

**BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO**

Citizens Against Clear Cutting, et al.)	
)	
Complainants,)	
)	
v.)	Case No. 17-2344-EL-CSS
)	
Duke Energy Ohio, Inc.,)	
)	
Respondent)	

**DIRECT TESTIMONY OF TIM BACK
ON BEHALF OF
COMPLAINANTS**

1 **Q. Please state your name.**

2 A. My name is Tim Back.

3

4 **Q. What is your current occupation?**

5 A. I am an arborist and the President and Owner of Back Tree & Landscape, Inc.

6

7 **Q. What sort of services does your company provide?**

8 A. Back Tree & Landscape is a total tree care company. This includes planting trees,
9 trimming and removing trees and other vegetation, along with Plant Healthcare
10 (PHC) services such as insect and disease control and soil remediation. In addition
11 to these tree care activities, we offer consulting services on tree-related issues.

12

13 **Q. What educational training and professional certifications have you received?**

14 A. I am certified by the International Society of Arboriculture (ISA) and have been
15 since 1997. I also received ISA Tree Worker Certification and Qualified Proctor
16 for Certified testing for the ISA. I am also a Licensed Commercial Applicator in
17 three states: Ohio, Kentucky and Indiana. Additionally, I received training from
18 the Appraisal Consulting and Research Training Group (ACRT) and have received
19 my Line Clearance Certification. I have received further training as a member of
20 the American Society of Consulting Arborists (ASCA). Through the day-to-day
21 running of my company, I have also stayed updated on the latest developments in
22 tree care by regularly attending ISA and Tree Care Industry Association (TCIA)
23 seminars and workshops since 1987.

24

1 As for education, I studied Arboriculture at Cincinnati State and I have been a
2 student at the appraisal consulting research training program in Kent, Ohio. I
3 participated in that program in 1987, 1990, 1995 and 2004.

4
5
6 **Q. Can you please describe your professional background?**

7
8 **A.** Yes. I grew up working with trees, even before I reached my teenage years. I
9 worked with my father, who was a tree lineman for Cincinnati Gas & Electric
10 (CG&E) for 30 years. I then started my professional life as a welder. I did that for
11 eight years, working as a certified traveling boilermaker including at local power
12 plants such as Miami Fort Power and Lawrenceburg Power. I also was involved in
13 the development of the nuclear power plant in Moscow, Ohio. In 1982, I began
14 offering tree care services as a part-time venture. I started with a very small
15 customer base but as referrals began to grow I was able to expand my tree care
16 business. Around this time, I also began to study the skills of arboriculture, or the
17 cultivation of trees and shrubs.

18
19 In 1987, I began operating Back Tree Service full time. At this point, our company
20 began qualifying for, and winning, tree care contracts from the City of Cincinnati
21 the Village of Green Hills, and other municipalities to trim and remove trees near
22 power lines and in local parks. Over the years, we have consistently expanded our
23 services and hired new employees, added additional equipment, and expanded our
24 facilities so that we can best serve the Great Cincinnati area. My company has been
25 hired to perform clearance work for railroads and county parks, to address the issues

1 of individuals regarding trees on their properties, and to develop innovative
2 solutions to treat infestations that threaten tree populations. We have also done
3 clearance work for contractors, parks, and municipalities. In what I consider to be
4 a testament to our reputation, my company was hired to perform the important
5 clean-up work following the devastation that Hurricane Katrina inflicted on the
6 Gulf Coast. I, along with half of our employees and much of our equipment, spent
7 five months in Mississippi and Louisiana, including in the city of New Orleans,
8 working for governments, private businesses, and individuals to assist in the
9 recovery from the storm.

10
11 In performing our work, we are cognizant of our surroundings and environment and
12 do everything that we can in order to ensure safety and eliminating and removing
13 unnecessary negative environmental impacts. For example, early in my career,
14 Back Tree Service won a contract from the City of Cincinnati to address trees and
15 other vegetation along a five-mile stretch of the Columbia Parkway in part because
16 we proposed a creative solution to maintain traffic flow while still safely
17 performing the necessary work.

18
19 Finally, in order to ensure that my company is always at the cutting edge of the
20 industry, I regularly take courses to learn about new developments and seeking out
21 certifications that enable my company to serve customers at a higher level of
22 performance.

1

2 **Q. Have you received any awards for your work?**

3 A. Yes. I have received a Going Green award and the Gold Leaf award from the ISA.

4

5 **Q. Are you a member of any professional organizations?**

6 A. Yes. I am a member of the ASCA, the ISA, and the Ohio Chapter of the ISA.

7

8 **Q. How are you involved in this case?**

9 A. I was retained by the Complainants, Citizens Against Clear Cutting, to analyze a
10 sampling of the properties involved in this matter. Specifically, I was asked to
11 assess a number of trees and other vegetation that, according to my understanding,
12 Duke Energy Ohio, Inc. (Duke) intends to remove. My task was to evaluate the
13 vegetation, consider factors such as their species, location, growth rate, height, and
14 health to determine whether it would be possible for Duke to control this vegetation
15 by a method less extreme than removing or clear cutting. I looked at specific trees
16 and other vegetation individually in order to determine the threat, if any, posed by
17 each tree and other vegetation to Duke's transmission wires and offer my
18 professional expert opinion as to the appropriate method of controlling individual
19 trees to ensure that they do not disrupt the transmission wires while still, when
20 possible, preserving the trees and other vegetation.

21

22 **Q. Were you compensated for your work in this case?**

23 A. Yes, of course. Just like any other consulting arborist and expert, I was paid a
24 standard fee for my property assessments and expert testimony.

1 **Q. Did the compensation that you received influence the conclusions that you**
2 **reached in this case?**

3
4 A. No, not at all. I agreed to come to my conclusions independently. In fact, as I
5 discuss below, I determined that some trees may require removal.

6

7 **Q. Does your company ever engage in tree trimming around electric power lines?**

8
9 A. Yes, of course.

10

11 **Q. Do you believe that there are dangers related to trimming or working on trees**
12 **near power lines?**

13
14 A. Absolutely. All workers must be properly trained before they do any work near
15 power lines.

16

17 **Q. Have you received the necessary training to work near electric lines?**

18
19 A. Yes. As I mentioned, I completed the Line Clearance Arborist Certification
20 Program from the ACRT.

21

22 **Q. Are you familiar with the concept of arcing or flashover?**

23
24 A. Yes. This is when electricity jumps from an electric line to a nearby object or
25 person.

26

27 **Q. Through your training, are you familiar with the distance between an object**
28 **or person and an electric line wherein arcing or flashover can occur?**

29
30 A. Yes. I know that the exact distance depends on the voltage of the electric line, with
31 higher voltage lines presenting the potential risk of arcing over greater distances.

1 **Q. Are there any standards that arborists observe when trimming trees near**
2 **electric lines?**

3
4 **A. Yes. The American National Standards Institute (ANSI) issues standards both with**
5 regard to safety and pruning. The safety standards specify clearance distances,
6 protective equipment to be used while trimming near lines, as well as other
7 requirements. The pruning standards that require the Arborist to choose pruning
8 cuts at lateral angles and of a proper ratio. Lateral pruning allows the tree to
9 compartmentalize, which protects the tree's natural growth habits while minimizing
10 decay. Improper cuts result in negative responses such as rapid growth and other
11 hazards.

12

13 **Q. Would it be possible for Duke to trim or prune trees (as opposed to removing**
14 **them) near electric power lines while still observing these standards?**

15
16 **A. Yes. So long as Duke planned its vegetation management to ensure that trees do**
17 not come within a chosen distance of the power lines prior to trimming being
18 conducted, it would be able to both safely trim the trees and ensure that arcing does
19 not occur between the power lines and the trees or tree workers trimming the trees.

20

21 **Q. Regarding your conclusions about the implementation of Duke's vegetation**
22 **management plan, practices, and procedures on the properties of**
23 **Complainants, which properties did you assess?**

24
25 **A. I assessed the properties of nine different Complainants: Kim Wiethorn, Olga**
26 Staio, Barbara Casper, Melisa Kuhne, Marc Wahlquist, Dennis Baker, Mike
27 Preissler, Joe Grossi, and John Gump. It is my understanding that many of these

1 Complainants will be offering their own testimony regarding their properties and
2 involvement in this case.

3

4 **Q. How were these properties chosen?**

5 A. It is my understanding that it was a sampling of properties owned by Complainants
6 who had been actively involved in the proceeding at the time I was retained and
7 who volunteered to give me access to their properties and meet with me.

8

9 **Q. How did you assess the properties and what methods did you use?**

10

11 A. I went to each property and met with the property owners. From the property
12 owners, and Duke's own markings in some cases, I learned which trees Duke's
13 representatives had indicated would be removed. For each tree, I evaluated the
14 species of the tree and used my knowledge and expertise to determine an
15 approximate growth rate. I used a measuring device called a Laser Distance Meter
16 to determine the height of each tree, as well as the height of the transmission wires
17 and the distance of the tree from the transmission wires. My ultimate objective was
18 to determine how close each tree could possibly come to the transmission wires
19 through growth, and, if it came too close, how, if at all, its growth could be
20 controlled to avoid contact with the transmission lines. For many of the properties,
21 I returned a second time to confirm that my initial analyses were correct and to
22 gather additional information.

23

24

1 **Q. What were your conclusions with regard to the specific properties that you**
2 **evaluated?**

3
4 A. I compiled individual reports of each property that detail my findings on a tree-by-
5 tree basis. I have attached those reports to my testimony as Attachments A-I. I
6 hereby incorporate those reports, in their entirety, into my testimony. The reports
7 explain my tree-specific analyses for each property, as well as solutions that can be
8 employed that I believe will assist in maintaining sufficient distances between the
9 vegetation and the transmission wires without requiring the removal of most of the
10 vegetation that I analyzed.

11
12 **Q. Are you familiar with Duke's plan to remove trees on the properties?**

13 A. Yes. I have reviewed documents that were provided to Complainants by Duke that
14 state Duke's vegetation management policies. Those documents are attached to my
15 testimony as Attachment J.

16
17 **Q. Do you agree with the policies that Duke stated in those documents?**

18 A. No. The "wire zone" and "border zone" concept appears to dictate Duke's policy
19 towards each tree with no regard for the actual location and characteristics of the
20 specific trees.

21
22 **Q. What do you mean?**

23 A. Duke's classification of the "zone" of a particular tree is based entirely on where
24 the base of that tree is located. For example, if the base of a tree is 19 feet away
25 (horizontally) from the outermost transmission conductor, Duke would consider

1 that tree to be in the “wire zone.” If that same tree were instead 21 feet away
2 (horizontally) from the outermost transmission conductor, it would be considered
3 to be in the “border zone.” In Appendix A to each report contained in Attachments
4 A-I, I noted which of these “zones” a tree falls in. You will notice that I am able to
5 classify trees as being in the “wire zone,” “border zone,” or “peripheral zone” with
6 no regard for how close the tree actually comes to the transmission wires.

7
8 During my review, I observed that danger that any particular tree or other
9 vegetation may pose by contacting the transmission wires is often unrelated to its
10 ground position. For instance, if you look at the report for the property of
11 Complainant Olga Staios (Attachment C), you will notice that she has small trees
12 and bushes located under the transmission wires. According to the policies stated
13 in Attachment J, these small trees and bushes must be removed, because they are
14 in the wire zone. Yet, as can be seen from my assessment, these plants are more
15 than 30 feet away from the nearest transmission wire, and cannot grow to a height
16 that would bring them even within 20 feet of the transmission wires. Meanwhile,
17 Ms. Staios has another tree that is only in the “peripheral zone” which has a massive
18 canopy that extends far enough that it has encroached within a 15-foot clearance
19 with the transmission wires. According to Duke’s policies, this tree can be trimmed
20 because it is in the peripheral zone.

1 **Q. Are you saying that the tree on Ms. Staios's property that is in the peripheral**
2 **zone (or other trees that are similarly situated on other properties) should be**
3 **removed?**

4
5 A. Not at all. Duke can certainly maintain the canopy of that tree as I have stated in
6 Appendix A to my report on Ms. Staios's property. My point is that Duke's policies
7 call for the leveling to the ground of Ms. Staios's small bushes because they are in
8 the wire zone, but to allow the tree in the peripheral zone to remain standing despite
9 the fact that it actually has the ability to come within a much closer clearance to the
10 transmission lines than the bushes. That being said, either piece of vegetation can
11 be properly maintained so that it does not pose a threat.

