

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
JEFFREY M. MAY
(ELECTRIC AND GAS PROCUREMENT)**

July 28, 2017

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1 I. INTRODUCTION

2 Q. Please state your name and business address.

3 A. My name is Jeffrey May. I am employed by Central Hudson Gas &
4 Electric Corporation ("Central Hudson" or the "Company"), and my
5 business address is 284 South Avenue, Poughkeepsie, New York 12601.

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

8 A. I am employed as Manager of Energy Resources. As Manager of Energy
9 Resources, I oversee and supervise directly the Division's three major
10 functions: gas procurement, electric procurement, and energy accounting.

11 The Division's responsibilities related to gas procurement include
12 natural gas purchasing in the Marcellus, Canadian and other market
13 areas, negotiating the terms of long-term and short-term supply and
14 transportation contracts, supply planning, capacity release, and off system
15 sales. The natural gas responsibilities also include the implementation of
16 transactions designed to dampen customer commodity price volatility.

17 Energy Resources has responsibility for upstream capacity released to
18 ESCOs / third party marketers and for the verification of associated daily
19 deliveries of gas to the Company's system.

20 The Division's responsibilities related to electric procurement
21 include managing Central Hudson's full service customer wholesale
22 electric supply activities through forecasting and scheduling daily electric
23 energy, purchasing long-term capacity, and hedging of wholesale electric

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1 supply portfolios. The responsibilities also include interfacing with the
2 New York Independent System Operator (“NYISO”).

3 The Division’s duties pertaining to energy accounting include
4 activities focused on the collection, evaluation, and verification of both
5 electric and natural gas supply system costs and volumes needed for
6 various internal and external financial and reporting requirements. This
7 function includes reconciling all electric and natural gas invoices including
8 the NYISO settlement process.

9 Q. Please summarize your educational background and professional
10 experience.

11 A. I earned a Bachelor of Science Degree in Electrical Engineering from
12 Worcester Polytechnic Institute in 1989. I also earned a Masters of
13 Engineering in Electric Power from Rensselaer Polytechnic Institute in
14 1995. My employment with Central Hudson began in 1989 as a T&D
15 Junior Engineer in Customer Services. In 1992, I was promoted to
16 Estimating Supervisor and served in that role for three years when I was
17 transferred to Associate Engineer in Substation Design in 1995. In
18 January 1999, I was promoted to Power Marketer in a predecessor
19 department to Energy Resources. I was promoted to Section Engineer –
20 Distribution Engineering in September 2004, transferred to Section
21 Engineer – Electric System Protection in January 2008, promoted to
22 Director – Electric System Design in August 2010, promoted to Manager –

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1 System Operations in October 2013, and transferred to Manager – Energy
2 Resources in August 2016.

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

5 A. No, I have not.

6 **II. PURPOSE OF TESTIMONY**

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

8 A. My testimony will address Central Hudson’s natural gas and electricity
9 procurement strategies, plans and policies and how they mitigate market
10 risk for Central Hudson’s customers.

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

12 A. No.

13 **III. NATURAL GAS SUPPLY REQUIREMENTS**

14 Q. How does Central Hudson meet the natural gas supply requirements of its
15 customers?

16 A. Central Hudson meets its customers’ natural gas requirements by utilizing
17 various contract assets as well as natural gas assets owned by the
18 Company. Natural gas is purchased from suppliers located in the
19 Northeast and transported on interstate pipelines pursuant to firm
20 transportation (“FT”) contracts to a Central Hudson gate station. Natural
21 gas is also purchased from suppliers located in Canada. Canadian gas is
22 transported pursuant to FT contracts with TransCanada and Union Gas to
23 a delivery point with Iroquois Gas Transmission Pipeline at Waddington,

