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## CASE CITIZENS AGAINST CLEAR CUTTING V DUKE ENERGY

**HELD** 

November 2, 2018

WITNESS
KEVIN MCLOUGHLIN



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BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Complaint of:

CITIZENS AGAINST CLEAR CUTTING, et al.,

Complainants,

V. Case No:
17-2344-EL-CSS

DUKE ENERGY OHIO, INC.,

Respondent.

DEPOSITION OF DUKE ENERGY OHIO, INC., the

Respondent herein, by and through its Agent,

KEVIN McLOUGHLIN

HELD: FRIDAY, NOVEMBER 2, 2018

10 a.m. - 12:09 p.m.

1 2 This is the Deposition of DUKE ENERGY OHIO, INC., 3 the Defendant herein, by and through its Agent, 4 KEVIN McLOUGHLIN, taken pursuant to Notice, held 5 at: 6 7 ALBANY COURT REPORTING 8 125 WOLF ROAD 9 ALBANY, NY 12205 10 11 Said Witness being duly sworn, and record 12 reported via machine shorthand by Diana M. 13 Russell, Court Reporter and Notary Public within and for the State of New York. 14 15 16 17 18 19 2.0 2.1 22 23

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      IN-HOUSE COUNSEL FOR DUKE ENERGY
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2	(CONTINUED)
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## STIPULATIONS

IT IS HEREBY STIPULATED, by and between the attorneys for the respective parties hereto, that: this Deposition may be signed and sworn to by the witness being examined before a Notary Public other than the Notary Public before whom this examination was begun with the same force and effect as if signed and sworn to before the officer before whom said deposition is taken.

\* \* \* \* \* \*

K. McLOUGHLIN 1 THIS IS THE ORAL DEPOSITION OF KEVIN McLOUGHLIN, 2 3 called as a Witness on behalf of the Respondent herein, DUKE ENERGY OHIO, INC., produced pursuant 4 5 to NOTICE, on FRIDAY, NOVEMBER 2, 2018, before DIANA M. RUSSELL, a Court Reporter and Notary 6 Public in and for the State of New York. 7 8 9 KEVIN McLOUGHLIN 10 called as the witness, hereinbefore named, 11 being first duly cautioned and sworn or affirmed by DIANA M. RUSSELL, the Court Reporter and Notary 12 Public herein, to tell the truth, the whole truth, 13 1 4 and nothing but the truth, was examined and 15 testified as follows: 16 EXAMINATION 17 BY MR. ETTER: 18 Good morning, Mr. McLoughlin. 19 Good morning. 2.0 My name is Terry Etter. I'm an 2.1 attorney with the Office of the Ohio Consumers' 22 Counsel, and we are deposing you for the case 23 entitled Citizens Against Clear Cutting, et al,

1	K. McLOUGHLIN
2	versus Duke Energy before Public Commissions
3	Utility Ohio.
4	I would like to go through a few
5	things. First of all, please turn off your
6	cell phone and any other electronic
7	communication devices, so you don't communicate
8	electronically with anyone not in the room with
9	you.
10	A (Witness complies.)
11	Very good.
12	Q Is there anyone in the room with you,
13	besides the Court Reporter?
14	A No, there is not.
15	Q Okay. I will be asking you questions
16	about your testimony in this case. If you
17	don't understand a question, please feel free
18	to ask me or the Court Reporter to repeat it,
19	or I will rephrase it, you know, for clarity,
20	if necessary.
21	A Okay.
22	Q Please provide oral answers so they
23	can be included in the record. I don't think

1	K. McLOUGHLIN
2	the Court Reporter can take nods or
3	head-shakes, or anything like that.
4	A Understand.
5	Q If you reference a document when
6	answering, please let us know and identify the
7	document you're referencing.
8	Have you brought documents with you
9	today?
10	A Just my testimony.
11	Q Oh, just your testimony; and the
12	attachments that went with the testimony?
13	A No, just the 20 pages of my
14	testimony.
15	Q Okay. If you need to take a break,
16	feel free to let us know.
17	Do you have any questions about any
18	of this?
19	A Not at this time; thank you.
20	Q Okay. Thank you.
21	First of all, in our Notice of
22	Deposition, we had asked that you provide other
23	documents, just other than your testimony.

1	K. McLOUGHLIN
2	So I don't know if Ms. Bojko will
3	have any questions regarding any of the other
4	documents, but I guess, possibly, we can work
5	around that.
6	So please state your name and
7	business address?
8	A My name is Kevin T. McLoughlin, and
9	my business address is 520 Business Park
10	Circle, Stoughton, Wisconsin, 53589.
11	Q Okay. And even though your business
12	address is in Wisconsin, you live in New York
13	State; is that correct?
14	A That is correct.
15	Q And did you submit written testimony
16	that was filed on behalf of Duke Energy Ohio in
17	this case on October 26, 2018?
18	A Yes.
19	Q And did you prepare the testimony
20	yourself, or did someone assist you in
21	preparing the testimony?
22	A I prepared the testimony myself and
23	had other people review it, and made a few

1	K. McLOUGHLIN
2	changes, and then submitted or rewrote it
3	myself and submitted it.
4	Q Who assisted you in preparing the
5	testimony?
6	A Other people involved with the case;
7	Elizabeth was one.
8	Q That is Elizabeth Watts?
9	A Yes.
10	Q Okay. Now, according to your
11	testimony, you have never testified before the
12	Public Utility Commission of Ohio; is that
13	correct?
14	A That's correct.
15	Q And have you ever testified in any
16	other case involving vegetation management?
17	A Yes.
18	Q And what cases were those?
19	A Those were cases in West Virginia,
20	Pennsylvania, New York, Michigan.
21	Q Do you remember the utility or do
22	you remember who you testified on behalf of in
23	those cases?

K. McLOUGHLIN 1 It was for a new transmission line 2 3 being prepared to be built in, both, 4 Pennsylvania and West Virginia, and that was 5 American Electric Power. In New York State, I testified on behalf of the New York Power Pool 6 7 and/or the New York Power Authority and/or the 8 Empire State Electrical Research Corporation. 9 In Michigan, it was the International 10 Transmission Company, ITC. 11 Do you remember what years those 12 cases were? 13 Anywhere from the 1970s up through 1 4 just a couple of years ago, 2015. 15 And was it just like three cases, or 16 were these three or four cases that you 17 mentioned here, or were they --18 They were multiple cases for ITC. 19 The American Electric Power testimony was held 2.0 in, both, West Virginia and Pennsylvania. And 2.1 with the Power Pool, the ESERC and Power

Authority, numerous cases throughout the 1970s,

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23

'80s, '90s.

1	K. McLOUGHLIN
2	Q Do you remember any case numbers?
3	A No.
4	Q Now, have you ever been deposed
5	before?
6	A Yes.
7	Q And which cases were you deposed in?
8	A I have been deposed in a couple of
9	other cases that weren't transmission oriented,
10	but the ones at Michigan, I have been deposed a
11	couple of times out in Michigan, and ones in
12	New York State, but I have been deposed on
13	other issues.
14	Q On other issues, besides vegetation
15	management?
16	A Yes.
17	Q What were those?
18	A Manufactured gas plant sites and coal
19	ash utilization. My previous jobs, I was
20	involved with industrial waste for the
21	electrical utility industry.
22	Q And do you remember when those
23	depositions occurred?

1	K. McLOUGHLIN
2	A The '90s, and the one on MGP Waste
3	was in the early 2000s.
4	Q Okay. Thank you.
5	So you're a Senior Consultant with
6	Environmental Consultants, Incorporated; is
7	that correct?
8	A Yes, that's correct.
9	Q And I believe your resume that we
10	received stated that you have been with
11	Environmental Consultants since 2004?
12	A That's correct.
13	Q It's listed on your resume as part
1 4	time. Has it always have you always worked
15	part time for Environmental Consultants
16	A That's correct.
17	Q or did you have full-time
18	positions with them?
19	A It has always been part time.
20	Q Okay.
21	A Case-by-case, situation-by-situation.
22	Q Oh, okay. And have you had any other
23	positions with Environmental Consultants?

1	K. McLOUGHLIN
2	A No.
3	Q Now, if you turn to page 1 of your
4	testimony, and lines 18 and 19, you state that
5	you base your beliefs, the beliefs that are
6	expressed in your testimony, on your experience
7	and personnel observations of Duke's work; do
8	you see that?
9	A Yes, I do.
10	Q What pertinent observations of Duke's
11	work did you make?
12	A We visited the line in question and
13	viewed all of the property and the trees that
14	Duke desires to remove from the right-of-way.
15	Q And when did that occur?
16	A Last March, I believe.
17	Q And did you review any of the work
18	orders concerning the property involved in the
19	case?
20	A I viewed I believe I viewed some
21	of them.
22	Q Do you remember which ones?
23	A No.