12

13 **Q. Do you have any other issues with the approach Duke takes in Attachment J?**

14 A. Yes. The policies in Attachment J unnecessarily focus on whether a piece of
15 vegetation is a "tree species" or not. This is similar to the other issue in that Duke
16 is focusing on qualities that, on their own, do not determine whether that piece of
17 vegetation poses a threat to the transmission wires.

18

19 **Q. Are there species of trees that cannot grow taller than seven feet?**

20

21 A. Yes, certainly. Different species of trees grow to different maximum sizes. Trees
22 can be shorter than seven feet, and non-tree species of vegetation can grow taller
23 than seven feet. That is why I find Duke's vegetation management documents to
24 be peculiar and unworkable in practice.

25

26

1 **Q. Why do you find Duke’s policies and practices identified in Attachment J that**
2 **allow non-tree species to grow in a specified area as long as they are shorter**
3 **than seven feet at maturity, but prohibits all tree species, to be peculiar and**
4 **unworkable?**

5
6 A. Trees do not have inherently different characteristics from many other types of
7
8 vegetation that would make trees more dangerous independent of their size. If
9 Duke is concerned about sufficient clearance between vegetation and its
10 transmission wires, a six-foot tree in the wire zone (which Duke prohibits) is no
11 different than a six-foot bush (which Duke allows).

11

12 **Q. Are there any other concerns that you have with Duke’s approach in**
13 **Attachment J?**

14

15 A. Yes. Overall, Attachment J results in a default position that almost all trees will be
16 removed. If a tree could be easily maintained to not come within 15, 20, or 25 feet
17 of the nearest transmission wire, it will nonetheless be removed if the “zone” it is
18 in calls for removal. Even trees or other vegetation that would never need to be
19 maintained to avoid coming within a clearance of 15 feet (or more) will be removed
20 in many cases. These arbitrary “zones” should not dictate Duke’s approach; it
21 should consider each tree individually.

22

23 **Q. Have you reviewed Duke’s vegetation management plan on file with the Public**
24 **Utilities Commission of Ohio (PUCO)?**

25

26 A. Yes, I have. Duke’s vegetation management plan on file with the PUCO is attached
27 to my testimony as Attachment K.

28

29

1 **Q. Is Attachment K consistent with the policies outlined in Attachment J?**

2 A. No, and that is confusing. In Attachment K, Duke stated that the filing is its
3 vegetation management plan. Yet, the “wire zone” and “border zone” principles
4 included in Attachment J (the tree trimming guidelines provided to the owners of
5 the properties I assessed) are nowhere to be found in Duke’s filed vegetation
6 management plan (Attachment K).

7

8 **Q. What approach does Attachment K (Duke’s filed vegetation management**
9 **plan) take?**

10
11 A. Attachment K says that Duke will prune all trees and other vegetation around its
12 transmission lines to create a 15-foot clearance at the time that pruning is
13 completed.

14

15 **Q. What sorts of methods do you believe can and should be implemented so that**
16 **proper clearances are maintained (as set forth in Duke’s filed vegetation**
17 **management plan) without the complete removal of trees and other**
18 **vegetation?**

19
20 A. There are a few different methods. First, and perhaps most obviously, trimming
21 and pruning of trees and other vegetation should be utilized instead of tree removal.
22 To a point, all trees (and other vegetation) can be trimmed without threatening the
23 overall health of the trees. The amount that can be safely pruned or trimmed varies
24 depending on the tree species.

25

26

27

1 **Q. What do you mean when you say “to a point, all trees (and other vegetation)**
2 **can be trimmed without threatening the overall health of the trees?”**

3
4 A. All trees have limits on how much can be trimmed in a given season. For instance,
5 you could not likely remove half of a 50-foot Sugar Maple or an American Elm tree
6 or an American Beech tree and expect it to stand in good health. Each tree species
7 has a different threshold for how much of a tree can be safely removed without
8 jeopardizing the tree’s health. Arborists could be used to make these assessments
9 as to how much can be removed from each tree. I would recommend that this
10 approach be considered.

11

12 **Q. Do you believe that such trimming is possible for the trees you analyzed?**

13 A. I do. As I explain in my reports, many of these trees on Complainants’ properties
14 are not particularly close to the transmission wires. To the extent they are, many
15 can be trimmed using proper standards and techniques. A trained arborist would
16 be able to make these cuts without jeopardizing the health and safety of the trees.
17 This sort of trimming could be done by Duke or the property owners to maintain
18 specified clearance distances from the transmission wires.

19

20 **Q. What other methods should be considered?**

21 A. Another method is perhaps an extension of the first, but that is the use of
22 professional arborists to properly trim and prune trees and other vegetation using
23 proper trimming and cutting techniques. Proper trimming and cutting techniques
24 can help avoid more rapid, unpredictable growth. An arborist could make a targeted
25 branch cut that would help reduce the growth of a tree and minimize new tree

1 shoots. Duke could use its own arborists to properly trim trees, which would lead
2 to predictable growth, thus allowing Duke to plan its future vegetation management
3 accordingly.

4
5 **Q. Are there any methods that should be considered other than trimming?**

6 A. Another method that can effectively control the size of trees or other vegetation is
7 the use of growth regulators. These are chemicals that can be injected into a tree
8 or applied to the soil at the base of the tree. For example, if a tree would normally
9 grow 12 feet in a six-year period, the use of a growth inhibitor could slow that
10 growth such that the tree will only grow 6 feet in that same period. This would be
11 helpful in alleviating any concerns that Duke may have that trees may grow more
12 than expected before Duke returns to these properties during its next tree trimming
13 cycle.

14
15 **Q. Are growth regulators harmful to the health of the trees?**

16
17 A. No. When used properly, growth regulators are effective at slowing the growth of
18 trees without harming and actually improving their health. Again, a trained arborist
19 would know how to properly administer a growth regulator to any tree that required
20 it.

1 **Q. If Duke's goal was to require vegetation to be no closer than 15 feet to the**
2 **nearest power lines at the time its clearing of vegetation is completed, could**
3 **Duke accomplish that goal without completely removing trees and other**
4 **vegetation?**

5
6 **A. Yes, of course. However, some trees may be of a nature that they are too close and**
7 grow too tall to be healthily maintained at a height that is not within 15 feet of a
8 transmission line. In those cases, removal may be the only viable option. As can
9 be seen in Attachments A-I, I do recommend removal of some of the trees on
10 Complainants' properties that I reviewed. However, the vast majority of trees I
11 reviewed do not fall into that category. In cases where those trees come within 15
12 feet to begin with, they can be trimmed back outside of that clearance distance.
13 Further, growth inhibitors could be used to slow the growth of those trees if Duke
14 is worried about the trimmed trees growing back too quickly. Moreover, proper
15 cutting techniques will mitigate against the possibility of unanticipated growth
16 (e.g., new tree shoots). Again, this is why it is so important that Duke (or anyone
17 seeking to perform vegetation management) makes a careful assessment of the trees
18 and other vegetation in question and uses trained arborists as part of its vegetation
19 management process.

20
21 **Q. Do you think there are policies that would make more sense than those**
22 **identified in Attachment J (tree trimming guidelines)?**

23
24 **A. Yes. In fact, elements of a sensible policy are contained in Duke's vegetation**
25 management plan it filed with the PUCO in 2016 in Case No. 16-915-EL-ESS
26 (Attachment K).

1 The vegetation management plan focuses on clearance distances. This makes
2 sense, because it is the clearance (or lack thereof) between a tree and the
3 transmission wires that determines the likelihood of the tree contacting the
4 transmission wires. Duke's "wire zone" and "border zone" distinctions delineated
5 in the documents attached as Attachment J do not consider clearances between
6 vegetation and transmission wires. In my opinion, a minimum clearance distance
7 is a more practical and reasonable approach to vegetation management; one that
8 will ensure the safety and health of trees and other vegetation while minimizing the
9 contact that these trees and other vegetation could have with Duke's transmission
10 lines. To this end, I would recommend that the trees and other vegetation should
11 be trimmed (as opposed to cut down) to ensure that trees remain a proper distance
12 away from the transmission wires and are not able to fall into those wires. Growth
13 regulators could also be used to eliminate the likelihood of vegetation coming into
14 contact with trees during the interim period between clearing cycles to ensure that
15 a sufficient clearance between vegetation and the power wires is maintained.

16
17 **Q. Does this conclude your testimony?**

18
19 **A. Yes, at this time.**

CERTIFICATE OF SERVICE

The undersigned hereby certifies that a true and accurate copy of the foregoing testimony was served on October 26, 2018 by electronic mail upon the parties listed below.



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August 22, 2018

Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Mr. Joe Grossi,

Enclosed is a report based on my field assessments of your trees located in the transmission right of way zone in your front yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove your trees. I have also included my recommendations for management of the trees as requested.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

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SUMMARY

After assessing the property, trees, and transmission lines, I have concluded that the marked trees should not be removed, but rather trimmed and maintained.

INTRODUCTION

Background

On March 6, 2018 I was engaged by Citizens against Clear Cutting regarding Duke's clearing of trees and vegetation on the property.

Assignment

- Assess trees in the easement of property and the trees flagged for removal at 11982 Paulmeadows Dr., Cincinnati, OH 45249, by Duke Energy Ohio.
- Offer my opinion as to how large the trees could grow and how close they could get to the transmission wires.
- Assess the impact if the trees were removed.
- Offer my professional opinion as to the survival of trees if they were reduced in size.

Purpose and Use of Report

Testimony

OBSERVATIONS

Site Visit

On March 11, 2018 I met with Mr. Grossi at his residence. This site has many well established and mature trees.

Site Location – See appendix A

These trees border the easement including 1 Shade tree next to house. Land is flat.

Description of Trees

Shade trees and Conifers

Condition of Trees

Healthy, excluding 2 Austrian Pines

DISCUSSIONS

Mr. Grossi expressed the benefits and needs of these trees. They provide a buffer for privacy and shade for the house.

RECOMMENDATIONS

Based on the dimension requirements by Duke Energy I suggest maintaining proper heights by trimming every 2-3 years. These tree can be treated with a growth regulator. All trees listed excluding 1 that is diseased do not need to be removed.

APPENDIX A – SITE LOCATION

Distance from east border to east low conductor 27 feet. Height of the east low conductor 40 feet.

Distance from east outer conductor 23 feet. Height of east outer conductor 50 feet.

Distance from west border to west low conductor 39 feet. Height of west low conductor 40 feet.

Distance from west border to west outer conductor 35 feet. Height of west outer conductor 50 feet.

TREE SPECIES	HEIGHT	GROWTH RATE/ MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUCTOR	CLEARANCE OF TREE TO NEAREST CONDUCTOR	SUGGESTIONS
Shagbark Hickory	73 feet	12 inches per year/ 100 feet	26 feet 3 feet periperial zone	12 feet	Side trimming will create a hazard due to extreme imbalance. Do not remove. Suggest crown reduce entire canopy by near 30 percent for balance.
Red Sunset Maple	38 feet	13 inches to more than 24 inches per year/ 45-50 feet	20 feet	24 feet	Crown reduce entire canopy by near 25 percent and treat with growth regulator
Austrian Pine	33 feet	13-24 inches per year/ 50-60 feet	16 feet	20 feet	Crown reduce to near 25 feet and treat with growth regulator. In this region this species is about half of growth rate
Austrian Pine	25 feet	13-24 inches per year/ 50-60 feet	7 feet	15 feet	Treat with growth regulator. In this region this species is about half of growth rate.
White Pine	23 feet	13-24 inches per year/ 50-60 feet	11 feet	14 feet	Treat with growth regulator
White Pine	23 feet	13-24 inches per year/ 50-60 feet	11 feet	14 feet	Treat with growth regulator
White Pine	23 feet	13-24 inches per year/ 50-60 feet	16 feet	17 feet	Treat with growth regulator

Mulberry	16 feet	Fast/ 50-60 feet	7 feet	24 feet	Suggest growth regulator, no reduction needed
Burning Bush	10 feet	8-10 feet	8 feet	30 feet	Do not remove. Maturity height has no concerns.
Burning Bush	10 feet	8-10 feet	8 feet	30 feet	Do not remove. Maturity height has no concerns.
Lilac	10 feet	8-10 feet	1 foot	30 feet	Do not remove. Maturity height has no concerns.

