

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
PAUL E. HAERING
(CAPITAL PLAN)**

July 28, 2017

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Q. Please state your name and business address.

A. My name is Paul E. Haering. 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 Senior Vice President of Engineering and System Operations. In that capacity, I am responsible for the engineering, planning, and designs for Central Hudson’s gas and electric transmission and distribution systems. I am also responsible for the construction, operation, and maintenance of our electrical substations. In addition, I have responsibility for the Company’s System Operations, Energy Management System and North American Electric Reliability Corporation (“NERC”) Reliability Compliance organizations.

Q. Please summarize your educational background and professional experience.

A. I graduated from Manhattan College in 1986 with a Bachelor of Engineering in Electrical Engineering. In 1992, I received a Masters of Electrical Engineering from Polytechnic University. In 2007, I received a Master of Business Administration from Rensselaer Polytechnic Institute. I joined Central Hudson in 1986 as a Junior Engineer in the Substation Design Section. In 1989, I was transferred to work as a Staff Engineer in

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1 the Operations Services Division, which is responsible for the operation,
2 maintenance, and construction of the Company's substation facilities.
3 In 1994, I was promoted to the position of Operations Supervisor in the
4 Operations Services Division. In 2000, I was transferred to the position of
5 Engineer in the Electric System Protection Section. In 2001, I became
6 Section Engineer for the Distribution Engineering Section. In 2003, I was
7 promoted to the position of Manager of Electric Transmission and
8 Distribution. In 2004, I was promoted to the position of Manager of
9 Electric Engineering Services. In May 2007, I was named the Assistant
10 Vice President of Engineering and Environmental Services and, in
11 December 2007, I was named Vice President of Engineering and
12 Environmental Services. In August 2011, I was named Vice President of
13 Engineering and System Operations and, in February 2017, I was named
14 to my current position.

15 Q. Have you previously testified before the New York State Public Service
16 Commission ("PSC" or the "Commission")?

17 A. Yes. I testified in Cases 05-E-0934, 05-G-0935, 08-E-0887, 08-G-0888,
18 09-E-0588, 09-G-0599, 14-E-0318, and 14-G-0319.

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II. PURPOSE OF TESTIMONY

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

A. My testimony supports the Company’s forecast of capital expenditures for the electric, gas, and common programs for the period July 1, 2018 through June 30, 2019 (“Rate Year”).

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

A. Yes. I am sponsoring Exhibit __ (PEH-1), developed for the rate case, which contains Central Hudson’s forecast of capital expenditures for the electric, gas, and common programs for the Rate Year. I am also sponsoring Exhibit __ (PEH-2) which contains a summary of the Company’s most recent Five-Year Capital Plan.

Q. Can you please further describe the Capital Forecast set forth in Exhibit __ (PEH-1)?

A. The Capital Forecast in Exhibit __ (PEH-1), developed solely for the rate case, represents the Rate Year portion of the Company’s most recent Five-Year Capital Plan, both of which were developed under my supervision and direction. Capital projects often take multiple years to complete and the Company typically utilizes a multi-year approach to such forecasting. The Five-Year Capital Plan was prepared as part of our standard annual capital planning process. The entire Five-Year Capital Plan is summarized in Exhibit __ (PEH-2). The testimony will discuss the major projects and programs included in the forecast.

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1 Q. Please explain what is shown on Exhibit __ (PEH-2), Schedule A, entitled
2 “Capital Program – Total.”

3 A. Schedule A is a summary of the Capital Plan for the period 2018
4 through 2022 and includes the Rate Year. This schedule includes annual
5 totals for each of the three major categories: Electric, Gas, and Common.
6 Additional detailed information for each of these three major categories is
7 included in Schedules B through D, respectively. The indicated figures
8 include Allowance For Funds Used During Construction (“AFUDC”).

9 Q. Are there any specific types of programs identified in Exhibit __ (PEH-2)
10 that you would like to highlight in your testimony?