1	K. McLOUGHLIN
2	Q Now, if you turn to page 4 of your
3	testimony, lines 7 through 9, you state that,
4	NERC has defined a ROW, which is right-of-way I
5	presume, as a segment of land used for the
6	route of a transmission line. A ROW should be
7	devoid of vegetation that can interfere with
8	transmission lines.
9	Do you see that?
10	A That's correct.
11	Q And which NERC standard are you
12	referring to here?
13	A The NERC standard is the TVM, the
14	transmission vegetation management standard,
15	but that is the current standard, the
16	FAC-003-4, I believe it is.
17	Q I'm sorry, can you repeat that?
18	A $FAC-003-4$ , the current vegetation
19	management standard by NERC.
20	Q Does that standard require that all
21	vegetation be removed from the right-of-way?
22	A No, not all vegetation, but all
23	vegetation that could interfere with the

1	K. McLOUGHLIN
2	conductors, overhead conductors, at any point
3	in time.
4	Q So, by any point in time, do you know
5	whether that means like 5, 10, 15 years down
6	the road?
7	A It means the maturity, the height of
8	maturity, of the species of the tree in
9	question. So if you have a 5-foot Sugar Maple
10	underneath a conductor, that should go; a
11	5-foot shrub, like a Viburnum or Dogwood, that
12	could remain. So you have to look at it by
13	species and the compatible height of that
14	species.
15	Q Thank you.
16	Now, on page 5 of your testimony, and
17	starting, I guess, on about line 14, you
18	discuss a NERC/FERC study concerning a 2011
19	snowstorm.
20	Do you see that?
21	A Yes, that's correct, I see it.
22	Q Now, the snowstorm in question there
23	was in the northeastern United States, and not

1	K. McLOUGHLIN
2	Duke Ohio territory; is that correct?
3	A That's correct.
4	Q Now, if you turn to page 5 well,
5	we are on page 5.
6	A Yes, we are.
7	Q Okay. Lines let's see, maybe I
8	have the wrong page number.
9	Okay. Yes, actually it's page 5,
L 0	line 20. There is a FERC/NERC staff
L 1	recommendation that, where possible and
L 2	practical, utilities implement the industry
L 3	best practices of ensuring that dangered trees
L 4	are not present in the rights-of-way.
L 5	Do you see that?
L 6	A Yes, I do.
L 7	Q Okay. And I think you believe that a
L 8	utility should follow the where possible and
L 9	practical language of the NERC recommendation
2 0	by reclaiming the full right-of-way where it
21	has the legal right to do so; is that correct?
22	That is on page 6, lines 6 and 7 of your
23	testimony.

1	K. McLOUGHLIN
2	A Yes, that is on page 6, lines 6 and
3	7, yes.
4	Q Okay.
5	A That's a reiteration of lines 1 and
6	2, above which were from the staff report.
7	Q And what is that opinion based on?
8	A Based on 40-plus years of experience
9	and looking at and evaluating various
10	regulatory documents like this, and how they
11	are implemented. So reclaiming a right-of-way
12	is removing all of the trees that could that
13	are or could grow up into the conductor from
14	the right-of-way. That is what reclaiming
15	means.
16	Q And on page 6, lines 15 through 19 of
17	your testimony, you state that Duke has the
18	legal right to cut, trim or remove any trees,
19	overhanging branches or other obstructions,
20	both, within and without the limits of the
21	right-of-way.
22	Do you see that?
23	A Yes.

1	K. McLOUGHLIN
2	Q Are you an attorney?
3	A No, I'm not.
4	Q So you're not providing a legal
5	opinion there as to whether they have the legal
6	right to do so?
7	A No, I'm just reading the language of
8	their easements.
9	Q Now, have you looked at any of the
10	easements of the properties at issue in this
11	case?
12	A Looked at the easements, yes; some of
13	them. Yes, I saw a few of them and they say
14	the ones I saw had the same language in them
15	over and over again.
16	Q Now, if you turn to page 8 of your
17	testimony
18	A (Witness complies.)
19	Okay. I'm here.
20	Q Starting on line 15, you discuss a
21	flash-over event involving a large tree that
22	had been topped.
23	Did you see that?

1	K. McLOUGHLIN
2	A Yes, that's correct.
3	Q Which power company are you referring
4	to?
5	A New York Power Authority.
6	Q I'm sorry?
7	A The New York Power Authority.
8	Q And do you know when that incident
9	occurred?
LO	A It occurred in the mid-'90s, 1990s.
L 1	Q Do you have firsthand knowledge of
L 2	the event or did you just read about it?
L 3	A I talked to the landowner, who had
L 4	requested the tree be trimmed, and it was
L 5	trimmed in front of his house year-after-year;
L 6	and lo and behold, one year, a flash-over
L 7	occurred, went through the tree into the
L 8	ground, into the sewer pipe up, into the
L 9	bathroom, and actually blew a hole in the wall
2 0	and exploded the bathroom. Fortunately, no one
21	was home at that time. I heard it from the
22	company people and I heard it from the
23	landowner; and the landowner in question would

K. McLOUGHLIN 1 2 then assist me with other landowners in the 3 area to convince them to have their trees removed instead of trimmed. He would relate 4 5 the story to them of what happened with him and that was very convincing to many of the other 6 7 neighbors, so we were able to remove quite a 8 number of trees from the right-of-way at that 9 point in time after that event. 10 Now, on page 9, line 6 of your 11 testimony, you state a flash-over event can 12 occur on any high voltage transmission line; is 13 that correct? 14 That's correct. 15 And how many such incidents are you aware of? 16 17 Well, I'm aware of many dozens and 18 dozens of incidents; hundreds probably aware 19 of. I have only witnessed three. 2.0 So would you consider flash-over 2.1 events to be common or rare? 22 They were once much more common than 23 they are today because of the NERC requirements

1	K. McLOUGHLIN
2	and million-dollar-a-day fines. NERC has said,
3	even an instantaneous flash-over that doesn't
4	cause the line to go out of service, is an
5	event to be prosecuted for in a sense. That is
6	a violation of the standards. It will invoke
7	investigations, monetary penalties, sanctions,
8	and mitigation measures. So the companies now
9	are very strict on removing vegetation from
10	their power lines, and the number of these
11	events has fallen considerably since the NERC
12	standards went into effect in 2007.
13	Q Now, if you turn to page 10 of your
14	testimony.
15	A (Witness complies.)
16	Q In the question and answer beginning
17	on 10, and following through on page 11, you
18	discussed desirable and undesirable plans.
19	Do you see that?
20	A Yes, I do.
21	Q What do you consider to be desirable
22	plans?
23	A All herbaceous material, those of the

K. McLOUGHLIN

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perennial herbs and grasses, sedges, many woody
vines, many woody shrubs, ferns, mosses,
lichen; all of the low-growing vegetation with
a dramatic exception of tall-growing trees.
There are only a few trees that remain short
enough that would be compatible with places on
the right-of-way.

Q And do you recommend removing all desirable plants from a transmission right-of-way?

A Not at all. In fact, I advocate the retention and the efforts be made to promote all of the low-growing vegetation on the right-of-way when removing the trees.

Q Why is that?

A Removing the trees, you want to minimize your impact on the lower-growing vegetation that is there so it continues to grow and spread and cover the right-of-way, and the low-growing vegetation will then become an impediment for the high-growing trees on the right-of-way. So there is compatible

K. McLOUGHLIN 1 2 vegetation that is very desirable on the 3 right-of-way, and incompatible vegetation that is undesirable on the right-of-way because its 4 5 growth characteristics make it capable of growing up towards the wire security zones. 6 7 And what would you consider to be 8 undesirable plants? 9 Tall-growing trees. 10 Just tall-growing trees? 11 All of your tall-growing trees, and 12 perhaps some very tall-growing shrubs in some 1.3 locations, that would be classified as shrubs, 1 4 multiple stems don't have one major bow, but 15 some can get up over 20 feet. So those have to 16 be carefully watched, one, of course is 17 There is a shrubby willow and Willows. 18 tall-growing Willow, and sometimes they 19 hybridize and it's sometimes hard to tell 2.0 apart. 2.1 And I was going to ask you to give us 22 examples of undesirable plants. 23 Maple, Hickory, Birch, Pine, Fir,

1	K. McLOUGHLIN
2	Hemlock, Basswood, Beach, Cherry; you want some
3	more?
4	Q No, that's fine. Now, if you turn to
5	page 21 of your testimony.
6	A (Witness complies.)
7	Q And there are no line numbers for
8	these questions and answers, so
9	A I noticed that myself. Okay.
10	Q Okay. You state in that unnumbered
11	question or that answer, there were no line
12	numbers, that you have discussed Duke's
13	integrated vegetation management policies with
14	Duke's engineers and other professionals.
15	Do you see that?
16	A Yes, that's correct.
17	Q Okay. And what are the names do
18	you know the names of the persons that you had
19	these discussions with?
20	A That is one of my I'm bad with
21	names. As I get older, I forget names; faces,
22	no problem.
23	Q When did the discussions take place?

1	K. McLOUGHLIN
2	A Back in March, when we were out in
3	the field.
4	Q Okay.
5	A But I also worked for Duke before,
6	and some of the same individuals were involved;
7	and in my job, also, I get to go out and visit
8	companies, in a non-adversarial manner, such as
9	this, and talk to them about their practices
10	and programs, and I have been out with Duke in
11	previous years. So I'm fairly familiar with
12	their what they are trying to do in this
13	case.
14	Q Now, were the persons that you spoke
15	with Duke employees?
16	A Yes. Yes, for the most part, I think
17	I spoke to one individual who was a contractor,
18	and he subsequently became a Duke employee.
19	Q Okay. And do you remember his name?
20	A No, I don't.
21	Q Okay.
22	MR. ETTER: Mr. McLoughlin, that's
23	all of the questions I have; thank you.

1	K. McLOUGHLIN
2	THE WITNESS: Thank you. Very good
3	job.
4	EXAMINATION
5	BY MS. BOJKO:
6	Q Hi, Mr. McLoughlin. I represent the
7	Complainant in this case, and I have some
8	additional questions for you.
9	A Certainly.
LO	Q In your role as Senior Consultant,
L 1	can you explain or in your position as
L 2	Senior Consultant for Environmental
L 3	Consultants, Inc., can you explain a little
L 4	more about what your role is in that position?
L 5	A Over the years, after I retired in
L 6	2004, ECI would come to me with various
L 7	projects and ask if I was willing and able to
L 8	work on them, and if I had time and I thought
L 9	the project was of particular interest, I would
2 0	do so. So I have worked, you know, writing
21	transmission vegetation management plans for
22	companies under the auspices of ECI, I worked
23	on a couple of Electrical Power Institute

K. McLOUGHLIN

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reports and projects working with ECI, I worked on new transmission line routing issues, the clearing and use of herbicides for ECI, and worked on cases like this. The irony is, I worked on many cases going to court, have been deposed, but none of the cases ended up in court; they all ended up being worked out prior to the court case.