APPENDIX B – PHOTOGRAPHS







APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed:

Date:

Timothy Back
8-22-18

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May 31, 2018

Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Ms. Kim Wiethorn,

Enclosed is a report based on my field assessments of the trees located in the transmission right of way zone of your back yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove your trees. I have also included my recommendations for management of the trees as requested.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

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SUMMARY

After assessing your property, trees and transmission lines I have concluded that these trees should not be removed but rather trimmed and maintained.

INTRODUCTION

Background

On March 6, 2018, I was engaged by Citizens Against Clear Cutting regarding Duke's clearing of trees and vegetation on your property.

Assignment

- Assess trees in the easement of property and the trees flagged for removal at 8656 Birchbark Dr., Cincinnati, OH 45249 by Duke Energy Ohio
- Offer my opinion as to how large the trees could grow and how close they could get to the transmission wires
- Impact if removed
- Offer my professional opinion as to the survival of trees if reduced in size that falls within the clearances of the conductors

Purpose and Use of Report

Testimony

OBSERVATIONS

Site Visit

On March 11, 2018 I met with Ms. Wiethorn at her residence to assess the trees in question.

Site Location – See appendix A

The trees are located at the edge of lawn at property borders and one Large Maple close to the house. These trees have connecting canopies. Land is slightly sloped.

Description of Trees

Norway Spruce with connecting canopies, 1 Large Silver Maple, Red Bud and Arborvitae

Condition of trees

Healthy

DISCUSSIONS

Ms. Wiethorn expressed the benefits and needs of these trees. They provide a buffer for privacy and shade.

RECOMMENDATIONS

In my professional opinion, based on the dimension requirements by Duke Energy, these trees can be maintained with heights of near 15 feet for Red Buds, Spruce and Arborvitae and Crown Reduce (Trimming for reduction and balance) the Maple. These trees do not need to be removed.

BIBLIOGRAPHY

- References Arbor Day Foundation
- Ohio Department of Natural Resources
- Ohio State University plant facts
- Lady Bird Johnson Wildflower Foundation

APPENDIX A – SITE LOCATION

The east low conductor is 27 feet from the east border.

The west low conductor is 39 feet from the west border.

TREE SPECIES	HEIGHT	GROWTH RATE/ MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUCTOR	CLEARANCE OF TREE TO NEAREST CONDUCTOR	SUGGESTIONS
Norway Spruce	24 feet	13-24 inches per year/ 40-60 feet	3 feet	24 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Norway Spruce	19 feet	13-24 inches per year/ 40-60 feet	3 feet	29 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Norway Spruce	26 feet	13-24 inches per year/ 40-60 feet	3 feet	22 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Norway Spruce	25 feet	13-24 inches per year/ 40-60 feet	4 feet	23 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Norway Spruce	23 feet	13-24 inches per year/ 40-60 feet	4 feet	25 feet	Do not remove due to water retention. Maintain proper height

					by trimming every 3-5 years.
Norway Spruce	27 feet	13-24 inches per year/ 40-60 feet	4 feet	21 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Norway Spruce	27 feet	13-24 inches per year/ 40-60 feet	4 feet	21 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Norway Spruce	26 feet	13-24 inches per year/ 40-60 feet	7 feet	22 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Norway Spruce	20 feet	13-24 inches per year/ 40-60 feet	7 feet	28 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Norway Spruce	9.5	13-24 inches per year/ 40-60 feet	23 feet	40.5 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Blue Spruce	9.5	10-16 inches per year/ 30 foot	20 feet	38.5 feet	Do not remove due to water retention. Maintain

					proper height by trimming every 3-5 years.
Arborvitae	15	6-10 inches per year/ 8-12 feet	5 feet	33 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Arborvitae	17	6-10 inches per year/ 8-12 feet	1.5 feet inside east wire zone	31 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Arborvitae	17	6-10 inches per year/ 8-12 feet	13.5 feet inside east wire zone	31 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Blue Spruce	9.5	Less than 12-24 inches per year/ 50-75 feet	6.5 feet inside east wire zone	35.5 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Red Bud	12	Medium/ 20-30 feet	25 feet	40 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Red Bud	12	Medium/ 20-30 feet	29 feet	44 feet	Do not remove due to water retention.

					Maintain proper height by trimming every 3-5 years.
Red Bud	12	Medium/ 20-30 feet	31 feet	48 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.
Silver Maple	50	More than 24 inches per year/ 50-80 feet	38 feet 3 feet peripheral	15 feet	Do not remove due to water retention. Maintain proper height by trimming every 3-5 years.

APPENDIX B – PHOTOGRAPHS



APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed: 

Date: 8-22-18

Back Tree and Landscape, Inc.
2300 E. Kemper Road
Cincinnati, OH 45241

Attachment C
513-742-TREE (8733)
(fax) 742-1250
(e-mail) info@backtree.com
www.backtree.com



August 22, 2018

Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Ms. Olga Staio,

Enclosed is a report based on my field assessments of your trees located in the transmission right of way zone of your front yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove trees. I have also included my recommendations for management of the trees as requested.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

BIBLIOGRAPHY

- References Arbor Day Foundation
- Ohio Department of Natural Resources
- Ohio State University plant facts
- Lady Bird Johnson Wildflower Foundation

APPENDIX A - SITE LOCATION AND NOTES

Distance from east border to east low conductor 27 feet. Height of the east low conductor 40 feet

Distance from east outer conductor 23 feet. Height of east outer conductor 53 feet

Distance from west border to west low conductor 39 feet. Height of west low conductor 40 feet

Distance from west border to west outer conductor 35 feet. Height of west outer conductor 53 feet

TREE SPECIES	HEIGHT	GROWTH RATE/ MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUCTOR	CLEARANCE OF TREE TO NEAREST CONDUCTOR	SUGGESTIONS
River Birch	43 feet	13-24 inches/ 40-70 feet	38 feet 3 feet peripheral	12 feet	Crown Reduce wire side by near 1/3
Cleveland Pear	21 feet	More than 24 inches per year/ 16-25 feet	23 feet	19 feet	Do not remove
Aristocrat Pear	21 feet	More than 24 inches per year/ 35-45 feet	15 feet inside west wire zone	19 feet	Do not remove
Hoopsii	18 feet	7-12 inches per year/ 30-35 feet	2 feet inside west wire zone	22 feet	Do not remove
Dwarf Blue	4 feet	3-6 inches per year/ 10-12 feet	1 foot	36 feet	Do not remove. Height of maturity does not mature to concerned heights
Dwarf Lacebark	4 feet	More than 4-6 inches per year/ 15-20 feet	1 foot	36 feet	Do not remove. Height of maturity does not mature to concerned heights
3 Juniper	8 feet	More than 24 inches per year/ 20 feet	1 foot	32 feet	Do not remove. Height of maturity does not mature to concerned heights
Dogwood	5 feet	13-24 inches per year/ 15-25 feet	1 foot inside west wire zone	35 feet	Do not remove. Height of maturity does not mature to concerned heights
Willow Bush	8 feet	12 – 18 inches per year / 12 Foot	5 feet inside west wire zone1	32 feet	Do not remove. Height of maturity does not mature to concerned heights

Sand Cherry	6 feet	6 inches per year	3 feet inside west wire zone	34 feet	Do not remove. Height of maturity does not mature to concerned heights
White Pine	17 feet	Up to 24 inches per year/ 50-80 feet	2 feet inside west wire zone	23 feet	Do not remove. Trim every 3-5 years

APPENDIX B – PHOTOGRAPHS









APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed: _____

Date: _____

Timothy Back
8-22-18

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(e-mail) info@backtree.com
www.backtree.com



May 31, 2018

Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Mr. Dennis Baker,

Enclosed is a report based on my field assessments of your trees located in the transmission right of way zone of your back yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove the trees. I have also included my recommendations for management of the trees as requested.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

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SUMMARY

After assessing the property, trees, and transmission lines, I have concluded that several of these trees should be removed and several can be trimmed and maintained. The trees on the slope of the land impose a much higher risk due to the close proximity of the transmission lines. In my professional opinion the leaning trees out of the border zone in the peripheral zone should be radically reduced. A few of the mature trees within the easement should not remain, due to the radical reductions jeopardizing their natural growth habits and health. In order to reach the dimensions Duke requires, the mature trees would have to be reduced to near ground level. A few ornamentals and vegetation such as Bamboo can be reduced and maintained.

INTRODUCTION

Background

On March 6, 2018 I was engaged by Citizens against Clear Cutting regarding Duke's clearing of trees and vegetation on the property.

Assignment

- Assess trees in the easement of property and the trees flagged for removal at 11214 Terwilligers Run Dr., Cincinnati, OH 45249, by Duke Energy Ohio.
- Offer my opinion as to how large the trees could grow and how close they could get to the transmission wires.
- Assess the impact if the trees were removed.
- Offer my professional opinion as to the survival of trees if they were reduced in size.

Purpose and Use of Report

Testimony

OBSERVATIONS

Site Visit

On March 11, 2018 I met with Mr. Baker at his residence to assess the trees in question.

Site Location – See appendix A

The trees are located on a slope in the back yard.

Description of Trees

Shade Trees & Conifers

Condition of Trees

Healthy

DISCUSSIONS

Mr. Baker expressed the benefits and needs of these trees. They provide a buffer for privacy and erosion control.

RECOMMENDATIONS

Based on the dimension requirements by Duke Energy, I suggest maintaining a height of near 15 feet on several of these trees. Unfortunately, several of these trees will be removed due to the close proximity of the transmission lines. I suggest a number of ornamentals to be planted to create a buffer and maintain soil stability and erosion control. These trees will likely need to be removed and or reduced due to extreme slope and close proximity of the transmission lines. Majority of these trees listed below should be removed.

Multiple Hackberries

Honey Locust

Removing 1 diseased 8 inch X 20 foot Austrian Pine

(2) 16-18 inch X 35 foot Norway Spruce directly under wires

Listed below are species that can be reduced or saved - Suggest reduce by near 25 percent and owner maintain. Treat with growth regulator

16-18 inch X 50 foot White Pine

2 Leaning Black Locust, 1 Large Walnut and 1 American Elm – All outside easement

Austrian Pine

Honey Suckle

Crabapples

Norway Spruce

Bamboo

Negative impact – Loss of privacy buffer and property value. If trees on bank are removed, massive erosion will occur

BIBLIOGRAPHY

- References Arbor Day Foundation
- Ohio Department of Natural Resources
- Ohio State University plant facts
- Lady Bird Johnson Wildflower Foundation

APPENDIX A – SITE LOCATION

The east low conductor is 27' from the east border.

The east high conductor is 21 feet from the east border.

TREE SPECIES	HEIGHT	GROWTH RATE/MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUTOR	CLEARANCE OF TREE TO NEAREST CONDUTOR	SUGGESTIONS
Austrian Pine		Medium/ 50-60 feet	2 feet in border zone	18	See Recommendations on Page 2
Crabapple	25 feet	Slow – Medium/ 35 feet	10 feet inside wire zone	10	See Recommendations on Page 2
Norway Spruce	30 feet	Medium/ 80 feet	18 feet in border zone	18	See Recommendations on Page 2
White Pine	38 feet	More than 24 inches per year/ 50-80 feet	21 feet in border zone	21	See Recommendations on Page 2
White Pine	20 feet	More than 24 inches per year/ 50-80 feet	21 feet in border zone	21	See Recommendations on Page 2
White Pine	38 feet	More than 24 inches per year/ 50-80 feet	2 feet in peripheral zone	29	See Recommendations on Page 2
Austrian Pine	20 feet	Medium/ 50-80 feet	15 feet in border zone	20	See Recommendations on Page 2
Austrian Pine	14 feet	Medium/ 50-80 feet	15' in border zone	25	See Recommendations on Page 2
Austrian Pine	16 feet	Medium/ 50-80 feet	22 feet in border zone	32	See Recommendations on Page 2
Austrian Pine	17	Medium/ 50-80 feet	19 feet in border zone	30	See Recommendations on Page 2
American Elm	58 feet	Medium to fast/ 60 feet	8 feet in peripheral zone	35	See Recommendations on Page 2
Hackberry	55 feet	Medium to fast/ 40-60 feet	26 feet in border zone	26	See Recommendations on Page 2
Hackberry	40 feet	Medium to fast/ 40-60 feet	15 feet in border zone	10	See Recommendations on Page 2
Hackberry	48 feet	Medium to fast/ 40-60 feet	26 feet in border zone	20	See Recommendations on Page 2
Hackberry	45 feet	Medium to fast/ 40-60 feet	1 foot in peripheral zone	25	See Recommendations on Page 2

Note: These trees are on a 25 degree slope from house down to rear of property.