11 A. Yes. I will discuss Central Hudson’s several ongoing significant initiatives
12 and two new initiatives. The ongoing major initiatives include the
13 Distribution Automation (“D.A.”) and Network Communication Strategy
14 programs which were both approved in the Order Approving Rate Plan in
15 Cases 14-E-0318 and 14-G-0319 (“2015 Rate Plan”). Both of these
16 programs are justified by a simplified cost-benefit analysis and have the
17 added benefit of providing foundational elements for system operational
18 needs of the Distributed System Platform (“DSP”) provider as laid out in
19 the Central Hudson Initial Distributed System Implementation Plan, filed
20 on June 30, 2016 in Case 14-M-0101, and for modernization of the electric
21 distribution system. These programs are integrated with the Company’s
22 Distribution Management System (“DMS”) for which full implementation is
23 well underway. The status of these programs has been continuously

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1 monitored by Department of Public Service (“DPS”) Staff through ongoing
2 milestone completion and acceptance testing. The Company is proposing
3 to continue its accelerated gas Leak Prone Pipe (“LPP”) replacement
4 program. As was agreed to in the 2015 Rate Plan, the Company, by the
5 end of the rate plan, will be required to eliminate at least 15 miles of LPP
6 per year and is eligible to receive further incentives to eliminate an
7 additional 5 miles per year. The Company is proposing to continue the
8 existing approved LPP replacement program, which would result in the
9 Company eliminating all of its remaining leak prone pipe within 15 years.
10 The Company is proposing two significant new initiatives. The first of
11 these is to accelerate modernization and functionality by increasing
12 Company investment in Information Technology Software and Systems.
13 The details of this initiative are included in the testimony of Company
14 Witness Holtermann. The second is the construction of a dedicated
15 electric and gas training facility and integrated transmission and
16 distribution control center. The details of this initiative are included in the
17 testimonies of the DSP and Training and Development panels.

III. ELECTRIC

- 19 Q. Referring to Exhibit __ (PEH-2), Schedule B, what is included in the
20 “Production” category of that schedule?
- 21 A. Schedule B shows additional detail for the Company’s Capital Plan for the
22 period 2018 through 2022, which includes the Rate Year. The
23 “Production” category shown on Schedule B includes construction

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1 expenditures for the Central Hudson hydroelectric generating facilities at
2 Sturgeon Pool, Dashville, and High Falls, and the combustion turbine
3 plants at Coxsackie and South Cairo. The Company projects
4 expenditures in 2018 of \$1,698,000 for completion of major upgrades to
5 the rotor and runner for Sturgeon Pool Unit #2. In 2019, the Company
6 projects expenditures of \$1,753,000 for major upgrades to the runner for
7 Sturgeon Pool Unit #3 and the rotor for Dashville Unit #1. These projects
8 ensure the continued reliable operation of these renewable electric
9 generation resources for the benefit of customers. The Company's Five-
10 Year Capital Plan also includes expenditures of \$714,000 in 2020 for the
11 runner replacement of Dashville Unit #2 and \$925,000 in 2021 for the
12 rubber crest gate replacement at the Dashville facility.

13 There are no major projects identified for our gas turbine facilities
14 during the five year forecast period.

15 Q. Are expenditures included for major rebuilds of existing lines in the
16 "Transmission" category of Schedule B of Exhibit __ (PEH-2)?

17 A. Yes. Central Hudson projects that several existing lines will have
18 construction initiated or completed and placed in service during the five
19 year forecast period. As with all projects, cost forecasts are best
20 estimates and are subject to change based on final design, construction
21 needs, and construction permit requirements.

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1 The major rebuild projects include the “G” line north section, “EF”,
2 “CL”, “KM”, “TV”, “H” and “SB.” These projects are explained in greater
3 detail below.

4 The “G” line north section project will address infrastructure issues
5 on this 69kV line between the Todd Hill and Pleasant Valley substations.
6 The “G” line was constructed in the 1920s and is one of the Company’s
7 poorest performing circuits. The north section project will rebuild
8 approximately 7.83 miles of this line. Construction work on this project is
9 anticipated to start at the end of 2017 with completion in the third quarter
10 of 2018. Expenditures for this project in the Five-Year Capital Plan are
11 currently estimated at \$6,613,000 for 2018 with the majority of these
12 expenditures occurring during the first half of 2018.

