

BEFORE THE
NEW YORK STATE
PUBLIC SERVICE COMMISSION

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Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
Central Hudson Gas & Electric Corporation
for Electric Service

Case 17-E-____

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Proceeding on Motion of the Commission as to the
Rates, Charges, Rules and Regulations of
Central Hudson Gas & Electric Corporation
for Gas Service

Case 17-G-____

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**DIRECT TESTIMONY OF
DONALD L. DUBOIS
(ELECTRIC T&D VEGETATION MANAGEMENT
AND MAINTENANCE EXPENSE)**

June 28, 2017

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TABLE OF CONTENTS

I. INTRODUCTION 1

II. PURPOSE OF TESTIMONY..... 2

III. FACTORS AFFECTING CONTRACTOR PRICING TRENDS..... 3

IV. ELECTRIC TRANSMISSION ROW MANAGEMENT PROGRAM 8

 A. Routine ROW Maintenance - Electric Transmission 11

 B. Danger Tree Removal - Electric Transmission 14

 C. Hot Spot Trimming - Electric Transmission..... 16

 D. ROW Edge Reclamation - Electric Transmission..... 16

 E. Legal & Environmental - Electric Transmission..... 18

V. DISTRIBUTION LINE CLEARANCE PROGRAM 20

 A. Trimming – Contractor Scheduled On-Road..... 25

 B. Trimming – Contractor Scheduled Off-Road..... 26

 C. Trimming – Contractor Danger Trees 27

 D. Trimming – Contractor EAB Danger Trees – 3 Phase only 28

 E. Flagging – Line Clearance..... 29

 F. Trimming – Contractor Trouble Orders 31

 G. Trimming – Contractor Enhanced Line Clearance 32

1	VI. OTHER ELECTRIC T&D EXPENSE.....	36
2	A. Expense Associated with Electric Transmission Capital Projects.....	37
3	B. Expense Associated with Electric Distribution Improvement Projects.....	39
4	C. Electric Transmission and Distribution Inspection Repairs	42
5	1. Electric Transmission Inspection Repair Expenses.....	44
6	2. Electric Distribution Inspection Repair Expenses	46
7		

DIRECT TESTIMONY OF DONALD L. DUBOIS

1
2
3
4
5
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I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Donald L. DuBois, Jr. I am employed by Central Hudson Gas & Electric Corporation (“Central Hudson” or the “Company”), and my business address is 284 South Avenue, Poughkeepsie, New York 12601.

Q. In what capacity are you employed by Central Hudson and what is your scope of responsibilities?

A. I am employed by Central Hudson as the Company’s Manager of Electric Transmission and Distribution (“T&D”). I have several responsibilities related to the electric T&D system. I have responsibility for Electric Transmission & Distribution Maintenance, Construction, and Operations. I have overall responsibility for vegetation management activities at Central Hudson including electric transmission and distribution, as well as gas transmission canopy removal. I am also responsible for the Estimating Department. The Estimating Department is responsible for developing the design, bill of materials, and labor estimates for all of the electric and gas Distribution Improvement and New Business projects, including acquiring the required easements and preparing the documentation necessary to apply for the highway permits to facilitate construction.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Q. Please summarize your educational background and professional
2 experience.

3 A. I received a Bachelor of Science in Mechanical Engineering from Union
4 College in 1986. Since 1986, I have been continuously employed by
5 Central Hudson, with assignments in its Production, Mechanical
6 Engineering, Gas & Mechanical Engineering, Fuels Resources, Operation
7 Services, and Customer Services groups. Prior to my current assignment,
8 I served as the Manager of System Construction.

9 Q. Have you previously testified before the New York State Public Service
10 Commission (“PSC” or the “Commission”)?

11 A. Yes, I testified before the Commission in Cases 00-E-1273, 00-G-1274,
12 05-E-0934 and 05-G-0935. I also testified in Cases 08-E-0887,
13 08-G-0888, 09-E-0588, 09-G-0589, 14-E-0318, and 14-G-0319.

14 **II. PURPOSE OF TESTIMONY**

15 Q. What is the purpose of your testimony in these proceedings?

16 A. My testimony will address the actual expenditures for the twelve months
17 ended March 31, 2017, and the projected expenditures for the Rate Year
18 ending June 30, 2019 (“Rate Year”) for Central Hudson’s: 1) Electric
19 Transmission Right of Way (“ROW”) Management Program; 2) Electric
20 Distribution Line Clearance Program; 3) Expense Associated with
21 Category 12 (Electric Transmission) and Category 15 (Electric Distribution
22 Improvement) Capital Projects; and 4) Electric Transmission and
23 Distribution Inspection Repair Expenses.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Q. Are you sponsoring any exhibits in support of your testimony?

2 A. Yes. I have prepared two exhibits. These exhibits provide the actual
3 expenditures for the twelve months ended March 31, 2017, the projected
4 bridge period expenditures for calendar years 2017 and 2018, and the
5 Rate Year for Electric Transmission ROW Management (Exhibit __
6 (DLD-1)) and Distribution Line Clearance (Exhibit __ (DLD-2)). I will be
7 referencing the Revenue Requirements Panel projections to discuss the
8 relationship between project mix and the associated expense for the
9 Category 12 and 15 capital forecasts as well as the existing backlog levels
10 and anticipated findings and subsequent required repairs for both electric
11 distribution and electric transmission inspection repairs.

12 **III. FACTORS AFFECTING CONTRACTOR PRICING TRENDS**

13 Q. Please provide an overview of the Transmission ROW Management and
14 Distribution Line Clearance contractor pricing trends and its impact on
15 projected expenditures.

16 A. New unit and hourly rates went into effect on January 1, 2016 for
17 Transmission ROW Management contractors that included an average
18 yearly escalation factor of 2.0% per year for work performed on an hourly
19 basis and 2.5% per year for ROW floor work that is performed based on
20 unit rates. New hourly rates also went into effect on January 1, 2016 for
21 Distribution Line Clearance contractors that included an average yearly
22 escalation factor of 2.4% per year for work activities that are performed on
23 an hourly basis.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Q. Are there any factors other than contractor hourly and unit rates impacting
2 the cost of Transmission ROW Management and Distribution Line
3 Clearance?

4 A. Yes, the lack of sufficient funding in the current rate plan to remain on a
5 five year cycle for Transmission ROW Management and a four year cycle
6 for Distribution Line Clearance is impacting the cost per acre and cost per
7 mile for both programs, which will be discussed later in my testimony.

8 Other factors include the United States Fish and Wildlife Service
9 (“USFWS”) and New York State Department of Environmental
10 Conservation (“NYSDEC”) regulations pertaining to the Northern Long-
11 Eared Bat (“NLEB”) and the Indiana Bat, as well as the significant
12 increase in the number of danger trees resulting from the Emerald Ash
13 Borer (“EAB”) (ash trees), Woolly Adelgid (hemlock trees), Dutch Elm
14 Disease (elm trees), White Pine Decline (pine trees), and Gypsy
15 Moths/Oak Wilt (oak trees), which are impacting both Transmission ROW
16 Management and Distribution Line Clearance.