APPENDIX B – PHOTOGRAPHS



APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed: 

Date: 8-22-18

Back Tree and Landscape, Inc.
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www.backtree.com



August 22, 2018

Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Ms. Barbara Casper,

Enclosed is a report based on my field assessments of the trees located in the transmission right of way zone of your back yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove your trees. I have also included my recommendations for management of the trees as requested. The ornamentals should never have to be trimmed.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

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SUMMARY

After assessing the property, trees, and transmission lines, I have concluded that the pine and the hickory should not be removed, but rather trimmed and maintained. I suggest treating the pine and the hickory with growth regulators.

INTRODUCTION

Background

On March 6, 2018, I was engaged by Citizens against Clear Cutting regarding Duke's clearing of trees and vegetation on the property.

Assignment

- Assess trees in the easement of property and the trees flagged for removal at 9011 Old Creek Trail, Cincinnati, OH 45249, by Duke Energy Ohio.
- Offer my opinion as to how large the trees could grow and how close they could get to the transmission wires.
- Assess the impact if the trees were removed.
- Offer my professional opinion as to the survival of trees if they were reduced in size.

Purpose and Use of Report

Testimony

OBSERVATIONS

Site Visit

On March 11, 2018 I met with Ms. Casper at her residence to assess the trees in question.

Trees in natural area consist of several different species all within one canopy.

Site Location – See appendix A

The trees located edge of lawn at property border. Land is slightly sloped.

Description of Trees

Ornamental and shade trees

Condition of Trees

Healthy

DISCUSSIONS

Ms. Casper expressed the benefits and needs of these trees.

RECOMMENDATIONS

Note the Hickory should not have to be radically reduced. I suggest only reduce by 25 percent and the treat with growth regulator. The trees along the riverbank should not be removed due to erosion control.

APPENDIX A – SITE LOCATION

The east low conductor is 25 feet from the east border.

The east high conductor is 20 from the east border.

TREE SPECIES	HEIGHT	GROWTH RATE/ MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUTOR	CLEARANCE OF TREE TO NEAREST CONDUTOR	SUGGESTIONS
Bitternut Hickory	74 feet	less than 12 incher per year/ 60-80 feet	37 feet 12 feet peripheral	11 feet	Suggest Crown reduce by near 25 percent and treat with growth regulator
White Pine	20 feet	More than 24 incher per year/ 50-80 feet	10 feet	60 feet	Crown Reduce by near 20%
Weeping Cherry	18 feet	12-24 inches per year/ 20-30 feet	9 feet	58 feet	Suggest reduce by near 25 percent and owner maintain
Trees in natural area: Sycamore, Walnut, Box Elder, Hackberry and other native trees	50 feet 45 feet 40 feet 50 feet	20-24 inches 18-24 inches 16-20 inches 18-24 inches	30-40 feet average 30-40 feet average 30-40 feet average 30-40 feet average	20-25 feet average 20-25 feet average 20-25 feet average 20-25 feet average	Suggest reduce by near 25 percent and use growth regulator. If removed excessive erosion

APPENDIX B – PHOTOGRAPHS



APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed:



Date:

8-22-18

Back Tree and Landscape, Inc.
2300 E. Kemper Road
Cincinnati, OH 45241

513-742-1122 (office),
(fax) 742-1250
(e-mail) info@backtree.com
www.backtree.com



August 22, 2018

Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Mr. John Gump,

Enclosed is a report based on my field assessments of the trees located in the transmission right of way zone of your back yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove your trees and Rose of Sharon. I have also included my recommendations for management of the trees as requested.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

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SUMMARY

After assessing the property, trees, and transmission lines, I have concluded that these trees and Rose of Sharon should not be removed, but rather trimmed and maintained. The trees bordering the easement makes a real argument for removal due to the extreme distance between your trees and the closest conductor. Your Mature Pear Trees have just about reached their maximum height and width. The distance between these trees and the closest conductor is by far outside any threat of safety. The Willow and the Ash should also not be removed, but instead maintained (trimming and growth regulator).

INTRODUCTION

Background

On March 6, 2018 I was engaged by Citizens against Clear Cutting regarding Duke's clearing of trees and vegetation on the property.

Assignment

- Assess trees in the easement of property and the trees flagged for removal at 12026 Paulmeadows Dr., Cincinnati, OH 45249, by Duke Energy Ohio.
- Offer my opinion as to how large the trees could grow and how close they could get to the transmission wires.
- Assess the impact if the trees were removed.
- Offer my professional opinion as to the survival of trees if they were reduced in size.

Purpose and Use of Report

Testimony

OBSERVATIONS

Site Visit

On March 11, 2018 I met with Mr. Gump at his residence to assess the trees in question.

Site Location – See appendix A

The trees and Rose of Sharon are located at the edge of property border. These trees have connecting canopies.

Description of Trees

3 Pear trees -ornamental
1 Ash trees - shade tree
1 Willow - shade tree
3 Arborvitae
1 Rose of Sharon

Condition of Trees

Healthy

DISCUSSIONS

Mr. Gump expressed the benefits and needs of these trees. They provide a buffer for privacy.

TREE SPECIES	HEIGHT	GROWTH RATE/ MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUCTOR	CLEARANCE OF TREE TO NEAREST CONDUCTOR	SUGGESTIONS
Ash	50 feet	13-24 inches per year/ 50-80 feet	27 feet (Border Zone)	15 feet	Suggest crown reduce by near 25 percent and shape for balance. Treat with growth regulator
Bradford Pear	35 feet	13-24 inches per year/ 25-35 feet	34 feet (Border Zone)	24 feet	Suggest crown reduce by near 10 percent and shape for balance. Treat with growth regulator
Bradford Pear	36 feet	13-24 inches per year/ 25-35 feet	33.5 feet (Border Zone)	23 feet	Suggest crown reduce by near 10 percent and shape for balance. Treat with growth regulator
Bradford Pear	37 feet	13-24 inches per year/ 25-35 feet	33 feet (Border Zone)	23 feet	Suggest crown reduce by near 10 percent and shape for balance. Treat with growth regulator
Willow	50 feet	more than 24 inches per year/ 30-40 feet	30 feet (Border Zone)	28 feet	Suggest crown reduce by near 25 percent and shape for balance. Treat with growth regulator
Arborvitae	15 feet	6-10 inches per year/ 30-35 feet	32 feet (Border Zone)	51 feet	Owner maintains height
Arborvitae	16 feet	6-10 inches per year/ 30-35 feet	25 feet (Border Zone)	48 feet	Owner maintains height
Arborvitae	17 feet	6-10 inches per year/ 30-35 feet	23 feet (Border Zone)	48 feet	Owner maintains height
Rose of Sharon (10)	5 feet	12-24 inches per year/ 8-12 feet	24 feet (Border Zone)	56 feet	Maintain to near 7-8 height
Rose of Sharon (8)	9 feet	12-24 inches per year/ 8-12 feet	24 feet (Border Zone)	56 feet	Maintain to near 7-8 height

APPENDIX B – PHOTOGRAPHS



APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed: Timothy Back
Date: 8-22-18

Back Tree and Landscape, Inc.
2300 E. Kemper Road
Cincinnati, OH 45241

513-742-TREE (8/33)
(fax) 742-1250
(e-mail) info@backtree.com
www.backtree.com



August 22, 2018

Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Ms. Melisa Kuhne,

Enclosed is a report based on my field assessments of your trees located in the transmission right of way zone of your back yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove the trees. I have also included my recommendations for management of the trees as requested.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

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SUMMARY

After assessing the property, trees, and transmission lines, I have concluded that these trees should not be removed, but rather trimmed and maintained.

INTRODUCTION

Background

On March 6, 2018, I was engaged by Citizens against Clear Cutting regarding Duke's clearing of trees and vegetation on the property.

Assignment

- Assess trees in the easement of property and the trees flagged for removal at 12002 Paulmeadows Dr., Cincinnati, OH 45249, by Duke Energy Ohio.
- Offer my opinion as to how large the trees could grow and how close they could get to the transmission wires.
- Assess the impact if the trees were removed.
- Offer my professional opinion as to the survival of trees if they were reduced in size.

Purpose and Use of Report

Testimony

OBSERVATIONS

Site Visit

On March 11, 2018, I met with Ms. Kuhne at her residence to assess the trees in question.

Site Location – See appendix A

The trees located in backyard property border and middle of lawn.

Description of Trees

Both Shade and Ornamental trees, Shrubs and Wisteria Vines.

Condition of Trees

Healthy

DISCUSSIONS

Mrs. Kuhne expressed the benefits and needs of these trees. These trees were trimmed in the past. Why remove them this time.

RECOMMENDATIONS

Based on the dimension requirements by Duke Energy I suggest maintaining a height of near 15 feet. These trees do not need to be removed excluding 1 Mulberry.

APPENDIX A – SITE LOCATION AND NOTES

Distance from east border to east low conductor 27 feet. Height of the east low conductor 60 feet

Distance from east outer conductor 23 feet. Height of east outer conductor 71 feet

Distance from west border to west low conductor 39 feet. Height of west low conductor 60 feet

Distance from west border to west outer conductor 35 feet. Height of east outer conductor 71 feet

TREE SPECIES	HEIGHT	GROWTH RATE/ MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUCTOR	CLEARANCE OF TREE TO NEAREST CONDUCTOR	SUGGESTIONS
Silver Maple	50 feet	More than 24 inches per year/ 50-80 feet	23 feet	27 feet	Treat with growth regulator
Silver Maple	76 feet	More than 24 inches per year/ 50-80 feet	34 feet	28 feet	Duke proposes to side trim near half of the tree this creates hazard due to imbalance. Suggest crown reduce entire canopy by 25 percent and treat with growth regulator.
White Pine	75 feet	More than 24 inches per year/ 50-80 feet	24 feet	20 feet	High risk propose crown reduce to 30 feet
Crabapple	18 feet	13-24 inches per year/ 15-20 feet	7 feet	42 feet	Suggest crown reduce to 12 feet
Mulberry	47 feet	Fast/ 60 feet	1 foot	13 feet	Suggest remove
Multi trunk River Birch	39 feet	13-24 inches per year/ 40-70 feet	5 feet inside west wire zone	23 feet	Suggest crown reduce to near 30 feet and treat with growth regulator
Multi trunk River Birch	42 feet	13-24 inches per year/ 40-70 feet	8 feet inside west wire zone	23 feet	Suggest crown reduce to near 30 feet and treat with growth regulator
Multi trunk River Birch	42 feet	13-24 inches per year/ 40-70 feet	10 feet inside west wire zone	23 feet	Suggest crown reduce to near 30 feet and treat

					with growth regulator
Rose of Sharon	12 feet	12-24 inches per year/ 8-12 feet	7 feet inside of west wire zone	48 feet	Suggest do not remove
Burning Bush	10 feet	12 feet	7 feet inside of west wire zone	50 feet	Maintain 7-8 foot
Wisteria Vine	5x12 feet	10-14 foot per year	5 feet inside of west wire zone	55 feet	Maintain 8 foot

APPENDIX B – PHOTOGRAPHS



APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed:

Date:

Timothy Back
8-22-18

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(fax) 742-1250
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www.backtree.com



August 22, 2018

Mr. Mike Preissler
12054 Paulmeadows Drive
Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Mr. Preissler,

Enclosed is a report based on my field assessments of the trees located in the transmission right of way zone of your back yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove Spruce trees. I have also included my recommendations for management of the trees as requested.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

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SUMMARY

After assessing the property, trees, and transmission lines, I have concluded that these 3 Spruce trees should not be removed but rather trimmed and maintained.

INTRODUCTION

Background

On March 6, 2018 I was engaged by Citizens against Clear Cutting regarding Duke's clearing of trees and vegetation on the property.

Assignment

- Assess trees in the easement of property and the trees flagged for removal at 12054 Paulmeadows Dr., Cincinnati, OH 45249, by Duke Energy Ohio.
- Offer my opinion as to how large the trees could grow and how close they could get to the transmission wires.
- Assess the impact if the trees were removed.
- Offer my professional opinion as to the survival of trees if they were reduced in size.

Purpose and Use of Report

Testimony

OBSERVATIONS

Site Visit

On March 11, 2018 I met with Mr. Preissler at his residence to assess the trees in question.

