

State of Florida



# Public Service Commission

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COMMISSION CLERK

**DATE:** May 10, 2012

**TO:** Office of Commission Clerk (Cole)

**FROM:** Division of Economic Regulation (L'Amoreaux, Dowds)  
Office of the General Counsel (Lawson) *JSC* *T.M.K.*

**RE:** Docket No. 120038-EI – Petition to modify vegetation management plan by Tampa Electric Company.

**AGENDA:** 05/22/12 – Regular Agenda – Proposed Agency Action – Interested Persons May Participate

**COMMISSIONERS ASSIGNED:** All Commissioners

**PREHEARING OFFICER:** Brown

**CRITICAL DATES:** None

**SPECIAL INSTRUCTIONS:** None

**FILE NAME AND LOCATION:** S:\PSC\ECR\WP\120038.RCM.DOC

### Case Background

The hurricanes of 2004 and 2005 that made landfall in Florida resulted in extensive storm restoration costs and lengthy electric service interruptions for millions of electric investor-owned utility (IOU) customers. Because of this, the Commission held multiple workshops, internal affair meetings, and issued rules requiring IOUs to implement storm preparedness initiatives.

On April 25, 2006, the Commission issued Order No. PSC-06-0351-PAA-EI, requiring all IOUs to file plans and estimated implementation costs for 10 ongoing storm preparedness initiatives (Ten Initiatives) on or before June 1, 2006.<sup>1</sup> By Order No. PSC-06-0781-PAA-

<sup>1</sup> Docket No. 060198-EI, In re: Requirement for investor-owned electric utilities to file ongoing storm preparedness plans and implementation costs estimates.

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Docket No. 120038-EI

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EI, addressing Tampa Electric Company (TECO or Company) and Florida Public Utilities Company, the Commission addressed the adequacy of these IOUs' plans for implementing the Ten Initiatives. Rule 25-6.0342, Florida Administrative Code (F.A.C.), also known as the storm hardening rule, requires each IOU to file an update to its Electric Infrastructure Storm Hardening Plan for review and approval by the Commission every three years.

TECO filed its initial storm hardening plan on May 7, 2007. One of the Ten Initiatives is the tree trimming cycle for feeder and lateral circuits. In its initial plan, TECO proposed to trim both feeder and lateral circuits on a three-year cycle. TECO is set to file its next storm hardening update in May 2013.

This recommendation addresses TECO's request to extend its distribution tree trimming cycle for its storm hardening plan from a three-year cycle to a four-year cycle. The Commission has jurisdiction over this matter pursuant to Sections 366.04 and 366.05, Florida Statutes (F.S.).

### Discussion of Issues

**Issue 1:** Should the Commission approve Tampa Electric Company's petition to modify its vegetation management plan?

**Recommendation:** Yes. The Commission should approve TECO's proposed revision to its vegetation management plan. (L'Amoreaux)

**Staff Analysis:** Utilities typically have two different vegetation management (VM) plans, one for transmission facilities and another for distribution facilities. In general, transmission VM activity is more rigorous than distribution VM. Transmission structures tend to be taller than distribution structures. Distribution structures are typically at or below tree heights. Also, the amount of tree clearing a utility is able to achieve within a transmission corridor is greater than within the proximity of its overhead distribution facilities. Thus, tree-related storm damages are more likely to occur on overhead distribution facilities than on transmission facilities.

In 2006, the Commission determined that the VM practices of IOUs did not provide adequate assurance that tree clearance for overhead distribution facilities was being maintained in a manner that was likely to reduce vegetation-related storm damage. Because of this, the Commission required the utilities to develop a VM cycle for distribution circuits.