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1 New York. The Northeast and Canadian supplies form a base of flowing
2 supplies that are supplemented with storage gas and peaking gas
3 contracts. Central Hudson also utilizes short-term supply contracts to
4 meet its customers' demands for natural gas throughout the year. Bids
5 are solicited via a Request for Proposal process for the five-month winter
6 season (November – March) as well as monthly and/or the summer
7 season based on volume needs. The gas supplied by the above contracts
8 is delivered using FT to Central Hudson's four natural gas gate stations
9 (Cedar Hill, Pleasant Valley, Mahopac, and Tuxedo) by six interstate gas
10 pipelines (Tennessee, Iroquois, Algonquin, Stagecoach, and
11 Columbia/Millennium) and FT contracts with TransCanada and Union Gas
12 Pipelines. In addition, Central Hudson has seven contracts with four
13 companies for the storage (Market Area) of natural gas. Storage gas is
14 transported to Cedar Hill, Mahopac, and Tuxedo by four of the interstate
15 pipelines utilizing Firm Storage Transport ("FST") service. The FT,
16 storage and FST contracts are long-term (one year or greater) contracts.
17 Central Hudson also utilizes peaking contracts in winter months to meet
18 firm peak day requirements during very high natural gas demand days.

19 Q. What is Central Hudson's total system peak day capacity?

20 A. The table below shows, by component, Central Hudson's total system firm
21 peak day capacity in Dth/day (2016/2017 heating season).

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Flowing Supplies	40,615
Storage Withdrawals	40,939
Winter Peaking Service	35,000
Marketer Provided Supplies	<u>21,937</u>
Total Central Hudson and Marketer Supplies	138,491

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2 Q. What is the typical operating excess, or reserve margin, for gas
3 distribution utilities suggested in the 2009 Management Audit Report
4 (Case 09-M-0764) issued February 28, 2011?

5 A. The 2009 Management Audit Report identified (on page VI-11) that the
6 typical operating excess is 5-10% over the peak day demand.

7 Q. What is Central Hudson's position with respect to the volume of capacity
8 needed as operating excess or reserve margin?

9 A. The appropriate level would be the average of the range identified in the
10 2009 Management Audit Report.

11 Q. What reserve margin does Central Hudson currently have and how much
12 capacity would be needed to deliver requisite supplies on a peak day
13 basis?

14 A. Central Hudson has Winter 2016-17 actual peak day delivery capability
15 totaling 138,491 dekatherms. This results in a peak day reserve margin of
16 6.3 percent based on the estimated firm requirements for 2016-17 winter
17 peak day forecasted design weather of 130,300 dekatherms.

18 Q. Does Central Hudson develop day-ahead forecasts to ensure reliability?

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1 A. Yes, Central Hudson develops a day-ahead rolling demand reliability
2 forecast to ensure that the short-term requirements of its natural gas
3 customers are met.

4 Q. How does the Company currently forecast its day-ahead requirements?

5 A. Central Hudson has implemented a two-model system for the daily
6 forecasting of natural gas requirements. The Company currently utilizes a
7 combination of the results from an internally developed Excel spreadsheet
8 model and a commercially developed model, GasDay, for forecasting daily
9 rolling demand forecasts and supply requirements. The resulting forecast
10 is comprised of a base load component (usage that is not weather
11 sensitive) and a heating usage component (weather sensitive). Heating
12 usage is calculated as the product of the daily forecast of effective degree
13 days (“EDD”) and usage per EDD. EDD is a measurement designed to
14 reflect the demand for energy needed to heat a home after taking wind
15 and cloud cover into consideration. A gas day forecast is received two
16 times per day from the weather forecasting service vendor WSI, Inc.
17 Depending on the specific month in the heating season, unusual weather
18 patterns or a particular day of the week or weekend, minor adjustments to
19 the forecasted demand may be necessary. The Company has the ability
20 to make intra-day changes to the send-out forecast, and requirements with
21 gas suppliers or pipelines or both if necessary, due to changes in the
22 weather.

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1 Q. Why does Central Hudson develop long-term reliability forecasts?