Site Location – See appendix A

The Spruce trees located edge of lawn at property border. These trees have connecting canopies. Land is slightly sloped.

Description of Trees

3 Norway Spruce Trees

Condition of Trees

Healthy

DISCUSSIONS

Mr. Preissler expressed the benefits and needs of these trees. They provide a buffer for privacy and absorb a considerable amount of water in a poor drained soil.

RECOMMENDATIONS

Based on the dimension requirements by Duke Energy I suggest maintaining a height of near 15 feet. These trees do not need to be removed.

APPENDIX A – SITE LOCATION

The east low conductor is 27 feet from east border.

The west low conductor is 39 feet from west border.

TREE SPECIES	HEIGHT	GROWTH RATE/ MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUCTOR	CLEARANCE OF TREE TO NEAREST CONDUCTOR	SUGGESTIONS
Norway Spruce	18 feet	13-24 inches per year/ 40-60 feet	9 feet in west border zone	36 feet	Do not remove due to need of water retention.
Norway Spruce	22 feet	13-24 inches per year/ 40-60 feet	9 feet in west border zone	32 feet	Do not remove due to need of water retention.
Norway Spruce	25 feet	13-24 inches per year/ 40-60 feet	9 feet in west border zone	29 feet	Do not remove due to need of water retention.

APPENDIX B – PHOTOGRAPHS







APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed:

Date:

Timothy Back
8-22-18

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(fax) 742-1250
(e-mail) info@backtree.com
www.backtree.com



August 22, 2018

Cincinnati, OH 45249

Subject: Duke Energy Tree Clearances

Dear Dr. Marc Wahlquist,

Enclosed is a report based on my field assessments of your trees located in the transmission right of way zone of your back yard. The report summarizes my observations and opinions pertaining to Duke's decisions to trim or remove. I have also included my recommendations for management of the trees as requested.

Please do not hesitate to contact us if you have any question or if we may be of further service on this matter.

Regards,

Tim Back
President
Back Tree Service
2011 ISA Gold Leaf Award Winner
ISA Certified Arborist OH-0627AT

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SUMMARY

After assessing the property, trees, and transmission lines, I have concluded that a few of the trees should be removed and some trimmed and maintained.

INTRODUCTION

Background

On March 6, 2018 I was engaged by Citizens against Clear Cutting regarding Duke's clearing of trees and vegetation on the property.

Assignment

- Assess trees in the easement of property and the trees flagged for removal at 9429 E. Kemper Lane, Loveland, OH 45040, by Duke Energy Ohio.
- Offer my opinion as to how large the trees could grow and how close they could get to the transmission wires.
- Assess the impact if the trees were removed.
- Offer my professional opinion as to the survival of trees if they were reduced in size.

Purpose and Use of Report

Testimony

OBSERVATIONS

Site Visit

On March 11, 2018 I met with Dr. Wahlquist at his residence to assess the trees in question.

Site Location – See appendix A

The trees border both sides of the easement and under the conductors. Land is slightly sloped.

Description of Trees

Shade trees and Conifers

Condition of Trees

All Healthy, excluding 1 White Pine under conductors

DISCUSSIONS

Dr. Wahlquist expressed the benefits and needs of these trees. They provide a buffer and absorb a considerable amount of water in a poor drained soil.

RECOMMENDATIONS

Based on the dimension requirements by Duke Energy, I suggest maintaining proper heights. These trees do not need to be removed excluding the Eastern Red Cedar.

BIBLIOGRAPHY

- References Arbor Day Foundation
- Ohio Department of Natural Resources
- Ohio State University plant facts
- Lady Bird Johnson Wildflower Foundation

APPENDIX A – SITE LOCATION

The east low conductor is 28 feet from border.

The east high conductor is 24 feet from the east border.

The west low conductor is 35 feet from the west border.

The west high conductor is 30 feet from the west border.

TREE SPECIES	HEIGHT	GROWTH RATE/ MATURE HEIGHT	LOCATION RELATIVE TO OUTERMOST CONDUCTOR	CLEARANCE OF TREE TO NEAREST CONDUCTOR	SUGGESTIONS
Eastern Red Cedar	44 feet	Medium/ 72 feet	10 feet	14 feet	Remove
Red Bud	30 feet	Medium/20-30 feet	6 feet	50 feet	Reduce by near 25 percent. Owner maintain
White Pine	43 feet	More than 24 inches per year/ 50-80 feet	10 feet inside west wire zone	10 feet	Maintain proper clearances. Suggest pruning (reduction) every 3-5 years.
Norway Spruce	37 feet	Medium/ 80 feet	16 feet inside west wire zone	16 feet	Maintain proper clearances. Suggest pruning (reduction) every 3-5 years.
Norway Spruce	30 feet	Medium/80 feet	13 feet inside west wire zone	13 feet	Maintain proper clearances. Suggest pruning (reduction) every 3-5 years.
White Pine	36 feet	More than 24 inches per year/ 50-80 feet	10 feet inside west wire zone	10 feet	Maintain proper clearances. Suggest

					pruning (reduction) every 3-5 years.
White Pine	45 feet	More than 24 inches per year/ 50-80 feet	2 feet inside west wire zone	2 feet	Maintain proper clearances. Suggest pruning (reduction) every 3-5 years.
White Pine	60 feet	More than 24 inches per year/ 50-80 feet	1 foot in border zone	29 feet	Maintain proper clearances. Suggest pruning (reduction) every 3-5 years.
Locust	16 inch x 105 feet	2-3 feet per year	13 feet in peripheral zone	43 feet	Maintain proper clearances. Suggest pruning (reduction) every 3-5 years.
Cherry	15 inch x 90 feet	2-3 feet per year	13 feet in peripheral zone	43 feet	Maintain proper clearances. Suggest pruning (reduction) every 3-5 years.

APPENDIX B – PHOTOGRAPHS





APPENDIX C – CERTIFICATION OF PERFORMANCE

I Tim Back, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately. The extent of the evaluation is stated in the attached report and the Terms of Assignment.
- I have no current or prospective interest in the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current scientific procedures and facts.
- My analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborist and the International Society of Arboriculture. I have been involved in the field of Arboriculture and the care and study of trees for over 30 years.

Signed: _____

Date: _____



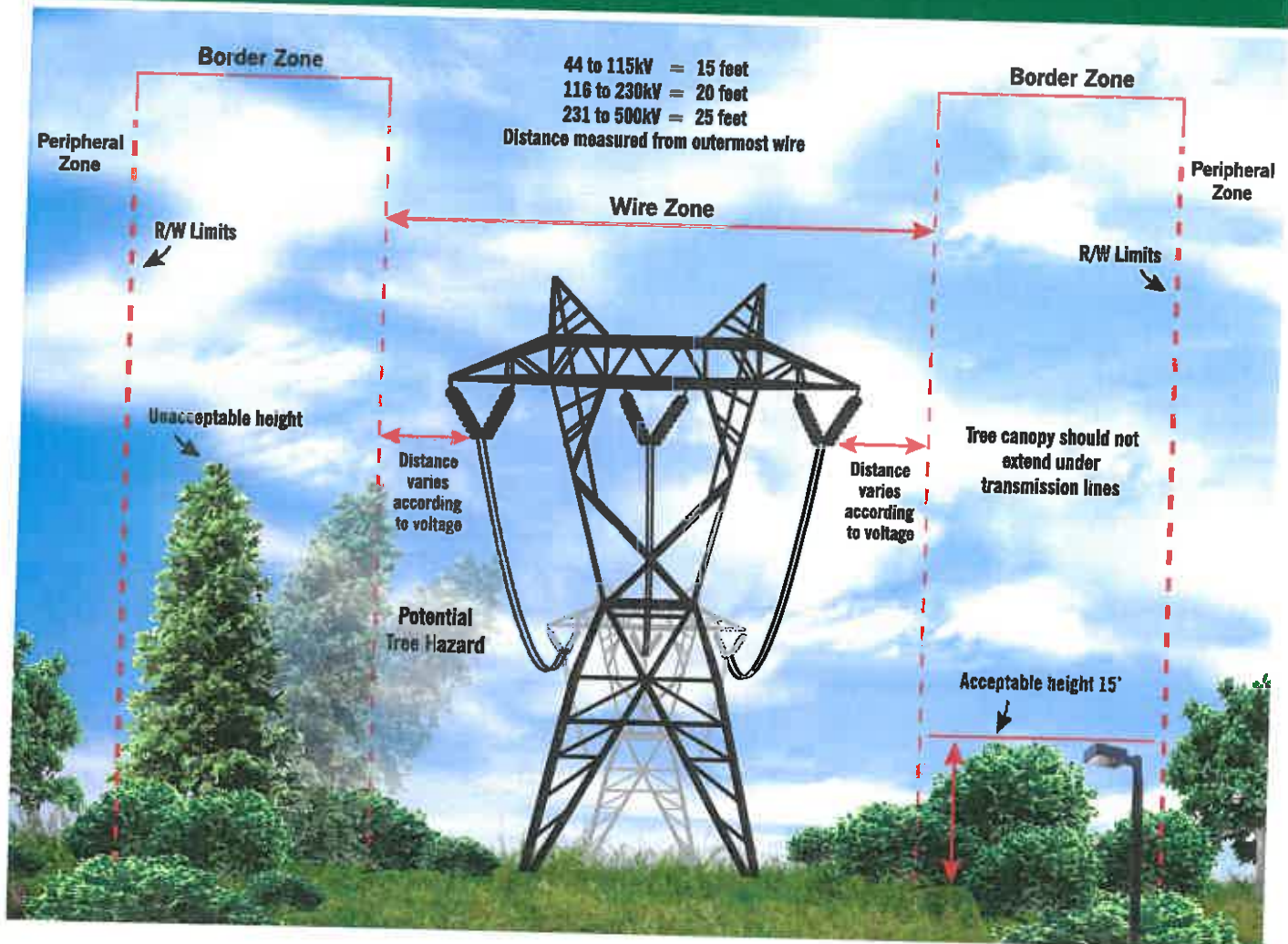
ELECTRIC TRANSMISSION RIGHT-OF-WAY GUIDELINES/RESTRICTIONS VALID FOR OHIO, INDIANA AND KENTUCKY (Revised 11/20/14)

This list of right-of-way restrictions has been developed to answer the most frequently asked questions about property owner use of Duke Energy's electric transmission rights of way. This list does not cover all restrictions or all possible situations. You should contact the Asset Protection right-of-way specialist if you have additional concerns about the rights of way. This list of restrictions is subject to change at any time and without notice. Duke Energy reserves all rights conveyed to it by the right-of-way agreement applicable to the subject property. All activity within the rights of way shall be reviewed by an Asset Protection right-of-way specialist to obtain prior written approval. Engineering plans may be required. Compliance with the Duke Energy Right-of-Way Guidelines/Restrictions or approval of any plans by Duke Energy does not mean that the requirements of any local, county, state or federal government or other applicable agency with governing authority have been satisfied.

