

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 THE
EARNINGS ADJUSTMENT MECHANISM (“EAM”) PANEL**

July 28, 2017

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I. INTRODUCTION

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Q. Please state the names of the members of the Earnings Adjustment Mechanism Panel (“Panel”).

A. Our names are Heather M. Adams, Joseph J. Hally, and Amanda J. Sucato.

Q. Ms. Adams, please state your current employer and business address.

A. 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. Ms. Adams, in what capacity are you employed by Central Hudson and what is your scope of responsibilities?

A. I am the Director of Electric Distribution and Standards. I have served in this capacity since March 2015. In addition to general supervision of Electric Distribution Planning, Operations, and Construction Standards Engineering, I oversee the development and engineering implementation of distribution capital projects. In this role, I am also responsible for the interconnection of distributed generation.

Q. Ms. Adams, what is your educational background and professional experience?

A. I graduated with a Bachelor of Science in Electrical Engineering from Lehigh University and a Master of Business Administration from New York University’s Stern School of Business. I am a registered Professional Engineer in New York State. Following a summer internship, I joined

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1 Central Hudson in 2003 as a Junior Engineer in the Electric System
2 Protection Section. In 2004, I was promoted to Assistant Engineer.
3 In 2006, I was transferred to the Electric Distribution Planning Section,
4 where I held positions of increasing responsibility. Most recently, these
5 included Engineer – Section Leader, Electric Distribution Planning in 2010,
6 Associate Director, Electric Distribution and Standards in 2013, and
7 Director, Electric Distribution and Standards in 2015.

8 Q. Ms. Adams, have you previously testified before the New York State
9 Public Service Commission (“PSC” or the “Commission”)?

10 A. No, I have not.

11 Q. Mr. Hally, please state your current employer and business address.

12 A. I am employed by Central Hudson and my business address is 284 South
13 Avenue, Poughkeepsie, New York 12601.

14 Q. Mr. Hally, in what capacity are you employed by Central Hudson and what
15 is your scope of responsibilities?

16 A. My position with Central Hudson is Manager Energy Transformation &
17 Solutions. I have served in this capacity since 2015. My current
18 responsibilities include oversight of Central Hudson’s Energy Efficiency
19 programs, Demand Response programs, Implementation of Non-Wire
20 Alternatives (“NWAs”), Implementation of Demonstration projects, and
21 participation within the REV proceeding.

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1 Q. Mr. Hally, what is your educational background and
2 professional experience?

3 A. I hold a Bachelor of Science degree in Business Administration with a dual
4 concentration in Management and Finance from The State University of
5 New York at Albany and a Master of Business Administration degree in
6 Finance from The State University of New York at Albany. I joined Central
7 Hudson as a Financial Analyst in 2004, and have held positions of
8 increasing responsibility including Manager – Finance & Planning,
9 Director – Treasury Services and Director – Strategic Planning prior to
10 assuming my current role. Prior to joining Central Hudson, I was
11 employed by Orange and Rockland Utilities, Inc. as a Finance and
12 Planning analyst.

13 Q. Mr. Hally, have you previously testified before the Commission?

14 A. Yes, I have testified before the Commission, most recently in Cases 14-E-
15 0318 and 14-G-0319.

16 Q. Ms. Sucato, please state your current employer and business address.

17 A. I am employed by Central Hudson and my business address is 284 South
18 Avenue, Poughkeepsie, New York 12601.

19 Q. Ms. Sucato, in what capacity are you employed by Central Hudson and
20 what is your scope of responsibilities?

21 A. My position with Central Hudson is Director of Energy Efficiency and
22 Demand Response. I have served in this capacity since 2014. My current

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1 responsibilities include implementation of Central Hudson’s Energy
2 Efficiency and Demand Response programs.

3 Q. Ms. Sucato, what is your educational background and
4 professional experience?

5 A. I hold a Bachelor of Science degree in Electrical Engineering from
6 Syracuse University and a Master of Science in Mechanical Engineering
7 from Columbia University. I was first employed by Central Hudson in 2003
8 and 2004 as a summer intern. I joined Central Hudson full time as a
9 Junior Engineer in 2006, and have held positions of increasing
10 responsibility including Assistant Engineer – Transmission Design,
11 Assistant Engineer- Electric System Design, Assistant Engineer – Energy
12 Efficiency, Supervisor – Energy Efficiency Services and Director – Energy
13 Efficiency and Demand Response.