17 Q. What is the impact of the regulations pertaining to the NLEB and
18 Indiana Bat?

19 A. The USFWS and NYSDEC have classified the NLEB as a “Threatened
20 Species” and the Indiana Bat as an “Endangered Species”. The rules
21 regarding the protection of each bat species is determined based on
22 the classification.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 There are certain exemptions granted for the NLEB under Federal
2 (4(d) rule) and State law (NYSDEC Guidance) to reduce the mortality
3 impacts on the bat species by outlining when certain activities such as
4 cutting and removing trees can be done. The 4(d) rule prohibits the
5 incidental “take” of the NLEB in areas of the country, like New York State,
6 that are within the White Noise Syndrome Zone. Tree removal/trimming
7 cannot occur within 0.25 miles of a known hibernaculum at any time of the
8 year nor within a 150 foot radius of known occupied maternity roost trees
9 during the pup season (June 1st -July 31st). Unrestricted cutting is
10 allowed during the November 1st through March 31st time period except
11 within the buffer of a known hibernaculum as defined above. The
12 NYSDEC Guidance requires adherence to the USFWS 4(d) rule, but
13 expands the buffer around a known hibernaculum from 0.25 miles to 5
14 miles for tree removal and/or trimming. The 150 foot buffer still applies to
15 maternity roost trees and any other documented summer occurrence.
16 One noted difference between the two rules is that the NYSDEC provided
17 clarification in its guidance document on the definition of “protection of
18 human life and property.” For the purpose of the NYSDEC Guidance,
19 protection of human life and property includes removal of a tree or trees
20 that, if not removed, could result in the loss of electric service. Therefore,
21 in some cases it may reduce the five mile buffer for the NLEB to the
22 USFWS 0.25 mile buffer for known hibernaculum.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Since the Indiana Bat is classified as an Endangered Species, the
2 USFWS prohibits the “take” of a bat either purposefully or by incidental
3 means except for the protection of human life, property, and/or research.
4 A buffer of 2.5 miles around each known occurrence or hibernaculum has
5 been established and no tree removal and/or trimming can be done except
6 during the November 1st through March 31st time period without first
7 consulting with the USFWS. The NYSDEC follows the Federal rules for
8 the Indiana Bat.

9 The New York Heritage Program acts as the repository for both the
10 USFWS and NYSDEC data related to Endangered and Threatened
11 Species. Central Hudson has entered into an agreement with the New
12 York Heritage Program to obtain the necessary data from the agencies to
13 determine where the known hibernaculum and/or roost trees are located.
14 The data is updated annually and provided to Central Hudson indicating
15 where expanded habitat and/or additional locations have been identified
16 during the previous year. In order to protect the exact location of the
17 species listed, the data is provided to Central Hudson in five mile buffers
18 making it difficult to determine the 0.25 mile or 150 foot buffer zones.
19 Utilizing extrapolation, Central Hudson has been able to approximate the
20 actual locations and then apply the appropriate buffer radius. This
21 information is plotted and then overlaid on a map of Central Hudson’s
22 service territory to determine the impacts on the current trimming cycle to
23 include circuits included in the backlog. The circuits impacted by either

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 the NLEB or Indiana Bat are reviewed to determine if line clearance work
2 can be started and completed during the November 1st to March 31st time
3 period based on available resources. Circuits that cannot be completed
4 within this time period are deferred until the following time period. This
5 results in an increase in the backlog of uncompleted miles.

6 Q. Utilizing the data from the New York Heritage Program, has Central
7 Hudson been able to determine the impacted miles associated with each
8 bat species?

9 A. Yes, based on the latest data from the New York Heritage Program,
10 Central Hudson has been able to determine that the regulations pertaining
11 to the Indiana Bat currently impact 1,524.2 miles of distribution and 149.4
12 miles of transmission. Fortunately, the regulations pertaining to NLEB
13 currently only impact 10.6 miles of distribution and 1.2 miles
14 of transmission.

15 Q. How does Central Hudson ensure compliance with the regulations
16 regarding the Indiana Bat and NLEB while still adhering to the
17 trimming schedule?

18 A. Operationally, Central Hudson does not intentionally exclude distribution
19 circuits or transmission lines from the cycle year due to bat zone impacts.
20 In an attempt to prevent double mobilization and/or duplicate customer
21 notifications, each distribution circuit or transmission line is evaluated to
22 determine the number of miles impacted by either the Indiana Bat or
23 NLEB and a work plan is developed taking into consideration the

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 anticipated time and crewing required to complete the identified work
2 within the allowed November 1st through March 31st time period. If
3 sufficient funding and/or crewing is not available to complete all of the
4 mileage impacted by the bat zones between November 1st and March
5 31st then the unfinished miles are added to the carry over or backlog
6 miles when the work can be scheduled for completion in compliance with
7 the regulations.

8 **IV. ELECTRIC TRANSMISSION ROW MANAGEMENT PROGRAM**

9 Q. Have you reviewed the actual costs of Central Hudson’s Electric
10 Transmission ROW Management in the twelve-month period ending
11 March 31, 2017?

12 A. Yes. The costs of the Electric Transmission ROW Management Plan for
13 the period ending March 31, 2017 are summarized on Exhibit __ (DLD-1).

14 Q. Were there any assumptions utilized in developing the forecasted
15 expenditures for Transmission ROW Management during the bridge
16 period for calendar years 2017 and 2018?

17 A. Yes. The forecasted expenditures during the bridge period were
18 developed assuming that the pending deferral petition filed by the
19 Company on May 5, 2017 in Case 17-E-0250 (“Deferral Petition”),
20 requesting additional funding for Transmission ROW Management during
21 the second half of 2017 and first half of 2018 (\$1,891,948), is approved
22 and includes a proposed offset against the existing regulatory liability
23 balance available for moderation as indicated on Exhibit __ (DLD-1).

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Q. If the requested funding associated with the Deferral Petition is reduced or
2 denied, will that have an impact on your testimony and forecasted funding
3 as indicated on Exhibit __ (DLD-1)?

4 A. Yes. The funding requested in the Deferral Petition is required to remain
5 on a five year cycle as prescribed in Central Hudson’s Long Range
6 Transmission ROW Management Plan (“Plan”), as revised and filed on
7 May 6, 2014 in Case 04-E-0822. The requested funding will facilitate
8 completing the backlog of work left over from 2015 and 2016, completing
9 the work identified for calendar year 2017, and the work forecasted for
10 completion during the first six months of 2018. If the funding requested in
11 the Deferral Petition is reduced or eliminated, then additional funding will
12 be required as part of this rate filing. This will need to be reflected in the
13 final determination of electric revenue requirements. The Deferral Petition
14 is based on actual work inventories or the historical five year average for
15 all of the work activities except for danger trees.

16 Q. Please explain the basis for the forecasted number of danger tree
17 removals that would be required during the forecast period.

18 A. The Emerald Ash Borer (ash trees), Woolly Adelgid (hemlock trees), Dutch
19 Elm Disease (elm trees), White Pine Decline (pine trees), and Gypsy
20 Moths/Oak Wilt (oak trees) are all impacting (increasing) the number of
21 danger trees identified for removal during the quarterly aerial patrols of the
22 Electric Transmission System performed in 2016 and thus far in 2017. For
23 this reason, the actual quantity of danger trees removed during calendar

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 year 2016 was used as the basis for the number of danger trees to be
2 removed during the forecasted period.

3 Q. Please describe the scope of Electric Transmission ROW Management
4 activities for the Rate Year reflected in Exhibit __ (DLD-1).

5 A. Central Hudson's Plan, as revised and filed on May 6, 2014 in Case 04-E-
6 0822, outlines the work to be performed and provides the basis for the
7 forecasted expenditures reflected in Exhibit __ (DLD-1). The Staff of the
8 New York State Department of Public Service ("Staff") reviewed and
9 approved the Plan revisions, as indicated by letter dated June 6, 2014
10 from Secretary Kathleen H. Burgess. This Plan identifies a total of 587
11 miles and 9,485 acres of electric transmission ROW to be maintained on a
12 five-year cycle (equating to approximately 118 miles and 1,897 acres
13 per year).

14 Q. Please describe the activities that comprise the Company's Electric
15 Transmission ROW Management and how the Rate Year forecast was
16 developed for each activity as reflected in Exhibit __ (DLD-1).