In 2007, TECO requested Davies Consulting Inc. (DCI) to conduct a study of alternative VM programs as part of TECO's storm hardening program. The 2007 study determined that a three-year trim cycle for TECO's distribution VM program was preferred. In Order No. PSC-06-0781-PAA-EI, the Commission approved TECO's three-year distribution trim cycle for both backbone and lateral distribution circuits. This means that TECO trims the entire circuit starting from the breaker. In contrast, other Florida investor-owned companies have distinct distribution trim cycles for backbone and lateral sections. For example, Florida Power & Light Company has a three-year trim cycle for feeders and a six-year trim cycle for laterals, while Progress Energy Florida, Inc. has a three-year trim cycle for feeders but a five-year cycle for laterals.<sup>2</sup>

In 2011, TECO requested DCI to conduct an updated distribution VM study in order to re-assess different VM strategies. TECO states that "the objective of the [2011] study was to compare costs and benefits of the three-year cycle to a four-year cycle."

DCI utilized its Tree Trimming Model (TTM) to perform the updated study. DCI's TTM is a data-driven tool for optimizing spending on trim activities for reliability. TECO indicated that in order to maintain a current TTM, regular data updates have been performed on a circuit level basis to ensure the model generates the best possible strategies for VM on the Company's distribution system.

The TTM is broken down in two sections. The first is the "core TTM analysis," which evaluates the cost impact and reliability performance for two scenarios. The first scenario is based on a three-year trim cycle, whereby one-third of each service area's mileage would be

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<sup>2</sup> Florida Public Service Commission, "Review of Florida's Investor-Owned Electric Utilities 2010 Service Reliability Reports, p.11.

trimmed each year, or approximately 2,110 miles. The second scenario is based on a four-year trim cycle, where one-fourth of each service area's mileage would be trimmed each year; this equates to approximately 1,582 miles per year. The second section of TTM is the "storm scenario" which adds to the core TTM analysis by examining the potential storm impacts of each scenario.

DCI's core TTM analysis utilized information from TECO's complete inventory of overhead circuits, including customer count, overhead mileage and geographic coordinates. In addition, the TTM model employed information from TECO's outage databases and the Company's history of trimming activity, including trim start and end dates by circuit, and trim cost. Using data from TECO's Geographic Information System (GIS), DCI included 701 "trimmable" overhead circuits in its analysis. "Circuits were also assigned geographic point designation by taking the average latitude and longitude of all transformers on each circuit, which was also extracted from the GIS." TECO supplied DCI with historical data from January 2002 through June 2011.

TECO stated that "Both scenarios were evaluated based on the trimming costs and expected reliability performance." TECO analyzed the ten-year period from 2012 through 2021 to compare projected trimming costs on a net present value (NPV) basis.

DCI also incorporated circuit-specific data on reliability measures, including cause codes associated with tree-related events. Reliability indices such as customer interruptions (CI), customer minutes of interruption (CMI), and system average interruption duration index (SAIDI)<sup>3</sup> were utilized and evaluated. Based on an analysis of the Company's past circuit performance, it was determined that circuits in TTM should be grouped based on their historic reliability performance as measured by CI and CMI. Based upon the historical data, TTM estimated the total system SAIDI minutes by year for a given trim cycle. TECO asserted that SAIDI is the best measure of system performance, as it evaluates both duration and customer interruptions simultaneously.

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<sup>3</sup> SAIDI is a composite indicator of outage frequency and duration and is calculated by dividing the customer minutes of interruptions by the number of customers served on the system.

The results of the two scenarios are shown in Table 1-1.

**Table 1-1: Trim Cycles Results**

Year	Total Trim Budget (millions)		SAIDI (minutes/year)	
	3-Year	4-Year	3-Year	4-Year
2012	\$10.236	\$7.927	22.71	22.71
2013	\$10.910	\$7.927	21.09	21.96
2014	\$10.615	\$8.545	20.95	23.02
2015	\$11.583	\$10.005	20.98	24.19
2016	\$10.427	\$9.835	20.74	24.56
2017	\$12.126	\$10.934	20.71	24.78
2018	\$11.204	\$10.204	20.53	23.95
2019	\$12.352	\$9.923	20.55	23.46
2020	\$11.525	\$10.356	20.53	23.43
2021	\$13.292	\$11.374	20.72	24.18
<b>Total</b>	<b>\$114.272</b>	<b>\$97.079</b>	<b>209.49</b>	<b>236.23</b>
<b>NPV</b>	<b>\$81.636</b>	<b>\$68.702</b>	<b>20.95</b>	<b>23.62</b>