1. Structures, buildings, manufactured/mobile homes, satellite systems, swimming pools (and any associated equipment and decking), graves, billboards, dumpsters, signs, wells, deer stands, retaining walls, septic systems or tanks (whether above or below ground), debris of any type, flammable material, building material, wrecked or disabled vehicles and all other objects (whether above or below ground) which in Duke Energy's opinion interfere with the electric transmission right of way are not allowed within the right-of-way limits. Transformers, telephone/cable pedestals (and associated equipment) and fire hydrants are not allowed. Manholes, water valves, water meters, backflow preventers and irrigation heads are not permitted. Attachments to Duke Energy structures are prohibited.
2. Fences and gates shall not exceed 10 feet in height and shall be installed greater than 25 feet from poles, towers and guy anchors. Fences shall not parallel the centerline within the rights of way but may cross from one side to the other at any angle not less than 30 degrees with the centerline. If a fence crosses the right of way, a gate (16 feet wide at each crossing) shall be installed by the property owner, per Duke Energy's specifications. The property owner is required to install a Duke Energy lock on the gate to ensure access. Duke Energy will supply a lock.
3. Grading (cuts or fill) shall be no closer than 25 feet from poles, towers, guys and anchors (except for parking areas; see paragraph 7) and the slope shall not exceed 4:1. Grading or filling near Duke Energy facilities which will prevent free equipment access or create ground-to-conductor clearance violations will not be permitted. Storage or stockpiling of dirt or any construction material is prohibited. Sedimentation control, including re-vegetation, is required per state regulations.
4. Streets, roads, driveways, sewer/water lines, other utility lines or any underground facilities shall not parallel the centerline within the right of way but may cross, from one side to the other, at any angle not less than 30 degrees with the centerline. No portion of such facility or corresponding easement shall be located within 25 feet of Duke Energy's facilities. Roundabouts, cul-de-sacs and intersections (such as roads, driveways and alleyways) are not permitted.
5. Any drainage feature that allows water to pond, causes erosion, directs stormwater toward the right of way or limits access to or around Duke Energy facilities is prohibited.
6. Contact Duke Energy prior to the construction of lakes, ponds, retention or detention facilities, etc.
7. Parking may be permitted within the right of way, provided that:
 - a. Prior to grading, concrete barriers shall be installed at a minimum of 9 feet from the Duke Energy facilities. During construction, grading shall be no closer than 10 feet to any Duke Energy facility.
 - b. After grading/paving activity is complete, Duke Energy-approved barrier sufficient to withstand a 15-mph vehicular impact shall be erected 9 feet from any Duke Energy facility.
 - c. Any access areas, entrances or exits shall cross (from one side to the other) the right of way at any angle not less than 30 degrees with the centerline and shall not pass within 25 feet of any structure. Parking lot entrances/exits cannot create an intersection within the right of way.
 - d. Lighting within the right-of-way limits must be approved by Duke Energy before installing. Due to engineering design standards, lighting is not allowed in the "Wire Zone." Where lighting is approved ("Border Zone"), the total height may not exceed 15 feet. Contact your Asset Protection right-of-way specialist as the "Wire Zone" varies for the different voltage lines.
8. Duke Energy will not object to certain vegetation plantings as long as:
 - a. They do not interfere with the access to or the safe, reliable operation and maintenance of Duke Energy facilities.
 - b. With prior written approval, Duke Energy does not object to low-growing shrubs and grasses within the "Wire Zone." Tree species are not allowed within the "Wire Zone." Trees that are approved in the "Border Zone" may not exceed, at maturity, 15 feet in height. Contact the Asset Protection right-of-way specialist for "Wire Zone"/"Border Zone" definitions.
 - c. For compliant mature height species, refer to plantfacts.osu.edu/plantlist/index.html for reference.
 - d. Engineering drawings must indicate the outermost conductors.
 - e. Vegetation that is not in compliance is subject to removal without notice.
 - f. Duke Energy may exercise the right to cut "danger trees" outside the right-of-way limits as required to properly maintain and operate the transmission line.

We hope this is useful information. If you have additional questions or plan any activity not mentioned above, please contact the Asset Protection right-of-way specialist for your area (see map).

Transmission Right-of-way Zones - Midwest



Wire Zone: Extends beyond the outermost conductor on both sides. (See diagram above.)

Permitted within the Wire Zone: Low-growing plants, shrubs and grasses.
Not permitted within the Wire Zone: Tree species of any kind.

Border Zone: Extends from the edge of the Wire Zone to the outside edge of the Right of Way.

Permitted within the Border Zone: Lighting structures and plantings within the Right of Way that do not exceed a vertical height of 15 feet. For compliant mature height species, refer to plantfacts.osu.edu/plantlist/index.html.

Not permitted within the Border Zone: Any object that exceeds vertical height restrictions. These restrictions are based on flat ground elevations. If the ground elevations differ, no object at any time may exceed the outermost conductor's ground elevation.

Peripheral Zone: Outside the Right of Way and adjacent to Border Zones.

Permitted within the Peripheral Zone: Trees may be planted in the Peripheral Zone. Duke Energy recommends customers exercise caution selecting and planning trees in this zone.

Not permitted in the Peripheral Zone: Trees with canopies are subject to routine trimming and possible removal.

In all zones:

When an outage risk is identified, Duke Energy will attempt to notify the affected customer. However, the company may need to take immediate action if trees cannot be pruned to appropriate levels. This may include trees and shrubs that are within 20 feet of the power line at the maximum peak load or during weather conditions that create line sag and sway.

Written approvals by Duke Energy are required for all plans.

We hope this is useful information. If you have additional questions on line voltages or plan any activity not mentioned above, please contact the Asset Protection Specialist for your area. (See Map)

*Right of Way is intended to reference the easement rights granted to Duke Energy. Actual zone size may vary based upon the particular Right of Way.

Why must Duke Energy remove trees?

Reliable electricity is important to our customers



Trees are part of the natural beauty of the Midwest. Duke Energy recognizes the important role trees play in enhancing the beauty of communities and contributing to the quality of life for our customers in Indiana, Ohio and Kentucky. While the trees that thrive throughout the 26,054 square miles of our service area are a tremendous source of pride, trees and limbs that fall into power lines also are the number one cause of power outages.

Our customers want reliable power – in both good and bad weather. It's our responsibility to ensure power lines that transmit electricity are free from trees, overgrown shrubbery and other obstructions that can prevent continuous, safe and reliable electric service to the more than 1.6 million Midwest customers who depend on us 24 hours a day. Trees that are close to power lines must be trimmed or removed so they don't disrupt electric service to households, businesses, schools and hospitals.

Our crews use a variety of methods to manage vegetation growth along distribution and transmission power line rights of way, including vegetation pruning, tree removal and herbicides. These approaches are based on widely accepted standards developed by the tree care industry for maintenance and operations and approved by the American National Standards Institute (ANSI).

Transmission rights of way

High-voltage transmission lines provide large amounts of electricity over long distances. The transmission lines in your community are part of the larger, interconnected grid system that powers an entire region, not just the community through which the lines run. Federal rules are more stringent for some transmission lines, depending on the voltage, and may include fines up to \$1 million per day for tree-related outages. We manage our grid to provide reliable operation of transmission facilities while adhering to regulations and easement rights.

Distribution rights of way

Distribution lines carry power from local substations to homes and businesses. An electric distribution right of way may also contain other utilities (electric, telephone, cable, water and/or gas) that must be maintained as well. Duke Energy manages rights of way to provide reliable delivery of electricity.

Vegetation Management methods

We use an Integrated Vegetation Management approach, which includes careful pruning, selective herbicidal application and tree removal. This allows us to proactively evaluate power line areas and determine the best method for maintaining reliable service. The objective of an Integrated Vegetation Management program is to maintain the lines – before the trees and brush are close enough to cause outages – in a manner that's consistent with good arboricultural practices.

Maintaining rights of way

Well-maintained rights of way help prevent power outages and allow our vehicles and personnel to safely access our electrical equipment for operations, maintenance and storm response. By maintaining vegetation around our equipment, we can get our customers' power restored more efficiently and safely.

Maintaining easements

Easements allow us access to mow, prune or cut down vegetation that may interfere with our transmission equipment and the ability to deliver safe reliable power. They also give us the space we need to build new equipment to meet the future energy demands of our customers.

Sometimes public and private entities plant trees in the easements that impede our ability to operate and maintain these critical assets. Trees planted outside of a right of way also can grow into our easement and endanger our equipment. We recommend that you only plant grass in an electric transmission rights of way or easement.

Why trimming doesn't always work

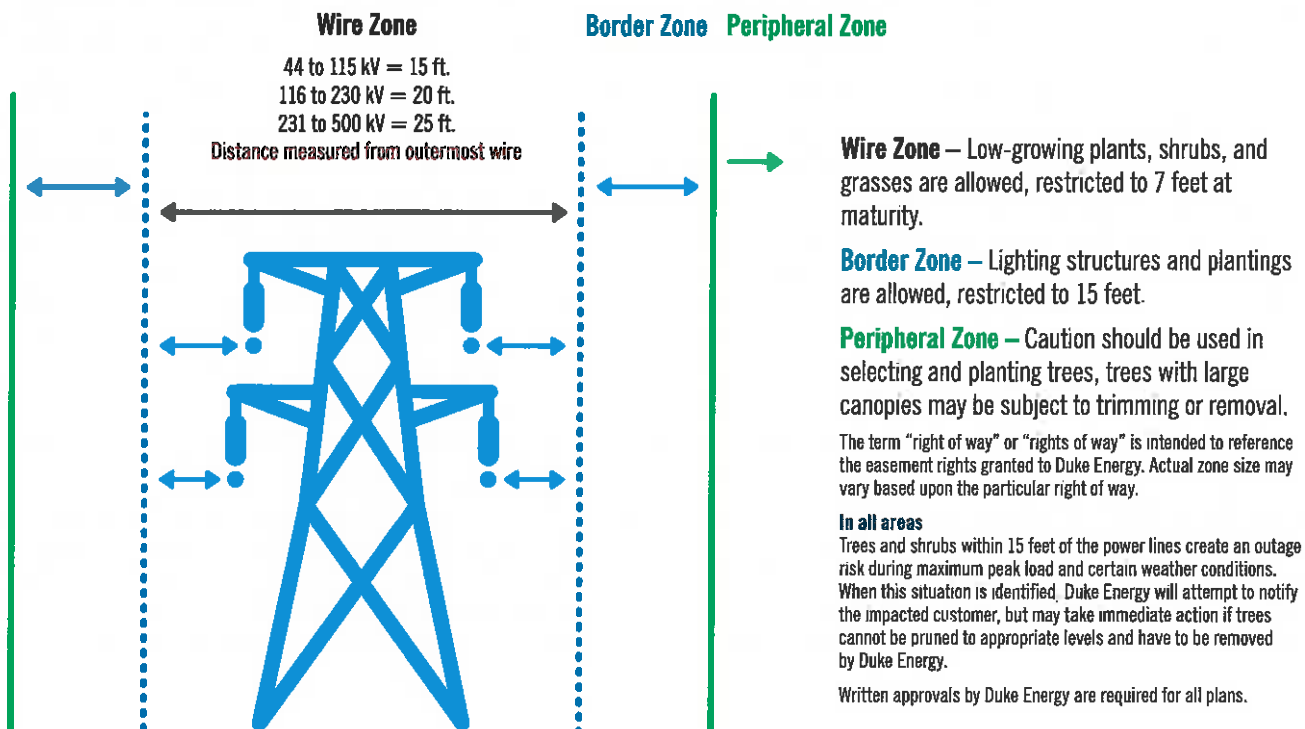
We're often asked why we remove some trees instead of trimming them. Trimming is not always healthy for the trees.

Duke Energy has thousands of miles of right of way to maintain; even with the latest technology, some fast-growing tree species can outpace our ability to keep them in check. When we have to cut down trees, we take care to leave the area in the same condition as we found it.

Before planting, visit our right-of-way website at duke-energy.com/safety/right-of-way-management.asp. To report trees growing into power lines, visit duke-energy.com/indiana/outages/tree-trimming.asp and fill out the online form.

Questions? Please call 866.385.3675 to ask for a Duke Energy transmission forester to contact you.

Transmission Right-of-Way Zones:



BEFORE**THE PUBLIC UTILITIES COMMISSION OF OHIO**

In the Matter of the Application of Duke)
 Energy Ohio, Inc., for Approval of)
 Revised Paragraph (f) of its Proposed) Case No.16-915-EL-ESS
 Programs for Inspection, Maintenance)
 Repair and Replacement of Distribution)
 and Transmission Lines.)

**APPLICATION OF DUKE ENERGY OHIO, INC. FOR APPROVAL OF
 REVISED PARAGRAPH (F) OF ITS PROGRAMS
 FOR INSPECTION, MAINTENANCE, REPAIR AND REPLACEMENT
 OF DISTRIBUTION AND TRANSMISSION LINES**

The Public Utilities Commission of Ohio (Commission) regulations provide that each “electric utility and transmission owner shall establish, maintain, and comply with written programs, policies, procedures, and schedules for the inspection, maintenance, repair, and replacement of its transmission and distribution circuits and equipment,” Rule 4901:1-10-27(E)(1). Further, the rules provide that all revisions or amendments requested by an electric utility shall be filed with the commission as outlined in paragraph (E)(2) of the rule. Pursuant to Rule 4901:1-10-27(E)(2), Duke Energy Ohio, Inc. (Duke Energy Ohio) hereby submits a requested change to the language contained within its currently approved inspection, maintenance, repair and replacement programs.

Specifically, Duke Energy Ohio has deleted the language contained only in paragraph (f) and replaced it with a new paragraph (f), “Overhead Electric Line Vegetation Management.” Changes to this section were made simply to clarify and make the terms more coherent. There are no substantive changes to the program. For these reasons, Duke Energy Ohio respectfully requests that the Commission approve these changes as requested. A redlined version of the edited section that is included within the overall program terms is attached as Exhibit 1.