17 A. The seven activities that comprise Central Hudson's Electric Transmission
18 ROW Management Program as reflected in Exhibit __ (DLD-1) are:
19 Maintenance of ROW Floor, Mowing & Access Roads, Side Trimming,
20 Danger Tree Removal, Hot Spot Trimming, ROW Edge Reclamation, and
21 Legal & Environmental. Most of these activities are directed or impacted
22 by the Commission's Order Requiring Enhanced Transmission Right-of-
23 Way Management Practices by Electric Utilities issued on June 20, 2005

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 in Case 04-E-0822, its Order Adopting Recommendations issued on May
2 27, 2011 in Case 10-E-0155, 16 NYCRR 84.2, and North American
3 Electric Reliability Corporation (“NERC”) Vegetation Management
4 Standard, FAC-003-4.

5 Q. Please describe in more detail the ROW activities you identified.

6 A. I will discuss each in turn.

7 **A. Routine ROW Maintenance - Electric Transmission**

8 Maintenance of ROW Floor, Mowing & Access Roads, and Side
9 Trimming are the three activities that comprise Routine ROW
10 Maintenance – Electric Transmission.

11 Maintenance of the ROW Floor includes mechanical cutting of all
12 tall growing plant species from within the ROW corridor as well as
13 chemical control with herbicides. This work is typically performed between
14 June and September when herbicide applications are most effective.

15 Since the work plan for 2017 includes the bulk transmission lines
16 where the typical ROW width is 150 feet instead of 100 feet, the acres of
17 floor work for 2017 is approximately 50% greater than the five year
18 average (1,551 acres versus 1,068 acres). Although there are 1,897
19 acres of ROW included in the average annual plan, Central Hudson
20 projects that 1,068 acres of ROW (56%) will require floor maintenance,
21 with the remaining 44% consisting of either agricultural fields or regulated
22 wetlands. The projected 1,068 acres is consistent with the average floor
23 acres maintained per year in the five calendar years since 2012.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Therefore, the Rate Year forecast for maintaining the ROW floor assumes
2 that 1,068 acres will be treated.

3 Calculating the weighted cost per acre based on actual
4 expenditures for maintaining the ROW floor for the five years starting with
5 2012 resulted in an average cost per acre of \$263. Applying the
6 escalation factor of 2.5% per year resulted in a projected cost of \$270/acre
7 in 2017, \$277/acre in 2018, and \$284/acre in 2019 for ROW floor
8 maintenance. It is anticipated that 25% of the expenditures for this work
9 will occur in June with the remaining 75% occurring in the July through
10 September time period. Total Rate Year expenditures are forecasted to
11 be \$297,705 for ROW floor maintenance.

12 Mowing and access road work is either performed in conjunction
13 with the routine ROW floor work or is completed to facilitate performing
14 other work activities. As such, mowing and access road work has been
15 included as a component of Routine ROW Maintenance. Based on the
16 five year average, the Rate Year forecast assumes that 193 acres of
17 mowing will need to be completed. Typically 50% of the mowing is
18 completed between January and June with the remaining 50% completed
19 between July and December.

20 The five year average cost for mowing was \$860 per acre.
21 Applying the hourly time and equipment (“T & E”) cost increase factor
22 of 2.0% per year resulted in a projected cost of \$877/acre in 2017,
23 \$895/acre in 2018, and \$913/acre in 2019 for mowing. Total Rate Year

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 expenditures for the mowing and access roads activity are forecasted to
2 be \$174,473.

3 Side trimming operations are required to maintain the edge of the
4 electric transmission ROW. Assuming a five year cycle, there would
5 be 118 miles of ROW to be maintained each year. The average annual
6 miles of side trimming completed since 2012 has been 36.8 miles.

7 Calculating the weighted cost per mile based on actual side
8 trimming completed in the five calendar years starting with 2012 resulted
9 in an average cost per mile of \$13,975. Applying the hourly T & E cost
10 increase factor of 2.0% per year results in projected costs for side
11 trimming of \$14,255/mile in 2017, \$14,540/mile in 2018, and \$14,831/mile
12 in 2019. Typically 50% of the side trimming is completed between
13 January and June with the remaining 50% completed between July and
14 December. Total Rate Year expenditures for side trimming are forecasted
15 to be \$540,426.

16 In summary, the projected cost to complete the Routine Electric
17 Transmission ROW Maintenance activities, which include maintaining the
18 ROW floor (including herbicide application), performing mowing and
19 access road work, and completing the required side trimming for 20% of
20 the total ROW miles and acres each year (five year cycle) will require
21 annual expenditures of \$1,012,604 for the Rate Year.

DIRECT TESTIMONY OF DONALD L. DUBOIS

B. Danger Tree Removal - Electric Transmission

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2 Because danger trees are, by definition, located outside of the
3 ROW, removal of danger trees from private property generally requires
4 Central Hudson to obtain permission from the property owner to remove
5 the identified trees. The introduction of invasive species such as the
6 Emerald Ash Borer and Woolly Adelgid, coupled with Dutch Elm Disease,
7 White Pine Decline, and Gypsy Moths/Oak Wilt, has accelerated the
8 decay of ash, hemlock, elm, pine, and oak trees within Central Hudson's
9 service territory. It is anticipated that most ash trees along Central
10 Hudson's transmission ROWs will either be in a state of decline or dead
11 within one to five years. If these trees are capable of falling into a
12 transmission line, they will require topping or removal to avoid a potential
13 transmission interruption. Customers have been reluctant to give
14 permission to remove trees that are in decline, but have been more willing
15 to grant permission to top a tree that poses an imminent danger to a
16 transmission line.

17 Due to the insufficient funding level in the 2015 Rate Plan to
18 complete the Routine ROW Maintenance work associated with our five
19 year cycle, the funding for danger tree removals has been reallocated to
20 the Routine ROW Maintenance activity to complete more of that
21 maintenance. As a result, the danger tree removals completed have been
22 limited to only those trees posing an imminent threat to our facilities or
23 danger trees identified during the quarterly aerial patrols. There were 965

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 danger trees removed during 2016 with a backlog of 236 danger trees that
2 were identified but not removed in 2016. It is assumed that the backlog of
3 danger trees will be eliminated prior to June 30, 2018 if the funding
4 requested in the Deferral Petition is approved.

5 Central Hudson has been utilizing the same contractor to perform
6 its quarterly aerial patrols since 2006. One of Central Hudson's Utility
7 Foresters accompanies the contractor's inspector during the quarterly
8 aerial patrols. For comparison purposes, there were a total of 109 danger
9 trees identified during the quarterly aerial patrols conducted in 2015, 480
10 danger trees identified during the 2016 patrols, and 353 danger trees
11 identified during just the first and second quarterly patrols performed
12 in 2017. Since there was a 48.7% increase (316 additional trees) in
13 danger tree removals in 2016 compared to 2015 (not including the backlog
14 of 236 trees), it is anticipated that the level of Danger Tree Removal
15 activity will continue to increase in 2017, 2018, and 2019. The Rate Year
16 forecast assumes that 1,438 danger trees will be removed in total, with
17 798 danger trees removed between July 1, 2018 and December 31, 2018
18 and 640 danger trees removed between January 1, 2019 and
19 June 30, 2019.

20 The five year average cost for Danger Tree removal was calculated
21 to be \$287 per tree. Applying the annual hourly T & E cost increase factor
22 of 2.0% per year results in projected costs of \$293 per tree in 2017, \$299

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 per tree in 2018, and \$305 per tree in 2019. Total Rate Year expenditures
2 for danger tree removals are forecasted to be \$433,802.

3 **C. Hot Spot Trimming - Electric Transmission**

4 Central Hudson performs a ground patrol each year on the bulk
5 transmission lines as well as any line segments identified for mid-cycle
6 review as part of the Hot Spot Trimming activity. Work to be performed as
7 part of the Hot Spot Trimming activity is also identified through
8 comprehensive ground inspections and quarterly aerial patrols.

9 Utilizing the five year average, it is anticipated that 3,414 trees per
10 year will need to be removed as part of the hot spot trimming work activity.
11 Typically, 50% of the hot spot trees are removed between January and
12 June with the remaining 50% removed between July and December.

