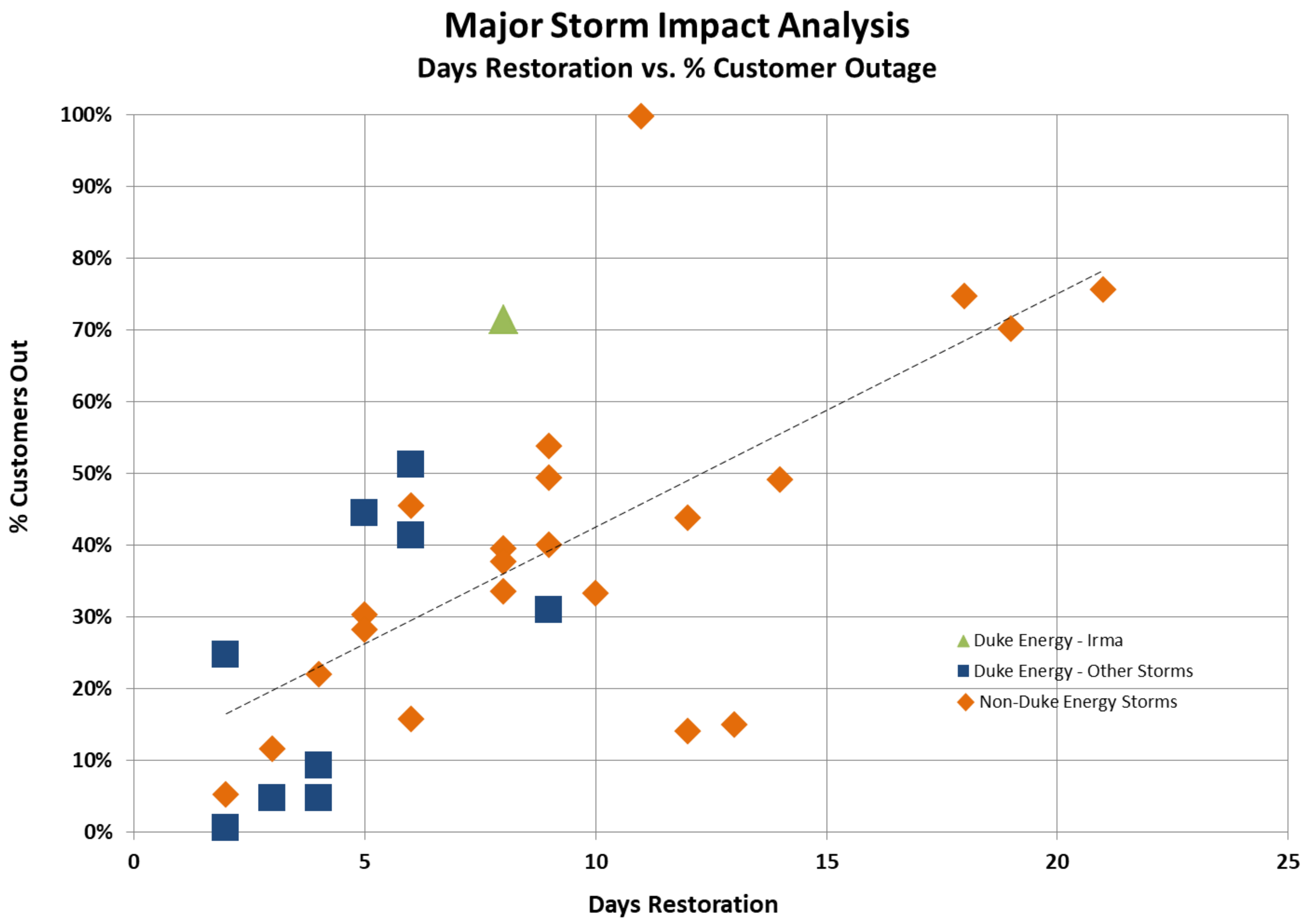
BENCHMARK RESULTS



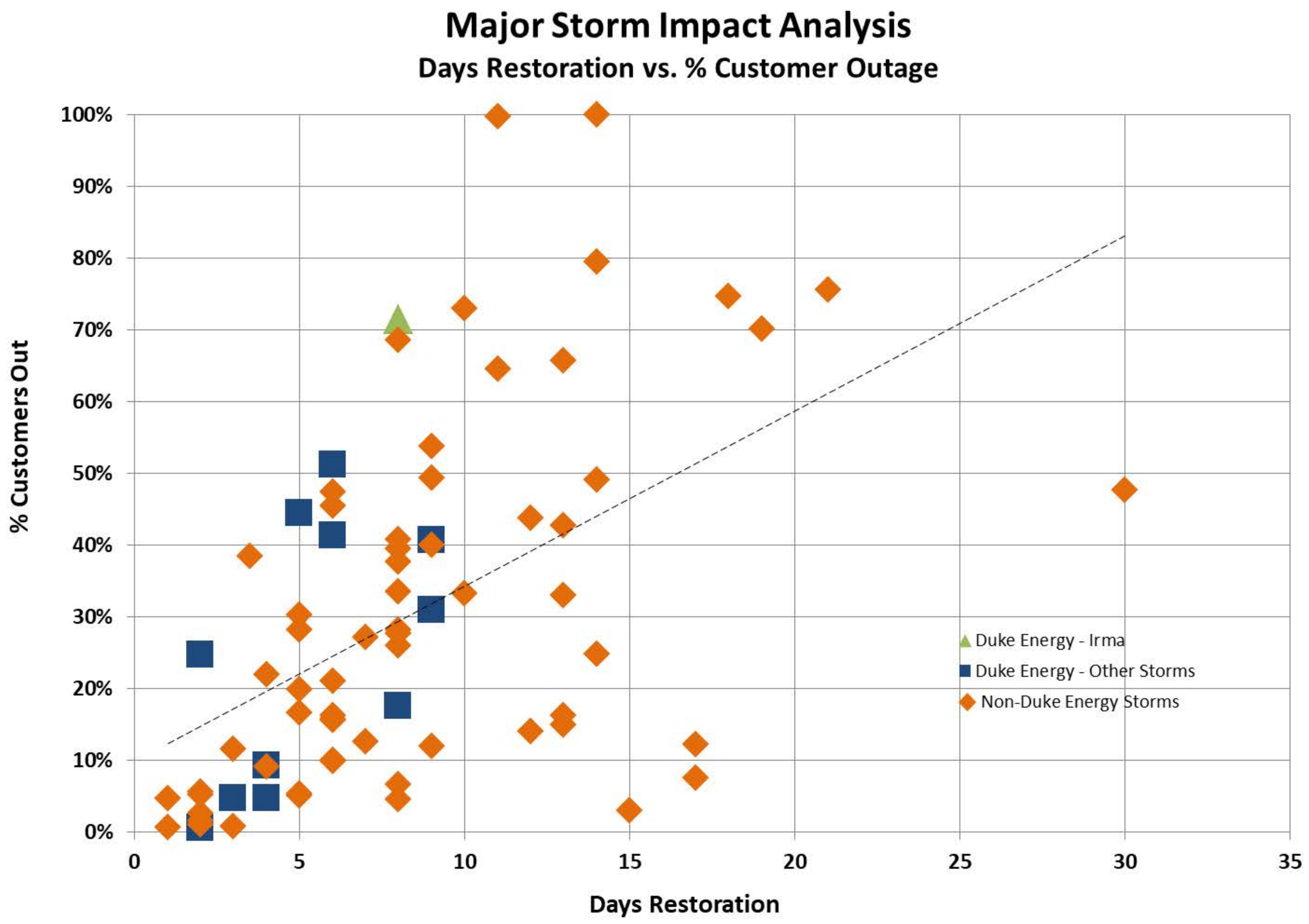
BENCHMARK RESULTS



BENCHMARK RESULTS– ALL HURRICANES



BENCHMARK RESULTS– ALL RESTORATIONS



FINDINGS

Based on the high-level benchmark analysis:

- Duke Florida experienced less damage to its infrastructure when compared to similar events
  - Number of poles replaced per customers out at peak is relatively low despite the high percentage of customers being affected
  - This could indicate that the storm caused more of “wire” damage than “pole” failures, which can be interpreted that the infrastructure withstood the storm fairly well
- Duke Florida’s Hurricane Irma restoration cost per customer out and per pole replaced was higher but the company restored power to all customers faster than comparable events
  - In comparison to other hurricanes in Accenture’s database, The Company aggressively deployed a large contingent of resources for this storm.

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FORENSICS ANALYSIS

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METHODOLOGY

Analyze **broken pole data** through visualizations

Compare **broken pole data to distribution wood pole inventory** to identify factors that contributed to pole failure

Use **regression analyses** to test the correlations between potential pole failure factors and the rate of pole failure by circuit

Factors Considered:

- wind
- gust
- manufactured year
- pole height
- last inspection date
- vegetation level

ASSUMPTIONS

- ✓ All data used including Broken Pole Forensics, GIS Inventory and Inspection data provided by Duke Energy
- ✓ Used Equip_ID and Cust_Data_ID to integrate Broken Pole Forensics, GIS Inventory and Inspection data
- ✓ Assumed that GIS contains a full inventory of Duke owned poles
- ✓ **526** broken wood poles were included in the forensic analysis out of a total of 2,130 distribution poles that were broken during the event
- ✓ Poles that had incomplete data were excluded from this population