13 The “EF” line rebuild is intended to address significant infrastructure
14 issues on the line. Through our inspection program, the Company
15 determined that 82% of the structures on this 1.98 mile line would require
16 replacement due to identified component defects. Based on the number
17 of structures identified as needing replacement, a more comprehensive
18 approach to the rebuild was evaluated. A full rebuild and reconductoring
19 with 1033 ACSR is planned, as a cost benefit analysis of line losses
20 justified an increase in conductor size. Expenditures for this project in the
21 Five-Year Capital Plan are currently estimated at \$2,468,000 for 2018 with
22 the majority of expenditures during the second half of the year.

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1 The “CL” line rebuild is similar to the “EF” line project in that it is
2 intended to address significant infrastructure issues on the line identified
3 through our inspection program. This line was constructed in the 1940s.
4 The inspections identified that 69% of the structures on this 11.7 mile line
5 would require replacement due to identified component defects, while an
6 additional 23% of the structures have a significant number of minor
7 defects. Based on the number of structures identified as needing
8 replacement, a more comprehensive approach to the rebuild was
9 evaluated. A full rebuild and reconductoring with 795 ACSR is planned.
10 The increase in conductor size is justified based on matching the thermal
11 capability of the transmission loop and portion of the line that was rebuilt
12 in 2008. Expenditures for this project in the Five-Year Capital Plan are
13 currently estimated at \$2,270,000 for 2018 and \$8,062,000 for 2019 with a
14 current anticipated in service date of December 2019.

15 The “KM” and “TV” line projects are intended to address
16 infrastructure issues with the remaining portion of the “G” line that is not
17 addressed by the “G” line north section project discussed above as well as
18 infrastructure issues on the “KM” and “TV” lines themselves. After
19 evaluating multiple project alternatives, the Company adopted the current
20 planned project, which involves the retirement of the “G” line between the
21 Todd Hill and Knapps Corners substations and a complete rebuild of the
22 “KM” and “TV” lines. These lines were initially constructed in the 1930s.
23 The lines will be rebuilt at 69kV with no additional right-of-way required.

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1 Forecasted expenditures during the Five-Year Capital Plan period for this
2 project based on preliminary estimates is \$11,859,000 with the majority of
3 the expenditures occurring in 2020 and 2021.

4 The "H" and "SB" rebuild projects will rebuild and upgrade to 115kV
5 approximately 23.4 miles of existing 69kV transmission lines between the
6 Company's Hurley Avenue substation in Ulster County and the North
7 Catskill substation in Greene County. These lines were constructed
8 in 1919. The project will primarily address aging infrastructure issues, but
9 also will provide additional load serving capability to the northwest portion
10 of the Company's service territory. The project will require Article VII
11 approval from the Commission. Total forecasted expenditures for this
12 project in the Five-Year Capital Plan are \$33,705,000, with the majority of
13 expenditures on these lines occurring between 2020 and 2022. The
14 current anticipated in-service date is December 2021 for the "SB" line and
15 December 2022 for the "H" line.

16 Central Hudson's forecast also includes ongoing infrastructure
17 replacement work associated with the routine inspection program. These
18 inspection repairs have mandatory repair timeframes defined by the
19 Commission and the forecasted expenditures of this program are based
20 on the anticipated number of findings and repairs. Total expenditures
21 during the Company's Five-Year Capital Forecast for these infrastructure
22 replacement projects/programs are \$25,224,000.

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1 Q. Please explain the “Substation” category shown on Exhibit __ (PEH-2),
2 Schedule B.

3 A. “Substation” expenditures for the period 2018 through 2022 are projected
4 to total \$90,557,000. These expenditures are for both the installation of
5 new substations and improvements to existing substations. The need for
6 this work is largely being driven by infrastructure replacements; however,
7 these projects also will reinforce the Company’s electric system and will
8 provide the capability to reliably serve projected area distribution loads as
9 growth occurs and in many cases will help facilitate the integration of
10 additional amounts of distributed resources.