13 The five year average cost for hot spot tree removal was \$30 per
14 tree. Applying the annual hourly T & E cost increase factor of 2.0% per
15 year results in projected costs of \$31 per tree in 2017, \$32 per tree in
16 2018, and \$33 per tree in 2019. Total Rate Year expenditures for hot spot
17 tree removals are forecasted to be \$110,955.

18 **D. ROW Edge Reclamation - Electric Transmission**

19 ROW Edge Reclamation work was completed on all of the
20 Company's transmission lines based on the Plan and Profile drawings for
21 each line. This work was completed in June 2009 and no additional
22 expenditures were anticipated for the ROW Edge Reclamation activity.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Survey work associated with the acquisition of additional
2 easements in areas where Central Hudson had less than optimal ROW
3 width has identified some discrepancies between the Plan and Profile
4 drawings and the Company's actual easement rights. Based on this new
5 information, additional ROW edge reclamation work is necessary in order
6 to clear to the full extent of the ROW width.

7 The edge reclamation work is either completed in conjunction with
8 the scheduled Routine ROW Maintenance or as additional ROW widths
9 are acquired on 115 kV and 69 kV transmission lines. The work plan
10 for 2017 includes completing 1.92 miles of ROW edge reclamation. There
11 is also a backlog of 17 miles of ROW edge reclamation that was not
12 completed from 2015 and 2016 that will be completed prior to
13 June 30, 2018 provided that the funding requested in the Company's
14 Deferral Petition is approved.

15 It is anticipated that 28 miles of ROW edge reclamation will need to
16 be completed annually in 2018 and 2019 to align with the five year
17 average. Typically, 50% of the ROW edge reclamation work is completed
18 between January and June with the remaining 50% completed between
19 July and December.

20 Calculating the weighted cost per mile based on actual ROW edge
21 reclamation completed in the five calendar years starting with 2012
22 resulted in an average cost per mile of \$28,635. Applying the hourly T & E
23 cost increase factor of 2.0% per year results in projected costs of \$29,208

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 per mile in 2017, \$29,792 per mile in 2018, and \$30,388 per mile in 2019
2 for ROW edge reclamation. Total Rate Year expenditures for ROW edge
3 reclamation are forecasted to be \$842,520.

4 **E. Legal & Environmental - Electric Transmission**

5 Due to the acquisition of additional ROWs associated with Central
6 Hudson's ROW width deficiency initiative coupled with more accurate
7 delineation of the ROW edge from land surveying work completed as part
8 of the transmission rebuild projects, the need to remove danger trees
9 and/or edge trees from these areas has the potential to impact residential
10 properties along Central Hudson's ROWs. Requesting title searches to
11 ascertain the Company's existing rights prior to negotiating with land
12 owners is also becoming more typical. The need to utilize a land surveyor
13 to delineate the ROW edges or install property line demarcation to
14 establish line of sight to facilitate performing clearing activities without any
15 legal action is also becoming more prevalent. The cost associated with
16 performing the title searches and survey demarcations are being allocated
17 to the Legal & Environmental activity as shown on Exhibit __ (DLD-1).

18 NYSDEC has revised its regulations regarding invasive and
19 endangered/threatened species, which has required the expertise of
20 environmental consultants to assist in developing practices and
21 procedures and to identify and locate these species in the field. An
22 environmental consultant is also being utilized to provide annual training to
23 Central Hudson's Utility Foresters as well as the contractor crews

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 performing the field work to ensure compliance with the regulations
2 regarding invasive and endangered/threatened species as well as
3 herbicide application. The cost associated with utilizing these consultants
4 is also being allocated to the Legal & Environmental activity.

5 In addition, to maintain compliance with NYSDEC and New York
6 State Department of Health (“NYSDOH”) requirements for herbicide
7 application buffers related to the location of public and private drinking
8 water wells along and adjacent to ROWs, Central Hudson has been
9 utilizing the services of an environmental consultant to notify landowners
10 of the Company’s need for this information and to work with them to
11 identify locations in the field including taking GPS coordinates. Once
12 completed, the environmental consultant provides the data in a format
13 conducive to ArcGIS mapping so Central Hudson can provide the data to
14 its line clearance contractors to ensure compliance. These costs are also
15 being allocated to the Legal & Environmental activity.

16 It is anticipated that the level of Legal & Environmental activity will
17 be consistent with what was experienced in 2016; therefore the
18 expenditures for 2017 are anticipated to be \$44,037. Applying the hourly
19 T & E cost increase factor of 2.0% per year results in projected Legal &
20 Environmental costs of \$44,477 in 2018 and \$45,367 in the Rate Year.

DIRECT TESTIMONY OF DONALD L. DUBOIS

V. DISTRIBUTION LINE CLEARANCE PROGRAM

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Q. Have you reviewed the actual costs of Central Hudson’s Distribution Line Clearance Program for the twelve-month period ending March 31, 2017?

A. Yes. The costs for the Distribution Line Clearance Program for the twelve month period ended March 31, 2017, are summarized in Exhibit __ (DLD-2).

Q. Were there any assumptions utilized in developing the forecasted expenditures for the Distribution Line Clearance Program during the bridge period for calendar years 2017 and 2018?

A. Yes. The forecasted expenditures during the bridge period were developed assuming that the pending Deferral Petition requesting additional funding for removal of EAB danger trees during the second half of 2017 and first half of 2018 (\$4,919,205) is approved and includes a proposed offset against the existing regulatory liability balance available for moderation as indicated on Exhibit __ (DLD-2).

Q. If the requested funding associated with the Deferral Petition is reduced or denied, will that have an impact on your testimony and forecasted funding as indicated on Exhibit __ (DLD-2)?

A. Yes. The funding requested in the Deferral Petition is required to proactively begin to address the impact of the EAB on tree-related outage performance. If the funding requested in the Deferral Petition is reduced or eliminated, then additional funding will be required as part of this rate

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 filing. This will need to be reflected in the final determination of electric
2 revenue requirements.

3 Q. Please describe the scope of the Electric Distribution Line Clearance
4 Program for the projected Rate Year reflected in Exhibit __ (DLD-2).

5 A. Central Hudson has consistently focused on reliability and reinforced this
6 commitment over a decade ago when an independent consulting firm was
7 retained in 2006 to analyze our distribution line clearance practices from
8 an electric reliability perspective. Based on a review of Central Hudson's
9 tree related outage data, it was determined that most of the outages were
10 being caused by tree or limb failure not growth contact. The consultant
11 recommended that Central Hudson establish greater clearances by
12 reducing the overhang and removal of tall growing species from within the
13 ROW ("Modified Enhanced Trimming"). This methodology was
14 implemented in March of 2007 and has become the standard for our
15 routine line clearance program on three-phase as well as single-
16 phase lines.

17 Since only a small percentage of Central Hudson's tree-related
18 outages were determined to be caused by growth contacts, the decision
19 was made in 2007 to extend the distribution trimming cycle from three
20 years to four years to help offset the increased costs associated with
21 transitioning from standard box trimming to Modified Enhanced Trimming.

22 As a means to further improve reliability, the consultant also
23 identified completing Enhanced Line Clearance on the worst performing

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 three-phase lines (prioritized by tree-caused customer interruptions) and
2 include expanding the hazard/danger tree removal initiative on a system
3 basis. There are currently 300 miles of Enhanced Line Clearance
4 remaining from the 760 miles of three-phase lines originally identified by
5 the consultant. The Company recommends that the remaining 300 miles
6 of Enhanced Line Clearance be completed over three years (100 miles
7 per year) to improve reliability and storm resiliency in the areas served
8 from these circuits.

9 Q. Has any additional work been performed since 2006 to assess the
10 effectiveness of the current line clearance program from a tree related
11 outage perspective?

12 A. Yes. In 2016, Central Hudson re-engaged the same consultant that was
13 utilized in 2006 to perform a comprehensive assessment of the current
14 line clearance program and to identify the drivers of the deteriorated
15 vegetation related reliability performance to include developing
16 recommendations for improvements.