14 Q. Ms. Sucato, have you previously testified before the Commission?

15 A. No, I have not.

16 **II. PURPOSE OF TESTIMONY**

17 Q. What is the purpose of the Panel’s testimony in these proceedings?

18 A. The Panel addresses Central Hudson’s proposed Earnings Adjustment
19 Mechanisms (“EAMs”), which are being filed in this proceeding in
20 accordance with the Commission’s Order Adopting a Ratemaking and

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1 Utility Revenue Model Policy Framework (“REV Track 2 Order”) in
2 Case 14-M-0101.¹

3 Q. Is the Panel sponsoring any exhibits in support of your testimony?

4 A. Yes. This Panel is sponsoring the following exhibits that were prepared by
5 or under the supervision of the Panel or one of its members:

- 6 1. Exhibit __ (EAMP-1), Schedules A and B, entitled “Carbon Intensity
7 EAM” which contains two schedules supporting our calculation of
8 the Carbon Intensity EAM targets and baseline;
- 9 2. Exhibit __ (EAMP-2) entitled “Carbon Market Profile” which
10 supports our discussion of the carbon emissions associated with
11 various fuel types within Central Hudson’s service territory;
- 12 3. Exhibit __ (EAMP-3) entitled “Utility Funding Technologies that
13 Reduce CO₂ (\$/Ton) ” which supports our discussion of the cost of
14 carbon reduction utilizing various initiatives paid for by
15 utility customers;
- 16 4. Exhibit __ (EAMP-4), Schedules A-F, entitled “Carbon Intensity
17 EAM” which contains six schedules, containing the inputs and
18 results of the Benefit Cost Analysis of the Carbon
19 Reduction Programs;

¹ Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework (“REV Track 2 Order”) (May 19, 2016)

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- 1 5. Exhibit __ (EAMP-5), Schedules A-E, entitled “2018 EE EAM
- 2 Target” which contains five schedules supporting our discussion of
- 3 the Energy Efficiency EAM targets;
- 4 6. Exhibit __ (EAMP-6), Schedules A-C, entitled “System Efficiency
- 5 EAM” which contains three schedules supporting our discussion of
- 6 the System Efficiency EAM targets;
- 7 7. Exhibit __ (EAMP-7) entitled “Customer Engagement EAM” which
- 8 supports our discussion of customer load factor;
- 9 8. Exhibit __ (EAMP-8) entitled “DER Utilization EAM” which supports
- 10 the calculation of the DER Utilization EAM target; and
- 11 9. Exhibit __ (EAMP-9) entitled “Interconnection EAM” which supports
- 12 the calculation of the Interconnection EAM target.

13 Q. Please summarize the Commission’s rationale for authorizing EAMs.

14 A. In the REV Track 2 Order, the Commission focused on establishing “a

15 modern regulatory model that challenges utilities to take actions to

16 achieve these objectives by better aligning utility shareholder financial

17 interest with consumer interest.”² The Commission identified the

18 establishment of additional earning opportunities for utilities, including

19 EAMs, as an important component of a modern regulatory model. As

20 stated in the REV Track 2 Order, the EAMs are “intended to create a

21 regulatory environment where utilities can create shareholder value...by

22 integrating third-party solutions and capital that improve the efficiency,

² Id. at 2.

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1 resiliency and flexibility of the physical networks, reduce consumer total
2 costs and achieve the State’s policy objectives.”³ In its REV Track 2
3 Order, the Commission identified multiple customer benefits that can be
4 achieved from utility actions taken to implement the policy objectives of
5 the REV proceeding including: 1) lower customer costs through improved
6 efficiency in capital investments; 2) better utilization of existing assets;
7 3) lower energy usage through energy efficiency (“EE”); and 4) reduced
8 carbon emissions.⁴ Within the REV Track 2 Order, the Commission
9 advocated that changes to the current state must occur in order for the
10 REV policy objectives to be achieved. These changes include:
11 1) evolution of the unidirectional grid into a more diversified and resilient
12 model engaging customers and third parties, 2) improvement of overall
13 system efficiency, and 3) improvement in consumer value and choice.⁵
14 Central Hudson’s proposed EAMs align with the actions and changes
15 adopted by the Commission in the REV Track 2 Order.

16 Q. Please describe any EAM proposals previously filed by Central Hudson.

17 A. On December 1, 2016, the Joint Utilities⁶ (“JU”), including Central Hudson,
18 submitted energy efficiency and system efficiency EAM (“JU SE EAM”)

³ Id.

⁴ Id. at 53 – 93.

⁵ Id. at 2 - 3

⁶ The Joint Utilities include Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., New York State Electric & Gas Corporation, Niagara Mohawk Power Corporation d/b/a National Grid, Orange & Rockland Utilities, Inc., and Rochester Gas and Electric Corporation.

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1 filings in compliance with the REV Track 2 Order.⁷ In those filings, Central
2 Hudson committed to make a comprehensive regulatory filing for EAMs
3 during 2017. Additionally, on September 2, 2016, Central Hudson, along
4 with the JU, proposed an interconnection survey process and EAM
5 (“Interconnection EAM”).⁸ On March 9, 2017, the Commission responded
6 to the JU filing with an Order Directing Modifications to the Joint Utilities’
7 Proposed Interconnection Earning Adjustment Mechanism Framework
8 (“March 9 Order”).⁹ The Interconnection EAM proposed by Central
9 Hudson is aligned with the Commission’s March 9 Order and the JU’s
10 Modified Interconnection Survey Process and Proposed EAM filing made
11 on May 8, 2017.