Q And for ECI, your acronym, that stands for Environmental Consultants, Inc.; is that correct?

A That's correct.

Q So for -- well, can you tell me -- I don't want your customer list, but can you tell me the typical clients you work on behalf of ECI; are those utility companies?

A Utility companies, or work on behalf of utility companies. Like I said, I worked on a couple of major Electric Power Institute projects, those were funded by the utilities, and they were about transmission vegetation management matters. So either for utilities or

1	K. McLOUGHLIN
2	on behalf of utilities, that is what I have
3	been working on solely for ECI.
4	Q And you're not an engineer, are you?
5	A No, I'm a Forester by training.
6	Q Okay. And are you a certified
7	Arborist?
8	A No, I'm not. I worked only in
9	transmission distribution. Electrical
10	distribution is where the certified Arborist
11	comes in, where they do a lot of tree trimming,
12	vegetation management
13	Q And so I'm sorry.
14	A What's that?
15	Q Go ahead.
16	A Vegetation management on transmission
17	lines includes the administration of integrated
18	pest management, which doesn't have much to do
19	with tree trimming.
20	Q Okay. And have you ever worked in
21	the design or construction of electrical
22	transmission lines?
23	A Yes.

1	K. McLOUGHLIN
2	Q Were you involved in the creation of
3	the NERC standards involving vegetation
4	management?
5	A Not at all.
6	Q Have you ever consulted with I
7	think you did mention that you worked with AEP.
8	Have you ever consulted with the Ohio
9	utilities, AEP Ohio?
10	A No, they were in other states, but I
11	also worked for Duke down in Kentucky on a job,
12	and up in Michigan on quite a number of cases
13	for ITC.
14	Q And you have never worked for First
15	Energy or Dayton Power & Light in Ohio?
16	A No.
17	Q You state on page 1 of your
18	testimony, lines 8 through 10, you received a
19	BS in Natural Resource Management from the
20	State College of New York, College of
21	Environmental Science and Forestry.
22	What course work was involved in
23	obtaining that degree?

K. McLOUGHLIN 1 A lot of forestry, one was 2 3 dendrology, which is the science of trees, tree identification, a lot of terrestrial ecology 4 5 courses, limb knowledge, wildlife management, 6 water shed management, hydrology, you know, and 7 silviculture courses. So that's about it from, 8 you know, a generalization standpoint. 9 And what professional certifications 10 We talked about the Arborist do you hold? 11 certifications, but are there others that you 12 do hold? 1.3 I was a certified pesticide 14 applicator. I held that until I got out of the 15 direct business of, you know, overseeing 16 pesticides being applied. 17 Any others? 18 Α No. 19 In your field, is there, like, an 2.0 ongoing professional training requirement, 2.1 ongoing continuing education classes, that you 22 must take?

For the certified pesticide

23

1	$\it K.~~McLOUGHLIN$
2	applicator, there is, but for my field, what I
3	have done after retirement, it's simply taking
4	numerous different jobs on different subject
5	matter dealing with transmission lines, and
6	that way, I have always kept up with what's
7	going on.
8	Q And on page 3, line 2, you talk about
9	existing NERC standards, and those standards
10	that you're referencing apply to 200 kv; is
11	that correct?
12	A 200 kv and up is the bright line for
13	the NERC TVM standards. There are exceptions.
14	Q And also on page 3, lines 10 through
15	13, you talk about, that you believe there is a
16	strong likelihood that the NERC standard will
17	apply to the lower voltages.
18	Do you see that?
19	A I do see that.
20	Q What knowledge or belief are you
21	basing your belief on?
22	A One of the jobs that I had to do was
23	to evaluate those NERC standards and see what

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## K. McLOUGHLIN

2	the chances were for future of the 200 kv
3	standard going down to 100 kv. Basically, all
4	other NERC standards are 100 kv, with
5	exceptions down to 69 kv. The NERC bulk
6	electric system definition has a bright line
7	for 100 kv. The only outlying standard, that
8	I'm aware of at this time, that has 200 kv as
9	their threshold, is the TVM standard; and for
10	what reason, I'm not 100 percent fully aware.
11	I have never received a reason as to why,
12	except that the industry feels that it would be
13	very expensive to bring the standard down to
14	100 kv. That is the only reason I have ever
15	heard of them not going there, but I see no
16	reason why, in the future, with all of the
17	other standards having a threshold of 100 kv,
18	with exception down to 69 kv, and the BES
19	standard, which was just completed a few years
20	ago, the rule making that, by FERC and NERC,
21	having 100 kv as its definition of what the
22	bulk electric system is, I would think that it
23	would go down to 100 kv; and if you read

K. McLOUGHLIN 1 2 thoroughly the blackout report, you will see 3 that not only did four 345 kv lines go out, one 4 early in the day and three later on in the day, 5 but sixteen 138s went out simultaneously. 6 of the emphasis on the NERC evaluation was on 7 the 345 lines. It was said that all sixteen of 8 the 138 lines faulted the ground, sixteen 138s 9 faulted the ground. No way it could fault the 10 ground without hitting vegetation first. 11 all of the 138s went out as well, so not just 12 the 345 that went down. It was the 138 that 13 helped to cause the huge blackout. 1 4 So for all of those reasons, I feel 15 impending in the future, is the standard going to 100 kv. 16 17 And that blackout you're referring to 18 is the 2003-2004 blackout? The 2003 northeast blackout; that's 19 Α 2.0 correct. 2.1 Q Okav. 22 Which originated in Ohio.

Okay. And the standard that you're

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Q

1	K. $McLOUGHLIN$
2	referencing on page 3 went into effect in 2007,
3	did you say?
4	A Yes, the first one went into effect.
5	Q It went into effect after the
6	blackout?
7	A Yes. It was the final straw that
8	caused the standard that the Federal government
9	passed by the 2005 Energy Act, which set the
10	stage for creation of NERC as the ERO, the
11	Electrical Reliability Organization.
12	Q And also, you haven't had I'm
13	still referring to your statement.
14	Based on your knowledge and
15	experience, on lines 10 and 11, you haven't had
16	discussions with NERC and FERC about the change
17	of roles, have you?
18	A I have asked a few people over the
19	years, why is it 200 kv, and I have not
20	received, what I felt was, a really good
21	answer; it just is.
22	Q And are you aware of any pending
23	cases to change the NERC rules?

Τ	K. MCLOUGHLIN
2	A Yes, there are well, not pending
3	cases, but people who feel it should be the
4	standard, not the rule, but the standard should
5	be 100 kv for the TVM, just like it is for all
6	other NERC standards. There are now hundreds
7	of them.
8	Q But is there a pending of current
9	rule in the making?
10	A No, not that I know of or am aware
11	of.
12	Q I'm trying not to repeat questions
13	from Mr. Etter, so give me a second to go
14	around a little bit.
15	I'm not sure if I asked you: Are you
16	an engineer?
17	A No.
18	Q Okay. When you told Mr. Etter that
19	you visited the property back in March, you
20	said last March, are you referring to March of
21	2018?
22	A Yes, that's correct.
23	Q And that was after the complaints

1	K. McLOUGHLIN
2	were filed in this case?
3	A I believe so.
4	Q And how long was your visit?
5	A A full day in the field and a day in
6	the offices.
7	Q And you stated that you walked the
8	circuit?
9	A We walked, partially, the circuit.
10	Went in from nearby roads and access routes,
11	looked at some of the trees in question, but I
12	did not walk the entire circuit end-to-end.
13	Q Do you know which circuit you
14	reviewed?
15	A Not off the top of my head. The
16	circuit in question.
17	Q Was it your understanding that there
18	is one circuit in question?
19	A A 138 line that we saw.
20	Q And did you state that you evaluated
21	each tree on that circuit, or no?
22	A No, we saw probably all of them at
23	least from a distance, but, again, my testimony

K. McLOUGHLIN 1 2 goes to the species and the capability of that 3 species of growing into the conductors. So 4 it's relatively fairly easy to determine; 5 almost black and white. So you didn't walk the line, but you 6 7 did an overview and were able to tell the 8 species of each tree in the right-of-way? 9 Pretty much, yes, by the size and 10 form. We could see different trees and they 11 were pointed out to us. We did not want to go 12 on every individual property, so we looked at a 13 distance, sometimes through binoculars, and 1 4 like I said, we did not walk road-to-road, you 15 know, the entire line, but we went to every 16 road crossing and down access routes so we 17 could see the line in question very close-up. 18 And that was your only time in Ohio 19 walking this line --2.0 Α Yes. 2.1 -- with regard to the complaint? That's correct, last March. 22 Α 23 And you weren't involved before March Q

1	K. McLOUGHLIN
2	in implementing the vegetation management plan
3	of Duke, were you?
4	A No.
5	Q Are you aware of any events occurring
6	in Duke's territory similar to the 2003
7	blackout?
8	A Nothing has been similar to the 2003
9	blackout that I'm aware of.
10	Q On the top of page 3, line 1, you
11	talk about existing NERC regulations.
12	Is that the one you were talking
13	about identified as NERC, FAC-003-04?
14	A That's correct. All of the existing
15	there has been FAC-003-00, 1, 2, 3 and now
16	4, and all of them had that 200 kv as their
17	bright line, with certain exceptions. And
18	those exceptions, the language for the
19	exceptions, has changed over time.
20	Q And is there a certain NERC standard
21	that only applies to 345 kv lines?
22	A No. The standards apply to all lines
23	200 kv and above, with certain lower voltage

1	K. McLOUGHLIN
2	exceptions that might be included, as well.
3	Q On line 4 or, I'm sorry, page 4,
4	line 1, you talk about maintaining clearance
5	between transmission lines and vegetation.
6	Do you see that?
7	A Yes.
8	Q And can you explain to me what you
9	mean by maintaining clearances?
LO	A Well, basically, the utility has to
L 1	maintain certain clearances between the
L 2	vegetation and lines at all times. So,
L 3	maintaining that is something that the
L 4	utilities do through vegetation management, and
L 5	the most appropriate vegetation management is
L 6	IVM, and IVM calls for the removal of all
L 7	incompatible vegetation.
L 8	Q Does the IVM call for maintaining
L 9	clearances?
2 0	A It does that by removing the
21	vegetation that could be causing a problem with
22	clearances. If the vegetation isn't there,
23	there is no clearance problem.