17 Q. What were the consultant's key findings and recommendations?

18 A. The consultant's four key findings are listed below:

- 19 1) Central Hudson's Vegetation Management Practices for
20 Distribution Line Clearance are consistent with Industry
21 Best Practices.
- 22 2) There were significant logistical and operational constraints
23 associated with the restriction of trimming within the bat zones.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 The Indiana Bat and NLEB impact over 3,000 circuit miles (42%
2 of the system) and 1,524.2 miles are directly within the Indiana
3 Bat zone with only 10.6 miles directly within the NLEB zone.

4 3) The impact of hazard trees and particularly the ash trees
5 devastated by the EAB was a significant contributor to the
6 deterioration of tree related reliability performance.

7 4) The level of funding provided in the current rate agreement was
8 insufficient to maintain the recommended four year cycle for
9 distribution line clearance and that the backlog by July 1, 2018
10 would be 1,640 miles.

11 The consultant's six recommendations are listed below:

12 1) Address the EAB issue by either adjusting expectations for
13 reliability and associated restoration costs and/or through
14 additional funding targeted for the removal of ash trees.

15 2) Return to a four year maintenance cycle length to prevent grow-
16 in outages.

17 3) Begin to manage routine maintenance of circuits affected by
18 protected bats separately from the other circuits.

19 4) Segregate Off-ROW danger (hazard) tree removal costs from
20 other routine maintenance costs.

21 5) Separate EAB program dollars from other routine danger tree
22 program dollars.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 6) Perform a cost/benefit analysis to evaluate the use of herbicides
2 to control stump sprouts.

3 Q. How does Central Hudson plan to address the consultant's
4 recommendations?

5 A. Implementation of recommendations 1 through 5 was discussed in the
6 Deferral Petition as well as within this testimony including the incremental
7 funding requirements. Recommendation 6 pertains to the use of
8 herbicides as part of the distribution line clearance program. The
9 language contained in our typical distribution easements does not include
10 the use of herbicides. Therefore, the use of herbicides to control stump
11 sprouts would require obtaining permission from impacted landowners,
12 which is significantly more time consuming and costly than the
13 notifications required for transmission herbicide applications. Central
14 Hudson will perform the cost/benefit analysis in 2017 for
15 recommendation 6 prior to deciding on the appropriate course of action
16 regarding implementation.

17 Q. Please describe the activities that comprise the Company's Electric
18 Distribution Line Clearance Program and how the Rate Year forecast was
19 developed for each activity as reflected in Exhibit __ (DLD-2).

20 A. Central Hudson's Distribution Line Clearance Program has typically
21 consisted of six activities:

- 22 • Trimming – Contractor Scheduled On-Road;
- 23 • Trimming – Contractor Scheduled Off-Road;

DIRECT TESTIMONY OF DONALD L. DUBOIS

- 1 • Trimming – Contractor Danger Trees;
- 2 • Flagging – Line Clearance;
- 3 • Trimming – Contractor Trouble Orders; and
- 4 • Trimming – Contractor Enhanced Line Clearance.

5 A new activity has been added entitled Trimming - Contractor EAB
6 Danger Trees – 3 Phase only. Exhibit __ (DLD-2) reflects the seven
7 activities that comprise Central Hudson’s Distribution Line Clearance
8 Program. The Trimming – Contractor Scheduled On-Road and
9 Trimming – Contractor Scheduled Off-Road activities can be referred to as
10 the “routine” portions of the program and should be completed on a four-
11 year cycle basis. This equates to 1,363 (5,452/4) miles of on-road and
12 426 (1,703/4) miles of off-road clearing per year. The two factors that
13 determine the forecasted cost for the on-road and off-road line clearance
14 activities are cost per mile and miles to be completed during the
15 forecasted period.

A. Trimming – Contractor Scheduled On-Road

17 Trimming - Contractor Scheduled On-Road includes completing an
18 average of 1,363 miles of modified enhanced on-road line clearance per
19 year. Based on insufficient funding to remain on a four year cycle, the
20 backlog of on-road miles on July 1, 2018 is forecasted to be 1,230 miles.
21 To get back on cycle over a period of three years would require
22 completing an additional 410 miles per year for a total of 1,773 miles per
23 year. It is assumed that 50% of the miles would be completed between

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 January and June with the remaining 50% completed between July
2 and December.

3 Since the cost per mile for on-road line clearance has been
4 increasing each year due to the lack of funding to remain on a four year
5 cycle as well as increased contractor labor and equipment costs, it is
6 recommended that the actual average cost per mile for 2016 of \$8,031 per
7 mile be utilized as the basis for forecasting the future cost per mile for this
8 work activity. Applying the hourly T & E cost increase factor of 2.4% per
9 year results in projected costs per mile of \$8,224 in 2017, \$8,421 in 2018,
10 and \$8,623 in 2019. Total Rate Year expenditures for the On-Road Line
11 Clearance activity are forecasted to be \$15,109,507.

12 **B. Trimming – Contractor Scheduled Off-Road**

13 Trimming – Contractor Scheduled Off-Road activity includes
14 completing an average of 426 miles of modified enhanced off-road line
15 clearance per year. Based on insufficient funding to remain on a four year
16 cycle, the backlog of off-road miles on July 1, 2018 is forecasted to be 410
17 miles. To get back on cycle over a period of three years would require
18 completing an additional 137 miles per year for a total of 563 miles per
19 year. It is assumed that 50% of the miles would be completed between
20 January and June with the remaining 50% completed between July and
21 December.

22 Similar to on-road, the cost per mile for off-road line clearance has
23 been increasing each year due to the lack of funding to remain on a four

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 year cycle as well as increased contractor labor and equipment costs, it is
2 recommended that the actual average cost per mile for 2016 of \$8,470 per
3 mile be utilized as the basis for forecasting the future cost per mile for this
4 work activity. Applying the hourly T & E cost increase factor of 2.4% per
5 year results in projected costs per mile of \$8,673 in 2017, \$8,881 in 2018,
6 and \$9,094 in 2019. Total Rate Year expenditures for the Off-Road Line
7 Clearance activity are forecasted to be \$5,059,963.

8 **C. Trimming – Contractor Danger Trees**

9 Trimming – Contractor Danger Trees is an activity that includes the
10 removal of trees from outside of the Company’s ROW that are either dead
11 or in a state of decay and if they fall into the Company’s distribution line
12 would result in significant damage and/or an extended outage. As
13 discussed previously, invasive species have accelerated the decay of ash,
14 hemlock, elm, white pine, and oak trees within Central Hudson’s service
15 territory. Central Hudson has been receiving requests from municipalities
16 to assist in the removal of these trees as they pose a public safety threat
17 in these communities. Where the trees are in close proximity to our lines,
18 Central Hudson has committed line clearance contractor resources to cut
19 the trees down and municipal crews have assumed responsibility for
20 clean-up and disposal of the debris. Expenditures for this activity depend
21 on the number of danger trees identified and removed during the year.
22 Since a new activity is being proposed to deal with the impacts of EAB
23 danger trees, it is recommended that the number of danger trees to be

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 removed on an annual basis as part of the routine danger tree program be
2 based on the two year average of danger tree removals from 2015 and
3 2016 (405 trees). It is assumed that 50% of the danger trees would be
4 removed between January and June with the remaining 50% removed
5 between July and December.

6 The average cost to remove a danger tree during the 24 month
7 period from January 1, 2015 through December 31, 2016 was \$797 per
8 tree. Applying the hourly T & E cost increase factor of 2.4% per year
9 results in projected costs of \$816 per tree in 2017, \$836 per tree in 2018,
10 and \$856 per tree in 2019. Total Rate Year expenditures for routine
11 danger tree removals are forecasted to be \$342,620.