III. PROPOSED EAMS AND ALLOCATION OF BASIS POINTS

- 13 Q. Please provide an overview of the EAMs that Central Hudson proposes
14 should be adopted in this proceeding.
- 15 A. Central Hudson proposes to implement six interrelated EAMs that are
16 directly tied to the achievement of REV objectives and associated

⁷ Case 16-M-0429 – In the Matter of Earnings Adjustment Mechanism and Scorecard Reforms Supporting the Commission’s Reforming the Energy Vision, Joint Utilities’ Energy Efficiency Earnings Adjustment Mechanism Filing (Dec. 1, 2016) and Joint Utilities’ System Efficiency Earnings Adjustment Mechanism Filing (Dec. 1, 2016).

⁸ Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision and Case 16-M-0429 – In the Matter of Earnings Adjustment Mechanism and Scorecard Reforms Supporting the Commission’s Reforming the Energy Vision, Interconnection Survey Process and Proposed Earning Adjustment Mechanism Filing of the Joint Utilities (Sept. 2, 2016).

⁹ Cases 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision and Case 16-M-0429 – In the Matter of Earnings Adjustment Mechanism and Scorecard Reforms Supporting the Commission’s Reforming the Energy Vision, Order Directing Modifications to the Joint Utilities’ Proposed Interconnection Earning Adjustment Mechanism Framework (Mar. 9, 2017).

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1 customer benefits. The proposed EAMs include: 1) Energy Efficiency
 2 (“EE EAM”); 2) Carbon Intensity; 3) System Efficiency (“SE EAM”);
 3 4) Interconnection (“IEAM”); 5) Customer Engagement; and 6) Distributed
 4 Energy Resource (“DER”) Utilization. Table 1 shows the component
 5 metrics for each EAM and the associated earnings impact reflected as
 6 basis points for the electric department associated with the achievement
 7 of each EAM. As shown in Table 1, the majority of basis points are
 8 allocated to the EE EAM and the Carbon Intensity EAM. The basis point
 9 allocation reflects the positive Benefit Cost Analysis (“BCA”) results for
 10 these two EAMs. Each individual EAM will be described in greater detail
 11 later in our testimony.

Table 1 – EAMs and Associated Metrics

	2018	2019	2020	2021
Energy Efficiency	30	30	30	30
MWh Reduction (MWhs)	15	15	15	15
MWh Attainment Efficiency (\$/kWh)	15	15	15	15
Carbon Intensity	20	40	40	40
Residential Carbon Intensity	10	20	20	20
Non-Residential Carbon Intensity	10	20	20	20
System Efficiency	5	10	10	10
MW Peak Load Reduction	5	10	10	10
Interconnection	2.5	5	5	5
Applicant Satisfaction Survey	2	4	4	4
SIR Business Day Improvements	0.5	1	1	1
Customer Engagement	3.75	7.5	7.5	7.5
CenHub Enrollment	1.25	2.5	2.5	2.5
Insights+ Enrollment	1.25	2.5	2.5	2.5
Time Of Use Rate Enrollment	1.25	2.5	2.5	2.5
DER Utilization	3.75	7.5	7.5	7.5
Total	65	100	100	100

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1 Q. Over what time period is Central Hudson proposing to record the outcome
2 of the EAMs relative to the targets proposed?

3 A. Central Hudson is proposing to track the outcome of the proposed EAMs
4 and record the associated earnings impact on a calendar year basis.
5 Since Energy Efficiency programs will be running for the entirety of 2018,
6 the EE EAM incentive is set at 100% or 30 basis points each year. For all
7 of the other EAMs, the incentive available in 2018 is set at 50% of the
8 following year level in order to reflect a July 1, 2018 start of the EAM.

9 Q. Does the approach used by Central Hudson to develop these EAMs align
10 with the Commission REV Track 2 Order?

11 A. Central Hudson reviewed the Commission's guidance on the structure of
12 EAMs provided in the REV Track 2 Order and the EAMs proposed in this
13 filing align with that guidance. As provided for in the Commission's
14 guidance, the Company's proposed EAMs are: 1) inclusive of outcome-
15 based measures that aim to achieve broad policy objectives; 2) based on
16 fixed performance targets, which simplifies administration and avoids
17 counterfactuals; 3) positive only, and provide an earnings opportunity
18 of 100 basis points; 4) performance-based with increasing awards based
19 on higher levels of performance; and 5) designed to provide sufficient time
20 for the attainment of the outcome-based targets with annual targets
21 spread over four calendar years.

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1 **IV. COST RECOVERY AND FUNDING REQUIREMENTS**

2 Q. Please describe the incremental funding requirements associated with the
3 EAMs you are proposing.

4 A. There are two types of funding requirements we will describe below. The
5 first category includes incremental funding associated with creating new
6 programs. These include costs associated with marketing, administration,
7 and rebates paid to customers to promote the use of various equipment.
8 The next category includes the recovery of any incentives earned by the
9 Company associated with achieving EAM targets.