Respectfully submitted,

DUKE ENERGY OHIO, INC.



Amy B. Spiller (0047277)
Deputy General Counsel
Elizabeth H. Watts (0031092)
Associate General Counsel

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4901:1-10-27 (E)(1) Inspection, maintenance, repair, and replacement of transmission and distribution facilities (circuits and equipment).

(a) Poles and Towers

Duke Energy Ohio shall inspect all DEO owned poles on a 10 year schedule and treat, repair or replace as needed. Poles and towers shall be visually inspected in compliance with inspection program 4901:1-10-27 (D)(1),(2). The goal shall be to maintain adequate strength and integrity of poles and towers per the National Electrical Safety Code. Based on the inspection results, repair work orders shall be prepared as needed and tracked until complete.

All equipment and hardware on poles shall be inspected as follows: Duke Energy shall check condition of base of the pole for rotting, termites, and other abnormalities. Poles involved with landslides or "wash outs", leaning for any reason; objects hanging on or near pole; burning pole, cross-arms, and/or braces; ground wire broken; cross-arms or broken braces; bird holes; and vehicular damage. Communities or municipalities often have permission to post/attach traffic control and similar signs on utility poles. Business, political, and yard sale or similar signs shall be removed.

Refer to Exhibit A for complete pole inspection specifications.

Towers shall be inspected as follows: Duke Energy Ohio will inspect for loose, bent, rusty, or missing steel; Duke Energy Ohio shall inspect numbers and "Danger Hi-Voltage" signs; base of tower rusted; involved with landslides or "wash outs"; objects hanging on or near tower; and flashings lights on tower (FAA).

(b) Circuit and Line Inspections

The distribution inspection program shall consist of a driving or walking visual inspection. All distribution circuits shall be inspected on a 5-year schedule as part of the distribution inspection program 4901:1-10-27(D)(1),(2). Inspectors shall document physical defects or other potential hazards to the safe and reliable operation of the circuits. Based on the inspection results, those findings that are determined to be critical will be immediately reported for assessment and repair. Otherwise, repair work orders are prepared as needed and tracked until complete.

Refer to Exhibit B for LEVEL definitions and examples.

When LEVEL 1 (L1) situations are found, the inspector will contact the appropriate district Work Coordinator immediately. If there is no answer, the inspector will leave a message and contact the appropriate District Supervisor and provide complete, detailed and thorough as possible description of the situation found when entering details into eMax. eMax is Duke Energy's computerized maintenance management system in which Duke Energy maintains centralized records of all equipment and maintenance performed on that equipment. This will assist Transmission & Distribution Construction personnel in evaluating the situation.

Two-pole conditions are those where in the field, two poles sit side by side and where one pole is in the process of being removed/changed out. Duke Energy Ohio shall log two-pole conditions into eMax when found in the field. Enter pole numbers, physical location, and

attachments; type and number of attachments. Deteriorated "Elephant Ear" cutouts, deteriorated "Fuzzy Barrel" fuse tubes, taped fuse tubes, and deteriorated, checked or cracked Durabute ("Chicken Wing") cutouts should be logged as a priority LEVEL 3 (L3).

(c) **Primary enclosures (e.g., pad-mounted transformers and pad-mounted switch gear) and secondary enclosures (e.g., pedestals and hand holes)**

The distribution inspection program shall consist of a visual inspection. All pad-mounted transformers, secondary pedestals, hands holes and primary switchgear shall be inspected on a 5-year schedule as part of the distribution inspection program 4901:1-10-27(D)(1). Inspectors shall document physical defects or other potential hazards to the operations of the transformers, switch gear, and secondary enclosures. This inspection shall identify exterior physical defects in equipment or potential hazards such as transformers that are rusted, leaking, oil-stained, have broken hinges, missing locks and/or bolts. Based on the inspection results, repair work orders shall be prepared as needed and tracked until complete.

Refer to Exhibit C for priority definitions.

In eMax, the term "TRANSFORMER" – "OTHER" shall be used to refer to damage(s) to box pads.

(d) **Line reclosers**

Line reclosers and sectionalizers shall be visually inspected each year. The units shall be inspected for signs of damage or deterioration and the operations-counter readings shall be recorded. Items to look for are black or burnt marks on equipment and/or molten metal, indicating that a flash has occurred at the recloser installation. Based on the inspection results, repair work orders shall be prepared as needed and tracked until complete.

A Commissioning Test is performed on all newly installed electronically controlled reclosers. Hydraulic under oil units shall be removed from service every 6 years for maintenance. Vacuum under oil units shall be removed from service every 7 years for maintenance. Work Orders shall be initiated for annual inspections of reclosers. Inspectors shall visually inspect the recloser site for issues, document the counter reading, etc. The inspectors then shall enter the Work Order information into an Excel spreadsheet.

(e) **Line capacitors**

Electronic remote monitoring will replace the annual visual inspection wherever the capability has been installed and activated. Distribution line capacitors will still be reviewed visually within the existing requirements of the 5 year line patrol program.

As part of the Duke Energy SmartGrid Capacitor upgrades, Duke Energy has implemented two components for monitoring the status of capacitors. The first component is through our DMS system. Alarms are received from capacitors, through DMS, and alert our operators to take action. The second component is CapCentral. CapCentral is a software program that queries historical data in our PI database and identifies trends that need to be addressed.

DMS

The DMS system is set up to receive two types of alarms. We intentionally limited the types of alarms in DMS to those conditions where an operator would need to take action, for the health of the system.

- 1.) **High/Low Voltage Alarm** - If too many capacitor banks are in service on the system during low load conditions then a voltage rise on the system occurs. If there are not enough capacitors on the system during peak load conditions then low voltage may occur. In both of these conditions, an operator would need to take action to bring the system back into normal operating conditions.

High Neutral Current Alarm - This occurs when one or two phases of the three phase capacitor bank is removed from service. This can be caused by a fuse operating or a switch failing to close. In this case, because of the voltage imbalance introduced, the operator removes the bank from service. After repairs are completed the bank is restored to service.

CapCentral

The CapCentral system is set up to help us maintain oversight over our fleet of capacitors on our system, based on historical data reported by the capacitor and stored in our PI database. The data points we query do not need immediate action by an operator to maintain the health of the system, but they are data points that give indication to the health of our system and fleet of capacitors. The data points we query using CapCentral are: Delta Voltage, Frequency of Operations, High/Low Voltage, Self Diagnostic, Remote Manual, Loss of Communications, and High Neutral Current.

Based on the results of monitoring the statuses of these capacitors, repair work orders are prepared as needed and tracked until complete.

The repair intervals for issues found during an inspection are the same duration as Circuit and Line inspections. A LEVEL 1 (L1) = 72 hours, LEVEL 3 (L3) = 60 working days maximum, LEVEL 5 (L5) = 6 to 12 months, and LEVEL 7 (L7) = no time frame, not a safety or reliability issue. The repair work for Level 7 issues shall be completed when other equipment is repaired at that location.

(f) Overhead Electric Line Vegetation Management

The following overhead electric line vegetation management requirements are intended to establish minimum clearing cycles by Duke Energy Ohio, and minimum clearances of vegetation from Duke Energy Ohio overhead electric line facilities following such clearing cycles. These requirements shall not be construed to limit Duke Energy Ohio's right to cut down and remove vegetation from a Duke Energy Ohio corridor when Duke Energy Ohio has the legal right to do so, e.g., statute, recorded easement grant, easement by prescription, license, condemnation order, etc.

Distribution Clearing Cycle – Duke Energy Ohio shall clear vegetation away from its distribution lines at least once every four years which may include cutting down and removing vegetation from a Duke Energy Ohio corridor when Duke Energy Ohio has the legal right to do so. The goal shall be to help maintain and improve safe and reliable electric service by limiting

or eliminating the possibility of contact by vegetation which has grown towards the overhead distribution lines.

Transmission Clearing Cycle – Duke Energy Ohio shall clear vegetation away from its transmission lines (69KV and above) at least once every six years which may include cutting down and removing vegetation from a Duke Energy Ohio corridor when Duke Energy Ohio has the legal right to do so. The goal shall be to help maintain and improve safe and reliable electric service by limiting or eliminating the possibility of contact by vegetation which has grown towards the overhead transmission lines.

Minimum Distribution Line Clearances

- For any two phase or three phase primary distribution line, vegetation shall be no closer than ten feet to an energized conductor when the clearing is completed. In addition, Duke Energy Ohio shall remove any “unsuitable” branch above the distribution line even though it is located more than ten feet away from an energized conductor. An “unsuitable” branch above the distribution line includes one which is either weak, diseased or decaying, or is part of a tree which is.
- For any single phase primary distribution line, vegetation shall be no closer than ten feet to an energized conductor when the clearing is completed. In addition, Duke Energy Ohio shall remove any branch above the distribution line even though it is located more than ten feet away from an energized conductor if it is within an area 15 feet from the energized conductor measured at a 45 degree angle.
- For any open wire secondary distribution line (without a primary distribution line and excluding a service drop), vegetation shall be no closer than five feet to an energized conductor when the clearing is completed.
- For any triplex or street light distribution line (excluding a service drop), vegetation shall be no closer than twelve inches to an energized conductor when the clearing is completed.
- Duke Energy Ohio shall have no responsibility to clear vegetation from a service drop.

Minimum Transmission Line Clearances

- For any transmission line (69kV and above), vegetation shall be no closer than fifteen feet to an energized conductor when the clearing is completed. In addition, Duke Energy Ohio shall remove any branch above the transmission line even though it is located more than fifteen feet from any energized conductor.

Minimum Transmission Line Overbuild Clearances

- For any transmission line (69KV and above) which is located above any distribution line on the same supporting structure, vegetation shall be no closer than fifteen feet to an energized conductor on either line. In addition, Duke Energy Ohio shall remove any branch above the transmission line even though it is located more than fifteen feet from any energized conductor.

~~(f) Right-of-way vegetation management~~

~~Distribution Vegetation Management—Duke Energy Ohio shall perform vegetation line clearing on distribution circuits at least once every four years. The goal shall be to help provide maintain and improve safe and reliable electric service by limiting contact between vegetation and power lines.~~

~~Transmission Vegetation Management—Duke Energy Ohio shall provide vegetation line clearing on transmission circuits at least once every six years. The goal shall be to help provide maintain and improve safe and reliable electric service by limiting contact between vegetation and power lines.~~

~~For two phase and three phase primary lines, side clearances shall be at least ten feet from tree branches to nearest conductor. Duke Energy Ohio shall remove unsuitable overhanging/encroaching limbs/branches above the conductor. Unsuitable overhanging/encroaching limbs/branches includes limbs that are smaller diameter, weak, diseased, or decaying, or are positioned in a horizontal manner. Mature, well-established hardwood trees with structurally sound overhanging limbs or branches greater than six inches diameter may remain. At least Ten feet clearance shall be obtained from the lowest conductor to the nearest vegetation for trees underneath the primary.~~

~~For transmission lines 69kV and above, side clearances should provide a minimum of fifteen feet clearance from the tree branches to the nearest conductor. Duke Energy Ohio shall remove overhanging or encroaching branches above the conductor. For trees underneath the primary, Duke Energy Ohio shall maintain a fifteen feet minimum clearance from the lowest conductor to the nearest vegetation.~~

~~For over builds, where there are transmission circuits on the same structure as the distribution circuits, the circuits shall be trimmed to fifteen feet clearance from the tree branches to the nearest conductor of each circuit.~~

~~For single phase lines, side clearances shall be provided ten feet clearance from the tree branches to the nearest conductor. For overhang on a single phase line, all live branches above the conductors shall be removed to a minimum height of fifteen feet above the nearest conductor, and at a 45 degree angle. Duke Energy Ohio shall remove all branches that will could potentially become overhang and lighten up remaining overhang and remove all dead and structurally weak branches overhanging any primary voltages. Underneath the primary, Duke Energy Ohio shall maintain at least a ten foot clearance from the lowest conductor to the nearest vegetation.~~

~~For open wire secondary (without primary), open wire secondaries shall be pruned to obtain a minimum of five feet of clearance around the conductors. Other secondaries and (excluding service drops) shall be pruned to remove any obvious line damaging limbs. These would be limbs of a size substantial enough that through continued rubbing or pressure due to weight will likely lead to service interruptions.~~