DATA COLLECTION

DUKE ENERGY. FLORIDA

Broken Poles Included in Forensic Analysis

2,130 Total Broken Distribution Poles

687 Total Unique Broken Poles Sampled
— **114** Broken Poles not Duke, not Distribution, or not made of wood =

573 Distribution Broken Poles

- **47** Not Matched to GIS data =

526 Broken Poles Total
471 Broken Poles with Forensic Data

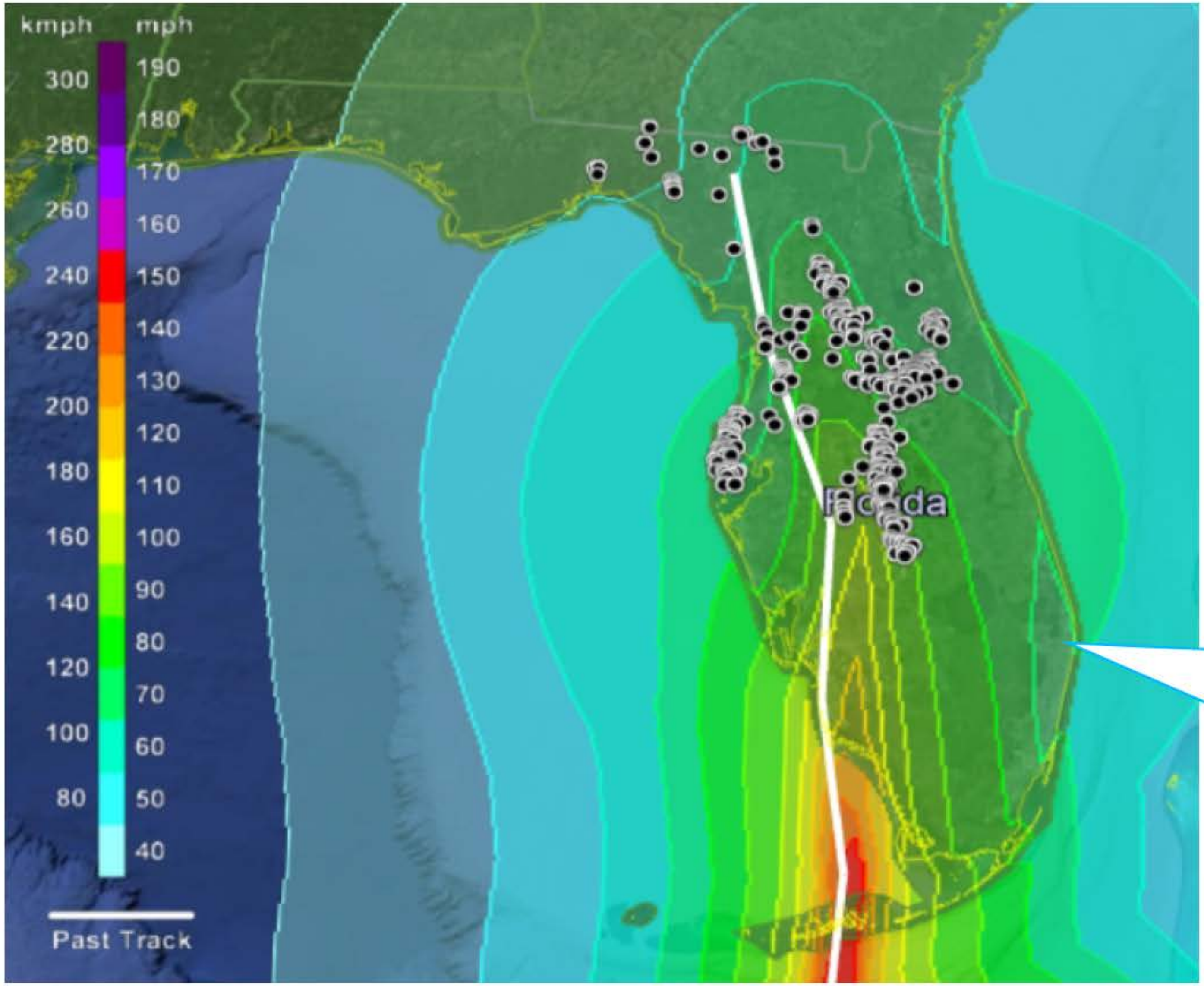
Pole Inventory – Duke Florida

1,083,388 Total Unique Pole Records

— **257,655** Transmission
— **99,469** Not Wood
— **624** Non Duke
=

725,640 Total Distribution wood poles

BROKEN POLE VISUALIZATIONS

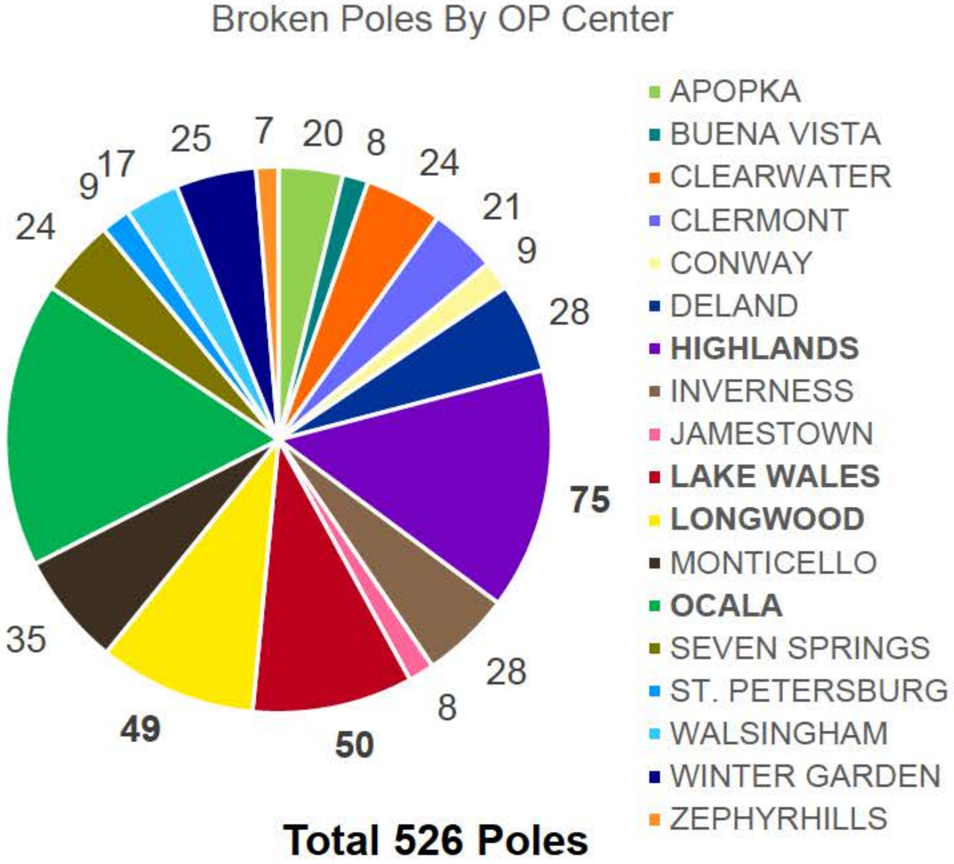


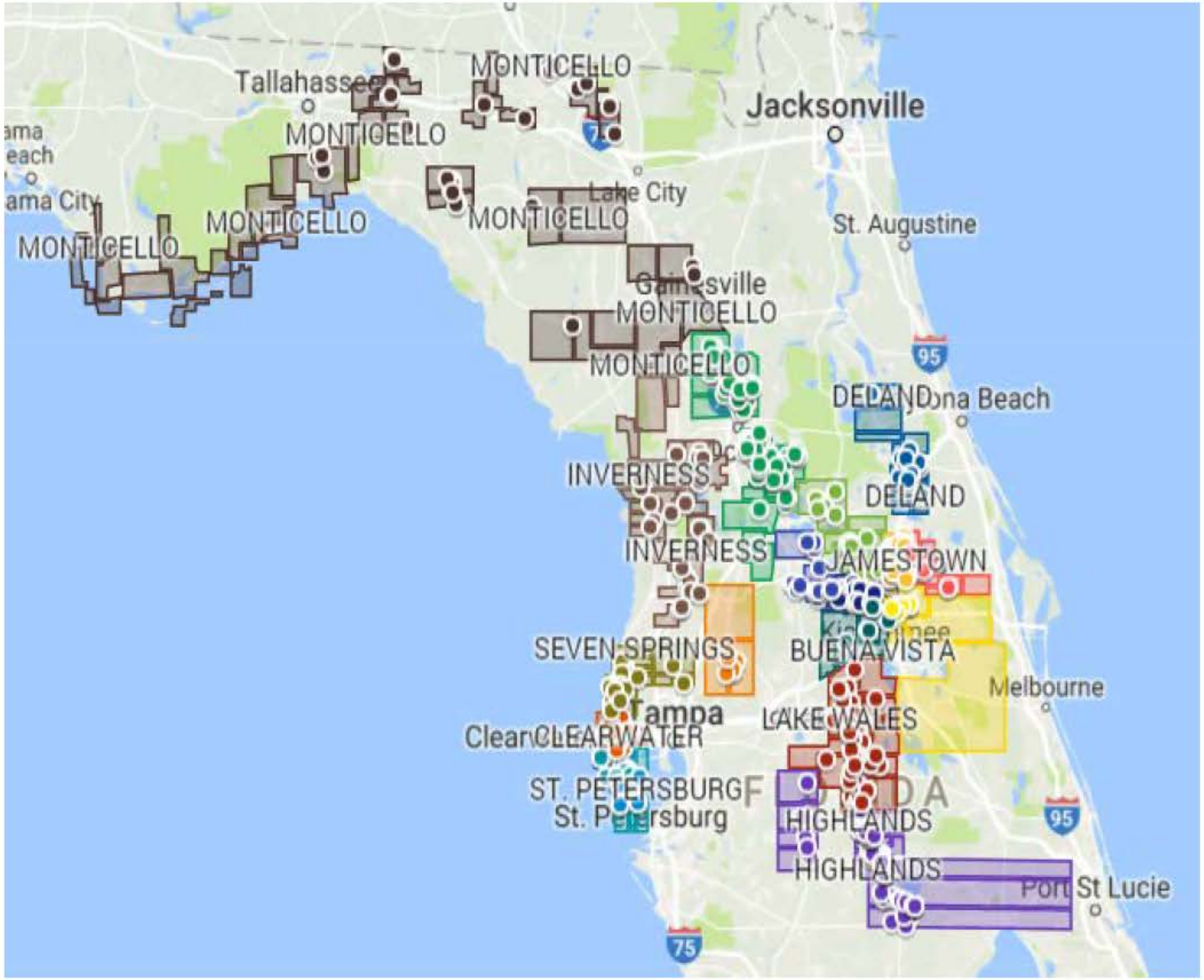
https://data.humdata.org/dataset/hurricane-irma-windspeed

526 Broken Poles

Irma Path
9/11 12am – 12pm

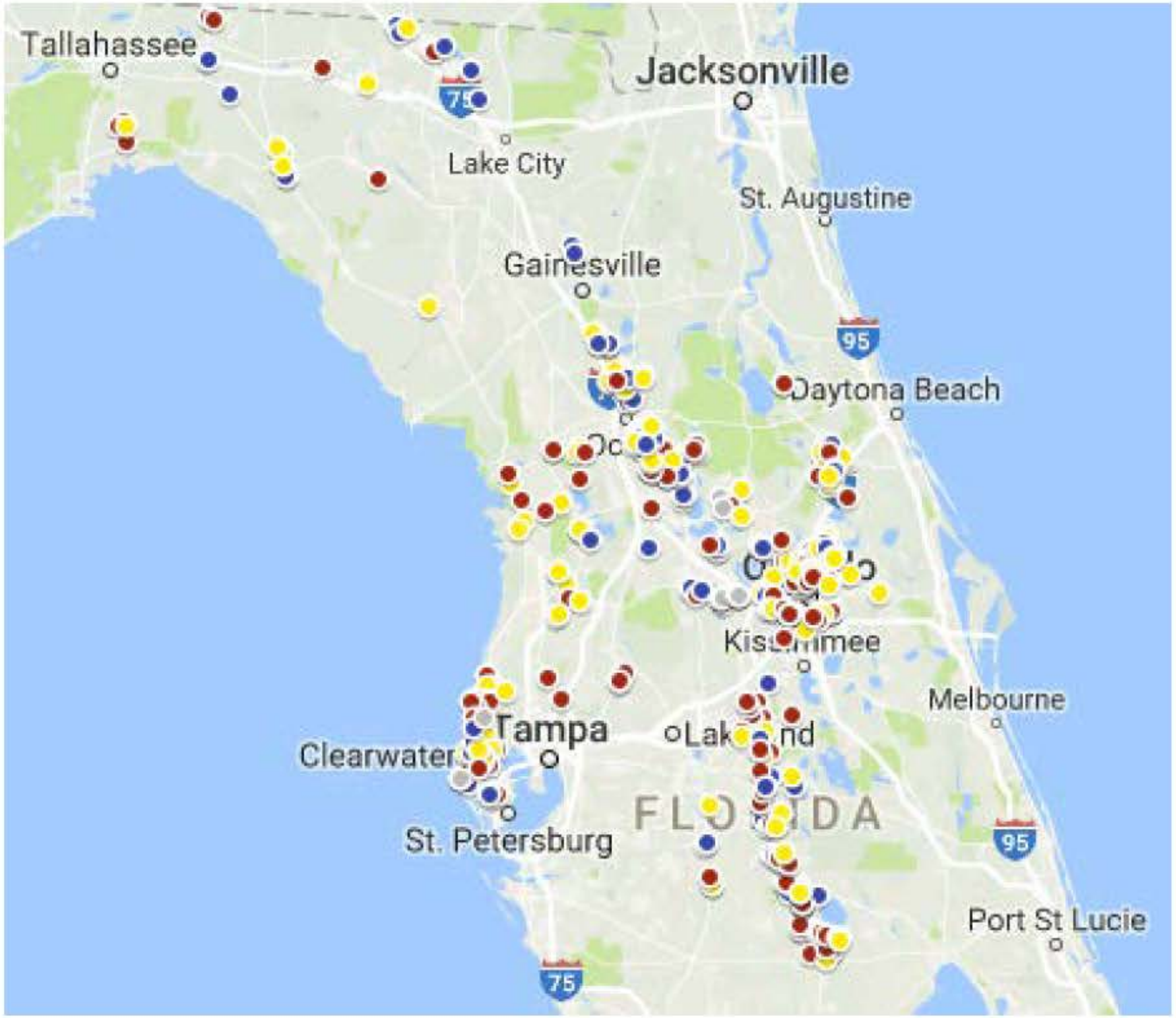
BROKEN POLE VISUALIZATIONS



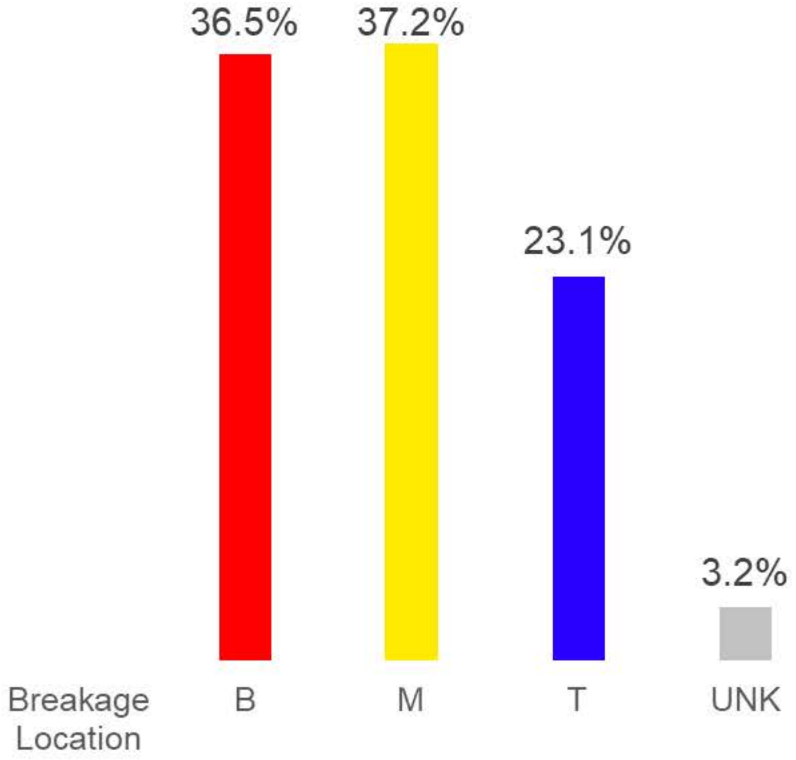


50% of broken pole data came from **Ocala**, **Highlands**, **Lake Wales** and **Longwood** OP Centers