10 Q. Please describe the new programs associated with these EAMs that will
11 require incremental funding.

12 A. A Carbon Reduction program is being proposed in order to meet the
13 proposed targets associated with the Carbon Intensity metric. The Carbon
14 Reduction program includes new initiatives associated with the reduction
15 of carbon dioxide (“CO₂”) emissions within Central Hudson’s service
16 territory. These initiatives will require incremental funding and produce
17 offsetting benefits. The costs and benefits of these initiatives were
18 evaluated according to the methodology within Central Hudson’s BCA
19 Handbook within Central Hudson’s Distribution System Implementation
20 Plan (“DSIP”) filing¹⁰ and achieve a positive portfolio BCA of 3.11 for
21 residential initiatives and 8.33 for non-residential initiatives. The

¹⁰ Case 14-M-0101 - Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision and Case 16-M-0411 - In the Matter of Distributed System Implementation Plans, Initial DSIP Central Hudson, Appendix K (July 28, 2016).

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1 incremental funding requirement for the proposed Carbon Reduction
2 program is \$6.31 million in 2018 and \$12.63 million annually thereafter or
3 \$44.2 million over the period beginning July 1, 2018 and ending December
4 31, 2021. Additionally, the Carbon Reduction program is a very cost
5 effective means of reducing CO₂ emissions compared to the cost of other
6 initiatives funded by utility customers. The Carbon Reduction program will
7 be described in greater detail later in this testimony. Additionally, Central
8 Hudson proposes that additional funding for energy efficiency should be
9 made available if megawatt hours (“MWhs”) can be attained at a benefit
10 cost ratio of greater than 1.0 under the guidelines developed under
11 Central Hudson’s BCA Handbook. Further discussion of the incremental
12 funding amount for the Carbon Reduction program and the potential
13 incremental funding for energy efficiency is discussed later in this
14 testimony.

15 Q. Are you proposing a specific recovery mechanism for the incremental
16 funding requirement and the incentives associated with the EAMs?

17 A. Yes, Central Hudson proposes that all incremental costs and incentives
18 except for those associated with energy efficiency programs be recovered
19 through the Miscellaneous Charges Factor of the Company’s Energy Cost
20 Adjustment Mechanism.

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1 Q. Please describe Central Hudson’s proposed timeframe for collecting the
2 EAM incentives.

3 A. Central Hudson proposes that recovery of the EAM incentives occurs
4 within 12 months of the target achievement. The Company’s Accounting
5 and Tax Panel describes the need to recover these incentives in a timely
6 manner in order to comply with accounting rules regarding the recording of
7 incentives as deferred revenues.

8 **V. TECHNICAL FORUM**

9 Q. Is Central Hudson proposing a process to gather stakeholder input and
10 refine the EAMs proposed within this filing?

11 A. Yes. Central Hudson’s proposed EAMs reflect the Company’s perspective
12 on how best to align utility shareholder financial interests with consumer
13 interests. However, discussions among various interested stakeholders
14 are likely to improve that alignment. Therefore, Central Hudson proposes
15 a Technical Forum that promotes discussion, education, and collection of
16 input regarding the Company’s proposed EAMs. This process will: 1) allow
17 all parties to receive more information regarding Central Hudson’s EAM
18 proposal; 2) allow stakeholders to exchange perspectives and viewpoints
19 with Central Hudson, Department of Public Service (“DPS”) Staff, and
20 each other; and 3) assist in the development of all parties’ testimony in
21 these proceedings.

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1 Q. Does Central Hudson propose to invite stakeholders that are not a party to
2 these rate cases to participate within the Technical Forum?

3 A. Central Hudson proposes to invite the list of active parties to these rate
4 cases and potentially add to and augment that list following discussions
5 with DPS Staff in order to ensure all interested and relevant stakeholders
6 are represented.

7 Q. Over what time period does Central Hudson propose to convene the
8 Technical Forum?

9 A. Central Hudson proposes to hold two full day meetings in September and
10 October in order to facilitate the aforementioned goals of the Technical
11 Forum.

12 **VI. CARBON INTENSITY EAM, TARGETS, AND FUNDING**
13 **REQUIREMENTS**

14 Q. Why is Central Hudson proposing a Carbon Intensity EAM?

15 A. The reduction of CO₂ emissions is a primary goal of New York State's
16 Energy Policy.¹¹ Beneficial electrification, fuel switching, renewable
17 generation, storage, and energy efficiency programs can provide a
18 significant portion of the reduction in CO₂ emissions to meet New York
19 State's energy goals. However, actions outside of utility energy efficiency
20 programs such as beneficial electrification and fuel switching are generally
21 not funded through utility programs. This is problematic since, as shown
22 in Exhibit __ (EAMP-2), the vast majority of CO₂ emissions within Central

¹¹ N.Y. State Energy Planning Bd., The Energy to Lead: 2015 New York State Energy Plan (2015), available at <https://energyplan.ny.gov/Plans/2015>.