11 Q. Are there any specific substation projects that you would like to highlight?

12 A. Central Hudson is planning major upgrades to the Knapps Corners,
13 Montgomery and Kerhonkson substations. In addition the Company is
14 planning to construct a new 115kV tap station that will allow for the
15 retirement of 2.4 miles of a dedicated 69kV line installed in 1929 that
16 serves a single industrial customer. The Knapps Corners project will
17 address infrastructure issues, including transformers, breakers, and
18 controls. The project is currently in the permitting process with the
19 majority of the construction work occurring during 2020 and 2021. Total
20 estimated expenditures during the Company’s Five-Year Capital Plan
21 forecast period for this project are \$8,493,000. Central Hudson will
22 undertake a similar upgrade at the Montgomery substation to address
23 infrastructure issues, including the replacement of the existing wood

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1 structures. The Company plans to convert the distribution circuits in this
2 area from 4.16kV to 13.2kV, greatly increasing the hosting capacity for
3 distributed resources in this area of the system. The forecasted
4 expenditures for this project are \$3,284,000 with the majority of the
5 expenditures occurring in 2020. The Kerhonkson project will install two
6 new 115/69kV autotransformers to allow for the final step of converting the
7 “P” and “MK” transmission loop to 115kV, planned and permitted as part of
8 the transmission rebuild project from the mid-1990s. The total estimated
9 expenditures for this project are \$4,921,000 with the majority of the
10 expenditures occurring in 2019 and 2020. The timing of this project is
11 coupled with several other minor upgrades that will allow for the voltage
12 upgrade. The new 115kV Tilcon tap station is planned as a lower cost
13 alternative to rebuilding 2.4 miles of existing 69kV line that is dedicated to
14 serve this customer. Once completed the existing transmission feed will
15 be retired. The estimated cost for this project is \$4,715,000 with the
16 majority of the work occurring in 2021.

17 Q. Please describe Central Hudson’s ongoing program to address specific
18 condition-based infrastructure issues with substation equipment.

19 A. Central Hudson has a systematic program to replace circuit breakers and
20 circuit switches, relay and control equipment, and condition-based
21 substation transformers.

22 The circuit breaker/circuit switcher program includes the
23 replacement of interrupting devices with interrupting duties near or above

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1 their interrupting ratings, with poor condition assessments, or that are
2 obsolete with no manufacturer support or limited or no spare parts
3 availability. These selection criteria are used to reprioritize the program
4 on an annual basis. Total forecasted expenditures over the five year
5 forecast period for this program are \$7,500,000. During this period the
6 Company will have completed the replacement program associated with
7 its 345kV breakers.

8 With respect to the substation transformer program, by 2020 the
9 Company will have approximately 50 substation transformers that will
10 have been in service at least 50 years; this represents approximately 35%
11 of the inventory of this asset class. Several of these transformers will
12 have been in service at least 70 years. The Capital Plan includes
13 transformer replacements at the Boulevard substation as well as several
14 anticipated condition-based replacements at North Catskill, Neversink,
15 Smithfield, Pulvers Corners, Coxsackie and Stanfordville occurring at the
16 end of the forecast period. The total forecasted expenditures for these
17 projects are \$10,851,000.

18 The Company is also focused on replacing aging distribution
19 switchgear based on condition assessment. The forecast includes
20 switchgear replacements at Union Avenue and Woodstock as well as
21 several anticipated condition-based replacements at Converse Street,
22 Lincoln Park and Sturgeon Pool Generating Plant occurring at the end of

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1 the forecast period. The total forecasted expenditures for these projects
2 over the five year period are \$9,817,000.

3 The relay, control and meter replacement program is a
4 comprehensive prioritized plan to upgrade this equipment in stations
5 where other major infrastructure upgrade work is not planned. Much of
6 this work is focused on improving substation data capability that will
7 enhance load forecasting and provide greater data availability to
8 stakeholders. The program targets upgrades at stations to improve the
9 efficiency of completing the work. Forecasted expenditures for this
10 program are \$14,593,000 over the five year forecast.

11 Q. Please explain how forecasted construction expenditures were determined
12 for the electric program categories entitled “New Business”,
13 “Transformers”, and “Meters”, as shown on Schedule B of
14 Exhibit __ (PEH-2).