BROKEN POLE VISUALIZATIONS



- **37.2%** of poles broke in the middle

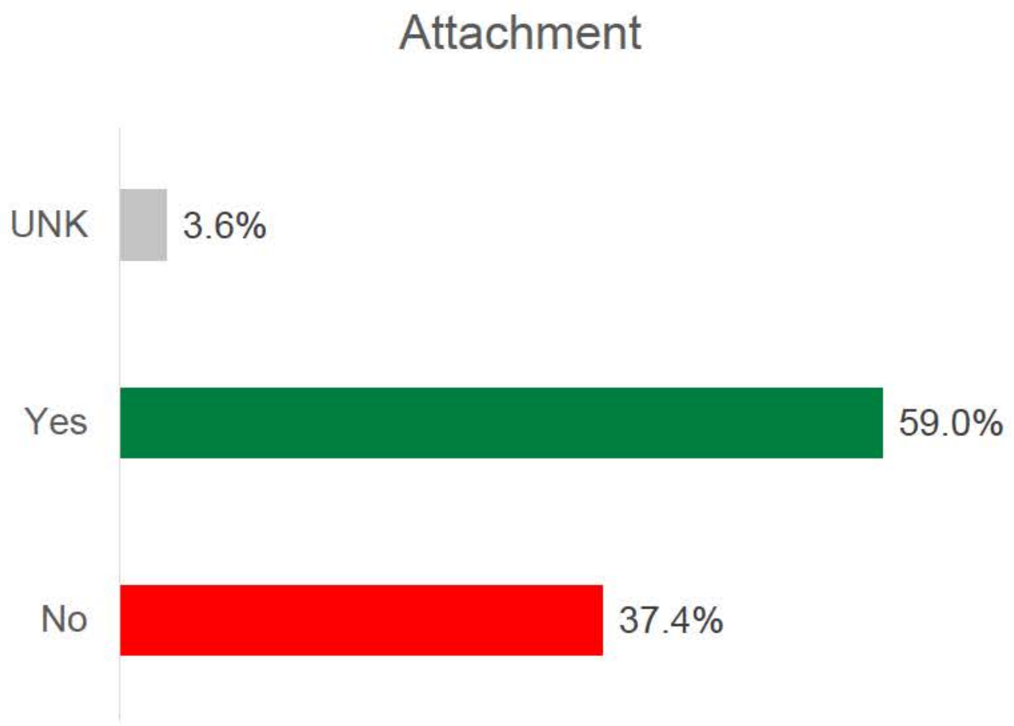


Total 471 Poles

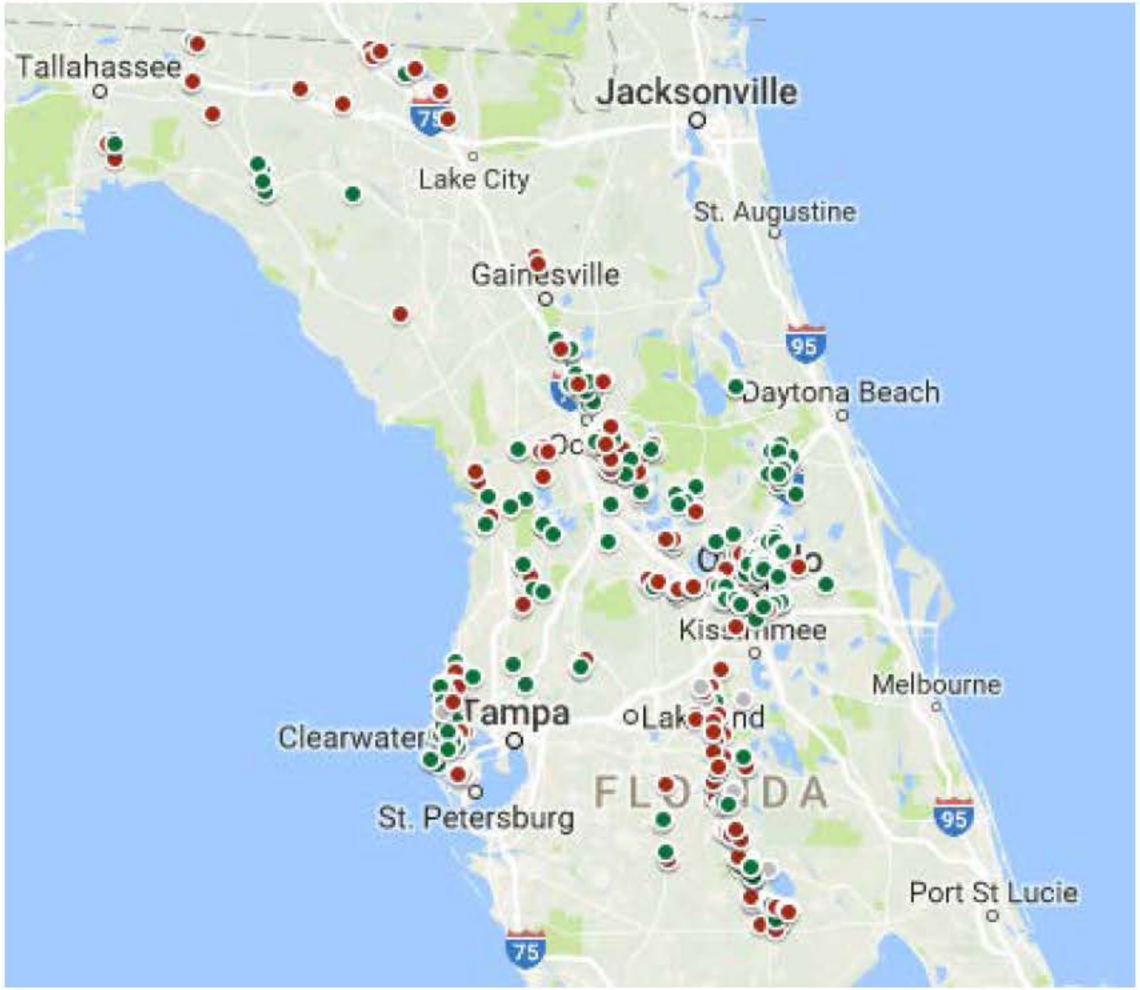
***66 poles that broke at the bottom did not have reject status information**

BROKEN POLE VISUALIZATIONS

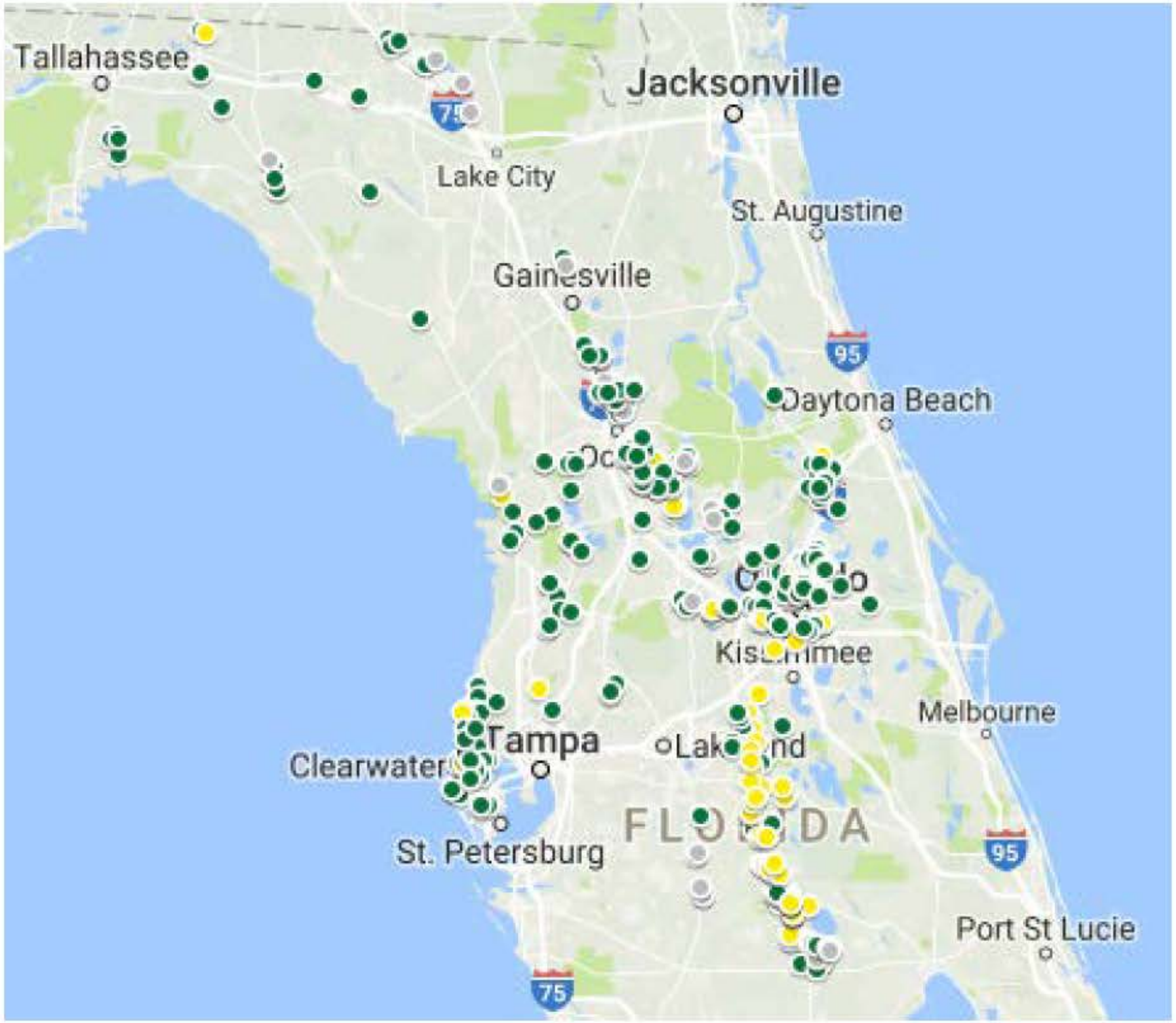
59% of broken poles had an attachment



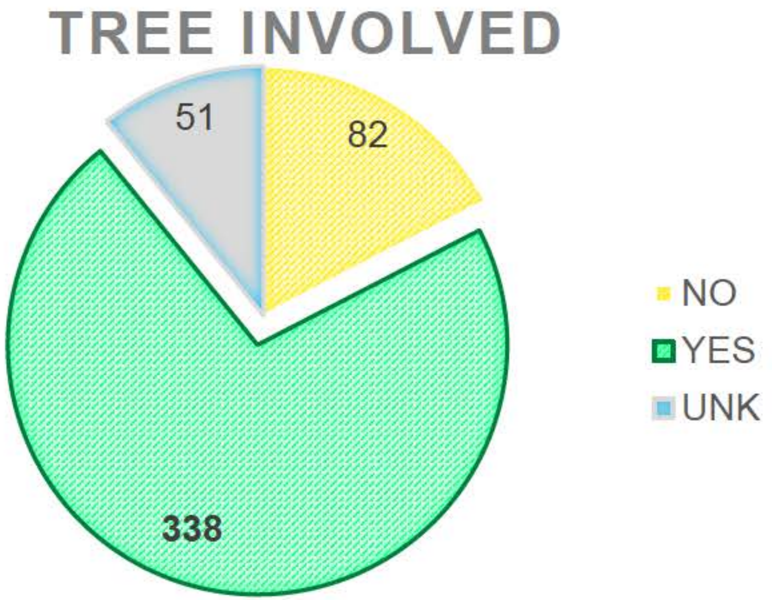
Total 471 Poles



BROKEN POLE VISUALIZATIONS

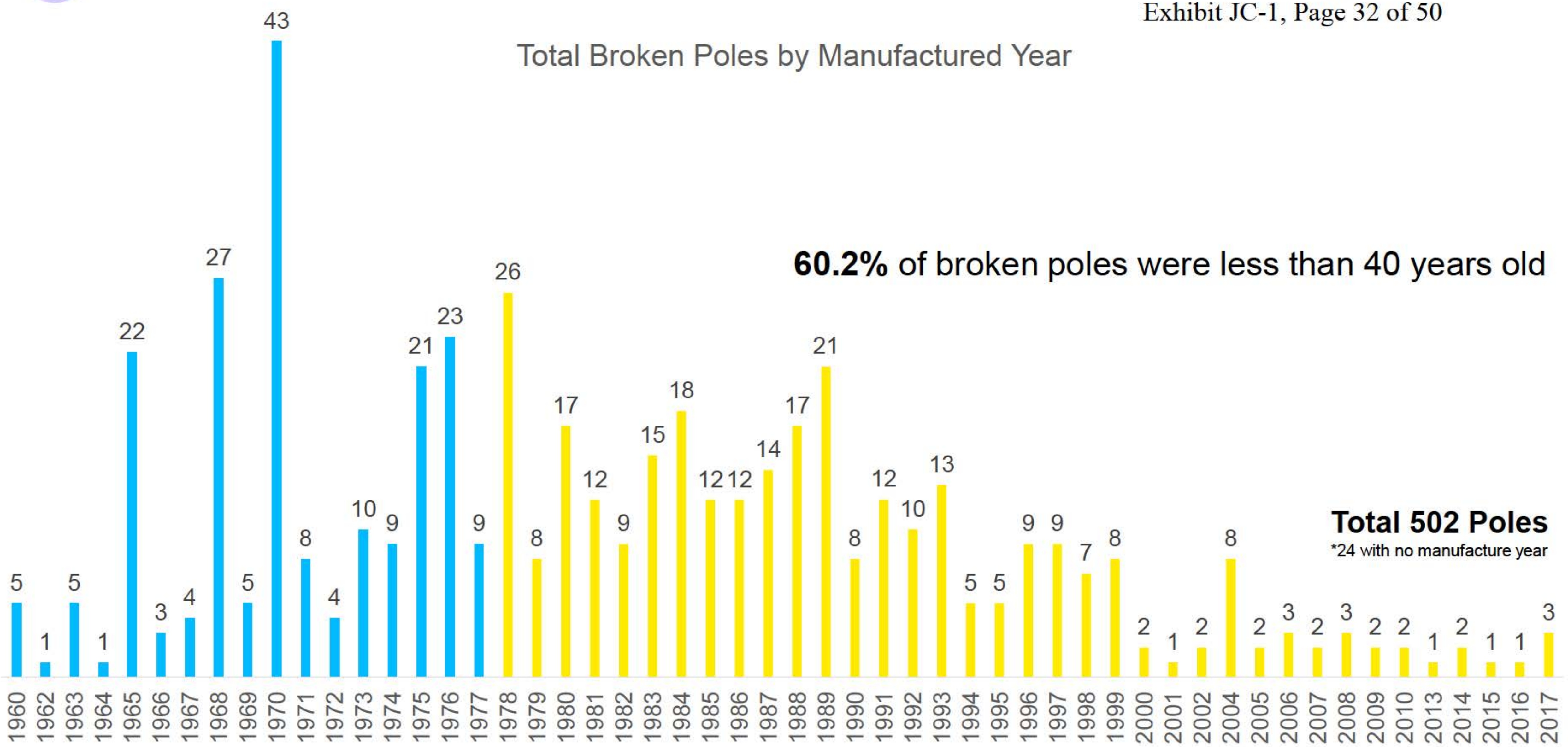


71.8% of broken poles had a tree involved

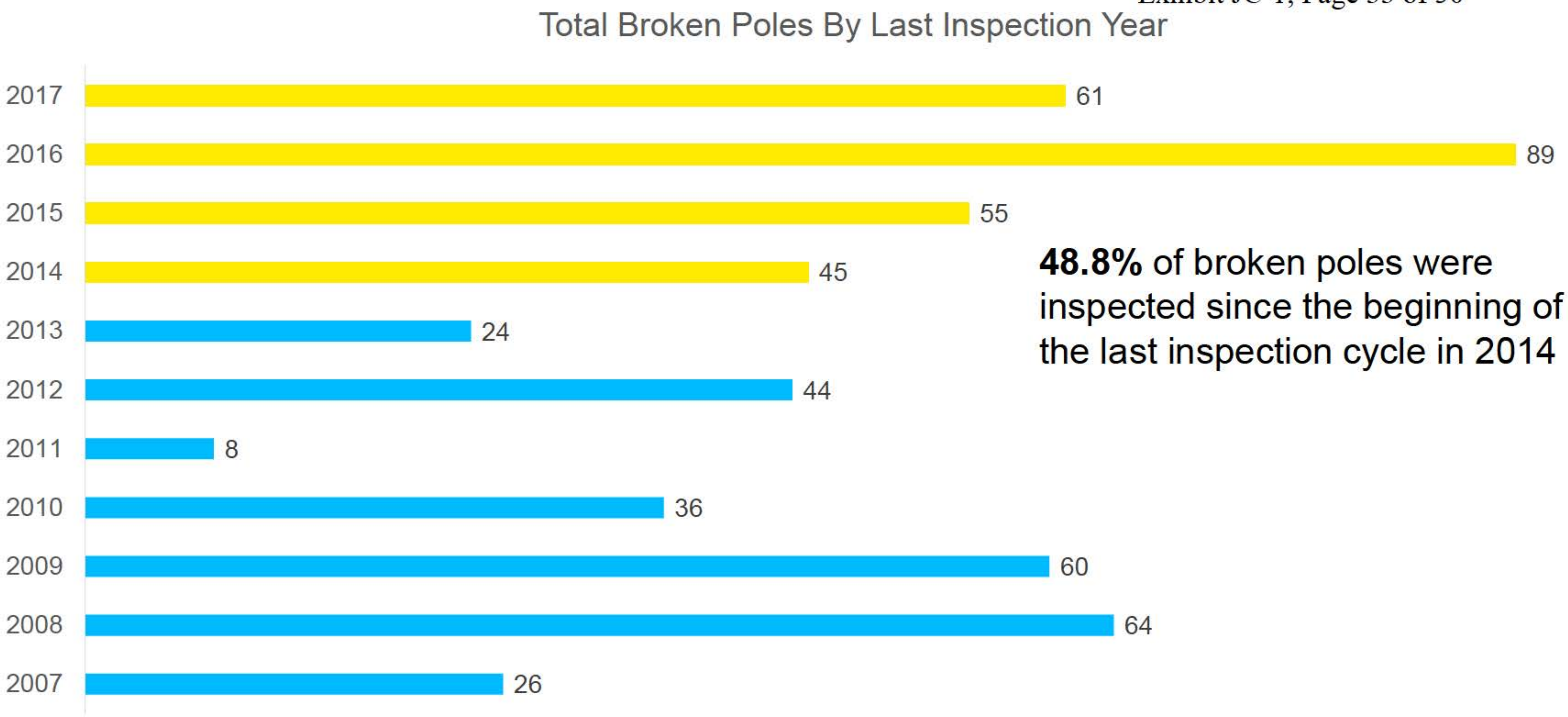


Total 471 Poles

BROKEN POLE VISUALIZATIONS



BROKEN POLE VISUALIZATIONS



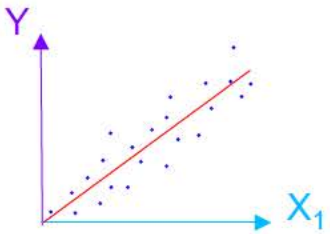
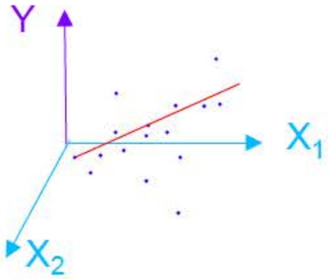
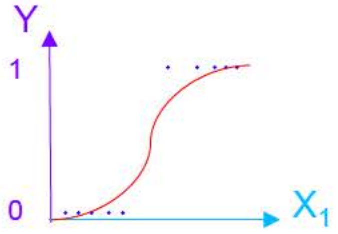
48.8% of broken poles were inspected since the beginning of the last inspection cycle in 2014

Total 512 Poles

*14 with no inspection year

INTRO TO REGRESSION ANALYSES

Regression analysis is a way of mathematically determining the relationship between two or more variables. In our analysis we employ three types of regression analyses.