2 A. Periodically, Central Hudson prepares a long-term gas capacity/supply
3 plan to ensure that sufficient capacity is available for those customers who
4 the Company has an obligation to serve. Central Hudson is aware that FT
5 service agreements are generally long in duration and may require the
6 construction or upgrade of facilities by either or both the interstate pipeline
7 and Central Hudson. For these reasons, actions to procure FT service
8 must be initiated well in advance of the actual requirements and must
9 include arrangements for a gas supply source at the receipt point.

10 Q. During off-peak periods (April-October) does Central Hudson have excess
11 upstream capacity?

12 A. Yes.

13 Q. What does Central Hudson do with the excess upstream capacity during
14 off-peak periods?

15 A. This capacity is utilized for off-system sales. In addition, to optimize the
16 use of upstream capacity during off-peak periods, Central Hudson utilizes
17 FT and FST pipeline capacity to refill storage and releases capacity to
18 third parties.

19 Q. Does Central Hudson employ hedging or pricing strategies to dampen
20 market price fluctuations with respect to its winter gas supply contracts?

21 A. Yes. A hedging plan is developed by the Energy Resources Division and
22 approved by Central Hudson's Enterprise Risk Management Committee
23 ("ERMC"). The ERMC is charged with providing continuous assessment

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1 of strategic, financial and operational risks throughout the Company.
2 Energy Resources implements the approved hedge plan by entering into
3 over-the-counter (“OTC”) fixed for floating swap contracts with various
4 counterparties prior to the upcoming winter heating season. These
5 contracts are purchased on a set schedule (February – August) to hedge
6 the price of winter natural gas supply contracts. The OTC contracts fix the
7 price of a portion of Central Hudson’s winter gas supply for the upcoming
8 heating season. Central Hudson also refills storage during the April –
9 October time period to ensure that its natural gas storage contract assets
10 are full by the first of November, prior to the start of the heating season.
11 The combination of financial investments and the Company’s physical
12 storage gas provide a hedge against winter natural gas price volatility by
13 fixing the price of about 50% of Central Hudson’s full service customers’
14 winter (November – March) natural gas usage. The hedging strategy
15 dampens natural gas price volatility, which translates directly to less
16 volatile energy bills for Central Hudson’s full-service customers during the
17 heating season. The Energy Resources Division reports on energy
18 procurement activities and the current status of commodity markets to the
19 ERMC on a quarterly basis.

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IV. ELECTRIC SUPPLY REQUIREMENTS

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Q. How does the Company currently forecast electric day-ahead energy requirements?

A. The Company uses the Farsight model, a personal computer based information tool, to assist in the forecast of short-term hourly electric utility loads. The model produces a forecast of hourly electric load for a four-day period. This forecast is based on a four-day hourly weather forecast and on historical hourly control area electric load data and historical hourly weather data. The Farsight program automatically chooses the historical weather information most relevant to the current four-day weather forecast to forecast the upcoming four-day hourly electric load. The Farsight model has programming routines to recognize holidays, weekends and other unusual load conditions so that the inclusion of such data does not distort the typical weather-load relationship. The Energy Buyers and the Energy Scheduler also compare the four-day weather forecast (currently obtained from WSI, Inc.) used in the Farsight program to other weather services (such as the Weather Channel weather forecast) and use their judgment as to whether the WSI weather forecast should be used exclusively or if a combination of the WSI weather forecast and the Weather Channel weather forecast should be used when developing the electric load forecast. In addition to using the Farsight program, the Energy Buyers and the Energy Scheduler review the last several weeks of historical hourly weather data and the corresponding historical hourly control area

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1 electric load data to find historical days that have a similar weather pattern
2 as the four-day hourly weather forecast, to independently develop an
3 electric load forecast that may be used to replace portions of the electric
4 load forecast suggested in the Farsight program.

5 Q. Do Central Hudson's forecasts include the effects of battery storage or
6 other Distributed Energy Resources ("DERs")?