K. McLOUGHLIN 1 I apologize, I don't mean to talk 2 3 over you. It's hard for me to know when you're 4 done speaking, so I apologize. 5 What are the minimum clearances set forth in the NERC standards? 6 7 Α Those are clearances that must be 8 kept, at all times, under all conditions; and 9 there is a table in NERC that specifies the clearances at different elevation levels. 10 11 as you get higher in elevation, the mountainous 12 terrain, the air gets thinner and, therefore, 13 the flash-over can be greater distance. 1 4 distances between any growing vegetation of the 15 conductors increases with the elevation. 16 So in that table, for all of the 17 different voltages, are the distances set in 18 the standards, themselves. 19 And which distances applied to the 2.0 line -- the circuit that is in question? 2.1 That would be 138 kv, and most likely 22 there in Ohio, probably under 500 feet; or if

it's in a hilly area -- well, it would be under

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K. McLOUGHLIN
500 feet, and that would be the table. That
would be where you would find it in the table,
under 500 feet and 138 kv.
Q And do you know that clearance listed
in the table?
A Off the top of my head, I think it's
only a few feet.
Q Is that table in the NERC standard
FAC-003-01 that is on line 4, page 4 of your
testimony, or is that table in the NERC
standard FAC-003-04?
A That would be in 4, that new table.
Q And was that table attached to your
testimony?
A I'm not sure which one I believe
somebody else was referring to that, and I
don't know if it was attached to mine or not.
Q Okay. It looks like it's titled
there is a table called Minimum Vegetation
Clearance Distances MVCD?
A MVCD, that's correct, and that would
be the table, both, in feet and meters.

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#### K. McLOUGHLIN

Q Okay. And just for the clarity of the record, I'm looking at attachment 2 to your testimony, page 16 of 31.

A I don't have that.

Q Okay. And so, am I understanding your testimony correctly, that if a tree doesn't interfere -- if it doesn't interfere with the transmission line and it's compatible, then it is -- then you believe it's allowed to stay in the right-of-way, regardless of the species and type of vegetation?

A No. Again, depending on the species and its height/growth potential, that is what you have to look at. So if a tree is in the right-of-way and it doesn't pose a current threat, it might and will pose a future threat. So you don't let the tree continue to grow and pose that threat, you remove it early on when it's actually less expensive and less dangerous to remove. The taller that tree gets, it's more dangerous to take down, the more threat it is to the conductors. So why have that threat;

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2 remove the tree early on, based on its species,
3 height/growth characteristics.

Q You would agree that there is a distinction in the right-of-way between incompatible and compatible; is that what I'm hearing you say?

A Very big distinction.

Q Okay. And you would agree, I think I heard you explain to me earlier, and in the examples to Mr. Etter, you would agree that there are certain trees or vegetation that could be short enough? You keep staying tall enough, so could they be short enough that they would not interfere with the transmission lines and could remain in the right-of-way?

A Those species we saw are typically shrubby species that would not grow more than 7 feet, in some cases, 10 feet in others. So depending if they are in the wire zone or border zone, they could be retained on the right-of-way, but, again, it's not if it's short enough right now, it's if they are going

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#### K. McLOUGHLIN

to remain short throughout their life cycle.		
So, again, you have to go by species. Does it		
have the potential to grow up into a wire		
security zone.		

Q And you would agree, from your forestry experience, there are different hybrids of tree species and tree species that are called ornamental trees, and those trees would never get taller than -- some of them are 7 to 20 feet. Would you agree with that?

There are certain cultivar Α Yes. hybrids, exotically developed landscape trees, that would meet the height growth requirements, but you have to be careful on some of those. have seen where some short-stature trees, their growth was supposed to be 20 feet, went to 25 and 30, and they had to be removed. I have seen this repeatedly. The problem with a tree is, as long as it's alive, it grows. It may only grow incrementally a couple of inches, but it grows. If it doesn't grow, it dies. So you have to have plants that are going to stay put,

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### K. McLOUGHLIN

so to speak, from their height characteristic
and I know some species are they are
exhibited out there that they won't grow more
than 20 feet or 25 feet. Well, there are
always exceptions to the rules, and many of
these trees will get a little taller, and
that's the problem. You have to be very
careful about choosing a tree under a power
line based upon a height recommendation. If
it's close to the power line in its maturity,
it probably is a tree that is unfit to be put
in that location.

Q But you would agree with me that if there is a tree that is 7 to 15 feet at maturity, that you would consider that compatible because it's not going to come anywhere near the power lines?

A That is certainly compatible in the border zone. Under 7 feet wouldn't be quite compatible in the wire zone.

Q So if the transmission wires are 50 feet in the air and there is a tree that is 20

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feet at maturity, that 20-foot tree at maturity is still 30 feet away from transmission line, in my example, and that would be compatible in the transmission right-of-way?

A Again, 50 feet of the transmission line, it depends on where you took the measurement from and what time of year, the loading of that line, et cetera. These lines sag, and if you are out in that mid-section of the line, it sags the greatest.

So you would have to look at the design parameters of what they call the near worst case which the line is designed for at that location, not just look at it on a given day, you know, in the middle the day or on a weekend, or something where the load might be light and temperature would be high and the line high in the air. So you have to look at these conditions, as well.

Q Thank you for that. I appreciate that.

So under that circumstance, let's use

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#### K. McLOUGHLIN

ı	your example, say that the design
	characteristics are such that the high load of
	that transmission wire could sag down to,
	instead of in my 50-foot example, it went to 40
	feet. In that 40 feet, if there is still 20
	feet difference from my 20-foot tree and
	transmission line at 40 feet, you would believe
	that would be compatible in the transmission
	right-of-way?

A Yes. If you could guarantee that tree wasn't going to grow more than 20 feet, because trees grow and lines sag, and even the designed sag can be compromised under very abnormal conditions. One is emergency loading, another is when the wind doesn't blow at 2 miles an hour or greater. When you have low winds, the lines heat up higher, so during the summer, with a high ambient temperature with high loadings, all of a sudden you have a dead calm, lines can sink lower than their design.

Now, 20-foot trees, as I mentioned

don't always stay at 20 feet, they may go to

1	K. McLOUGHLIN
2	25, they may go to 30. So, again, your playing
3	with the odds here. The goal of Duke is zero
4	outages caused by trees. Here, you're asking
5	them to take an odd; it's low, it's a low odd,
6	but it still can happen. So therefore, they
7	are conservative in their estimates, as I am.
8	Q Could you look at page 4 of your
9	testimony, line 14?
10	A (Witness complies.)
11	Q You use the mandatory NERC standards,
12	and I want to make sure I understand your
13	testimony.
14	You are, again, talking about the 200
15	kv transmission vegetation management standard,
16	which is in the FAC-003-04?
17	A Right.
18	Q Okay.
19	A That's correct. That is a mandatory.
20	The NERC standards, prior to them being
21	declared the ERO, were voluntary. Now, NERC
22	standards are mandatory and enforceable.
23	Q Up above, you referenced the

1	K. McLOUGHLIN
2	FAC-003-01.
3	Just so I understand, I think you
4	explained this to me, it is 003-01, then went
5	to 2, and then 3, and now 4. That is an update
6	of the same transmission vegetation management
7	standard?
8	A Yes, that's correct.
9	Q Okay.; thanks.
10	Can you go to page 5 of your
11	testimony, please?
12	A (Witness complies.)
13	Q Line 9, starting the sentence
1 4	starts on line 9. You say, the ROW in this
15	case contains specific language.
16	When you reference ROW, are you
17	referring to an easement?
18	A The right-of-way. I'm referring to
19	the right-of-way.
20	Q But when you say the right-of-way
21	contained specific language, what document are
22	you referring to that would have that specific
23	language in it?

1	K. McLOUGHLIN
2	A It would be their easement documents.
3	Q Okay. And so, you state that you
4	have reviewed some of the easement language,
5	and I think if I understood the response to Mr.
6	Etter, page 6, line 15 through 22, this is the
7	easement language that you are talking about;
8	is that right?
9	A I believe so. That was the generic
10	language that I took notes on.
11	Q Okay. Do you know if it's quoted
12	from the easement or this is a summary of it?
13	A Being that it doesn't have quotation
1 4	mark around it, I believe it's a summary.
15	Q Okay.
16	A My interpretation.
17	Q Okay. But you believe that this
18	language or your interpretation of the
19	language is what is applicable to the
20	right-of-way at issue in this case?
21	A That's correct.
22	Q Okay. So you understand that the
23	easement language talks about the companies,

1	K. McLOUGHLIN
2	engineers or other professionals evaluating the
3	right-of-way, and the trees and making the
4	decision as to the safety and reliability of
5	the lines in making that decision, what to do
6	with the vegetation?
7	A That's correct.
8	Q If you could turn to page 5.
9	A (Witness complies.)
LO	Q There is a quote that you do on lines
L 1	16 through 20.
L 2	Do you see that?
L 3	A Yes.
L 4	Q Do you know which trees fell into the
L 5	transmission lines; what types of trees?
L 6	A I believe the report gets into a
L 7	little detail on that, but I don't recall
L 8	offhand, but the quotes are from that report,
L 9	that roughly 25 percent of the confirmed
2 0	vegetation-related transmission line outages
21	during the October event were caused by trees
22	that fell into transmission lines from inside
23	the utility's full right-of-way. These

	1 dgC 3
1	K. McLOUGHLIN
2	right-of-way trees were all located outside of
3	the utility's maintained right-of-way.
4	Q And were you involved in the staff
5	report
6	A No, I was not.
7	Q when they came to that conclusion?
8	A No, not at all.
9	Q And have you ever worked at FERC?
10	A No.
11	Q And I'm assuming you have never
12	worked at NERC, either?
13	A No.
14	Q Okay. If you could look at page 7 of
15	your testimony.
16	A (Witness complies.)
17	Q First, when you reference a
18	flash-over, is a flash-over the same as
19	arching?
20	A Yes.
21	Q And let's look at line 12. I think
22	this gets to what we were talking about
23	earlier, so let's connect the dots.