As shown on Table 1-1, the total trim budget for a three-year cycle over ten years on a NPV basis is approximately \$81,636,000, while the total trim budget for a four-year cycle over ten years on a NPV basis is approximately \$68,702,000. This analysis thus shows that the total VM trim budget on an NPV basis for the four-year cycle reduces total trimming costs by \$12,930,000. A comparison of the two scenarios' SAIDI reliability results shows a slight increase in SAIDI minutes over the ten-year period on an NPV basis for the four-year cycle. If the simple average of the three-year and four-year cycles are evaluated, the estimate of SAIDI minutes per year is 20.95 for a three-year trim cycle and 23.62 for a four-year cycle. This represents a minimal increase on ten-year average SAIDI index of 2.67 minutes for the four-year cycle.

The storm scenario analysis compares storm restoration cost implications for the three-year and four-year trim cycles. Table 1-2 shows the ten-year NPV of TECO's projected VM

program costs. These costs are classified in terms of the trim budget, normal restoration cost, storm restoration cost, and corrective maintenance cost.

**Table 1-2 Ten-Year NPV of VM Program Costs**

Scenarios	Cumulative Costs (2012 – 2021)				
	VM Trim Budget	Normal Restoration Costs from Tree Outages	VM Storm Restoration Costs	Corrective Maintenance Cost	Total VM Program Costs
	(in millions)	(in millions)	(in millions)	(in millions)	(in millions)
<b>Three-year cycle</b>	\$81.64	\$27.98	\$12.39	\$3.96	\$125.97
<b>Four-year cycle</b>	\$68.70	\$34.23	\$14.87	\$4.98	\$122.78
<b>Difference</b>	\$12.93	\$(-6.25)	\$(-2.48)	\$(-1.02)	\$3.18
<b>Change %</b>	16%	-22%	-20%	-26%	3%

As shown in Table 1-2 above, when the scenarios are compared, the four-year cycle NPV of the total VM program costs is \$3,180,000 less than that associated with the three-year cycle.

In Order No. PSC-06-0351-PAA-EI,<sup>4</sup> the Commission concluded that any alternative trim cycles proposed by a utility should be compared to a three-year trim cycle and must be shown to be equivalent or better in terms of costs and reliability for purposes of preparing for future storms. TECO's analysis shows that a four-year distribution trim cycle results in a 16 percent decrease in trimming costs over a ten-year period on a NPV basis. In addition, TECO's system SAIDI reliability measure is projected to increase by 2.67 minutes with a four-year distribution trim cycle. However, staff believes this projected increase over a ten-year period is minimal and should have little impact on customers' service quality.

Staff would also note that unlike the other Florida IOUs, TECO would trim all of its circuits over the proposed four-year cycle. As stated earlier, Florida Power & Light trims its feeders over a three-year cycle but its laterals over a six-year cycle, while Progress Energy Florida, Inc. employs a three-year cycle for feeders and five-year cycle for laterals. Recently reported total system average SAIDI for 2011 for TECO, FPL and PEF indicate that TECO's performance was the best of the three: 76 for TECO, 80 for FPL, and 87 for PEF.

<sup>4</sup> Order No. PSC-06-0351-PAA-EI, pages 2 and 4, issued April 25, 2006, in Docket No. 060198-EI, In re: Requirement for investor-owned electric utilities to file ongoing storm preparedness plans and implementation cost estimates.

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Staff believes TECO has shown that the proposed four-year distribution trim cycle will allow for cost savings with a minimal adverse affect on reliability over a ten-year period. Therefore, staff recommends that the Commission should approve TECO's request to modify its vegetation management plan.

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**Issue 2:** Should this docket be closed?

**Recommendation:** Yes. If no person whose substantial interests are affected by the proposed agency action files a protest within 21 days of the issuance of the Order, this docket should be closed upon the issuance of a Consummating Order. (Lawson)

**Staff Analysis:** If no person whose substantial interests are affected by the proposed agency action issue files a protest within 21 days of the issuance of the Order, this docket should be closed upon the issuance of a Consummating Order.