15 A. Forecasted expenditures for these categories were trended based on
16 historical experience. In general, these categories are related to the
17 growth in number of residential customers and residential sales. The
18 overall forecast is comparable with recent historical expenditures, but is
19 significantly lower than what was experienced from 2000 through 2007
20 due to the sustained economic downturn and lower load and customer
21 growth forecasts as well as ongoing Commission policy objectives.

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1 Q. Please identify the significant programs included in the “Distribution
2 Improvements” category.

3 A. The expenditures in the “Distribution Improvements” category are primarily
4 focused on addressing infrastructure replacement and expenditures
5 related to the day-to-day capital requirements for distribution facilities and
6 projects necessary to maintain current levels of reliability performance by
7 addressing local thermal/voltage, reliability, and operating issues. The
8 forecast level of expenditures for these day-to-day items over the five year
9 forecast period is \$104,866,000. An additional \$51,941,000 has been
10 included for various infrastructure improvement programs. These
11 infrastructure improvement programs include the following: a program to
12 address 14.4kV paper and lead insulated cable replacement, 14.4kV
13 underground infrastructure, distribution porcelain cutout replacement,
14 conversion of significant portions of our remaining 4800 V system to
15 improve hosting capacity and public safety, and a significant acceleration
16 of distribution pole replacements based on the increased number of
17 inspection findings and an anticipated further increase in inspection
18 findings based on the age distribution of our pole plant. Additionally,
19 Central Hudson included \$8,583,000 for the construction of distribution
20 facilities associated with the substation reinforcements/retirements.

21 The “Distribution Improvements” category also includes continued
22 funding of the Company’s Distribution Automation Program. This program
23 coupled with the ongoing Network Strategy project and the recently

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1 completed Distribution Management System implementation are the core
2 components of the Company's grid modernization efforts. These
3 programs continue to be supported by a business case that provides net
4 benefits to customers. The expenditures for the Distribution Automation
5 program over the five year forecast period is \$34,376,000 and includes
6 installation of electronic reclosers, voltage regulators, switched capacitors,
7 voltage sensors, and targeted reconductoring projects to enable increased
8 levels of automated switching and circuit reconfiguration.

9 Q. Are there any related impacts of the increased level of forecasted
10 expenditures within the Electric Program?

11 A. The increased forecasted expenditures specifically within the
12 Transmission and Distribution Improvement Categories result in
13 incremental O&M expense for transfers. The incremental expense impacts
14 are addressed in the testimony of Company Witness DuBois.

IV. GAS

16 Q. Referring to Exhibit __ (PEH-2), Schedule C, what are the major projects
17 identified in the Gas Capital program.

18 A. The major projects identified in the Gas Capital program are the "SM" line
19 system reinforcement, the West Point bypass to Highland Falls,
20 transmission line valve replacements/additions, a number of regulator
21 station rebuilds, and the continuation of the Company's accelerated bare
22 steel and cast iron replacement program.

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1 Q. Referring to Exhibit __ (PEH-2), Schedule C, please explain the
2 “Transmission” category.

3 A. “Transmission” expenditures for the period 2018 through 2022 are
4 projected to total \$10,901,000. These expenditures are for both the
5 installation of new transmission system components and improvements to
6 the existing transmission system. The majority of the capital
7 improvements stem from studies performed as part of the pipeline integrity
8 program, anticipated new requirements for remote-operated valves and
9 added capability for launching smart pigs to perform internal inspections of
10 the transmission system. Other improvements are from conditions
11 discovered during normal operation and maintenance of the system. The
12 only other significant project in this category is funding for upgrades at our
13 Mahopac gate station associated with the upgrade work underway on the
14 Algonquin system. The total estimated cost for this project is \$1,026,000
15 which is anticipated to be completed in 2018.

16 Q. Referring to Exhibit __ (PEH-2), Schedule C, please describe the
17 “Regulating Stations” category?

18 A. The “Regulating Stations” category expenditures for the period 2018
19 through 2022 are projected to total \$13,314,000. These expenditures are
20 for both the installation of new regulator stations and improvements to
21 existing regulator stations. These projects will address aging
22 infrastructure, reinforce the gas system, and provide the capability to
23 reliably serve projected area distribution loads as system growth occurs,

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1 some of which is tied to the gas marketing initiative, and allows for the
2 upgrading of system pressures as part of our leak prone pipe program.