# K. McLOUGHLIN 1 We were talking about the minimal 2 3 clearances and whether Ohio was 50 -- 50 feet above sea level, this is -- the 2.3 feet is 4 5 what you were referring to when you said the minimum clearance distance was a few feet; is 6 7 that correct? 8 Yes. Α 9 Okay. On line 3, you reference TVM 10 best management practices. What -- is that a document somewhere? 11 12 TVM best management practices --13 well, there are IVM standards that have come 14 out and ANSI 300 or something, and BMP document 15 for implementing these IVM standards that the 16 -- I believe the Utility Arborist Association 17 has put out, so there is some TVM best 18 management practices, but often listed in their 19 vegetation management plans, best management 2.0 practices are found there, as well. 2.1 So let's talk about ANSI 300. 22 is ANSI? 23 American National Standards

1	K. McLOUGHLIN
2	Institute. They have an IVM standard.
3	Q Is that State-agency run or what
4	is ANSI?
5	A The American National Standards
6	Institute. I have never been involved in it,
7	but they do all kinds of standards for all
8	sorts of industries. I'm not a member and
9	didn't have anything to do with the IVM
10	standard or its best management practices or
11	documents.
12	Q So it's fair to say that you weren't
13	involved in the creation of any ANSI standards?
14	A That's correct.
15	Q On line 4 of page 7, you talk about
16	close proximity to one another, and you're
17	talking about the trees and power lines. What
18	does close proximity mean?
19	A Just what it says; fairly close
20	proximity. Because of the dynamic nature of
21	trees and power lines, the two just can't
22	co-exist anywhere near each other and have
23	safety and reliability confirmed.

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Q Can you put close proximity in feet for me?

Well, some lines have what are called wire security zones, which are measured at, like I said, the designed low capacity of the line -- excuse me, at the designed near worst case, which is 100 percent line loading at certain ambient temperatures and certain ambient pressure with certain wind speed, those lines will sag to that point given those conditions. From there, there is what is called a wire security zone. Each company is a little difficult, but for 138 line, anywhere from 5 to 10 feet, where they cannot have vegetation enter that zone, period, or something needs to be done immediately.

So it's based on the low sagging line, the height of the trees currently, and even in the future, next couple of growing seasons. So if a right-of-way vegetation management were to go out and look at a tree that was a certain height, and he looks at that

# K. McLOUGHLIN

2	point, that the low sag of the line would be,
3	say, 28 feet off the ground, and the tree was
4	18 feet tall, well, that's 10 feet away from a
5	138 line. It's kind of right outside of the
6	wire security zone at that point in time.
7	However, they are not going to be out there for
8	a couple of years on the routine maintenance,
9	and hence, that tree might have to go now.
10	So they don't want to take the risk
11	of that tree growing taller or that line
12	sagging a little bit more beyond the design
13	capacity of the line. So it's a relative
14	thing. Basically, tall-growing trees, by
15	species, can't exist with power lines and you
16	want to take them out early before they become
17	big and expensive, and more dangerous to
18	remove.
19	Q Okay. I'm trying to make sure I
20	cover everything, but don't repeat any of the
21	questions that have been asked. So give me one
22	minute.

No problem; take your time.

minute.

23

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1	K. McLOUGHLIN
2	Q Let's turn to page 8 of your
3	testimony.
4	A (Witness complies.)
5	Q I think we talked about the one event
6	that you referenced on line 15, that happened
7	in New York in the mid-1990s; is that correct?
8	A The two flash-overs on a 115 line
9	were, yes, in the early '90s.
LO	Q Okay.
L 1	A The 230 kv line, I believe, was in
L 2	the '70s.
L 3	Q And in both of these instances, you
L 4	believe that vegetation was 5 feet of
L 5	clearance; is that correct?
L 6	A Exceeded 5 feet. It was more in the
L 7	order of probably 8 or 9 feet at the time.
L 8	These were the 115 lines were a study area
L 9	for research project, looking at different
2 0	management techniques for tall vegetation that
21	had been allowed to get too tall in the
22	right-of-way. So we were doing a cost analysis
23	of what it the additional cost of handling

## K. McLOUGHLIN

2	and managing tall vegetation, and those trees
3	were getting fairly tall. The research had not
4	progressed to the point of taking them down
5	yet, I went out to actually check to make sure
6	that the trees in question were still outside
7	of the wire security zone. So for a 115 line,
8	the wire security zone had been set at about 5
9	feet. Again, the height of the vegetation was
10	well outside of that 5 feet zone, and that is
11	at minimum clearance, and I just happened to be
12	out there looking at it at the time when two
13	different flash-overs occurred within minutes
14	of one another. And that is when I really
15	began wondering, how could a flash-over occur
16	when I just measured the vegetation and didn't
17	get wasn't anywhere near the line at the
18	time. How did it occur?
19	Q So you mentioned that you were aware
20	of hundreds of flash-over events, but only
21	witnessed three. The hundreds you're aware of,
22	do you know what voltages those occurred on?
23	A When I worked at New York Power Pool

1	K. McLOUGHLIN
2	for 20 years, we had, you know, realtime
3	management of those transmission lines, all of
4	the transmission lines in New York State,
5	basically, 115 and above, and they happened on
6	all sorts of lines; 115, 138, 230, 345, 500,
7	and 765, and these were instantaneous trips,
8	many of them. Some did shut the line off on a
9	rare occasion.
10	Q On page 8, line 15, you talk about
11	another flash-over event that was on a 345 kv
12	line.
13	Do you see that?
14	A Yes.
15	Q Do you know what the clearance was
16	between the power line and the tree for this
17	event?
18	A Well, again, it's a dynamic
19	situation. The tree was being trimmed almost
20	annually because it was out in front of the
21	house of the landowner and it had never had a
22	problem. They trimmed it what they thought
23	the crews thought was low enough, but, you

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#### K. McLOUGHLIN

know, every year, the trees grow, and some years, they grow a little more than others, and as I mentioned about the power line, sometimes they sag more than they should. So something happened, because it was, again, a power line that was outside of the wire zone, as far as the company was concerned, and it still flashed-over.

So, again, what happened; did the tree grow a little more, did the line sag a little more, or did the flash-over occur over a greater distance than one could predict by any of the equations or studies that had been done to-date, who knows, but it happened.

Q Do you know what the clearance was when the event happened?

A No, just that it was, again, adequate insofar as the company felt, at that time, when they did the maintenance, and they had been doing it for years, topping that tree with a new growth year-after-year.

Q Was this incident in New York?

1	K. McLOUGHLIN
2	A Yes, that's correct.
3	Q Okay. And this was you were at
4	the New York Power Authority at the time?
5	A I was not there at the time of the
6	incident. I was there afterwards.
7	Q And you were consulting with the New
8	York Power Authority?
9	A At that time, I was working for the
10	New York Power Authority when I came in to
11	review the situation.
12	Q And that situation was in the
13	mid-'90s?
14	A It happened in the mid-'90s, before I
15	arrived. I was there 1998 to 2004.
16	Q And did you participate in any kind
17	of court proceeding or Administrative Agents
18	Commission proceeding, or anything, about this
19	incident?
20	A No, none, zero.
21	Q And you wouldn't have offered
22	testimony about this event?
23	A No, I would not.

# K. McLOUGHLIN 1 Are you familiar with the term 2 Q 3 clear-cutting? 4 Yes, I am. Α 5 And what does it mean to you? Well, in forestry, removing all of 6 7 the merchantable timber off of a site. 8 right-of-way work, I would imagine removing all 9 of the vegetation off the site. 10 And would that include even 11 compatible vegetation, as we have been 12 discussing it? 1.3 Well, in some cases, it might. 14 instance, if you are using a mowing machine to 15 mow the right-of-way, then, all of the 16 vegetation gets mowed. Everything is left flat 17 on the right of way. So in a sense, that would 18 include the lower-growing vegetation, although, 19 mowing lower-growing vegetation often will come 2.0 back very, very quickly; and ironically, the 2.1 trees will, too. Most hardwood trees sprout 22 very rapidly from their root collar zones and 23 from many dormant buds on the stump remaining

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after the machine has mowed it; or in some instances, trees will root sucker. In other words, anywhere their roots are, like Aspens, you will get new stems up. So when you mow or cut an Aspen tree, you will get sprouts from the root collar, dormant buds and from the root. So you cut one stem and you may get a hundred back.

Does that answer your question about clear-cutting?

Q Yes. Thank you.

You talked about cost earlier and doing research about cost. In your experience -- in the research you have conducted, is it cheaper for utilities to do clear-cutting, from a cost perspective, than selective removal of targeted incompatible vegetation?