Type of Regression	Model Design	Why we use it
Simple Linear Regression 	Y = Intercept + Correlation * X_1 + Error Y = Percent Pole Failure by Circuit X_1 = Pole Failure Factor (wind, gust, manufactured year, last inspection, off cycle)	▪ Determine correlation between each individual pole failure factor and pole failure rate
Multiple Linear Regression 	Y = Intercept + Correlation * X_1 + Correlation * X_2+ …+ Error Y = Percent Pole Failure by Circuit X_1 = Pole Failure Factor i.e. wind speed … X_n = Pole Failure Factor i.e. max off cycle	▪ Consider the impact of the combination of all pole failure factors on percent pole failure rate ▪ Determine which factors compared to others have the most predictive power
Multiple Logistic Regression 	$\text{Log}\left(\frac{Y}{1-Y}\right)$ = Intercept + Correlation * X_1 + Correlation * X_2+ …+ Error Y = Likelihood of failing with tree involved X_1 = Pole Failure Factor i.e. wind speed … X_n = Pole Failure Factor i.e. attachment	▪ Given that a pole fails, determine what factors were contributed to it having a tree involved

INTERPRETING REGRESSION RESULTS

There are multiple measures we can look at to understand the results of linear regression, including the **Correlation Coefficient Estimate**, associated **P Values**, and **R^2 Value**. Consider the example below:

Example Results:

Y = Intercept + **Correlation** * X_1 +…+ Error

Y = Percent Pole Failure by Circuit
X_1= Pole Failure Factor i.e. Avg Pole Height

	Estimate	P Value
Intercept	1.734e-03	0.00025***
Avg Pole Height	**-2.979e-05**	**0.01267***

Correlation Coefficient Estimate – This value denotes the relationship between the potential pole failure factor and pole failure rate. A positive value indicates that factor and pole failure are directly related (i.e. taller poles are associated with a higher pole failure rate). A negative value indicates that the factor and pole failure are inversely related (i.e. taller poles are associated with a lower pole failure rate).

P Value – The P value of a correlation coefficient estimate helps us understand how confident we can be in the correlation coefficient estimate. In our regression analysis, it is the probability that we falsely determine a correlation between the pole failure factors and pole failure rate with our sample data, given that there is no correlation. A small p value (typically <0.05) indicates a statistically significant correlation coefficient estimate.

In our results if:

P <.05 the p value is marked with a '*'
P < .01 the p value is marked with a '**'
P < .001 the p value is marked with a '***'

R^2 Value – The R^2 value is a measure that is used to determine how well the regression model fits the observed data set. It is the proportion of variance in percent pole failure that is explained by the model. R^2 values range from 0-1. The closer this value is to 1, the higher the model's predictive power of observed pole failure rates.

POLE FAILURE FACTORS CONSIDERED

In our regression analysis, we measure the following pole failure factors against the **average percent pole failure by circuit**.

Factor (by circuit)	Description	Minimum	Maximum	Median	Sample
Max Wind (mph)	Maximum wind speed experienced by a pole on the circuit measured from the closest weather center	15.8	70.2	41.4	1,215 circuits
Max Gust (mph)	Maximum gust speed experienced by a pole on the circuit measured from the closest weather center	20	88.6	58.4	1,083 circuits
Avg Manufactured Year	Average manufactured year by circuit	1963	2014	1987	1,235 circuits
Avg Height (ft.)	Average pole height by circuit measured in feet	16	52	39	1,269 circuits
Avg Last Inspection Year	Average pole last inspection year from consolidated inspection data	2007	2017	2013	1,249 circuits
Vegetation Management	Off cycle circuits given a value of 1. On cycle circuits given a value of 0.	0	1	0	1,248 circuits

SIMPLE LINEAR REGRESSION: MAX WIND

Data Summary

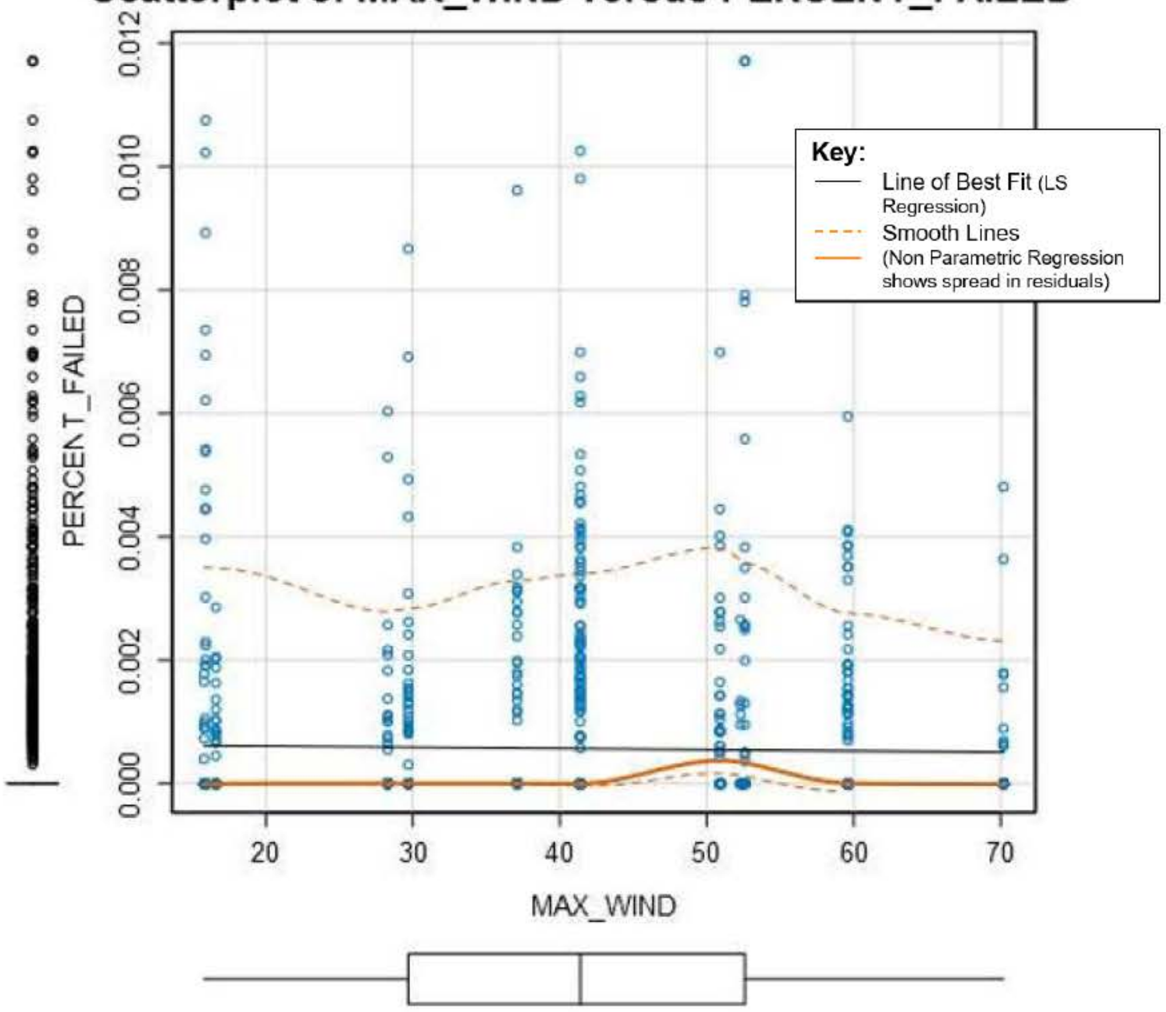
Variable	Min	Max	Median	Sample Size
Max Wind (x)	15.8 mph	70.2 mph	41.4 mph	1,215 circuits
Percent Failed (y)	0.000	0.012	0.000	

Results

	Estimate	P Value
Intercept	6.498e-04	2.97e-08***
Max Wind	-2.038e-06	0.44725

- No statistically significant relationship between max wind experienced by a circuit and pole failure rate (P = 0.44725 >0.05)
- Data suggests other factors contributed to distribution pole failure

Scatterplot of MAX_WIND versus PERCENT_FAILED



SIMPLE LINEAR REGRESSION: MAX GUST

Data Summary

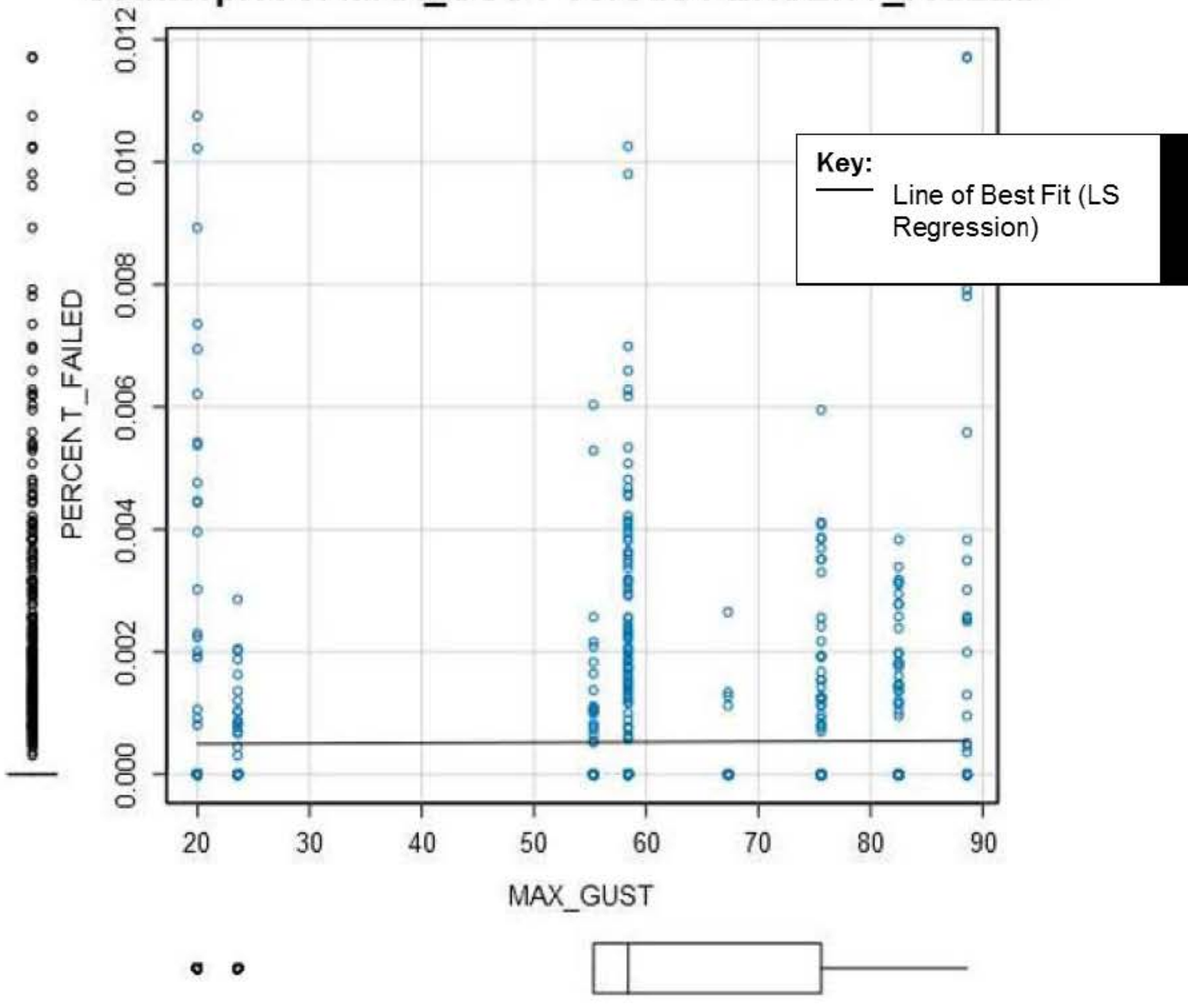
Variable	Min	Max	Median	Sample Size
Max Gust (x)	20 mph	88.6 mph	58.4 mph	1,083 circuits
Percent Failed (y)	0.000	0.012	0.000	

Results

	Estimate	P Value
Intercept	4.836e-04	0.00016***
Max Gust	7.601e-07	0.71111

- No statistically significant relationship between max gust experienced by a circuit and percent pole failure (P = 0.71111 >0.05)
- Data suggests other factors contributed to distribution pole failure