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1 Hudson's service territory come from sources other than the use of
2 electricity and natural gas. Additionally, as reported recently, the
3 transportation industry has become the leading source of CO₂ emissions
4 in the United States.¹² Finally, within Central Hudson's service territory
5 only 34% of residential customers heat their homes or businesses with
6 natural gas or electricity, the remaining customers have little choice but to
7 utilize carbon intensive resources such as fuel oil or propane for their
8 heating needs. To effectively reduce future CO₂ emissions from all
9 sources, Central Hudson is proposing a fuel neutral Carbon Reduction
10 program, which will be evaluated based on an outcome-based carbon
11 intensity metric.

12 Q. What new initiatives are being proposed by Central Hudson within the
13 Carbon Reduction program?

14 A. Central Hudson is proposing three new initiatives within the Carbon
15 Reduction program. These initiatives include: 1) geothermal heating and
16 cooling; 2) air source heat pumps for heating and cooling; and
17 3) increasing penetration of Electric Vehicles ("EV") through incentives.
18 The geothermal and air source heat pump initiatives will assist in reducing
19 the cost of energy efficient alternatives compared to carbon intensive
20 heating and cooling methods utilized by many of Central Hudson's
21 customers. These initiatives will be undertaken collaboratively with the
22 New York State Energy Research & Development Authority

¹² Eric Roston, [America's Energy Revolution Hits a Historic Milepost](#), Bloomberg, Oct. 31, 2016

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1 (“NYSERDA”). The geothermal heating and cooling initiative is aimed at
2 reducing the difficulty customers may have in choosing and identifying
3 equipment and contractors, along with reducing the cost of the equipment
4 through a rebate. These rebates are expected to be made available for
5 residential customers. Unlike traditional energy efficiency initiatives that
6 aim to reduce MWh or Dth consumption, these initiatives will focus on the
7 total carbon impact of switching from carbon intensive heating and cooling
8 technologies to a geothermal or air source heat pump.

9 The EV initiative will assist in reducing the cost of alternatives to
10 carbon intensive transportation methods utilized by many of Central
11 Hudson’s customers. This initiative will be undertaken collaboratively with
12 interested communities and technology vendors and is aimed at reducing
13 the difficulty customers may have in justifying the cost of purchasing an
14 EV. This rebate is expected to be made available to all customer classes
15 and will be linked to the proof of purchase of an EV.

16 Q. How will Central Hudson’s customers benefit from these initiatives?

17 A. As previously discussed, these initiatives will provide customers with
18 greater access to technologies that reduce their carbon emissions and
19 reduce their total energy costs. Central Hudson proposes to reduce the
20 upfront cost of investment in applicable technologies in order to increase
21 the number of customers that will participate in these initiatives.
22 Additionally, as shown in Exhibit __ (EAMP-4), at the proposed funding
23 level, the Carbon Reduction program passes a benefit cost analysis as set

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1 forth within the BCA Handbook included within Central Hudson’s DSIP.

2 Therefore, at the annual funding levels shown within the exhibit, all of

3 Central Hudson’s customers will receive a net benefit from the

4 implementation of the Carbon Reduction program. In addition, as shown

5 in Exhibit __ (EAMP-3), the Carbon Reduction program is a very cost

6 effective means of reducing CO₂ emissions when compared to the costs of

7 other comparable programs funded by utility customers. Finally,

8 Exhibit __ (EAMP-4) lists each initiative within the Carbon Reduction

9 program and the projected customer participation levels, funding levels,

10 and the resulting BCA.

11 Q. What is the amount of incremental funding Central Hudson is proposing
12 for the Carbon Reduction program?

13 A. As shown in Exhibit __ (EAMP-4), Central Hudson is proposing a funding
14 level of \$6.31 million in 2018 and \$12.63 million annually thereafter for the
15 Carbon Reduction program. Dollars that are unspent at the end of each
16 calendar year will be deferred and available for the following year to
17 implement this program. As discussed previously, the Carbon Reduction
18 program portfolio has a BCA greater than one.

19 Q. Please describe the Carbon Intensity EAM and the underlying metric.

20 A. The Carbon Intensity EAM is a hybrid of outcome-based and
21 programmatic measures that take into account the CO₂ reductions from
22 Central Hudson’s proposed Carbon Reduction program, Energy Efficiency
23 programs, penetration of photovoltaic generation, and natural gas

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1 conversions. As shown in Exhibit __ (EAMP-1), the Carbon Intensity EAM
2 is measured through both a residential carbon intensity metric and a non-
3 residential carbon intensity metric. Both the residential and non-
4 residential carbon intensity metrics measure the change in carbon per
5 customer caused by the adoption of applicable DER technologies. The
6 carbon baseline will be used as a static reference point for measuring
7 progress of carbon abatement measures and programs. The baseline will
8 also allow for analysis to determine the end uses and technologies with
9 the greatest potential for carbon emissions impacts. The reduction of CO₂
10 resulting from energy efficiency, solar photovoltaic (“PV”) penetration,
11 carbon reduction programs, and natural gas conversions will be measured
12 against the carbon baseline.