A Well, I always recommend selective removal of targeting incompatible vegetation.

The irony is, if all you have on a site is trees, what you have left over at the end of it is, in effect, a clear-cut, even though you

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#### K. McLOUGHLIN

hand-cut every tree, stem, say with a chain saw, and applied a herbicide to the stump so it won't sprout. You may end up with trees lying on the ground and no vegetation because the trees occupied a hundred percent of the site. They had crowded out all of the desirable vegetation, shaded it out, and now all you had were trees to treat.

In other areas, where the trees aren't as dense, there may be lower-growing vegetation surrounding the tree, and hence, when you cut the tree and apply some herbicide to the stump, all of the vegetation is freed up and will grow in absence of the tree, and will help promote vegetative cover that is compatible with the right-of-way objectives. So, it all depends on the density of the trees, the height of the trees. Even during normal maintenance, if you wait too long, the trees get too tall, they begin to shade out the undergrowth, and when you go back to cut them, it may end up with what looks like a clear-cut.

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If you don't use a herbicide to thwart the clear-cut of the tree, it will grow enormously more than a tree left uncut. So you can cut a tree down on a right-of-way and it might grow 5 to 15 feet that first year. So what you want to do is selectively remove all of the tall-growing trees, selectively apply herbicide and promote all of the low-growing vegetation that will help thwart the recovery of the trees. In other words, it will be such thick vegetation out there, and just through pure physics alone, two things can't occupy the same place at the same time. Trees will be excluded through the physical ability of the low-growing They also suck up nutrients and they plants. have shade effects. They also will suck up moisture, so it makes it difficult for the tree seedlings to get a hold on the right-of-way. Once you have a nice, compatible, vegetative cover established, that is your ultimate goal for wildland right-of-way with IVM. Okay. I appreciate that discussion, Q

but I'm talking in general.

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Do you have an opinion, if you have a piece of land that has both mixed compatible and incompatible vegetation, as you have described here very thoroughly, thank you, if you have the two things, and the utility goes in and clear-cuts versus selectively removing just the incompatible vegetation, which one would cost less?

A Well, sometimes, again, it all depends on the density and height of the incompatible vegetation removing, those are your two most expensive items. If you have to dispose of all of the debris, all of the woody material that you cut, that doubles or triples the cost of what you have to do. If it's a wildland situation, and the area is predominantly trees, what some people do is mow, and then, as the trees re-sprout, the following year, you selectively spray the re-sprouting trees so as to remove them from the right-of-way at that point in time.

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So in the mean time, everything is mowed, everything has been cut, but the only thing being treated with herbicides are the tall-growing trees. So the cost depends on the height of the trees, the density of the trees.

I helped one company bid their

right-of-ways based on height and density, and it went from over \$1,000 an acre for high density, tall trees to be thoroughly removed from the site and all of the debris to be removed, to under \$30 an acre for low density trees of low height, and those low density were less than 50 stems per acre and over 3,000 stems per acre for the high density, and they were all well-over 6 feet. So those are your cost ranges.

Q And is it fair to say you would not consider clear-cutting a part of an integrated vegetation management plan?

A Again, it all depends on the density of the trees. If you have only trees in the right-of-way, in effect, you're going to be

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### K. McLOUGHLIN

clear-cutting; if that is all that's out there,
are trees. So if you have desirable vegetation
in any abundance at all, there is a good chance
you could save it through selective removal of
the trees. If you have patches of herbaceous
plants or a lot of shrubbery growing in a
section, you could avoid mowing it and just
cutting the trees around it. But again, it
depends on the overall height and density of
the trees what technique is the most viable to
get the right-of-way into a condition that is
more conducive to true IVM.

Q Would you consider herbicide application in a general widespread manner a form of clear-cutting?

A Yes. If you are using high volume foliar application over the entire right-of-way, sort of indiscriminately trying on to uniformly clear the right-of-way, that would be clear-cutting. It would depend on the height. I have seen helicopter spraying, which I don't advocate at all, that is appropriate

## K. McLOUGHLIN

with high density, and that way you get rid of
all of the trees at once, and you do some hot
spotting to get trees that were skipped or
missed, and hopefully next time, around more
desirable vegetation has arrived in the absence
of the trees, and the next cycle, you're more
selective. So it all depends on what you have
on the right-of-way, which technique works and,
unfortunately, past management has just cut and
cut and cut, and the trees have sprouted and
sprouted and sprouted. All you have on the
right-of-way is tall-growing trees, growing
very quickly from their undisturbed root
systems, as I mentioned. You know, a tree
seedling might grow a few inches, but a tree
that has been cut without any and herbicide
application can sprout 5 to 15 feet in the
first year, 5 to 10 feet the second year, and 5
feet or more the third year. It instigates a
wounding hormone in the plant, it wants to
recapture its height. Multiple sprouts will
grow this tall. So again, where you cut one

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tree and didn't put herbicide down, you can have 3 or 4 sprouts from the wound collar; or they could sprout like an Aspen or Cherry, they will have hundreds of stems coming up from the undisturbed root system. So it depends on what your past management programs have been, and what is out there now will dictate what the most favorable treatment will be.

Q And would you -- you would agree with me that the cutting technique that can be used to minimize the regrowth of a tree is when you are grooming a tree by pruning or trimming?

tree, yes. If you use the shy goat method of going back to the main stem and doing a very specific cut, not too close to the tree stem or not too far out, the tree will be able to heal itself and sprout less, but that is a very dramatic form of trimming. It's sometimes done on danger trees next to the right-of-way, growing out of the right-of-ways, where most of the limbs coming towards the conductor are

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removed by this method so only the bow is left standing there and the other half of the tree has limbs on it and one half does not have limbs. So this type of technique can be used for outside threat. I don't recommend it for trees inside the right-of-way.

Q And have you conducted trimming and pruning previously?

A Yes. On trees outside of the right-of-way, just as I explained, trees have been trimmed, and along roadways in New York State, we used to -- by Public Service Commission mandate, we had to leave roadside screens, and these were often topped. In other words, had trimming done to them over time, and to keep them well-away from the conductors, but after the blackout in 2005, the Public Service Commission here in New York came out with an order requiring enhanced transmission line vegetation management. The enhancement was all of the tree screens, all of the buffer zones, that had been left with full-grown trees that

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were topped on the right-of-way, were to be removed; and over the ensuing cycle since then, all of the tree screens and buffer zones of tall-growing trees on the right-of-way mandated by the regulatory agency when the lines were built, have been removed because of the danger they pose to the overhead conductors.

Q I'm sorry, either I wasn't very articulate or you misunderstood my question.

I guess I'm asking if you have physically conducted tree trimming and pruning?

A I have done it myself on my trees around the house, and I had crews under my direction do it to over right-of-way trees, and in some instances, we did it, like I said, for topping of trees under lines, topping them, removing the crown well-below the conductor, but keeping the trees alive; but that is no longer done in New York because the Public Service Commission ordered that all tall-growing trees that were left purposely, to be removed from the right-of-way due to the

1	K. McLOUGHLIN
2	danger they pose. So no one does that. New
3	York, they don't do that topping anymore.
4	There are no trees to top.
5	Q Okay. Could you look at page 17 of
6	your testimony, please?
7	A (Witness complies.)
8	Q You have a picture there. You have
9	never done this type of work, have you?
10	A What page was that?
11	Q 17?
12	A 17. I have never done that, but I
13	have
14	Q I'm trying to figure out what you
15	have done?
16	A Yes, I have seen it done, though.
17	Q Have you did you take this
18	picture?
19	A No, I did not.
20	Q Where was this picture taken?
21	A It was a picture that I found on the
22	internet of tree trimming and wanted to show
23	what it can entail at times to get these

1	K. McLOUGHLIN
2	individual branches away from the conductors.
3	Q Do you know what website it's from?
4	A No, I don't. It's simply an
5	illustrative example.
6	Q It would be fair to say it's probably
7	not a picture from the Complainant?
8	A That's correct.
9	Q Okay. And then, what about the
10	picture on page 16; did you take this picture
11	of the flash-over event?
12	A No, I didn't. Again, I was able to
13	pick it off of the internet, and it does show
14	what I have seen occurring, a flash-over from
15	the line over the tree down to the ground,
16	perfectly timed.
17	Q Do you know where this was taken?
18	A No, I don't.
19	Q And is it fair to say that this was
20	not on the circuit of one of the Complainant's
21	properties?
22	A Very fair to say; it was not.
23	Q Okay. For the flash-over event, is

1	K. McLOUGHLIN
2	it true that the voltage of the transmission
3	line effects the distance that a flash-over can
4	occur?
5	A That is correct.
6	Q And did you say were you involved
7	in drafting Duke's vegetation management plan?
8	A No, I was not.
9	Q When you talk about Duke's IVM, is
10	there a document containing that IVM?
11	A I saw it referenced in their
12	transmission vegetation management standards or
13	plan, but I read their discourse on what they
14	refer as to IVM.
15	Q So, I mean, is there an IVM document
16	that outlines how they are going to proceed?
17	A No, they refer to the concept.
18	Basically, IVM is removing all of the
19	tall-growing trees and promoting lower-growing
20	compatible vegetation. It's sort of a 2-way
21	street. You are actually very active in
22	removing all trees by species and then letting
23	all of the low-growing species you foster

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#### K. McLOUGHLIN

2	them or promote them through your vegetation
3	management technique that will selectively
4	remove the trees with the least amount of harm
5	to the lower-growing species. So therefore,
6	over time, over a number of treatment cycles,
7	your right-of-way is mostly filled with
8	low-growing species, and you get down to a very
9	low density of trees growing very slowly.
10	Q And you said they refer to the
11	concept; where is it referenced? The IVM
12	you're speaking of, where is that referenced?
13	A I simply read it in some of the
14	documents I perused for this job. Exactly
15	where, I wouldn't be able to tell you right
16	now.
17	Q What document contains the wire zone
18	and border zone that you referenced on page 10?
19	A That is, again, one of the documents

A That is, again, one of the documents that I looked at. That is a common -- very common wire zone/border zone concept used by many companies over the course of the United States, and is a common accompaniment to IVM, a

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2 use of the wire zone/border zone.