Scatterplot of MAX_GUST versus PERCENT_FAILED



SIMPLE LINEAR REGRESSION: AVG MANUFACTURED YEAR

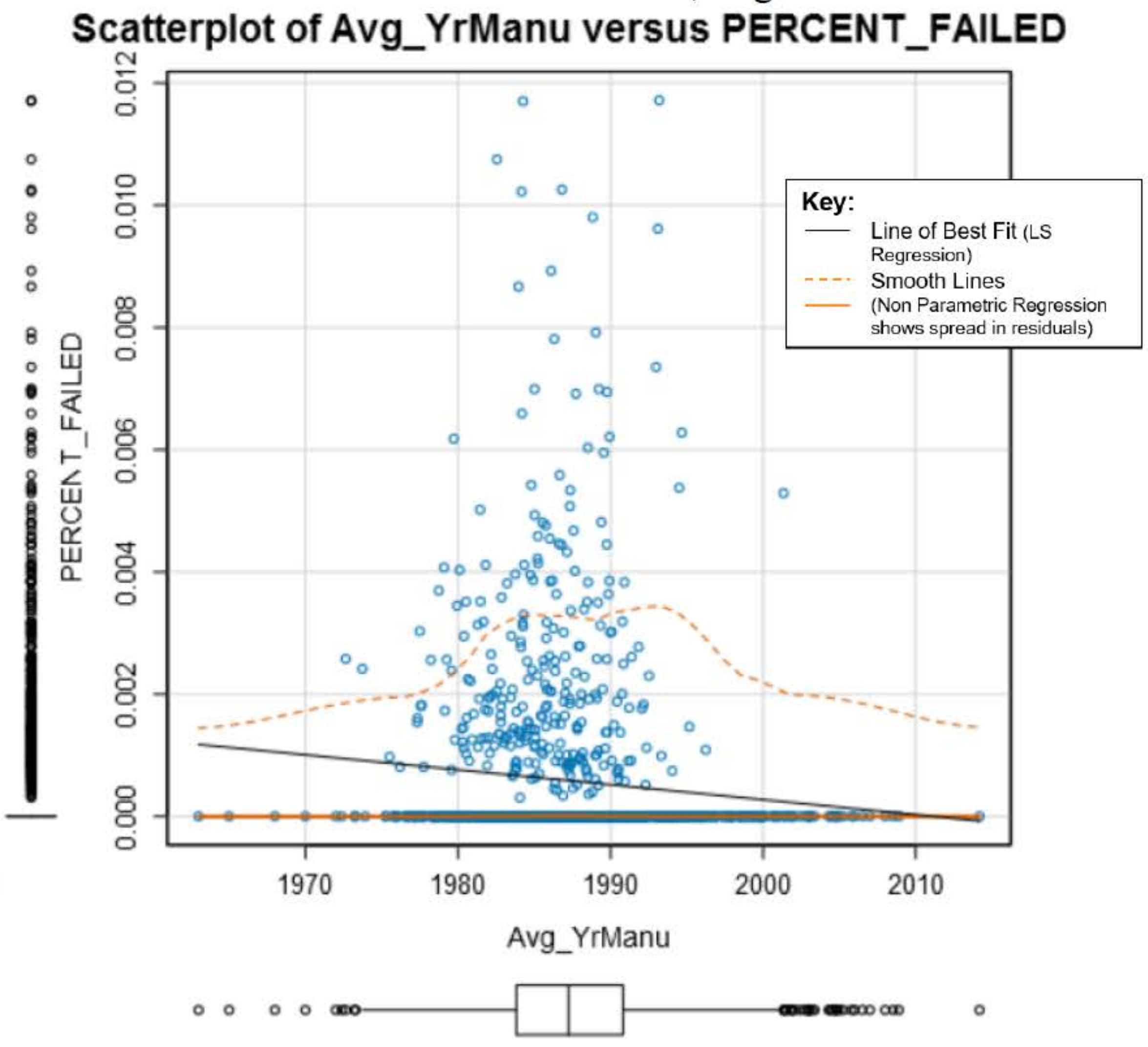
Data Summary

Variable	Min	Max	Median	Sample Size
Avg Manufactured Year (x)	1963	2014	1987	1,235 circuits
Percent Failed (y)	0.000	0.012	0.000	

Results

	Estimate	P Value
Intercept	4.925e-02	0.00043***
Avg Manufactured Year	-2.449e-05	5e-04***

- There is a statistically significant relationship between average manufactured year of a circuit and percent pole failure. (P = 0.0005 <0.05)
- Data suggests circuits with newer poles on average are associated with lower pole failure rates*.



*Note: This analysis does not consider reinforcement of older poles.

SIMPLE LINEAR REGRESSION: AVG POLE HEIGHT

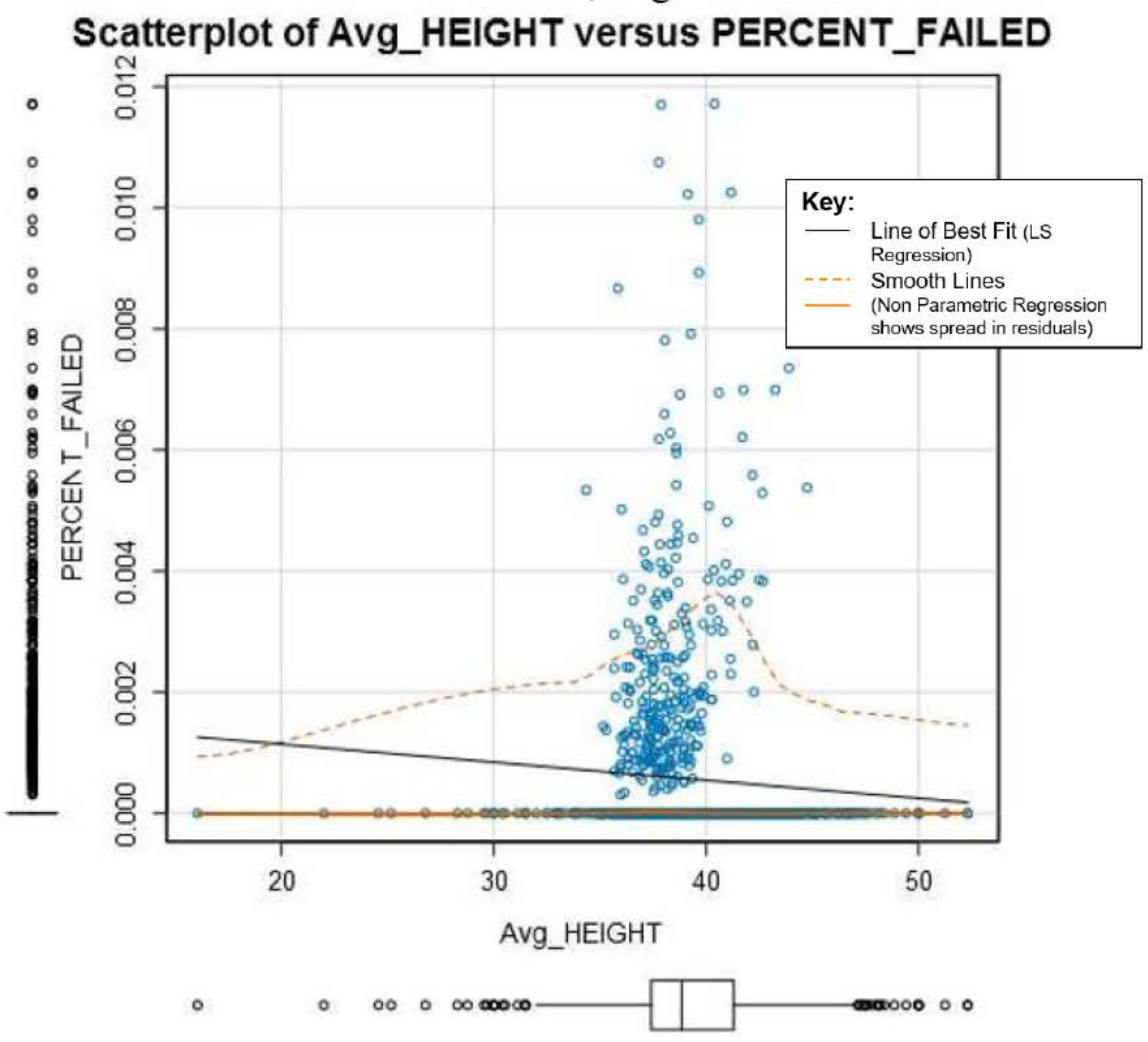
Data Summary

Variable	Min	Max	Median	Sample Size
Avg Pole Height (x)	16 ft.	52 ft.	39 ft.	1,269 circuits
Percent Failed (y)	0.000	0.012	0.000	

Results

	Estimate	P Value
Intercept	1.734e-03	0.00025***
Avg Pole Height	-2.979e-05	0.01267*

- There is a statistically significant relationship between average pole height of a circuit and percent pole failure. (P = 0.01267 <0.05)
- Data suggests circuits with taller average pole heights are associated with lower pole failure rates.



SIMPLE LINEAR REGRESSION: AVG LAST INSPECTION YEAR

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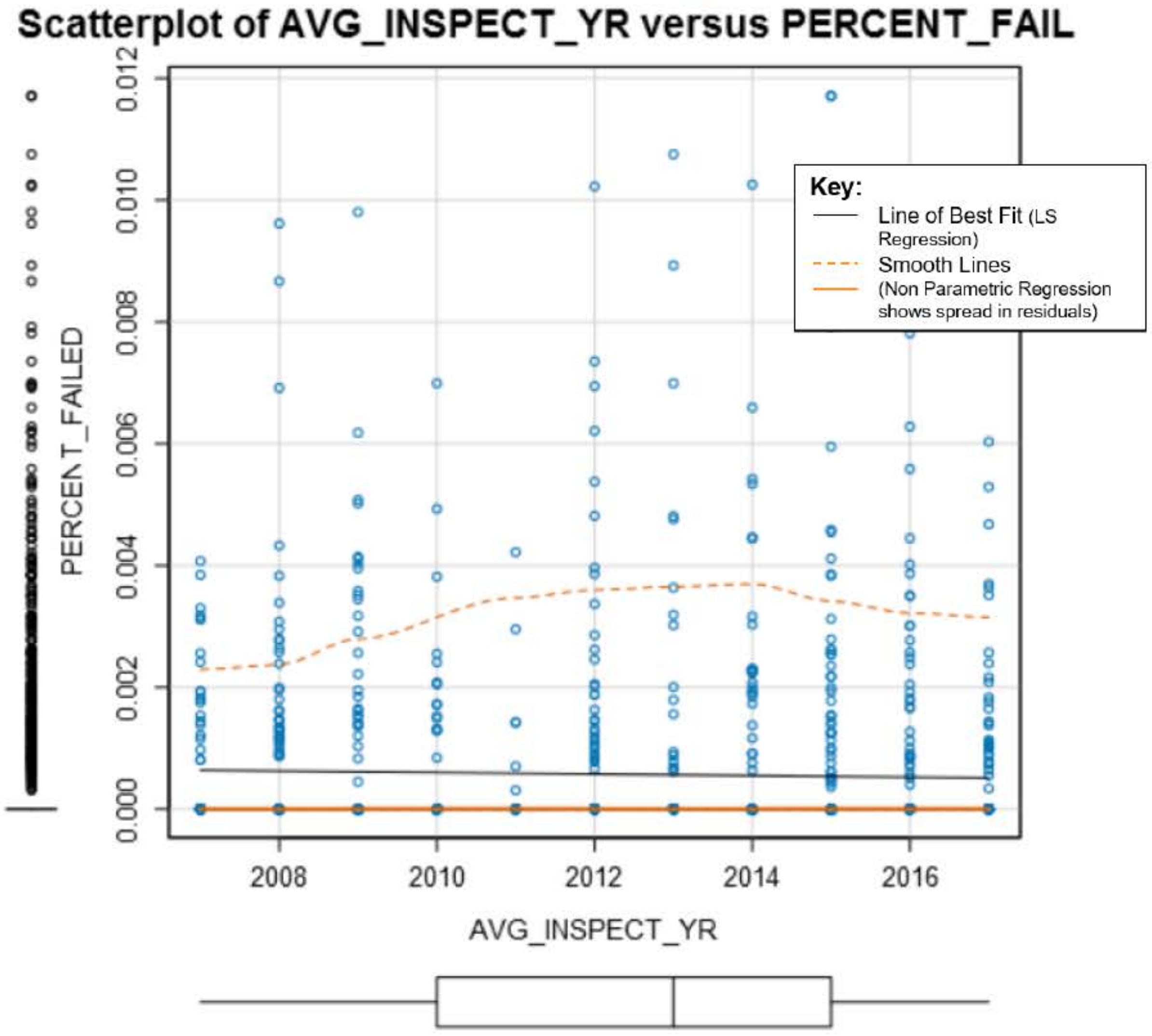
Data Summary

Variable	Min	Max	Median	Sample Size
Avg Inspection Year (x)	2007	2017	2013	1,249 circuits
Percent Failed (y)	0.000	0.012	0.000	

Results

	Estimate	P Value
Intercept	2.629e-02	0.33208
Avg Inspection Year	-1.278e-05	0.34264

- No statistically significant relationship between average last inspection year of a circuit and percent pole failure (P = 0.34264 >0.05)
- Data suggests other factors contributed to distribution pole failure



SIMPLE LINEAR REGRESSION: VEGETATION MANAGEMENT

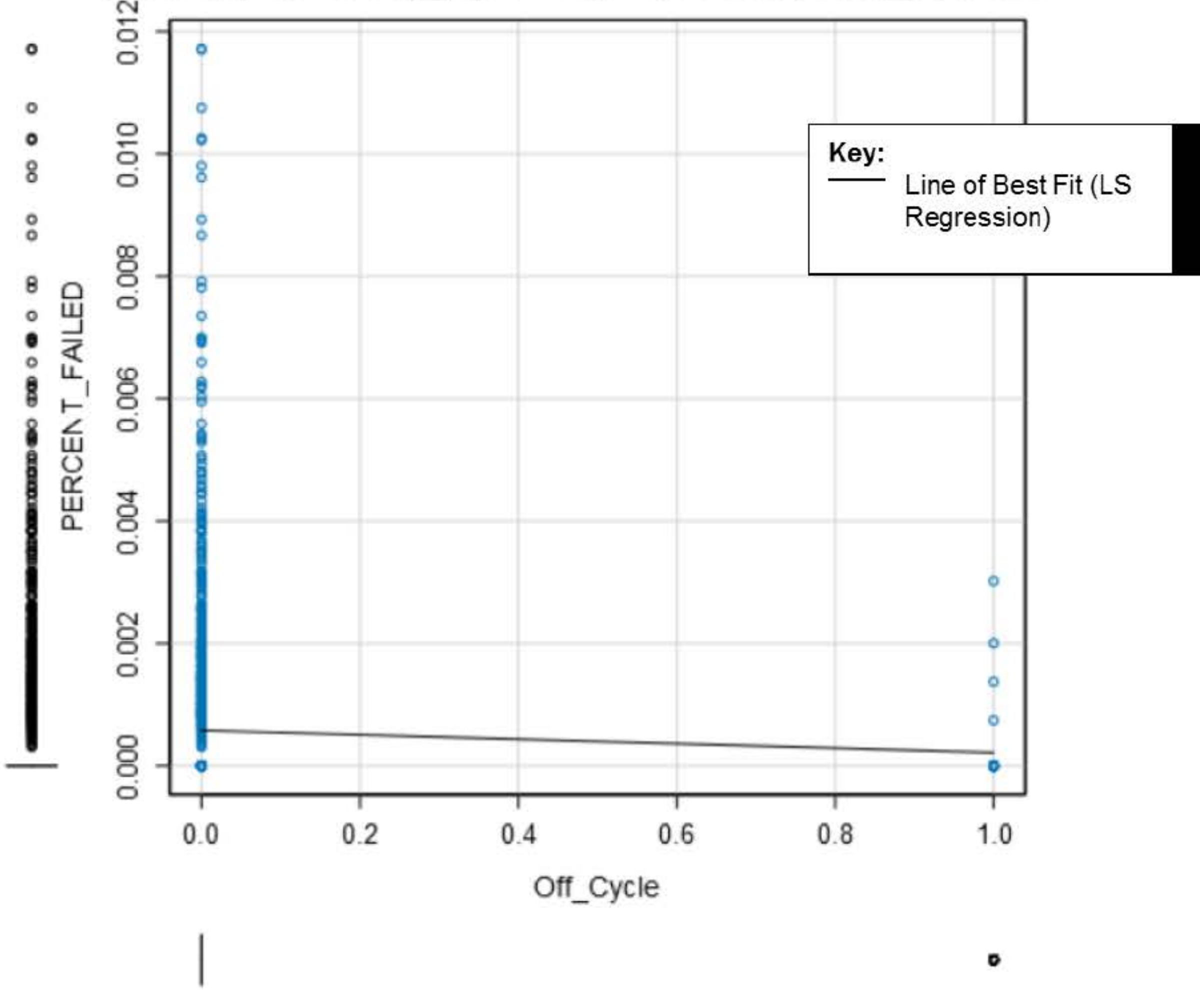
Data Summary

Variable	Min	Max	Median	Sample Size
Off Cycle* (x)	0	1	0	1,248 circuits
Percent Failed (y)	0.000	0.012	0.000	

Results

	Estimate	P Value
Intercept	0.0005788	<2.2e-16***
Off Cycle	-0.0003623	0.15662

- No statistically significant relationship between whether or not the vegetation maintenance of a circuit is on cycle or off cycle and the percent pole failure. (P = 0.157 >0.05)
- Data suggests other factors contributed to distribution pole failure.