13 Q. How was the baseline for the Carbon Intensity Metric established?

14 A. Central Hudson worked with Applied Energy Group (“AEG”) to develop the
15 carbon intensity metrics and establish the comparison baseline for the
16 period ending 2021. In order to establish the baseline, a custom end-use
17 stock accounting model was developed to analyze both energy
18 consumption and carbon dioxide emissions at the equipment level
19 throughout Central Hudson’s service territory. To accomplish this, we first
20 quantified both energy consumption and equipment stock for each
21 applicable fuel (electricity, natural gas, fuel oil, propane, gasoline, and
22 diesel). We then applied CO₂ emissions factors (tons of CO₂ per energy
23 unit) to quantify emissions impacts. The following equation details a

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1 modified stock accounting calculation utilized to quantify emissions for
2 residential customers within this analysis.

3

$$\begin{aligned} \text{Tons CO}_2 &= \text{Units} \cdot \text{Energy Consumption} \cdot \text{Emissions Factor} \\ &= (\text{Households} \cdot \% \text{ Saturation}) \cdot (\text{kWh/unit}) \\ &\quad \cdot (\text{tons CO}_2/\text{kWh}) \end{aligned}$$

4

5 Units are calculated as the percent saturation of a given equipment
6 type within a typical market unit in the service territory (residential
7 households or commercial square feet). Energy consumption is
8 calculated as the equipment units times the average unit energy
9 consumption (UEC). Emissions factors were then used to convert energy
10 consumption into tons of CO₂, which were derived from a variety
11 of sources.

12 Q. What were the sources utilized to convert the emissions factors into tons
13 of CO₂?

14 A. Although sources differed slightly by the type of fuel analyzed, we followed
15 a simple hierarchy when selecting among multiple options when available.
16 Our first priority was to utilize research conducted by or for Central
17 Hudson. This includes the 2013 Residential Appliance Saturation Survey¹³

¹³ Cases 07-M-0548 – Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard and Case 15-M-0252 - In the Matter of Utility Energy Efficiency Programs, Central Hudson Energy Management Survey Filing (July 7, 2017).

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1 (“RASS”) and the 2014 Potential Study¹⁴ conducted by AEG. When
2 Company-specific research was not available, the second priority was to
3 utilize New York State-specific sources, with emphasis on the Central
4 Hudson service territory when available. Finally, if Company or
5 state/county data were not available, we utilized national sources such as
6 the 2017 Annual Energy Outlook (“AEO 2017”) and the federal Energy
7 Consumption Surveys (“RECS 2009” and “CBECS 2012”). For these
8 national sources, data for New York or the Mid-Atlantic census region
9 were prioritized when sample sizes were sufficient to make regional
10 distinctions.

11 For the electricity and natural gas analysis, results from Central
12 Hudson’s 2014 Potential Study were used for all energy inputs. This study
13 was conducted using AEG’s bottom-up stock accounting model,
14 LoadMAPTM. The 2014 Potential Study Final Report details the input
15 assumptions that were utilized. Carbon dioxide emissions factors for
16 electricity were provided by DPS as part of the 2015 Congestion
17 Assessment and Resource Integration Study (“CARIS”) and vary by year.
18 The natural gas emission factor was derived from the EPA’s eGRID 2014
19 supporting documentation. For the fuel oil and propane analysis, we
20 utilized the 2013 RASS to calculate residential equipment saturations and
21 CBECS 2012 to calculate non-residential saturations. Consumption was

¹⁴ Matter 16-02180 – In the Matter of Clean Energy Program Evaluation, Measurement and Verification, Central Hudson Potential Study Filing (June 1, 2017).

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1 derived from RECS 2009 and CBECS 2012 for the State of New York. In
2 both models, equipment growth rates were calculated based on the
3 electricity and natural gas equipment growth assumptions from the
4 LoadMAPTM model. Emissions factors for both fuel oil and propane were
5 derived from the EPA's eGRID 2014 supporting documentation. For
6 gasoline and diesel, saturations were calculated using 2015 New York
7 DMV Registrations on File for counties served by Central Hudson. Fuel
8 consumption was calculated using AEO 2017 (annual miles per vehicle).
9 Growth was derived from light duty stock forecasts in AEO 2017.
10 Emissions factors for both gasoline and diesel were derived from the
11 ORNL's Transportation Data Energy Book, Edition 35.