Q So from what I'm hearing, is it fair to say that, in your mind, Duke's IVM is a collection of different documents?

A It might be found in different documents. The IVM terminology and IVM concepts permeate their documents. They adhere to the concept on, you know, particularly wildlands. On landscaped properties, the use of IVM is limited, in a sense, that the homeowner will choose if he wants a lawn or if he wants shrubbery, or he wants to put landscaping brick down, or whatever he wants to do on his property. It's up to the landowner. So long as he doesn't plant tall-growing trees in the right-of-way, everything else is pretty much fine. So IVM fostering of low-growing desirable vegetation on landscaped area is limited.

We are talking about wildland where no one is doing landscaping and vegetation will breed through normal succession, from grasses

1	K. $McLOUGHLIN$
2	to herbaceous to shrub to trees. Here is where
3	you can interject IVM.
4	Q Okay. I want to focus on Duke right
5	now, okay.
6	Where are all of these items
7	discussed with regard to Duke? Did you get
8	Duke's vegetation management plan to review to
9	make your conclusion?
10	A That's correct. I reviewed their
11	management plan.
12	Q So you reviewed a document called
13	their management plan or a collective of
14	documents called their management plan?
15	A I believe there was one that said it
16	was it was required under the earlier
17	versions of the NERC standard, the TVM
18	standard, to have a document called the
19	transmission vegetation management plan, and
20	actually, program is what they wanted, program,
21	and that also included annual plans. And then,
22	NERC went to it simply had to be your
23	work had to be documented. And so, I believe I

1 K. McLOUGHLIN saw a plan and other documentation that 2 3 referred to IVM. 4 Okay. And you weren't involved in 5 the creation of any of those documents or that Duke plan; is that correct? 6 7 That's correct. And do you know what factors Duke 8 9 considered in making its determination of the 10 wire zone versus border zone? 11 They chose the standard practice of using the wire zone as the area under the wires 12 13 and a little bit to the left and right. 1 4 then, what is left over on the right-of-way 15 becomes the border zone. That is very common 16 throughout the utility industry to make that 17 determination. So it's the area under the 18 wires and a little bit adjacent to the wires. 19 So it might be about over half of the 2.0 right-of-way to 60 percent of the right-of-way.

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It might be in the wire zone and on the edges.

The next 20 to 25 percent of the right-of-way

on the other side might be in the border zone.

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2	Q Is there a standard or common
3	practice for the distance contained within the
4	wire zone?
5	A You know, no, there isn't. There
6	isn't any particular standard for the distance
7	of a wire zone.
8	Q Okay.
9	A The area underneath the wires and
10	little to the left and right, and people make
11	that determination based on voltage. So the
12	higher the voltage line, the larger the
13	distance to the left and right; and lower the
14	voltage, the smaller the distance is.
15	Q People make that decision based on
16	voltage. Do you know how Duke made that
17	decision when they created their plan?
18	A No, I don't, but what I saw was
19	typical of the utility industry standard
20	practices; nothing jumped out at me there.
21	Q And you don't know which Duke
22	employees or contractors were involved in
23	making that decision, do you?

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2 A No; no, I don't.

Q Could you sit here today and tell me the border zone and wire zone footage for each utility that you have worked with?

Yes and no. I measured some myself for, like, a 765 line. The outside conductors were 50 feet apart and so, they wanted another 25 feet on each side, so that is 150-foot of wire zone, and the right-of-way was 250 feet wide, so that left 50 feet on each side. So that is typical of the wire zone/border zone type situation. They usually take the distance of the conductors apart -- that are apart, how far they are, and sometimes take half of that and apply it to the outside of the conductor. And so, again, with the 765 standard that I recall, the conductors are 50 feet apart, so 3 conductors. So the wires are -- outside wires are 100 feet apart, you add another 25 feet to the outside. So now, you have a wire zone of 150 feet. So border zone of 50. So that is how they determined it. The conductors

1	K. McLOUGHLIN
2	themselves, how far spaced they were, and took
3	a distance from that and applied it to the
4	outside.
5	Q Okay. And this would be done on the
6	right-of-way by utility based on the actual
7	transmission wires and the voltage, and how
8	they are structured?
9	A That's correct.
LO	Q Let's turn to on page 10, line 2.
L 1	A (Witness complies.)
L 2	Q You say, Duke Energy has determined,
L 3	talking about the wire zone.
L 4	Are you just saying you have learned
L 5	that determination from the documents that you
L 6	reviewed?
L 7	A Page 10; hold on. You have me going
L 8	backwards here, where was that again?
L 9	Q On page 10, line 2.
2 0	A Okay. Line 2.
21	Yes, they are looking at 7 feet and,
22	therefore, woody shrubs, not taller than 7 feet
23	and all herbaceous plants could be tolerated.

1	K. McLOUGHLIN
2	Q And that determination by Duke, that
3	is not a determination that is found in the
4	NERC standards; is that fair?
5	A Oh, yes; yes.
6	Q Okay. And that is not in the ANSI
7	standards; is that correct?
8	A Not specifically. I don't believe
9	not specifically. They actually the ANSI
10	standards call for 4 feet or excuse me, 3
11	feet in the wire zone, 1 meter in the wire
12	zone, and Duke is going to 7 feet in the wire
13	zone. So they are well-outside of the ANSI
14	standards that I'm familiar with.
15	Q Turn to page 11.
16	A (Witness complies.)
17	Q You talk to an old field condition.
18	Are you talking about in a field where there
19	are no houses and just an open field, is that
20	the concept you're talking about here?
21	A Basically, that's right. You know,
22	where you are, again, vegetation conducts its
23	normal succession of one plant following

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another; ecological succession uninterrupted by man. A right-of-way is an old field minus the trees with all of the other associated vegetation, all of the early successional species.

Q And from your comments on lines 15 and 17, on that same page, 11, is it fair to say that you would agree that removal of trees on a slope could cause erosion?

A It all depends on how you remove them; and if you remove them with a tractor and large mowing machine that disturbs the earth and removes all of the vegetation, yes; and if you are going on that slope and cutting them with a chain saw and lopping them up and leaving the debris there, no; virtually, no chance for erosion.

Q So if you remove the debris --

A So the amount of disturbance is the main factor in soil erosion, and if the material you're cutting is large and you have to remove it with large equipment, like a

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Q And lopping to you means leaving the stumps?

them on-site would prevent any soil erosion.

A Yes, leaving a short stump, less than 2 inches; and lopping is, you know -- say a stem is 10 feet call, cutting it in a couple of pieces so it lays on the ground and doesn't -- your trees don't jack-straw and lay on each other, you know. So this way you get all of the biomass close to the ground, where it can then decay naturally and quickly.

Q So you would have to leave the tree debris on the ground to prevent the soil erosion?

A In most cases, but then it depends on how you remove the trees. If you pick them up by hand and move them off-site, you would cause

K. McLOUGHLIN 1 2 very little soil disturbance and no erosion. 3 If you are using large equipment to pick up a tree bow and move it, you're going to have a 4 5 problem with soil erosion. If you look at line 22 on page 11, 6 7 talks about the type of land used along the 8 right-of-way can impact the manner in which the 9 TVM is implemented. 10 Do you see that? 11 Α Yes. 12 And would you agree if there are 13 slopes, large slopes in the land, that could 1 4 effect how close the trees could grow to the 15 wires? 16 Well, if you have a valley situation, 17 a gorge, oftentimes, the conductors then are 18 well off the ground, and if the distances are 19 exceedingly large, then many other trees could 2.0 be left down in the valley. It all depends on 2.1 the conductor height at that location and the

height growth of the potential tree. It's the

same equation, but now you have a much greater

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2 height difference, then you might be able to leave stuff. I have seen where --

Q Meaning that those trees that were once incompatible, could become compatible in that situation?

In that situation, that's correct. If you have tremendous height growth on a Sugar Maple, but the conductor is 150 feet off the ground, the chances of it getting there are very low, but if you look for White Pine and Yellow Poplars, which do grow to 150 feet, you possibly could leave them for years and take them out as they got taller because you have so many years between the time the tree could grow to 150 feet. We are talking decades in this case, many decades, but then again, you have to watch the conductor. I have seen where people string conductors very tight over a gorge and the distances are hundreds of feet, and I have seen where the conductors follow the slope of the land and go down and back up the gorge and the height distances from the trees aren't that

Τ	K. MCLOUGHLIN
2	great. Again, in some cases they are less than
3	near a tower. So you have to look at the area
4	of the line, the plane and profile drawings,
5	how low is that line going to go and how tall
6	are the trees going to grow, so same factors,
7	but on a different scale.
8	Q Okay. Thank you for that.
9	On page 14, lines 9 and 10, are you
10	stating that Duke's prior vegetation management
11	plan previously implemented was ineffective?
12	A Yes. Some of the areas we looked at,
13	they hadn't used herbicides, they cut some
14	trees and were re-sprouting, they were getting
15	more dense and getting tall. So the previous
16	vegetation management was not optimum from an
17	IVM prospective. You were promoting trees by
18	cutting and not using herbicide.
19	Q Can you turn to page 18 of your
20	testimony, please?
21	A (Witness complies.)
22	Sure.
23	Q We have another photograph here. Did

1	K. McLOUGHLIN
2	you take this photograph?
3	A No, I didn't.
4	Q Okay. And is this one, similarly,
5	that you found off the internet?
6	A Yes, it was a perfect one of topping.
7	Q Do you know where it was taken?
8	A No. Again, great illustration for
9	what a tree looks like that was repeatedly
10	topped, and this is what happens when you are
11	directly under a power line, you have no option
12	of selective.
13	Q Do you know what time of year this
14	picture was taken?
15	A It looks like it was in the winter.
16	All of the trees in the background are dormant.
17	Q Okay. Could you go to page 19,
18	please?
19	A (Witness complies.)
20	Q Line 3, you use the term, defined
21	wire clearance zone.
22	Are you referring to Duke's defined
23	wire clearance zone in one of the documents

K. McLOUGHLIN

2 | that you reviewed?