*Note: This survey does not provide an assessment of degrees of off-cycle trimming, and other aspects of the VM program, (i.e., hot spot trimming and periodic inspections that are performed to ensure that reliability is not at risk).

MULTIPLE LINEAR REGRESSION ON ALL POLE DATA

Percent Failure By Circuit ~ Wind + Gust + Manufactured Yr. + Height + Last Inspection Yr.+ Max Off Cycle

Factor	Minimum	Maximum	Median	Sample Size	Estimate	P Value
Max Wind	15.8 mph	70.2 mph	41.4 mph	1,187 circuits	-1.731e-05	0.00254**
Max Gust	20 mph	88.6 mph	58.4 mph		7.011e-06	0.0794
Avg Manufactured Year	1963	2014	1987		-3.439e-05	0.00051***
Avg Height	22 ft.	55 ft.	39 ft.		-8.495e-06	0.59495
Avg Last Inspection Year	2007	2017	2013		3.038e-05	0.07384
Vegetation Management	0	1	0		-1.292e-04	0.6689

Results: While the correlations between max wind and average manufactured year versus pole failure rate are statistically significant, these factors are not the only contributors to pole failure.

- Higher average max winds are found to be associated with lower percent failure rates (P=0.0025<0.05). Circuits that have newer poles on average are also associated with a lower percent failure rates (P=0.00051<0.05).
- Gust, Height, Inspection Year and Vegetation Maintenance do not have statistically significant correlation coefficient estimates, suggesting that they are not highly correlated with pole failure rate by circuit.
- The Adjusted R^2 value of the model is 0.01619. Thus only 1.62% of the variation in observed pole failure rates by circuit is explained by our model. This indicates that other factors contributed to pole failure than those included in the model.
- Differing results from simple regression analysis can be explained by difference in samples as well as potential correlation between explanatory variables.

OPTIMIZED MULTIPLE LINEAR REGRESSION ON ALL POLE DATA

Percent Failure By Circuit ~ Wind + Gust + Manufactured Yr. + Inspection Yr.

Factor	Minimum	Maximum	Median	Sample Size	Estimate	P Value
Max Wind	15.8 mph	70.2 mph	41.4 mph	1,187 circuits	-1.696e-05	0.00292**
Max Gust	20 mph	88.6 mph	58.4 mph		7.023e-06	0.07857
Avg Manufactured Year	1963	2014	1987		-3.737e-05	2e-05***
Avg Last Inspection Year	2007	2017	2013		3.165e-05	0.0603

Results: When optimizing the previous multiple linear regression model, the best predictors of pole failure are max wind and gust, along with the average manufactured year and inspection year.

- Again, higher average max winds are found to be associated with lower percent failure rates (P=0.003<0.05). Circuits that have newer poles on average are associated with a lower percent failure rates (P=0.00002<0.05).
- Adjusted R^2 value is 0.01767. Thus only 1.77% of variation in percent pole failure is explained by the model, still suggesting that there are other explanatory variables not captured.

MULTIPLE LOGISTIC REGRESSION ON BROKEN POLE DATA

Failure by Tree ~ Max Wind + Manufactured Year + Height + Last Inspection + Breakage Location + Attachment

Factor	Minimum	Maximum	Median	Sample Size	Estimate	P Value
Max Wind (mph)	15.8	70.2	37.1	384 poles	-0.04031	9e-05***
Manufacture Year	1960	2017	1980		0.01710	0.17221
Height (ft.)	30	55	40		-0.1005	0.00029***
Last Inspection Year	2007	2017	2012		-0.10610	0.01527*
Breakage Location (T=3, M=2, B=1)	1	3	2		0.08490	0.65284
Attachment (Y=1, N=0)	0	1	0		1.55611	1e-05***

Results:

- When considering the above factors on the likelihood that a failed pole had a tree involved; max wind, height, last inspection year, and attachment are statistically significant factors.
- Poles with attachments were more likely to fail by mode of tree.

RESULTS SUMMARY: REGRESSION

Simple

- Max wind, max gust, average last inspection year and off cycle vegetation maintenance did not have a statistically significant correlation with pole failure rate by circuit.
- Circuits with a taller average pole height were more likely to have a lower pole failure rate.
- Circuits with newer poles were associated with lower pole failure rates.

Multiple

- Average pole manufactured year and max wind speed were the best indicators of pole failure rate by circuit.
- Circuits with older poles were associated with higher pole failure rates.
- Circuits that experienced lower wind speeds were associated with higher pole failure rates. This counterintuitive result could be due to the difficulties collecting wind data at all pole locations.
- Pole height, inspection year, and vegetation management level are likely not good indicators of pole failure.

Overall

- Simple regression and multiple regression models did not have high predictive power of pole failure rates, suggesting that there are unaccounted for explanatory factors captured in the error term of our models.
- **Model Improvements:**
  - Potential explanatory factors to consider further would be vegetation density, height and proximity of vegetation to distribution facilities, rainfall, reject status and wind direction, etc.
  - Improve wind data accuracy (gust, wind, GPS related data)
  - Consistent data across all poles for all fields/ Confirm randomized sampling

STORM HARDENING

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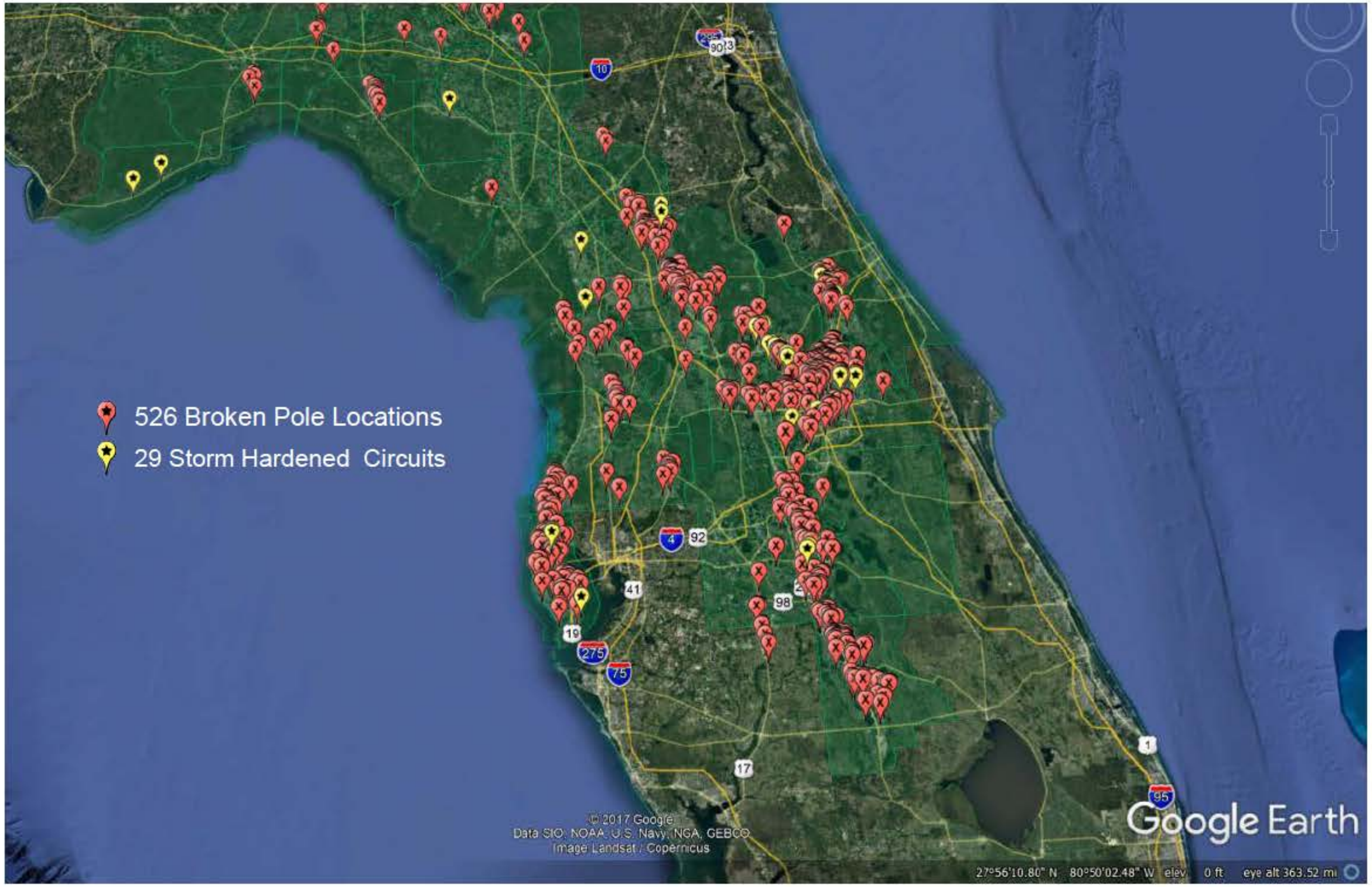
METHODOLOGY/APPROACH

- Duke FL performed storm hardening on a number of distribution line sections since 2006
- Determined if any poles that failed during Hurricane Irma were a part of the storm hardened circuits by:
  - Mapping broken poles that were reviewed by the forensics team
  - Overlaying storm hardened projects
  - Identifying if any broken poles were a part of the storm hardened projects

DATA COLLECTION

DUKE ENERGY. FLORIDA

- A sample set of broken pole data was collected by Duke FL's forensics team
- This information included:
  - EQUIP ID
  - POLE TAG
  - ADDRESS
  - DAMAGE COMMENTS
  - Birth Year
  - Last Inspect
  - Where did pole break? Top (T), Middle (M), Base (B)
  - Was Tree Involved?
  - ATTACHMENTS (Y/N)
  - EQUIPMENT(STA,RCL,SCT)
  - POLE BRACED?
  - OP CTR
- Matched broken pole data within GIS system to associate Latitude and Longitude coordinates
- Identified 29 storm hardening projects and mapped them with the broken pole data set



RESULTS SUMMARY: SYSTEM HARDENING ANALYSIS

- A forensic assessment of five hundred twenty-six (526) randomly selected poles was made across DEF's total broken pole population. None of these poles were a part of the 29 Storm Hardening projects.
- A separate assessment of twenty-nine (29) randomly selected Storm Hardening projects was made. No broken poles were identified.
- Initial findings led the team to believe there was one pole that failed in the North Central Zone, Mercers Fernery Rd storm hardening project, but further analysis showed it was not a part of the project