12 Q. How were the targets for the Carbon Intensity metrics established?

13 A. As shown in Exhibit __ (EAMP-1), the carbon intensity targets were
14 calculated by first establishing a carbon baseline for Central Hudson's
15 service territory. The method of calculating this baseline is discussed
16 above. This baseline is shown as a total and per customer basis in
17 Central Hudson's service territory for both residential and non-residential
18 customers. The carbon intensity targets are presented as the delta of
19 each individual element where Central Hudson can influence the reduction
20 of the CO₂. With utility influence, this baseline is reduced by the
21 continuation of energy efficiency programs, solar PV penetration, the
22 Carbon Reduction program, and natural gas conversions. Each of these

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1 elements were forecasted based on the expected penetration of
2 each technology.

3 The energy efficiency carbon impacts were forecasted using the
4 Realistic Achievable Potential (“RAP”) from the 2014 Potential Study. This
5 impact is described in greater detail as part of the EE EAM below and
6 details the use of the RAP as the threshold target achievement. The
7 carbon impact on the baseline from solar photovoltaic penetration is in line
8 with Central Hudson’s sales and interconnection forecast. The new
9 Carbon Reduction program forecast is based on customer uptake and
10 penetration of technologies such as air and ground source heat pumps, as
11 well as the incentivized purchase of EV’s in Central Hudson’s service
12 territory. These technologies offset the use of fuel oil as a primary heating
13 source and gasoline, respectively. The impacts on the baseline from
14 natural gas conversions is based on Central Hudson’s forecast for
15 participation in this program.

16 These impacts are highlighted in Exhibit __ (EAMP-1) which
17 provides the resulting carbon baseline forecasts and targets for residential
18 and non-residential customers. These targets represent the CO₂/tons per
19 customer and are a result of both outcome and programmatic measures.

VII. EE EAM, TARGETS, AND FUNDING REQUIREMENTS

20
21 Q. Please describe the purpose of the EE EAM.

22 A. The EE EAM is designed to measure and incent Central Hudson’s efforts
23 towards achieving efficient customer energy usage in a financially efficient

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1 manner. The programs underlying the EE EAM provide customers with
2 the ability to manage their energy usage and costs and will result in
3 reduced carbon emissions.

4 Q. Please describe the metrics included within the EE EAM.

5 A. The two metrics included within the EE EAM are MWh Reduction and kWh
6 cost. As the name implies, the MWh Reduction metric is designed to
7 directly measure and incent Central Hudson’s efforts resulting in the
8 reduction of customer energy usage as measured by megawatt hours
9 (“MWh”). The cost per kWh metric is designed to directly measure and
10 incent Central Hudson’s efforts to reduce MWh in an economically efficient
11 manner and is measured through benchmark comparisons on a dollar per
12 kilowatt hour (“\$/kWh”) basis.

13 Q. How were the targets for the MWh reduction metric established?

14 A. As shown in Exhibit __ (EAMP-5), Central Hudson is proposing an EAM
15 where basis points are earned based on a linear relationship with MWh
16 attainment. Additionally, Central Hudson is proposing a minimum and
17 maximum level of MWh attainment that would result in achieving an
18 earnings adjustment between 5 and 15 basis points. The minimum and
19 maximum MWh attainment targets are based on Central Hudson’s 2014
20 Potential Study, which was completed in 2016 by AEG utilizing data
21 from 2014. The primary goal of the 2014 Potential Study was to assess
22 the future potential of Central Hudson’s energy efficiency and demand

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1 management programs in order to identify opportunities to enhance MWh
2 and MW savings.

3 The minimum or threshold level of MWh attainment is set at the
4 RAP established within the 2014 Potential Study. The RAP represents
5 savings that are possible through utility programs. The highest level of
6 MWh attainment is set at the Maximum Achievable Potential (“MAP”),
7 which represents the savings that are possible through utility programs
8 under ideal market, implementation, customer preference conditions, and
9 an appropriate regulatory framework.

10 A linear relationship between MWh attainment and allocated basis
11 points earned would only be applicable for MWh attainment equal to or
12 greater than the RAP and equal to or less than the MAP for each
13 respective calendar year. Since the RAP and MAP change each year the
14 linear equation will also change on an annual basis.

15 Q. How do the RAP and MAP compare to Central Hudson’s past
16 MWh attainment?

17 A. The MWhs associated with the RAP are consistent with the historical
18 performance of Central Hudson’s energy efficiency portfolio excluding the
19 results of the behavioral program. Additionally, on average, the MAP is
20 approximately 83% higher than Central Hudson’s historical MWh
21 attainment and 128% higher than the level of MWh attainment associated
22 with the RAP.

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1 Q. What is the behavioral program, and why will it be excluded from future
2 energy efficiency activities?

3 A. Central Hudson has implemented a behavioral energy efficiency program
4 since 2011. The goal of this program is to reduce consumption through
5 targeted and seasonal messaging through email and paper reports.