7 A. The Farsight model performs a regression analysis on Central Hudson's
8 system-wide aggregate load. The system-wide aggregate load is inclusive
9 of the net effects of battery storage and other DERs. Additional
10 discussion around battery storage is addressed in the testimony of the
11 Distributed System Platform Panel. As DERs evolve on Central Hudson's
12 system, Energy Resources will continue to communicate with the
13 appropriate internal groups and adjust wholesale energy purchases
14 accordingly.

15 Q. How does Central Hudson meet the electric energy supply requirements
16 of its customers?

17 A. Central Hudson meets the electric supply requirements of its customers
18 principally through purchases made from the NYISO and through contract
19 purchases. In addition, small amounts of energy are obtained from the
20 remaining Company-owned generation (hydro and combustion turbines).

21 Q. What generating assets does Central Hudson currently own?

22 A. Central Hudson owns the Cocksackie and South Cairo Combustion
23 Turbines, and three small hydroelectric facilities (Sturgeon pool (15MW),

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1 Dashville (5MW), High Falls (3MW)). In addition, Central Hudson has
2 existing contracts with several small Independent Power Producers
3 (totaling 11MW).

4 Q. Does Central Hudson employ hedging or pricing strategies to reduce the
5 risk of market price fluctuations with respect to electric supply contracts?

6 A. Yes. As discussed above, Energy Resources annually develops a
7 hedging plan that entails purchasing both financial and physical future
8 electric energy products. These products include a mix of long-term (one
9 year or greater) and short-term (less than one year) durations. The goal is
10 to fix the price of about 60% of the Company's full service customers'
11 forecasted annual electric supply (excluding Mandatory Hourly Pricing
12 Provision customers' electric supply) to dampen electric supply price
13 volatility on customer bills.

14 Q. Please describe the nature of the transmission service provided to Central
15 Hudson by other companies.

16 A. When Central Hudson sold its interests in the Nine Mile Point Unit 2
17 Nuclear Generating Station ("NMP-2"), the Company retained the right to
18 purchase 9% of the plant's output over a ten-year period and the
19 transmission contract with National Grid to wheel the power to Central
20 Hudson in NYISO Zone-G. This supply has proven to be significantly
21 beneficial throughout its duration. Central Hudson continues to pay
22 National Grid a monthly fee for this wheeling service, since it entitles the
23 Company to receive Transmission Congestion Contracts ("TCC") rents

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1 from the NYISO. The costs and/or benefits of the transmission service
2 and associated TCCs are passed on to customers through the Company's
3 Energy Cost Adjustment Mechanism ("ECAM") which is more fully
4 described in the testimony of the Forecasting and Rates Panel.

5 Q. Please describe the Company's agreement with Constellation Energy
6 ("Constellation").

7 A. Central Hudson entered into an agreement with Constellation to purchase
8 capacity and energy, comprising approximately 9% of the output of NMP-
9 2, at negotiated prices during the ten-year period beginning on November
10 7, 2001 and ending November 30, 2011. The agreement was "unit-
11 contingent" in that Constellation was only required to supply electricity if
12 the NMP-2 was operating. Following expiration of the Nine Mile Point 2
13 Power Purchase Agreement, a 10-year Revenue Sharing Agreement
14 ("RSA") went into effect. The financial agreement provides Central
15 Hudson a share in a portion of NMP-2 power sales revenues for electricity
16 generated at NMP-2, depending on the actual price of electricity. There
17 are no circumstances under the agreement in which Central Hudson
18 would be required to make payments, and any benefits under the RSA are
19 credited to customers through the Purchased Power Adjustment
20 mechanism in ECAM. The RSA expires on November 30, 2021.

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- 1 Q. Please describe how Central Hudson purchases its Installed
2 Capacity/Unforced Capacity (“ICAP/UCAP”).
- 3 A. Central Hudson purchases its ICAP/UCAP from a combination of the
4 NYISO capacity market auctions, the broker market and bilateral
5 transactions.
- 6 Q. Does this conclude your direct testimony at this time?
- 7 A. Yes, it does.