12 **D. Trimming – Contractor EAB Danger Trees – 3 Phase only**

13 The consultant completed a sample survey of 20 one mile
14 segments to determine the number of hazard trees adjacent to our
15 distribution lines. Although white pine, hemlock and ash trees were
16 observed to be either dead or in decline, the outage data indicated that the
17 EAB impact on the mortality of ash trees has been the most significant
18 contributor to the increase in the number of tree related outages. Based
19 on the consultant’s sample inventory they determined that, on average,
20 there are 16.3 ash trees per mile along our three phase circuitry.

21 Assuming that the Deferral Petition is approved to provide the required
22 funding to complete EAB danger tree removals along 632 miles of three
23 phase circuitry by July 1, 2018, it is recommended that the EAB danger

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 tree removal program be scaled back to include completing 321 danger
2 tree miles per year. If the Deferral Petition is not granted, the level of the
3 program should not be scaled back. It is assumed that 50% of the miles
4 would be completed between January and June with the remaining 50%
5 completed between July and December.

6 Central Hudson conducted an EAB Pilot Project in 2016 to evaluate
7 the costs associated with performing a danger tree inventory, obtaining
8 permission from impacted property owners to remove the identified danger
9 trees, as well as the contractor costs associated with the actual danger
10 tree removals. The average cost per tree for the 309 trees removed as
11 part of the 2016 EAB Pilot Project was \$236 per tree. The average cost
12 per tree for the 549 trees removed as part of the routine danger tree
13 program in 2016 was \$686 per tree. It is recommended that the average
14 EAB danger tree removal for 2016 be calculated as the average of the
15 routine and EAB danger tree removals or \$461 per tree. Applying the
16 hourly T & E cost increase factor of 2.4% per year results in projected
17 costs of \$472 per tree in 2017, \$483 per tree in 2018, and \$495 per tree in
18 2019. Total Rate Year expenditures for EAB danger tree removals are
19 forecasted to be \$2,558,400.

20 **E. Flagging – Line Clearance**

21 Flagging is directly related to completing on-road line clearance,
22 enhanced line clearance, danger tree removal, and trouble orders, but the

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 costs for flagging are accounted for independently of performing these
2 work activities.

3 Appropriate signage and flagging continue to be required to meet
4 local town, county, state and federal guidelines for work zone safety when
5 performing work to include trimming operations along or across any
6 roadway. Work zone safety continues to be a paramount concern and
7 providing trained and qualified flagging personnel is an integral part of
8 performing distribution line clearance activities along state, county, and
9 town roads.

10 It is anticipated that the flagging activity work will continue to be
11 performed, and staffed as needed, through temporary employment with
12 compensation paid on an hourly basis. The total forecasted expenditures
13 for flagging were developed by calculating an average flagging cost per
14 mile for both on-road and enhanced line clearance.

15 Since the cost per mile for on-road line clearance has been
16 increasing each year due to the lack of funding to remain on a four year
17 cycle as well as increased contractor labor and equipment costs, it is
18 recommended that the actual average cost per mile for flagging in 2016 of
19 \$561 per mile be utilized as the basis for forecasting the future cost per
20 mile for this work activity. Applying the hourly T & E cost increase factor
21 of 2.4% per year results in projected costs per mile of \$574 in 2017, \$588
22 in 2018, and \$602 in 2019.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Incorporating the additional time required to complete enhanced
2 line clearance compared to modified enhanced on-road line clearance, the
3 forecasted cost per mile for enhanced line clearance flagging was
4 projected to be 65% higher than the on-road line clearance flagging cost.
5 This resulted in projected costs for enhanced line clearance flagging of
6 \$926 per mile for 2016. Applying the hourly T & E cost increase factor of
7 2.4% per year results in projected costs per mile of \$948 in 2017, \$971 in
8 2018, and \$994 in 2019.

9 Multiplying the average cost per mile for on-road line clearance
10 flagging by the planned miles for on-road line clearance, multiplying the
11 average cost per mile for enhanced line clearance flagging by the planned
12 miles for enhanced line clearance, and then adding the totals together for
13 both on-road flagging and enhanced line clearance flagging resulted in
14 forecasted Rate Year expenditures of \$1,153,185 for flagging.

15 **F. Trimming – Contractor Trouble Orders**

16 Tree related conditions requiring off-cycle attention are categorized
17 as Trouble Orders and in the past would have typically followed a storm
18 event. Trouble Orders may result from localized wind events or lightning
19 strikes that can damage tree limbs that are in contact, or will make
20 contact, with our electrical facilities. The Distribution Line Clearance
21 Program does not have an activity to address mid-cycle vegetation
22 clearance issues. Line clearance work required to provide additional
23 resiliency or to address sub-par tree related reliability performance prior to

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 the next scheduled maintenance would be additional examples of Trouble
2 Order conditions. Expenditures for this activity depend on the actual
3 number of Trouble Orders created during the year. Since the Trouble
4 Order activity expenditures increased by 84.9% in 2015 compared to 2014
5 and increased another 57.6% in 2016 compared to 2015 it is
6 recommended that the actual expenditures from 2016 of \$75,306 or
7 \$6,276 per month be utilized as the basis for forecasting the future cost for
8 this work activity. Applying the hourly T & E cost increase factor of 2.4%
9 per year results in projected costs per month of \$6,427 in 2017, \$6,581 in
10 2018, and \$6,739 in 2019. The forecasted Rate Year expenditures of
11 \$79,920 for Trouble Orders is consistent with the anticipated work load for
12 this activity.

13 **G. Trimming – Contractor Enhanced Line Clearance**

14 The Enhanced Line Clearance activity targets completing a more
15 aggressive ground to sky line clearance (including tree removals and
16 complete over-hang removal) on both the on-road and off-road three-
17 phase mainline sections of the worst performing circuits from a tree-
18 related outage perspective.

19 Although funding for this program has not been provided in the last
20 several rate plans, reinstating the Enhanced Line Clearance Program (100
21 miles per year) in addition to the EAB Danger Tree Program is the most
22 economical means of improving tree related outage performance and

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 providing additional storm resiliency since most outages during storms can
2 be linked to tree-related causes.

3 The average cost per mile for performing enhanced line clearance
4 is assumed to be 65% higher than the average cost per mile for modified
5 enhanced (on-road and off-road) line clearance. Utilizing the average cost
6 for modified enhanced line clearance during the 36 month period from
7 January 1, 2014 through December 31, 2016 of \$7,065 per mile and
8 increasing the cost by 65% results in an average cost of \$11,658 per mile
9 for 2015. Applying the hourly T & E cost increase factor of 2.4% per year
10 results in projected costs per mile of \$11,938 for 2016, \$12,225 for 2017,
11 \$12,518 for 2018, and \$12,808 for 2019. Multiplying the average cost for
12 2018 by 50 miles and the average cost for 2019 by 50 miles results in
13 forecasted Rate Year expenditures of \$1,266,800 to complete 100 miles of
14 Enhanced Line Clearance during the Rate Year.

15 Q. Has Central Hudson identified any other opportunities to improve tree
16 related reliability performance and/or storm resiliency?

17 A. Yes, Central Hudson has determined that there are 62,580 distribution
18 poles that do not have a primary conductor assigned to them. These pole
19 locations are used for secondary and aerial cable and are not currently
20 included in our Distribution Line Clearance Program. There are no
21 outages on the secondary cable as a result of contact with vegetation, but
22 these lines are susceptible to damage from falling limbs and trees. A
23 large percentage of the secondary cable is located in urban areas where

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 performing modified enhanced line clearance is not practical. Increasing
2 the focus on removing some of the overhang as well as the dead or
3 decaying trees will reduce the storm related outages on these lines.
4 Based on the reduced work scope planned for the secondary lines, it is
5 anticipated that the cost per mile for clearing these lines would be roughly
6 50% of the cost per mile for modified enhanced line clearance of our
7 primary lines. This would equate to an estimated cost for on-road
8 secondary line clearance in 2017 of \$4,339 per mile including \$287 per
9 mile for flagging. The estimated cost for off-road secondary line clearance
10 in 2017 would be \$4,337 per mile. Since the estimated cost per mile for
11 on-road and off-road are practically the same, there is no need to
12 differentiate between on-road and off-road and an average cost per mile of
13 \$4,338 can be utilized. Applying the hourly T & E cost increase factor of
14 2.4% per year results in projected costs per mile of \$4,442 for 2018
15 and \$4,549 for 2019.