North Central - Mercers Fernery Rd

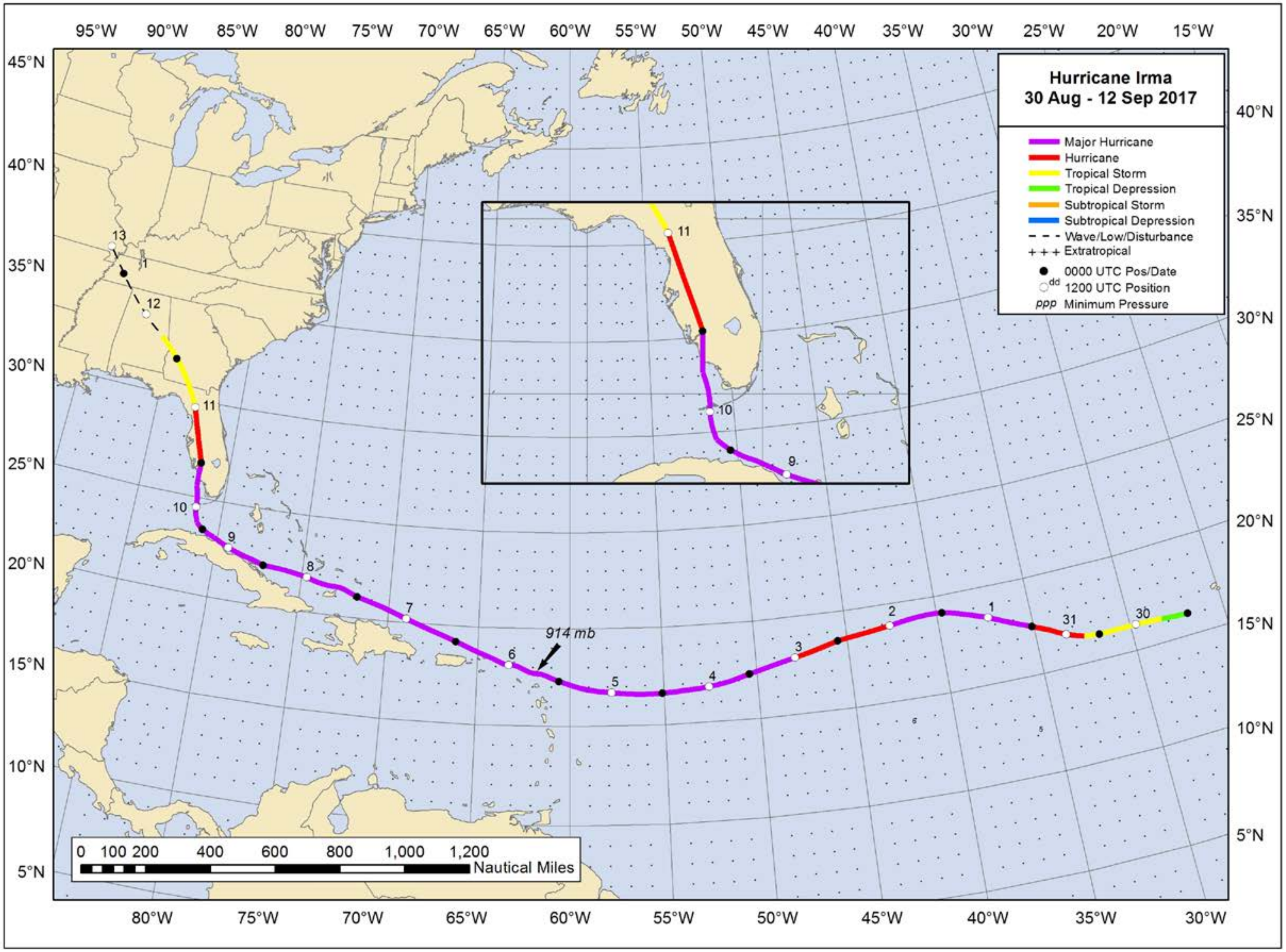
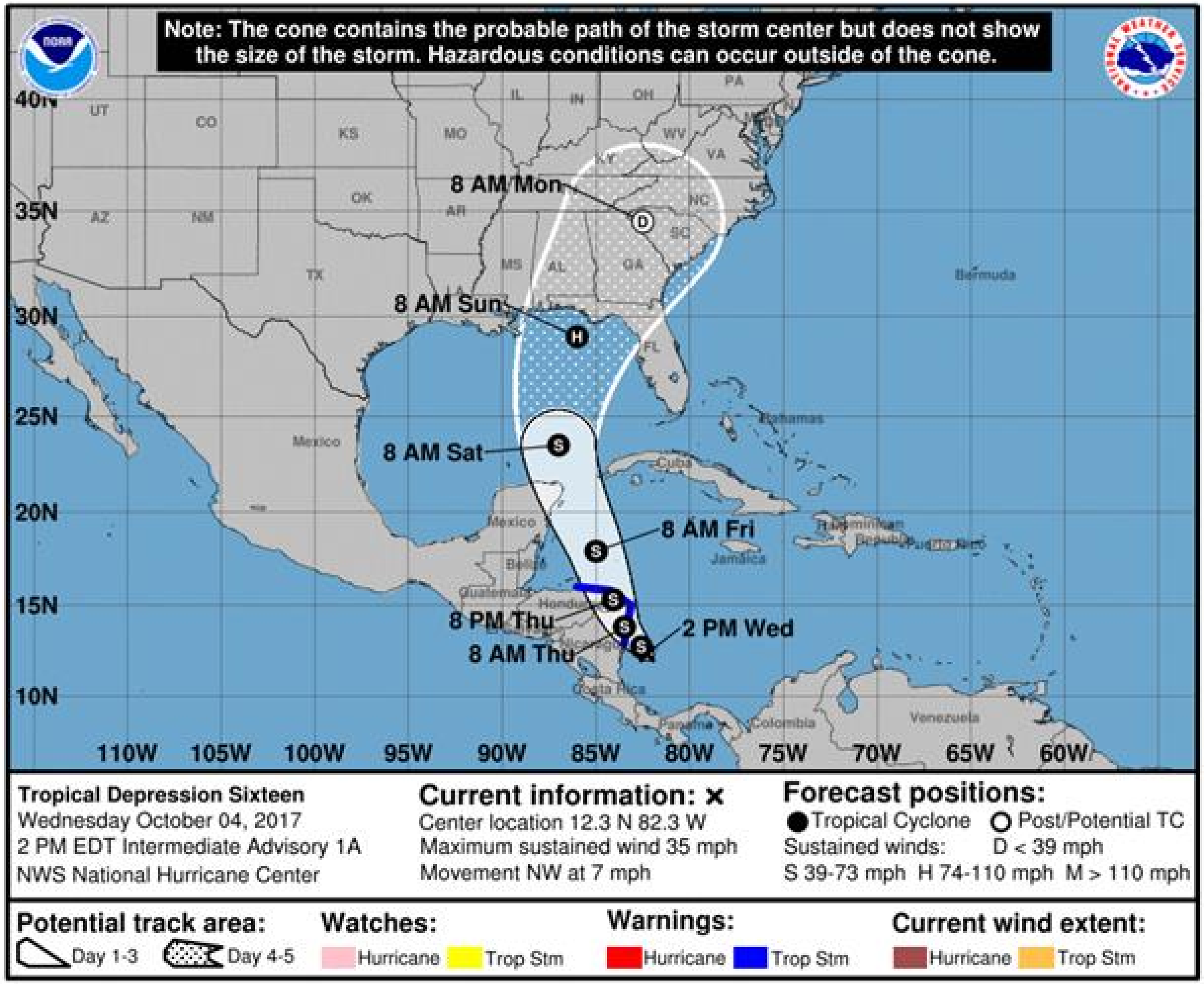


Figure 1. Best track positions for Hurricane Irma, 30 August–12 September 2017.

FORECASTED PATH OF HURRICANE NATE



BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: APPLICATION FOR LIMITED PROCEEDING FOR RECOVERY OF INCREMENTAL STORM RESTORATION COSTS RELATED TO HURRICANES IRMA AND NATE, BY DUKE ENERGY FLORIDA, LLC.

FPSC DOCKET NO. 20170272-EI

DIRECT TESTIMONY OF ROBERT MATTHEWS

MAY 31, 2018

I. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, the name of your employer, and your business address.

A. My name is Robert Matthews and I am employed by Duke Energy Florida, LLC ("DEF" or the "Company"). My business address is 3300 Exchange Place, Lake Mary, Florida.

Q. Please tell us your position and describe your duties and responsibilities in that position.

A. I am the General Manager of Construction and Maintenance in the Transmission Department for DEF. I am also the Transmission Restoration Coordinator for the Company's transmission system in the event of a severe storm or other disaster. As the Company's Transmission System Restoration Coordinator, I am responsible for the implementation of the Company's Transmission Department Storm Plan.

Q. Please summarize your educational background and employment experience.

A. I have a Bachelor of Mechanical Engineering from the Georgia Institute of Technology. I have been employed by DEF since 1985. The majority of my career has been dedicated to both Distribution and Transmission engineering, planning, and maintenance. Prior to joining DEF, I was employed by Gearhart Industries where my primary responsibilities were offshore drilling operations. I have experience leading or participating in transmission restoration following the extensive storm damage that resulted from Hurricanes Hermine, Matthew, and Irma.

II. PURPOSE AND SUMMARY OF TESTIMONY

Q. Please describe the purpose, and provide a summary, of your testimony.

A. I am testifying in support of the recovery of the Company's storm related costs due to Hurricanes Irma and Nate. I will begin my testimony by providing an overview of the Company’s transmission facilities. Next, I will address the Company's logistical efforts and use of resources during the course of the 2017 hurricane season. I will then describe the Company’s storm-hardening efforts since 2006 as those efforts relate to the transmission facilities. I will provide a summary of the Company's transmission department storm plan and the implementation of that plan for Hurricanes Irma and Nate. My testimony will further explain the implementation of the Plan during Hurricanes Irma and Nate.

Finally, I will testify about the damage caused to DEF's transmission system by Hurricanes Irma and Nate, including an explanation of the scope and extent of that storm damage and the Company's efforts to prepare for, respond to, and recover from the storms.

Q. Are you sponsoring any exhibits to your testimony?

A. No, I am not.

III. THE COMPANY'S TRANSMISSION SYSTEM

Q. Please provide an overview of the Company's transmission system.

A. The Company's transmission system transmits nearly 9,500MW of generating capacity stepping down through approximately 5,200 circuit miles of transmission lines and 501 substations to serve approximately 1.8 million customers in 35 of the state's 67 counties. The roughly 5,200 miles of transmission lines serves the approximately 20,000 square miles of DEF's service territory. These lines are supported by a variety of different structures, including aluminum towers, steel towers, and concrete, steel, and wood poles in various configurations, and include a wide variety of related equipment and material, including various types and quantities of cable, ground rods, bolts, insulators, and connectors.

Q. How is the Company's transmission system organized?

A. The Company's transmission system is divided into three regions: North Florida, Coastal Florida, and Central Florida. Each of these three regions serves as an Area

Storm Center with a specific storm/emergency plan aligned under the Company's transmission department storm plan.

IV. OVERVIEW OF LOGISTICS AND RESOURCES USED IN RESPONSE TO HURRICANES IRMA AND NATE.

Q. Can you provide us with an overview of the Company's logistical efforts and resources during the course of the 2017 hurricane season?

A. During Hurricanes Irma and Nate, we utilized over 12,500 resources. Approximately 13% (over 1,650) of those resources are specifically Transmission skilled resources including transmission linemen and tree trimming personnel working on storm restoration. These individuals were supported by logistics personnel who saw to it that the crews had the equipment, material, and tools they needed to do the work; logistics also coordinated their travel, lodging, and meals. During these hurricanes we used numerous pieces of assessment and construction equipment such as cranes, helicopters, track digger derricks, marsh masters, light towers, water trucks, tractors, lull type forklifts, backhoes, dump trucks, bulldozers, generators, fuel tanker trucks, and the skilled crews to operate them. The planning and logistical efforts to restore during any hurricane season include preparing to have all of these resources ready when an event occurs.

For example, we utilize all of our company-owned resources and equipment and then secure additional rental equipment as needed during the course of the storms, including van trailers and office trailers, air compressors, among other items. This was in addition to the Company's pool equipment and material that was brought to the staging areas for use in the storm restoration work. 142 transmission poles were replaced during the storm restoration work for Hurricane Irma; zero were damaged or replaced in Nate. During Irma the Company also restored 71 substations to service.

Q. How does the Company determine the labor, material, and equipment needed to respond to storm damage to the transmission system?

A. Before the storm leaves DEF's service territory, DEF begins its damage assessment of the Transmission system by using a combination of helicopters, UAVs (Unmanned Aerial Vehicles, or drones) and vehicles to review every mile of transmission line potentially impacted by the storm. The damage assessment team records the storm damage they observed and that information is passed on to the coordinators of the line and tree trimming crews who will actually perform the restoration work. Damage information is conveyed to the regional storm room and the Transmission storm room to develop restoration plans. Depending on the extent of storm damage that was observed and recorded, DEF's field work coordinators will determine the number of crews and the equipment; prioritization of restoration work is determined by the ECC. DEF has approximately 250 on-system transmission line and tree crews that it applies before resorting to outside contractors and transmission crews from other utilities. Logistics support obtains and arranges for the material and equipment to be supplied to the line crews where it is needed. When the line crews go into the field to perform restoration work, DEF crew members record the work done to repair the storm damage to an accounting number assigned to the particular storm. When restoration requires that structures be replaced, time-to-work estimates are developed that include the location of the work, the number of poles or other transmission structures replaced, and the number and types of other material used in the work.

Crew supervisors and oversight have the authority and means to request and acquire additional resources and equipment as needed and approved throughout the event; incident briefings and reporting occurs throughout the event at least twice a day to effectively accomplish the ongoing adjustments to the work plan.

V. THE COMPANY'S TRANSMISSION SYSTEM STORM HARDENING ACTIVITIES SINCE 2006.

Q. Please summarize the Company's transmission system storm hardening efforts since 2006.

A. Since 2006, the Company has taken steps to harden the Transmission system primarily by replacing wood structures with steel or concrete as reported in the Company's annual Reliability Reports. All new construction is also built to these hardened standards. DEF considers all steel or concrete poles that have been placed since 2006 to be hardened.

Q. What is the total expenditure by the Company on transmission storm hardening since 2006?

A. As per our annual Reliability Reports, the Company has invested approximately $1.2 billion since 2006 into hardening its Transmission System.

Q. Please describe the Company's transmission system vegetation management program.

A. Transmission is responsible for maintaining approximately 5,200 miles of power lines in Florida and proactively manages trees and other vegetation to help ensure safe, reliable service for 1.8 million customers across our 20,000 square-mile service area. Maintaining trees and vegetation along distribution and transmission rights of way help reduce outages on a day to day basis as well as during storm events and enhances safety for customers, the public, and DEF's employees and contractors. DEF maintains a rigorous inspection process that identifies vegetation encroachments and ensures vegetation management activities follow required pruning and clearance specifications.

Q. Does the Company perform any quality control review of the vegetation management services provided by contractors?

A. Yes, the Company performs a 100% quality audit for each circuit to ensure clearing specifications and contract terms and conditions have been fully satisfied. Quality results are provided to contractors, and work that does not meet technical specifications must be remedied within a defined period of time.

Q. Please describe the Company's transmission wooden pole inspection and replacement plan.

A. Transmission wood poles are inspected visually every 3 years and ground line inspections are completed every 8 years. As required, DEF also assesses poles and structures for incremental attachments that may create additional loads. Poles that can no longer maintain the safety margins required by the National Electric Safety Code will be remediated. Based on the results of the inspections discussed above, if necessary a work order will be created to remediate or replace the pole, as appropriate.

In 2017, the Company's transmission ground patrol inspected 12,699 wood pole structures. This represents approximately 60% of the wood pole structures on the Company's transmission system.

Q. How many transmission poles has the Company replaced since 2006?

A. Since 2006, the Company has replaced over 23,000 Transmission poles with either steel or concrete structures. Poles are prioritized for replacement with the worst priority poles replaced first. Where possible, poles are re-enforced to restore the pole to better than original strength.

Q. Does DEF continue to use wooden transmission structures in either circuit rebuilds or new construction?

A. No. The Company stopped using wooden transmission structures for both new construction and rebuilds/replacements in 2001; the Company now uses either steel or concrete poles.

Q. Did the Company assess the performance of hardened versus non-hardened transmission facilities following Hurricanes Irma and Nate?

A. DEF did not undertake a formal assessment of hardened versus non-hardened structures following the storms; however, DEF did not have to replace any hardened structures following either Irma or Nate. In contrast, as result of Irma DEF replaced 142 non-hardened transmission structures; the Company believes this demonstrates the efficacy of its Transmission hardening efforts.

Q. Does the Company typically convert overhead circuits to underground circuits?

A. Due to the high cost and complexity of converting overhead to underground, the Company does not typically perform these conversions unless requested by the customer.

VI. THE COMPANY'S TRANSMISSION DEPARTMENT STORM PLAN

Q. Please describe the Transmission Department's Emergency Response Plan (otherwise known as Transmission System Storm Operational Plan-TSSOP).