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A No. A generic way of expressing it, that a flash-over could occur, you know, well-outside of the defined clearance zone due to additional sag or by the lines heating up from insufficient air flow to dissipate the heat of the line. So, just general, you think you're safe.

This is what happened to me out on that line with the 115 kv line, that I saw two flash-overs. I looked at that line, I thought it was adequate. I thought it was safe, and before I walked out of there, there were two flash-overs. So how did that happen; something happened, and I don't know. Was it the line sagged lower because of insufficient air flow, it was a very hot afternoon before a thunderstorm, and, you know, the air was dead calm, so did that occur; did the line have extra loading on it at the time. I don't know. Did the tree setup some type of conduit with the tip of the tree and the wire that exceeded

1	K. $McLOUGHLIN$
2	the normal ability for a flash-over to occur by
3	forming a plasma; I don't know. These are all
4	things that I examined, how did I see that and
5	how can I explain what I saw. Here I was, the
6	guy leaving the tree under the line thinking it
7	was safe for now and that we could conduct our
8	research in a couple of weeks, and we had the
9	flash-overs.
10	Q On page 18, line 5, you refer to a
11	longer than expected flash-over.
12	Do you see that?
13	A Yes. That is what I was just
14	referring to, longer than expected flash-over,
15	the studies that were done.
16	Q Longer in duration?
17	A No, the duration are all the same.
18	The distances are longer.
19	Q Okay. So that is referring to
20	distance between the tree and the wire?
21	A Yes, that's correct.
22	Q Okay. Thank you.
23	Do you know what the line sag

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#### K. McLOUGHLIN

2 equations are that you refer to on page 18, 3 line 8?

They are all different for Α different lines. I have looked at line equations that call for 1.7 mile an hour winds, some are 2 miles an hour, some are 3. Basically, all of the equations call for some type of air movement to help dissipate the heat of the conductor. When it goes to dead calm, the rare distances that occur, a major sag would actually happen, I'm told by engineering, and, to our knowledge, a dead calm over many spans has never occurred because no one has ever seen this major sag, which would actually heat the line up so much. I'm told that the line would not bounce back after the sagging. No one has referenced experience for this, but it could occur, but the wind speed and heavy loading could cause it to sag lower, and those conditions were probably present. It was in the afternoon, when the temperature was ambient and the wind was low, to me, almost a dead

#### K. McLOUGHLIN

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Q Do you know what the line sag equation is for Duke for the circuit at issue in this case?

A No.

Q Let's talk about Corona tip burn.

Did you study any trees that have tip burn?

A Anything that has a point to it, the tip of the bud, the tip of the Spruce tree, that area seems to attract electrons off the conductor, and they do so at such a rate that it actually burns the tip of the tree; and this will occur well-outside of any wire security zone, but it's sort of evidence that the tree is getting a little too close. This is another -- ends up another of my theories of why I saw the greater than normal, longer than normal, flash-over, because what happens when the electrons are peeling off that line, hitting the tree, which is evidenced by the fact that the tip has burned ends, called Corona tip burn, the electrons are creating a plasma, and

### K. McLOUGHLIN

2	plasma is another state of matter. Air is an
3	insulator and plasma is a conductor. If the
4	electrons are moving more rapidly, it's setting
5	it up for an easy flash-over of a much greater
6	distance, the problems being that trees and
7	conductors, once allowed to be there, are there
8	under all sorts of conditions, and the
9	conditions might get right at any given time
10	for this longer path to occur. The studies
11	that are done are done under realtime
12	conditions. The conductors are lower, close to
13	the line, energized, and see if there is a
14	flash-over. So there is no chance for
15	something like this to setup and to expire.
16	So, again, the prudent side of it is to keep
17	the trees and conductors well-away from each
18	other, so this even
19	Q You conducted a study that you
20	referenced?
21	A No, I have looked up information
22	trying to explain this phenomena.
23	Q Did the phenomena occur; have you

1	K. McLOUGHLIN
2	seen it?
3	A That is what I'm trying to explain,
4	how did I see a flash-over 7 or 8 feet on a 115
5	line; how did that happen. So I actually
6	started studying it myself, trying to evaluate
7	the different factors.
8	Q So do you believe that that incident
9	that occurred was a Corona tip burn phenomenon?
10	A I don't know.
11	Q But you don't know?
12	A It could have. I know Corona tip
13	burn exists and I know that flash-over happens,
14	and we had a helicopter patrol the lines and
15	ground patrolled, and all of a sudden, we have
16	an instantaneous flash-over.
17	Q Do any of the circuits at issue in
18	this case have Corona tip burn?
19	A I don't know. I didn't witness any
20	myself out there.
21	Q Okay. I'm almost done. Let's look
22	at page 21 on lines 9 through 11.
23	A (Witness complies.)

1	K. McLOUGHLIN
2	Q You stated the attachments were
3	prepared at your direction or under your
4	control.
5	You are not suggesting that you wrote
6	the Northeast Snowstorm or had that prepared
7	under your direction, did you?
8	A No, I actually submitted them as
9	information.
10	Q So you just mean that the
11	attachments, collecting them and preparing them
12	to attach to your testimony, was done by you?
13	A Yes, that's correct.
14	Q Not the reports, themselves?
15	A Not the reports, themselves. I use
16	the reports as part of my testimony, therefore,
17	handed them in.
18	Q Okay. And your answer would be the
19	same for Attachment 2, which is the NERC
20	standard?
21	A That's correct.
22	Q Okay.
23	MS. BOJKO: If we could go off the

1	K. McLOUGHLIN
2	record for a couple of minutes to look
3	through my notes, I think I might be
4	done, or close to done. Let's take a
5	5-minute recess.
6	(At which time, 12:01 p.m., a brief
7	recess is taken until 12:07 p.m.)
8	MS. BOJKO: I have no further
9	questions for you. Thank you for your
10	time, sir.
11	THE WITNESS: No problem at all.
12	Good set of questions.
13	MR. ETTER: I don't think we have
14	anyone else involved in the case, so I
15	think that's it.
16	MS. WATTS: We would like to read
17	and sign, and we would like overnight
18	delivery of the transcript, if possible.
19	MR. ETTER: We will e-mail.
20	* * * *
21	(At which time, 12:09 p.m., the
22	examination of KEVIN McLOUGHLIN
23	concluded.)

1 2 This is the Deposition of 3 KEVIN McLOUGHLIN taken in the matter, on the date, and at the 4 5 time and place set out on the title page hereof. 6 7 8 It was requested that the deposition be taken 9 by the reporter and that same be reduced to 10 typewritten form. 11 12 It was agreed by and between counsel and the 1.3 parties that the Deponent will read and sign the transcript of said deposition. 14 15 16 17 18 19 2.0 2.1 22 23

1 2 REPORTER'S CERTIFICATION 3 I, DIANA M. RUSSELL, a Court Reporter 4 5 and Notary Public certified in and for the State 6 of New York, do hereby certify that I recorded 7 stenographically the proceedings herein at the 8 time and place noted in the heading hereof, and 9 that the foregoing transcript is true and accurate 10 to the best of my knowledge, skill and ability. IN WITNESS WHEREOF, I have hereunto set 11 12 my hand. 1.3 Jara Russell 14 15 DIANA M. RUSSELL 16 17 18 19 2.0 2.1 22 23

1	
2	DEPONENT'S CERTIFICATE
3	STATE OF:
4	COUNTY/CITY OF:
5	Before me, this day, personally appeared
6	KEVIN McLOUGHLIN, who, being duly sworn, states
7	that the foregoing transcript of his/her
8	Deposition, taken in the matter, on the date, and
9	at the time and place set out on the title page
10	hereof, constitutes a true and accurate transcript
11	of said deposition.
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14	KEVIN McLOUGHLIN
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18	Signed and subscribed to before me
19	thisday of,20
20	NOTARY PUBLIC, STATE OF NEW YORK
21	NOTAKI FUBLIC, STATE OF NEW TORK
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1	
2	DEPOSITION ERRATA SHEET
3	Our Assignment No.: 18-1102DMR_AM
4	RE: CITIZENS AGAINST CLEAR CUTTING v.
5	DUKE ENERGY OHIO, INC.
6	DECLARATION UNDER PENALTY OF PERJURY
7	I, KEVIN McLOUGHLIN declare, under penalty of
8	perjury, that I have read the entire transcript of
9	my Deposition taken in the above-captioned matter,
10	or the same has been read to me, and the same is
11	true and accurate, save and except for changes
12	and/or corrections, if any, as indicated by me on
13	the DEPOSITION ERRATA SHEET hereof, with the
14	understanding that I offer these changes as if
15	still under oath. I would like the following
16	changes made, and have indicated the reason for
17	such changes: For example, "to correct
18	stenographic error" or "to clarify the record" or
19	"to conform with the facts."
20	Signed on theday of, 20
21	
22	
23	KEVIN McLOUGHLIN

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11/5/2018 3:18:10 PM

in

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

Summary: Transcript Deposition Transcript of Kevin McLoughlin electronically filed by Ms. Jamie Williams on behalf of Etter, Terry Mr.