16 Assuming that there are on average 31 poles per mile this would
17 equate to roughly 2,000 miles of secondary cable. If this work was
18 performed as part of the four year cycle, then 500 miles of secondary
19 trimming would be performed per year. The forecasted Rate Year
20 expenditures to implement a secondary trimming program would
21 be \$2,247,750 which is \$882,700 more than the proposed enhanced line
22 clearance activity including the associated flagging costs.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Q. Does the Company expect to meet its commitments to expend the funds
2 provided for in rates for line clearing activities for the period July 1, 2015
3 through June 30, 2018?

4 A. Yes. The Company has managed its Distribution Line Clearance and
5 Transmission ROW Maintenance programs effectively. In fact, as shown
6 on Exhibit __ (DLD-1), Central Hudson expects to have only \$428,608 in
7 funding remaining for Transmission ROW Maintenance after June 30,
8 2017 without approval of the Deferral Petition. For Distribution Line
9 Clearance, the Company expects to be at or above the funding
10 commitments for Rate Years 1 and 2 on June 30, 2017.

11 Q. Please describe the accounting provisions adopted in the 2015 Rate Plan.

12 A. The current expenditure requirements for both Distribution Line Clearance
13 and Transmission ROW Maintenance require the actual total expenditures
14 for each program to be compared to the rate allowance for that program
15 on a cumulative basis over the three-year term and any cumulative under
16 spending is to be deferred at the end of Rate Year 3. The intent of these
17 provisions is to ensure that Central Hudson spends the rate allowance
18 allocated to each of these programs and that Central Hudson secures the
19 required contractor crewing to meet this objective.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Q. What accounting provisions are you proposing associated with
2 Transmission ROW Management expenditures or Distribution Line
3 Clearance expenditures?

4 A. The Company is proposing symmetrical deferral for 100% of any under-
5 collections or over-collections for these programs. Any over-collections
6 would be carried forward for use in the Transmission ROW Management
7 or Distribution Line Clearance programs, respectively, in subsequent
8 years and any under-collections would be deferred for future rate recovery
9 from customers.

10 **VI. OTHER ELECTRIC T&D EXPENSE**

11 Q. Moving on to the topic of expense components associated with electric
12 transmission and distribution capital projects and inspection repairs, what
13 is the Company proposing?

14 A. The expense associated with Electric T&D capital projects is based on the
15 capital to expense ratio for each project coupled with the size of the capital
16 forecast and therefore does not necessarily trend with inflation. As such,
17 the Company proposes considering the magnitude of the capital forecast
18 in conjunction with the associated project mix when projecting these
19 particular expenses. The expense associated with Electric T&D
20 inspection repairs is a function of the existing repair backlog as well as the
21 quantity, type, and severity of the anticipated inspection findings and
22 therefore does not necessarily trend inflation. With these expenses, the

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Company proposes a projection methodology other than inflation, as
2 discussed in more detail later in this testimony.

3 **A. Expense Associated with Electric Transmission**
4 **Capital Projects**

5 Q. Are there expense components associated with an Electric Transmission
6 (Category 12) Capital Project?

7 A. Most capital initiated work activities contain both a capital and an expense
8 work component. For transmission structure and/or pole replacements,
9 the installation of the new pole(s), framing of the new pole(s), and
10 installation of new anchors and guys are all considered capital installation
11 work tasks. Transferring the existing conductors and static from the old
12 pole or structure to the new pole or structure to include any re-tensioning
13 is considered maintenance or expense work. Removal and disposal of the
14 old structure or pole and any associated equipment or hardware is
15 considered capital removal work.

16 Based on the review of previously completed pole and/or structure
17 replacements, it has been determined that on average, the total time
18 associated with a typical pole replacement is allocated 70% to installation
19 capital, 15% to capital removal, and 15% to expense. For complete
20 rebuild projects where the structures, poles, and conductors are all being
21 replaced, there is no expense related work and the time is then typically
22 allocated 80% to capital installation and 20% to capital removal.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Q. How are the labor hours determined for the projects contained in the
2 Category 12 Electric Transmission Capital Forecast?

3 A. The Electric Transmission Capital Forecast contains a description of the
4 project and the capital installation dollars forecasted for each project.
5 Based on the description and general knowledge of the projects contained
6 in the forecast, it is determined whether the project will incur just
7 Engineering (design and permitting) charges or Engineering, Material, and
8 Labor charges during the forecast period. Based on the project
9 description it is then determined whether the project is a structure/pole
10 replacement project with an expense component or a complete rebuild
11 project with all labor hours allocated to capital. It is assumed that 10% of
12 the capital installation cost will be associated with design and permitting
13 (Engineering) with the remainder allocated between material and labor
14 based on project type and scope. The capital installation hours are
15 estimated based on labor hours required to complete similar projects in
16 the past. The removal and expense hours are then calculated based on
17 the allocations discussed above for each project type. The estimated
18 contractor expense hours were provided to the Revenue
19 Requirements Panel.

20 Q. How is the expense cost determined for the Category 12 Electric
21 Transmission Capital Forecast?

22 A. The total expense cost associated with the Category 12 Electric
23 Transmission Capital Forecast is determined by summing the expense

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 costs calculated for each project in that category of the capital plan. At the
2 project level, the expense cost is calculated by multiplying the expense
3 hours for each project by the hourly contractor rate. The estimated 2018
4 rate was provided to the Revenue Requirements Panel, and the forecast
5 of this expense is further discussed in the testimony of that Panel.

6 **B. Expense Associated with Electric Distribution**
7 **Improvement Projects**

8 Q. Are there expense components associated with an Electric Distribution
9 Improvement (Category 15) Capital Project?

10 A. Most capital initiated work activities contain both a capital and an expense
11 work component. Similar to transmission projects, the expense
12 component associated with distribution improvement projects is
13 determined based on the work tasks required to complete the project.
14 Transfer of the existing primary and secondary conductors to include the
15 neutral and any services would be considered expense work. Installation
16 or removal of a transformer, capacitor, or regulator would also be
17 allocated to expense. For first time installations of transformers,
18 capacitors, or regulators, there is a credit received to offset the expense
19 associated with both the installation and removal costs for this equipment.
20 Transformer credits are further discussed in the testimony of the Revenue
21 Requirements Panel.

22 Unlike the electric transmission capital projects, there are a
23 significant number of project types for electric distribution improvement
24 projects each with a different capital to expense ratio for construction

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 labor. For instance, a reconductoring project with a limited number of
2 transformers may have an expense component equal to 10% of the capital
3 installation cost whereas a conversion project which incorporates multiple
4 insulator and transformer replacements as well as shutdowns to complete
5 the conversion may have an expense component equal to 25% or more of
6 the capital installation cost. Similarly, the installation of a capacitor bank
7 or set of regulators for Distribution Automation will have very little labor
8 allocated to capital with the exception of a possible requirement to replace
9 the pole whereas a recloser installation for Distribution Automation will
10 have a large capital material cost and most of the labor will be associated
11 with performing capital related work tasks.

12 Q. Based on the variability outlined above, how are the labor hours
13 determined for the projects contained in the Category 15 Electric
14 Distribution Improvement Capital Forecast?