3 Q. Would you describe briefly the key gas regulator station programs?

4 A. The Capital Forecast includes plans to upgrade monitoring and controls to
5 a number of gas regulator stations. This plan, which is also linked with the
6 Network Strategy program, includes projects to establish more intelligence
7 and real-time monitoring capability at critical points on the gas system. A
8 pilot project was recently completed at our North Kingston gas regulator
9 station. The pilot was successful and further deployment will significantly
10 improve our ability to cost effectively monitor and control our gas
11 distribution system.

12 Q. Please explain how forecasted construction expenditures were determined
13 for the categories entitled "New Business" and "Meters" as shown on
14 Schedule C of Exhibit __ (PEH-2).

15 A. Forecasted expenditures for these categories have been segregated into
16 two components. The first component includes \$26,432,000 tied to what
17 can be considered traditional New Business expenditures, which includes
18 URD projects and new homes and businesses.

19 The second component of this forecast relates to the Company's
20 targeted customer addition program. The program is described more fully
21 in the testimony of the Business Development Panel. Total expenditures
22 for this program are \$38,444,000.

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1 The forecasted expenditures for Meters which supports both these
2 initiatives as well as the Company’s meter change out program
3 are \$13,970,000.

4 Q. Please explain how forecasted construction expenditures were determined
5 for the category entitled “Distribution Improvements” as shown on
6 Schedule C of Exhibit __ (PEH-2).

7 A. The infrastructure replacement projects are reviewed and prioritized based
8 on operating experience and risk reduction. This category includes
9 service replacements, required cast iron replacement associated with road
10 re-builds or other facility replacements, cast iron or steel main
11 replacements based on system studies, maintenance history, and risk
12 analysis modeling. This category also includes system reinforcement
13 projects to ensure system reliability. One of these significant projects is
14 the “SM” line reinforcement of the Putnam County area of the Company’s
15 service territory, which is currently being permitted. The total estimated
16 cost of this project is \$4,636,000 and it is estimated to be completed in the
17 second half of 2018. The second significant project is the construction of
18 a bypass around West Point to serve customers in Highland Falls and
19 avoid relying on West Point’s gas system to serve these customers. The
20 current system configuration that requires the Company to rely on the
21 West Point gas system to serve our Highland Falls customers poses a
22 significant risk that is best mitigated with the construction of a distribution
23 feed to directly serve those customers. The preliminary estimates for this

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1 project are \$5,766,000 with an anticipated in-service date of fourth
2 quarter 2019.

3 Forecasted expenditures for this category are based on a
4 combination of distribution improvement initiatives. The projected
5 expenditures for the “Distribution Improvements” category
6 total \$211,794,000 over the five year forecast and reflect the continued
7 aggressive accelerated program for gas safety and system reliability
8 improvements.

9 The capital funds related to the replacement of cast iron and steel
10 mains and services is \$175,304,000 over the Company’s Five-Year
11 Capital Plan forecast. This initiative reflects the continued accelerated
12 replacement program. As of the end of 2016, the Company had just
13 under 200 miles of LPP remaining on the system. We are proposing to
14 continue the current rate treatment for this program with 15 miles of LPP
15 elimination included in the normal annual capital plan with the ability to
16 earn an incentive for the elimination of additional LPP (up to 5 miles) and
17 defer the revenue requirement effect of any incremental miles above the
18 15 minimum. The details of this program are included in the testimony of
19 Gas Safety Panel.

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V. COMMON

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Q. Referring to Exhibit __ (PEH-2), Schedule D, what are the major projects identified in the Common Capital program?

A. The Common Capital program includes the “Lands and Buildings” and “Office Equipment” categories. The forecasts for the “Lands and Buildings” and “Office Equipment” categories include projects associated with the replacement of existing minor capital components.