A. The main objective of any emergency response plan is to enable the Company to quickly assess damage to the transmission system, determine the manpower and other requirements needed to correct the damage, and initiate the appropriate restoration response. The current plan is designed for the Transmission Restoration Coordinator (T-FL Incident Commander) to establish command, assess and develop a daily plan to execute safe, efficient restoration to the transmission system. The storm plan focuses on informing Company leadership and appropriate personnel, about the impact of the event and to devise a plan to safely, quickly and effectively restore the system. The plan provides lines of reporting, decision making, and communicating regarding the resources available to direct and coordinate the preparation for, response to, and recovery from the impact of a severe storm on the transmission system. All transmission employees are expected to have a storm role, prepare throughout the year for tropical season, and await activation to their duties when an event is declared within Florida.

The Company considers two distinct timeframes or preparation times to accomplish this plan throughout the year: (1) Pre-Season or Annual Readiness and Planning Activities (December – May); (2) Storm Season (June – November). Storm Season is comprised of sub-sections: A) Pre-Storm Activities; B) Damage Assessment and Repair; and C) Recovery Follow-up Activities.

Annual Readiness/Pre-season activities include reviewing and revising the plan on an ongoing basis to ensure that it is current and incorporates the Company's latest knowledge learned from dealing with severe storms. These activities also include the necessary arrangements prior to the severe storm and hurricane seasons to ensure that the Company is prepared for the storms. Updating, editing, practicing processes, tools, training, role development, etc. occur throughout the Annual Readiness / Pre-Season. There is an annual effort to have the plan updated and practiced (drilled) by the start / beginning of the Tropical/Storm Season.

Storm Season / Tropical Season pre-storm activities involve the preparation for a storm as the storm approaches DEF's service territory. The amount of preparation that takes place depends on the probability the storm will hit DEF's service territory. The more likely a storm will hit, the more preparation that takes place. This preparation involves utilizing modeling tools and scenario based plans, to setting up the storm center and regional storm centers to be assured the lines of communication and reporting are clear and practiced. If a storm does descend, the entire storm organization is alerted and activated based on level of predicted and actual impact. Each role has specific expectations (i.e., checklists completed day by day / hour by hour in preparation of impact) that when activated are to be completed so that each team is ready to respond once the storm has passed and it is safe to travel.

Typically, on-system restoration crews and equipment are pre-staged as is the leadership team (Incident command, operations/construction, planning, and logistics leadership) in order to be ready to provide direction to restoration of the system.

Damage assessment and repair commences as the storm passes through DEF's service territory and continues after the storm has passed. Storm damage information is accumulated and prioritized for restoration with the DEF Transmission Storm Center.

Recovery follow-up activities involve all aspects of winding down the Company's storm response and restoration efforts. This includes deactivating the storm centers, canceling outside contractors and releasing crews, de-mobilizing Company storm crews, and finishing any required clean-up.

Every Transmission construction and maintenance personnel are aware of and prepared for ‘emergency response call outs.’ Whether a car hits a single pole in the middle of the night or a major storm event is blowing through the system, this is what Transmission does. The Company annually and constantly improves its transmission department emergency response plan as it learns more about responding and about severe storms/emergency events. In this way, the plan is a living document, reflecting the Company's most up-to-date knowledge about the preparation for, and response to, severe, emergency storms/events.

Q. How is the Company's storm response organized under the plan?

A. The TSSOP utilizes the incident command system concept as its central command for the Company's preparation for and response to severe storm damage to its transmission system. The Transmission System Storm Center or incident command post is set up at the Company's offices in Lake Mary (unless the approaching storm requires the Center to be set up in an alternative location). There are two Transmission System Restoration Coordinators (T-FL IC): the General Manager of Construction & Maintenance (primary) and the Director of Transmission Engineering for the Company (secondary) – they serve as back up to each other so there is 24/7 leadership coverage during an event. They report at the Transmission System Storm Center. This provides the Company with immediate access to the Company's expertise in transmission construction and engineering during the storm. The Planning Section leadership are located in Lake Mary and in St. Petersburg during an event allowing decision making to occur with the use of all systems available. In a separate location at Lake Mary, the Logistics Center operates and is directed by Logistics Section Chief. The Logistics Center provides material, engineering, contracting, lodging, meals, accounting, and scheduling support during storm restoration activities based on the plan developed by the Transmission System Restoration Coordinator (T-FL Incident Command) and Planning Section Chief.

If the damage to the transmission system from the storm affects one or more of the three transmission regional areas, the Area Storm Centers will be activated. Each of the transmission regional areas has its own storm center located in the transmission region and its own storm plan as part of the overarching TSSOP. The transmission area storm centers are led by the Area Maintenance Managers as Area Incident Command (AIC). The responsibilities of the AIC are set forth in the TSSOP, within each respective transmission area portion of the detailed plan.

Q. What are the Company's transmission system priorities during a severe storm?

A. The safety of our employees, contractors, the public and of the Company's customers is the paramount consideration when the storm plan is in effect. The first objective toward this goal is to make sure that the reliability of the state-wide transmission grid is not undermined as a result of a storm. As part of the Plan, the

Company prioritizes its transmission lines in terms of grid security for the state and DEF and economic impact to DEF and its customers.

Once the transmission grid is stabilized and the connections to the generation facilities are secure, the Company's next priority is energizing substations that have been de-energized due to the storm as a result of the loss of transmission service or other storm damage. Transmission crews focus on repairing storm damage to the substations and establishing at least one connection to transmission line service that can be energized. Substation service must be reestablished to enable the transmission system to begin restoring power to customers. Accordingly, the Company works to restore substations as quickly as possible.

The next priority for transmission during and immediately following a severe storm is work on the transmission lines with the least significant damage. The Company then moves from transmission line to transmission line according to the severity of the storm damage. During a severe storm, the Transmission Restoration Coordinator takes direction from the Company's Energy Control Center (ECC) to establish the priorities for transmission storm restoration work. ECC will identify the transmission lines that have lost power during the storm and prioritize the restoration of the lines to maintain reliability of the grid, support the Company's generation facilities, and then begin restoration of customer service. The Transmission Restoration Coordinator also consults with ECC and the Area Storm Centers on a regular basis, during and following the storm, to determine the transmission priorities, which generally center around efforts in the regions from the field crews. This information is used to establish and adjust priorities as the restoration process proceeds. Additionally, the Wholesale Customer Emergency Center in conjunction with the Area Storm Centers coordinate closely with DEF wholesale customers to coordinate and prioritize the restoration of affected points of delivery to their electrical systems.

Q. Are there other ways that the Company coordinates its storm restoration efforts?

A. Yes. In addition to the constant communication between the transmission storm centers and the ECC, the transmission storm response team further provides the transmission department with much of its logistics needs, such as lodging for the transmission line and tree crews and shared staging areas, where practical. Additionally, Transmission and Distribution communicate throughout the event at the Incident Command / leadership levels to assure Estimated Time to Restore (ETR) goals are aligned and system is coming online effectively. Externally, the Company coordinates closely with our wholesale customers through regularly scheduled calls and sharing of outage information.

Q. When does the Company implement its Transmission Department Storm Plan during a hurricane and how does it work?

A. The Transmission Restoration Coordinator decides to implement the Plan and set up the Transmission Storm Center between 120 and 96 hours prior to the hurricane making landfall. Upon implementation of the Plan, the Storm Center, the Logistics Center, and the Transmission Area Storm Centers are activated and the coordinators commence their storm preparation work.

Commencing 120 to 96 hours ahead of the storm, for example, the responsible storm personnel check inventories of materials, the conditions of vehicles and equipment, and gather lists of outside contractors, equipment vendors, and material suppliers and reserve or hold critical material and equipment. Between 96 and 72 hours before the hurricane, the numbers of available transmission construction and vegetation management crews are identified and arrangements are made to secure them for work during the storm, substations are secured, helicopter service is contacted to verify availability, and the storm plan is reviewed and all tools and equipment are checked and readied for the storm.

Within 72 and 48 hours before the hurricane, crew assignments are made and outside crews are contacted and reserved for storm restoration efforts. All special equipment needs are identified and obtained and the crews, material, and equipment are prepared for the restoration efforts.

Between 48 and 24 hours and the time the hurricane strikes, response team action plans are developed to begin storm damage assessment, verification, and restoration work schedules. All contract and Company crews are put on alert and assignments begin and helicopter crews are put in place.

Before the storm has completely left DEF service territory, as soon as it is safe to travel, the helicopters are activated and Company damage assessment teams fly the transmission lines and assess the damage. Right-of-way damage is also assessed, right-of-way clearing needs are identified, and clearing activities commence. Patrols are also sent out by truck to assess damage, make assignments for the restoration work, and begin to sectionalize the transmission system through switches to get substations back on line. Material and equipment not otherwise available are ordered, the staging areas commence operation, crew work schedules are established and the restoration work commences.

This process is repeated throughout the storm until restoration is complete. Through constant contact with ECC to determine what lines are out and what lines are grid and system priorities, together with the stream of damage assessment reports coming in from the aerial and land assessment teams, a work plan is developed each night for the next day. When all restoration work is completed a system flight of all transmission facilities will be scheduled to ensure all facilities are visually inspected and no potential issues are missed. The inspection confirms there is nothing on system caused by the storm that could cause a future outage.

Q. How do you measure the effectiveness of your storm planning and restoration process?

A. We measure our storm restoration effectiveness through daily estimated time of restoration (ETR) goals for energizing substations. Because the transmission system must be up and running before customers connected to the transmission system and wholesale customers can receive power, the emphasis of the Transmission Department is to energize the substations that have been knocked out by the storm to set the stage for the restoration of customer service. We begin setting ETR goals for our substations immediately and revise them as we learn more about the storm damage from our damage assessment teams and as we begin to prioritize our resources. Each day, we strive to meet or exceed our ETR goals.

VII. HURRICANE IRMA

Q. Was the Transmission Department Storm Plan implemented for Hurricane Irma?

A. Yes, it was. The Plan was implemented prior to the hurricane making landfall on September 10, 2017.

Q. What was the impact of Hurricane Irma on DEF's transmission system?

A. Hurricane Irma was a long-duration storm causing catastrophic damage. Irma's unique track northward across central Florida resulted in broad tropical to hurricane strength winds, with peak gusts 80 to 85 mph in Hardee, Highlands and Polk Counties where the eye tracked. Tropical storm force gusts were also broadly observed along the I-4 corridor with peak gusts 60-70 mph in St Petersburg, Tampa, and Orlando, as well as surrounding areas. High rainfall amounts of between ten and fifteen inches were observed in central and eastern Florida. The strongest, hurricane-strength winds were observed in Hardee, Highlands and Polk Counties, with peak gusts of 86 mph officially registered at

Sebring Regional Airport and 80-85 mph near Bartow. Gusts of 70-80 mph were also observed in Osceola and Orange Counties. Tropical storm force conditions were observed elsewhere generally along the I-4 corridor at inland locations, with weaker winds northward. The highest rainfall totals generally ranged 10-15" in the North and South Central zones. High rainfall led to major river flooding and record crests in some areas, including the Anclote River. Irma's track over central Florida was favorable for lesser impacts along the Gulf Coast. The Gulf Coast saw gulf and bay waters recede upwards of 10 feet as a result of days of persistent north-northeast winds. As Irma passed to the north and winds became southerly, waters returned rapidly and peaked at 3-5 feet. Storm surge ranged 3-6 feet along the Atlantic coast, including a record-breaking 5.57 feet in downtown Jacksonville and a high tide near 8 feet in Naples.

A total of 1.28 million customers were left without electric service at the peak of Hurricane Irma's impact on DEF's service territory, representing almost 75% of DEF's total customers; more than 75% of these customers were restored in just three days and roughly 99% were fully restored within eight days. As a result of Hurricane Irma, DEF experienced extensive damage to its transmission system. DEF had to replace 142 transmission structures and one cross-arm. DEF Transmission mobilized 1,297 line and service personnel and 380 tree personnel; the counts include DEF personnel to ensure repairs were completed as efficiently as possible. The restoration costs directly attributable to the Company's transmission system as a result of Hurricane Irma are $30.9 million.

Q. How did the Company implement its storm plan in response to Hurricane Irma?

A. The Company began to implement its storm plan before Hurricane Irma's landfall and continued to follow the Plan through the course of the storm restoration. As soon as the winds had died down to a safe level helicopters were used to fly damage assessors along every out-of-service mile of the Company's transmission system affected by the storm. UAVs (unmanned aerial vehicles – 'drones') are also used to assess the damage. Damage assessment crews also began to drive, if possible, along the affected transmission line. Eventually, every mile of the Company's transmission system was checked and any storm damage was assessed and reported back to the field construction and engineering crews.

The restoration strategy focused on first restoring lines to generation sites to ensure that adequate generation capacity was available. Beginning with the energized lines, the Company worked to put together a grid to restore as many substations as possible. The Company did this by dividing the lines into sections around breakers to isolate the damaged lines and get the substations back on line.

The Company's priorities were the transmission lines with the least significant damage. Company then moved from transmission line to transmission line according to the severity of the storm damage. The Company worked around-the-clock to plan and restore transmission service on all lines that were knocked out of service as a result of the storm.

Q. When the downed transmission lines and substations are re-energized are the Company's storm-related efforts complete?

A. No. Once a hurricane strikes DEF's service territory, the Company works to restore transmission lines to service as quickly as possible. That is the first step. Transmission service from the generation facilities and to the substations must be in place and energized before customer service can be restored. The Company, therefore, will do whatever is necessary to safely energize the line. The second step is to come back after customer service is restored to fix storm damage that did not need to be corrected to energize the line. The Company must ensure that facilities and equipment damaged by the storm are repaired or replaced in accordance with the Company's and industry's standards.

Following the restoration effort, the Company will conduct sweeps of the transmission system after the restoration work to identify further storm-related damage that must be repaired or replaced. After the sweeps are complete, the Company will send out crews to correct the storm damage that was identified.

VIII. HURRICANE NATE

Q. Was the Company's transmission system affected by Hurricane Nate?

A. Ultimately, no. Hurricane Nate tracked west of the Florida service area, making landfall near the Mississippi/Alabama border. As a consequence, there were minimal impacts seen across Florida. Strongest wind gusts ranged from 30-40 miles per hour for the farthest west counties in the panhandle of Florida, including Gulf and Franklin, which led to minimal issues.

Q. What was the Company's response to Hurricane Nate?

A. The Company again began implementing its storm plan on October 4,2017, three days before the hurricane made landfall on October 7, 2017. The Company followed the same communication and restoration strategy it followed in Hurricane Irma. The only difference was the restoration work in Hurricane Nate was on a much narrower scale. Transmission prepared to respond having resources available and staged; the restoration costs directly attributable to the Company's transmission system as a result of Hurricane Nate were $0.4 million.

IX. 2017 STORM SUMMARY

Q. How would you characterize the Company's implementation of its Transmission Department Storm Plan during the 2017 hurricane season?

A. Given the severe damage caused by Hurricane Irma, the Transmission Department performed well, implementing its Transmission Department storm plan and meeting or exceeding the goals it set for itself during the storm restoration efforts. Many customers never lost service at all as the Company was able to maintain the stability and integrity of its transmission grid in the face of both storms. The Company learns from every event, and applies those learnings well.

Q. Does this conclude your testimony?

A. Yes.