15 A. The Electric Distribution Improvement Capital Forecast supported by
16 Company Witness Haering contains a description of the project and the
17 capital installation dollars forecasted for each project. Historically, 10.7%
18 of the capital installation cost has been allocated to completing the
19 estimating and covering the other Accounts Payable charges in support of
20 construction excluding line contractor construction labor. Based on the
21 project description, a determination is made regarding project type which
22 is used to forecast material costs as well as the capital to expense ratio for
23 construction labor. Assumed capital to expense ratios for labor are

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 premiered on prior actual experience for similar projects. Distribution
2 Improvement projects are completed by Company district line crews,
3 Company Project Construction line crews, Company Splicers, or
4 Contractor line crews. For planning purposes, it is assumed that the
5 Distribution Improvement Blankets, Relocation Blankets, Distribution
6 Improvement Minors, Distribution Improvement Conversions, and
7 Road/Bridge Rebuild Relocation Projects will be completed by the
8 Company district crews. The remaining projects are allocated to the
9 Company Project Construction or Company Splicers until their available
10 work hours are exhausted. Any projects that could not be completed by
11 Company resources are then assigned to Contractor Line Crews. Since
12 the Company line crew and splicer staffing is not expected to change, the
13 available hours are assumed to be constant throughout the five year
14 capital forecast period.

15 Q. How is the contractor labor expense determined for the Category 15
16 Electric Distribution Improvement Capital Forecast?

17 A. Contractor expense cost is impacted by the magnitude of the capital
18 forecast and the mix of projects assigned to be completed by Contractor
19 line crews. The capital installation, capital removal, and expense hours
20 associated with the projects assigned to the Company district line crews
21 are not considered when calculating the overall ratio of capital to expense
22 hours for projects assigned to contractor resources. Utilizing the
23 calculated ratio of capital to expense hours and the total available hours

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 for the Company Project Construction and Company Splicer crews, the
2 capital installation, capital removal, and expense hours for work assigned
3 to contractors can be determined. Multiplying the total expense hours
4 assigned to contractors by the hourly contractor rate is equal to the total
5 expense cost associated with the Category 15 Electric Distribution
6 Improvement Capital Forecast. The allocation of the total cost between
7 the transfers of poles, wires, devices and transformer installations and
8 removals is determined based on the overall project mix. Estimated
9 contractor expense hours, the estimated contractor rate for 2018, and
10 project mix assumptions were provided to the Revenue Requirements
11 Panel. The forecast of this expense is further discussed in the testimony
12 of that Panel.

13 **C. Electric Transmission and Distribution Inspection Repairs**

- 14 Q. How are transmission and distribution inspection repairs tracked,
15 monitored, and scheduled for completion?
- 16 A. Each inspection finding is assigned a severity rating based on criteria
17 established by the Commission and New York’s major electric utilities.
18 The severity rating determines the required completion date for the
19 repair/replacement. Minor repairs typically do not have a required
20 completion date but are tracked, monitored, and repaired to ensure that
21 the condition does not deteriorate to a point where it becomes a major
22 repair. Some minor repairs need to be completed because they are
23 associated with National Electric Safety Code (“NESC”) code

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 requirements, even though they may not have a required completion date.
2 Major repairs can require immediate attention or may be assigned a
3 required completion date within 12 or 36 months of the inspection date,
4 depending on the severity rating. Most repairs are tracked and scheduled
5 based on their required completion date; however, completing required
6 repairs by geographic location provides an opportunity for synergy savings
7 by reducing travel and constant time by completing multiple repairs based
8 on proximity to other repairs or scheduled work. A list of open inspection
9 repairs as of March 31, 2017 was provided to the Revenue Requirements
10 Panel for both transmission and distribution.

11 Q. How is the time required to complete each repair determined?

12 A. The average hours to repair each condition is based on past experience of
13 actual time required to complete similar repairs or an assessment of the
14 work required to complete the repairs associated with each condition.
15 This information was also provided to the Revenue Requirements Panel.

16 Q. How does the Company forecast the estimated annual
17 inspection findings?

18 A. As further discussed by the Revenue Requirements Panel, the forecast of
19 annual inspection repair findings is based on a three year average of
20 annual findings over the 36 month period from January 1, 2014 through
21 December 31, 2016.

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 Q. Are all inspection repairs charged to maintenance expense?

2 A. No. Some inspection findings cannot be repaired, but rather require the
3 replacement of the pole, structure, or hardware and therefore may be
4 classified as capital rather than expense. As discussed earlier in this
5 testimony, most capital initiated work activities contain both a capital and
6 an expense work component. The expense associated with capital
7 replacements identified as part of the inspection process is included in the
8 expense associated with the capital forecast and therefore is not included
9 in the inspection repair expense forecast.

10 Q. How is the cost determined for each inspection repair?

11 A. As further discussed by the Revenue Requirements Panel, the cost
12 related to inspection repairs is based on multiplying the hourly contractor
13 rate by total hours to complete repairs. In the case of some types of
14 distribution repairs, cost is estimated per total repair, as opposed to
15 considering hours to repair. As with the expense for transmission and
16 distribution capital projects, I provided the estimated 2018 hourly
17 contractor rate to the Revenue Requirements Panel.

18 *1. Electric Transmission Inspection Repair Expenses*

19 Q. How are Electric Transmission Repairs identified?

20 A. Each electric transmission line is inspected comprehensively at least once
21 every five years from the ground. In most cases a comprehensive aerial
22 patrol and infrared survey is scheduled within the same year as the
23 ground inspection to provide multiple perspectives when assessing the

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 condition of the structure/pole and associated hardware and conductors.

2 The inspection schedule is coincident with the Transmission ROW

3 Management schedule to avoid issues regarding restricted access

4 associated with vegetative growth. Stray voltage testing is also performed

5 within the same year and in conjunction with either the comprehensive

6 ground inspection or the transmission ROW maintenance.

7 Q. Why does the projected transmission expense repair backlog not include

8 completing any inspection repairs between March 31, 2017 and July 1,

9 2018 (the bridge period)?

10 A. The expense funding allocated to the repairing of towers, poles and

11 fixtures on the Transmission system is being utilized to complete the

12 expense work associated with the Electric Transmission (Category 12)

13 Capital Projects which includes some of the capital replacements

14 identified during the inspection process and still have an

15 expense component.

16 Q. What assumptions were utilized to develop the expense projection for

17 Transmission Inspection Repairs?

18 A. As further discussed in the testimony of the Revenue Requirements

19 Panel, the expense projection for Transmission Inspection Repairs

20 assumed that sufficient funding would be available to complete inspection

21 repairs (both major and minor) consistent with the number of projected

22 findings (no increase in the backlog hours as a result of new findings) and

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 that 100% of major repair backlog and 20% of the minor repair backlog
2 would be completed within the Rate Year.

3 2. *Electric Distribution Inspection Repair Expenses*

4 Q. How are Electric Distribution Repairs identified?

5 A. Each electric distribution circuit is inspected at least once every five years
6 by a contractor in conjunction with the stray voltage testing. All Major
7 findings are validated in the field by a Company Line Foreman or
8 designated Company employee who has been trained to evaluate
9 inspection findings. This validation process confirms the findings and the
10 associated severity rating but also assesses the opportunity for synergy
11 savings or reliability enhancements that can be incorporated into the
12 inspection repair or replacement. Inspection findings requiring the
13 creation of a work order (capital work) are forwarded to the Estimating
14 Department to develop the work order estimate, obtain required
15 easements, and apply for any necessary permits before the project is
16 assigned to construction.

17 Q. What assumptions were utilized to develop the expense projection for
18 Distribution Inspection Repairs?

19 A. As further discussed by the Revenue Requirements Panel, the expense
20 projection for Distribution Inspection Repairs assumed that sufficient
21 funding would be available to complete inspection repairs (both major and
22 minor) consistent with the number of projected findings (no increase in the
23 backlog as a result of new findings) and that 33% of major repair backlog

DIRECT TESTIMONY OF DONALD L. DUBOIS

1 and 33% of the minor repair backlog would be completed within the Rate

2 Year.

3 Q. Does this conclude your direct testimony at this time?

4 A. Yes, it does.