In addition, the “Lands and Buildings” category includes some major capital replacements at our facilities, such as roofs, windows, and HVAC equipment. There are also three larger facility projects proposed during the period. The first is the expansion of office space and parking at our South Road headquarters. Several alternatives have been evaluated to increase office space including building at a new facility or leasing space. The proposed project will also address improvements needed in the vehicle maintenance facility at our headquarters. The current estimated cost of this project during the five year forecast period is \$10,491,000 with the majority of expenditures and project completion anticipated in 2019. The second project is the build-out of remaining office space at the Company’s Kingston headquarters. There is remaining unoccupied space at the Kingston facility and the build out will leverage all remaining available space for anticipated staffing additions. In addition, this facility will become the new disaster recovery site for our Information Technology (“IT”) assets, which have outgrown the space available at our

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1 current site located at our Newburgh headquarters. The estimated build-
2 out costs for the Kingston project over the five year forecast period
3 is \$3,407,000 with expenditures occurring in 2019 and 2020. The final
4 significant project is the establishment of a dedicated training facility and
5 integrated transmission and distribution system operations centers. The
6 training center is a multiphase initiative which recognizes that, with the
7 significant amount of new technology and substantial turnover occurring in
8 the work force, enhanced training programs and associated facilities are
9 required. The estimated costs in the five year forecast for this facility
10 are \$32,508,000. Further details about the facility, its justification and
11 alternatives considered are included in the testimony of the Training and
12 Development Panel. Included in this planned facility is the build-out of an
13 integrated transmission and distribution system operations center. This
14 project addresses the Company's need to move to 24/7 monitoring and
15 control of the distribution system as a result of the Company's grid
16 modernization efforts. The plan is to create a fully integrated transmission
17 and distribution system operations center on the campus of the training
18 center. The estimated cost within the five year forecast for the build-out of
19 this facility is \$5,680,000. Further details about the integrated
20 transmission and distribution control center are included in the testimony
21 of the Company's DSP Panel. The "Lands and Buildings" category also
22 includes capital improvements for energy efficiency improvements at
23 existing Company facilities.

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1 The “Tools” category in the Common Capital program provides for
2 normal tool replacement only. No new methods of operation are
3 anticipated that would substantially increase this category’s spending.

4 The “Transportation” category reflects an optimal replacement
5 schedule for the current fleet as well as minor additions to reflect changing
6 operational needs of the business.

7 The “Office Equipment” category includes expenditures related to
8 the Company’s IT and Operational Technology (“OT”) hardware and
9 software needs. Expenditures in the five year forecast tied to OT are
10 focused on the hardware needed for the primary and backup distribution
11 control centers, a DMS upgrade and implementation of the new OMS
12 system with our DMS provider currently scheduled to be completed
13 in 2019 and an anticipated upgrade of our EMS in 2022. The
14 expenditures in our IT systems reflect a significant focus on improving
15 system capability to meet the increasing expectations of customers. The
16 forecasted expenditures for IT related hardware and software of the five
17 year period are estimated at \$96,286,000. The details and justification of
18 these IT investments is included in the testimony of Company Witness
19 Holtermann.

20 The “Communication” category includes the continued deployment
21 of the Company’s Network Strategy projects. As described previously this
22 project develops an integrated communication platform for the Company’s
23 fixed assets and was justified based on a business case in the last rate

DIRECT TESTIMONY OF PAUL E. HAERING

1 filing to move away from costly, unreliable third party communication
2 providers. The Company has been working closely with DPS Staff on this
3 project over the last two years through the successful Milestone and
4 Acceptance testing process that was stipulated as part of the Commission
5 approval of the project in the 2015 Rate Plan. The Tier 1 network has
6 expanded to include several additional 115kV substations as well as
7 additional gas transmission gate stations. Including these stations on the
8 Tier 1 network will result in improved communication reliability and
9 stronger cyber security posture for these assets and the Company will
10 avoid having to install expensive upgrades to substations in order to
11 remain compliant with changing NERC Critical Infrastructure Protection
12 (“CIP”) requirements. The five year forecast includes \$24,568,000 for this
13 project, which is anticipated to be substantially completed in 2021.

14 Q. How did you apportion the forecasted capital requirements in 2018
15 and 2019 into the Rate Year?

16 A. A detailed capital forecast was prepared for 2018 and 2019 that identified
17 expenditures for major projects having an estimated cost of \$1 million or
18 more. The forecast for non-major projects was apportioned between the
19 first and second halves of the year.

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

21 A. Yes, it does.