~~For open wire or triplex services, and street lighting, all service and street light wires shall have a twelve inch swing clearance to move without obstruction. Any limbs large enough to create pressure on these conductors, such that the conductor is pushed out of normal "sag" configuration, shall be removed back to qualified lateral.~~

~~All vines are to be cut down from all electric poles and guy wires. Vines are to be cleared at least ten feet off the ground and stump chemically treated.~~

~~Special clearances: Down, span, and other guys shall be free of weight, strain, or displacement because of pressure caused by contact with tree parts, particularly of fast growing trees. Vines shall be removed from guys and poles. Working clearance from trees shall be obtained around transformers, cross arms, and risers. In addition, to the amount of separation between conductors and trees specified above, allowance shall be made for wire sag and horizontal displacement due to weather extremes and high winds, maximum of wire sag and sway occurs at span centers. All tree pruning and removal should be done accordingly.~~

~~Poles with switching mechanisms, transformers, or other mechanical equipment for the electric system installed in the right of way or that are not accessible by bucket truck shall be cleared from ground to sky to a minimum ten foot radius.~~

~~Leaning, weakened, or dead trees outside of the clearance requirements, which pose an imminent threat to the adjacent electric equipment, shall be identified by the Contractor and brought to the Duke Forester's attention. The Duke Forester may authorize the removal of such trees on a time and material basis but in the absence of a legal right to remove and excluding an emergency situation, no removal may take place until Contractor has contacted and received approval from the property owner or agent to remove such trees.~~

~~When performing routine circuit line clearing, all unsuitable trees twelve inches diameter breast height (DBH) or less with the trunk within ten feet of the conductor shall be removed where permissible by the property owner or Township but in the absence of a legal right to remove, and excluding an emergency situation, no removal may take place until Contractor has contracted and received approval from the property owner or agent to remove such trees. Removal of trees greater than twelve inches DBH must be approved by a Duke Forester prior to beginning the work. Removal of all trees with the trunk more than ten feet from the conductor should be approved by a Duke Energy Forester prior to the beginning the work. In the absence of a legal right to remove, and excluding an emergency situation, a signed permission notice must be obtained from the property owner or their agent prior to removing such trees or brush. Removals of secondary and service wires should not be performed unless there are extenuating circumstances that are approved by the Duke Energy Forester prior to beginning the work. In most cases, on secondary and service wires customers should be informed that they may request the temporary disconnection of the conductor so the customer can then make arrangements for the tree's removal. Contractor shall utilize the most efficient and cost effective methods available to perform the removals including, but not limited to, cutting, mowing, hand cutting, and chemical applications. All stumps from downed trees shall be treated with herbicides where applicable and possible.~~

(g) Substations

All Duke Energy safety rules shall be observed when entering any substation:

Appropriate Personal Protective Equipment

Minimum Approach Distance

Personal Protective Grounds

Special Precautionary Techniques

Environmental Rules and Regulations

Station Visual Inspection

Substation visual inspections shall be performed once a month. These visual inspections and recorded readings can help indicate the need for maintenance on a piece of equipment, reasons for unplanned outages, the presence of unbalanced or overloaded circuits, and the presence of potentially dangerous situations. Bus structure, circuit breakers, transformers, the control building, and the general yard are specific items that shall be covered under the station visual inspection.

Visual inspections of the bus structure and the equipment mounted in the structure are performed every time the substation is entered. When performing the inspection, items or conditions that appear abnormal should be closely inspected, such as a sudden change in color on the bus structure which could indicate a spot where flashing has occurred or where overheating has occurred. The connection points and lines of a static line shall be visually checked for damage. Insulators, bushings, and arresters are checked for breakage, cracking or

discoloration. Air break, load break or disconnect switches are visually inspected to ensure that they are properly seated if closed and that padlocks are in place and locked. Wave traps, coupling capacitor transformers, potential transformers, fault bus and other equipment mounted on the bus structure shall be checked for signs of overheating, loose connections, vandalism, corrosion, dirt, and lightning strikes. Steel structures are also inspected for signs of excessive rust, cracks, excessive vibration and debris.

Visual inspections on circuit breakers will vary depending on the type/model of the circuit breaker. The overall appearance of the circuit breaker shall be visually checked for anything abnormal such as cracks, chips, or oil leaks. High/low gas pressures and temperatures, air pressure, oil level, counter numbers, elapsed time readings on the compressors, and compressor oil level are all checked and recorded. The semaphore indications shall also be checked to ensure true circuit breaker status.

The overall appearance of the transformer shall be visually checked for anything abnormal such as oil leaks, fans and pumps not operating, and bushings that are cracked, chipped, or leaking. The main tank and load tap changer liquid temperatures and winding temperatures are checked and recorded. Lightning arresters are also checked and the counters are recorded if applicable. The load tap changer compartment and controls are checked for signs of damage and correct automatic operation. The Mulsifyre® system, a high velocity water spray system, and nitrogen supplies are checked and valves are opened to ensure the system is in a state of readiness.

The yard shall be visually inspected for damage and deterioration from vandalism, accidents. The general appearance of the yard shall be checked for excessive vegetation and equipment appearance. The yard lights shall be visually checked and any bulbs that are blown are replaced. The bottom of the perimeter fence shall be checked for excessive height above ground.

Equipment in control buildings shall be visually inspected and readings recorded. An operator shall visually check all relays for targets and records information and resets targets. This person shall also ensure that primary relay and backup relay indicating lights are lit and checks the remainder of indicating lights to ensure they agree with equipment status. The annunciator panel shall be tested to ensure all lamps are operational and alarm cutout switches closed unless tagged. The control panel switches are checked to ensure they are in the proper position. The operator shall also change charts and records date, time, and initials the chart where applicable. Digital fault recorder targets shall be checked and reset as necessary. The fault bus shall be tested to ensure the voltage level is approximately 15 volts. Power station panels shall be checked for tripped breakers or breakers placed in the wrong position. Station power supplies are checked to ensure both the normal and reserve power sources are available and the DC control panels shall be checked to ensure switches are in the proper position. The substation batteries and battery charger shall be visually inspected. Fire extinguishers shall be visually inspected to ensure acceptable pressure in the tank

Infrared Inspection

An infrared scan of substation equipment shall be performed annually. All outdoor substation equipment shall be scanned using suitable infrared detection equipment to check for signs of abnormal heating or below normal expected temperature. Abnormal heating may be caused by high resistance connections, excessive loading, restricted air or oil flow, or deteriorated equipment. Below normal temperatures can be caused by unbalanced loading, restricted air or oil flow, or device malfunction.

Bus conductor, connectors, fittings, fuses, bushings, lightning arresters, switches, transformer case and auxiliary equipment, circuit breaker interrupter tanks, line neutral and static connections and power cable terminations shall be scanned for abnormalities. Control and relay cabinet doors shall be opened to scan circuit breakers, contactors, control wiring, fuses, heaters, relay terminals, and terminal blocks. Station batteries shall be checked for uneven heating, high resistance connections, and contamination losses. The thermography and field repair records shall be reviewed and analyzed to determine cause.

Power Factor Testing

Power factor tests shall be performed on a time period from 2 – 9 years based on station equipment type/size/condition/criticality. Power factor tests establish baseline readings on new equipment for future reference when tests are performed to evaluate the integrity of equipment at later date.

Refer to Exhibit E for power factor intervals.

The guidelines set forth in the Power Factor Test Set instructions are followed. The readings from the Power Factor Test Set shall then be recorded for future assessment or compare readings to evaluate the piece of equipment being tested.

Dissolved Gas Analysis Testing – Transformer and Transformer Load Tap Changer Oil Sampling

A dissolved gas analysis test shall be performed on transformers with a 3-phase rating 7.5 MVA – 49.9 MVA once per year. A dissolved gas analysis test shall be performed on transformers with a 3-phase rating 50 MVA and larger twice per year. The dissolved gas analysis determines the gas levels within the insulating oil and overall health of the transformer.

A dissolved gas analysis test shall be performed on transformer load tap changers once per year for GE: LRT200-2 w/fiberglass drum, LRT300 and LRT500, Reinhausen: RMV-A and RMV-II, Westinghouse: UVT. A dissolved gas analysis test shall be performed on transformer load tap changers twice per year for ABB: UZE w/filter, Allis Chalmers: SJ5 w/filter and TLF w/filter, ASEA/Waukesha: UZD w/filter, GE: LRT48 w/filter, LR65 w/filter, LRT65 w/filter, LRT68 w/filter, LRT72 w/filter, LR83 w/filter, LRS83 w/filter, and LRT83 w/filter, McGraw Edison: V2PA, Westinghouse: UNR w/filter, URS w/filter, URT w/filter, and UTS w/filter, also twice per year for ABB: UZE no filter, Allis Chalmers/Siemens: TLB w/filter and TLH-21 w/filter, Allis Chalmers: SJ5 no filter and TLF no filter, ASEA/Waukesha: UZD no filter, Federal Pacific: TC546 w/filter, TC525 w/filter, and TC25E w/filter, GE: LRT200 w/paper drum, LRT48 no filter, LR65 no filter, LRT65 no filter, LRT68 no filter, LRT72 no filter, LR83 no filter, LRS83 no filter, and LRT83 no filter, McGraw Edison: 394

w/filter, 550 w/filter, 550B w/filter, and 550C w/filter, Moloney: T-MB w/filter, TC-MA w/filter, TC-MB w/filter, TC-MC w/filter, Westinghouse: UNR no filter, URS no filter, URT no filter, UTS no filter, and UTT w/filter. A dissolved gas analysis test shall be performed on transformer load tap changers three times per year for Allis Chalmers/Siemans: TLB no filter and TLH-21 no filter, Federal Pacific: TC546 no filter, and TC25E no filter, McGraw Edison: 394 no filter, 550 no filter, 550B no filter, and 550C no filter, Moloney: T-MB no filter, TC-MA no filter, TC-MB no filter, TC-MC no filter, and Westinghouse: UTT no filter. The dissolved gas analysis determines the gas levels within the insulating oil and overall health of the load tap changer.

Circuit Breaker Inspection

A circuit breaker inspection shall be performed every 3 years for all air, vacuum, gas, and oil circuit breakers. The purpose of this inspection is to provide a non-intrusive method of evaluating the circuit breaker to ensure its integrity.

Metal Enclosed Capacitor Assemblies

Metal enclosed capacitor assemblies without unbalanced protection shall be internally inspected each year and every 3 years for metal enclosed capacitor assemblies with unbalanced protection. The capacitors within enclosures shall be inspected to ensure equipment is functioning properly.

Capacitors must be de-energized for a minimum of five minutes before they are grounded. Duke Energy Ohio shall check isolation and check voltage and ground after five minutes. Duke Energy Ohio shall check all electrical connections, check capacitor fuses and replace blown fuses after checking capacitor with capacitor tester and check fuse clips and all ground connections. Duke Energy Ohio shall inspect capacitors for any damage or leaking cases, broken or cracked bushings, and replace if necessary. Duke Energy Ohio shall clean and inspect insulators for damage and repair/replace if necessary. If isolation permits, clean and lubricate disconnect switch and ground disconnect if equipped. Duke Energy Ohio shall clean and inspect neutral pot for damage and repair/replace if necessary and clean and inspect capacitor structure or enclosure for damage and clear isolation and return equipment to service.

Planned Maintenance

Planned Maintenance work (i.e. MAXIMO Work Type "PM") shall be completed and the associated MAXIMO work order closed within the following time interval from the date on which the work order was generated:

<u>PM Frequency/Interval¹</u>	<u>Work Order Should Be Completed Within</u>
1 Week or Less	1 Week
1 Month	Within the calendar month in which work order generated.
3 Months	30 Days
6 Months	60 Days
1 Year	90 Days
3 Years	1 Year
6 Years or Greater	2 Years
Relays (all frequencies)	12 months after the due date in the Aspen relay database.

Note 1: For PM frequencies/intervals that fall between those shown in this table, the next lower interval from this table will apply.

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Case No(s). 16-0915-EL-ESS

Summary: Application Application of Duke Energy Ohio, Inc., for Approval of Revised Paragraph (f) of its Programs for Inspection, Maintenance, Repair and Replacement of Distribution and Transmission Lines electronically filed by Dianne Kuhnell on behalf of Duke Energy Ohio, Inc. and Spiller, Amy B. and Watts, Elizabeth H.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

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in

Case No(s). 17-2344-EL-CSS

Summary: Testimony Direct Testimony of Tim Back on Behalf of Complainants electronically filed by Mrs. Kimberly W. Bojko on behalf of Complainants