6 The customers receiving this type of communication were chosen
7 based on specific criteria including usage and the length of time their
8 account has been active. Energy savings are captured by measuring the
9 usage of customers who receive this unique communication compared to
10 customers that are part of a control group that do not receive any
11 specialized communication about usage tips. Central Hudson will be
12 modifying this current initiative to address key concerns that include cost
13 and treatment size. We will be looking to offer this benefit to a larger
14 group of residential customers in order to maximize savings
15 and engagement.

16 Q. Please describe Central Hudson's approach to developing the cost per
17 kWh metric?

18 A. The cost per kWh metric is designed to directly measure and incent
19 Central Hudson's efforts to reduce MWh consumption in an economically
20 efficient manner and is measured through benchmark comparisons on a
21 \$/kWh basis. As shown in Exhibit __ (EAMP-5), the cost per kWh metric
22 would provide Central Hudson with the opportunity to earn the lesser of up
23 to 15 basis points or 50% of the savings based on the cost effectiveness

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1 of each MWh saved. The cost per kWh metric can be achieved starting at
2 the RAP level of MWh achievement. Central Hudson is proposing that the
3 number of basis points earned is determined based on the following steps:

- 4 1. Determine the total MWh savings attained during the year.
- 5 2. Identify the relevant \$/kWh benchmark comparison based on the
6 total MWh savings.
- 7 3. Identify Central Hudson's annual cost for MWh attainment on a
8 \$/kWh basis.
- 9 4. Calculate the difference in \$/kWh between the relevant benchmark
10 and Central Hudson's cost for MWh attainment.
- 11 5. Calculate the number of basis points equivalent to 50% of the dollar
12 value associated with the difference between the relevant
13 benchmark and Central Hudson's cost for MWh attainment. If 50%
14 of savings is greater than the dollar value of 15 basis points, the
15 incentive is capped at 15 basis points.

16 Q. How were the cost per kWh benchmarks established?

17 A. Within this proposal, two \$/kWh benchmarks were established that align
18 with the MWh attainment associated with the RAP and MAP. As
19 illustrated in Exhibit __ (EAMP-5), the first \$/kWh benchmark of \$0.20 is
20 based on Central Hudson's average historic energy efficiency portfolio
21 cost over the period beginning 2012 and ending 2016. Our benchmark
22 includes the impact of lower cost behavioral programs and is 29% below
23 the historical average \$/kWh of the other New York State utilities.

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1 The second benchmark of \$0.54/kWh represents the average cost
2 per kWh during the period beginning 2018 ending 2021 which results in a
3 BCA of 1.0. The \$/kWh benchmarks grows in a linear fashion
4 corresponding with MWh attainment. The calculation of each \$/kWh
5 benchmark for each level of MWh attainment is shown on Schedule E of
6 Exhibit __ (EAMP-5).

7 Q. Why do the benchmark \$/kWh increase with higher levels of MWh
8 attainment?

9 A. In order to achieve New York State’s clean energy goals, energy efficiency
10 measures must be significantly higher than historic levels. Additionally, it is
11 expected that higher levels of energy efficiency savings will come at
12 higher costs as savings from “low hanging fruit” are achieved. Therefore,
13 in order to align with New York State’s clean energy goals without creating
14 a disincentive for achieving higher levels of MWh savings, the \$/kWh
15 benchmark needs to increase with higher levels of MWh attainment. It is
16 also important to note that MWh attainment at any of the proposed \$/kWh
17 benchmarks would benefit Central Hudson’s customers and pass a
18 Benefit Cost Analysis. As described earlier, the cost per kWh component
19 of the EE EAM is designed to provide customers with at least 50% of the
20 benefits derived from the MWh attainment. This portion of this incentive is
21 capped at 15 basis points for Central Hudson, regardless of the savings
22 calculated.

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1 Q. Are you proposing the Company be able to recover any incremental
2 funding for Energy Efficiency Programs?

3 A. Yes. If the Company is able to achieve MWh savings above the funding
4 level in the ETIP while maintaining a Benefit Cost ratio of greater than
5 one, we propose that these incremental expenditures be recovered
6 through the existing Energy Efficiency Tracker surcharge.

7 Q. Are the MWh attainment targets and funding requirements aligned with
8 the 2017-2020 Energy Efficiency Transition Implementation Plan
9 (“ETIP”) filing?

10 A. Yes, the threshold MWh attainment goal aligned with the RAP was used
11 as the basis for the 2017-2020 ETIP filing. The ETIP target in 2018 is
12 inclusive of a behavioral program, while the 2018 RAP is not. Central
13 Hudson is re-evaluating the design of the current behavioral program.
14 The RAP as show in the Potential Study does not have MWhs associated
15 with a behavioral program in any year.

16 **VIII. SE EAM AND TARGETS**

17 Q. Please describe the rationale for the development of the SE EAM.

18 A. Within the REV Track 2 Order, the Commission stated that improving
19 overall system efficiency was “[o]ne of the most important objectives of
20 REV” and “peak reduction is among the most immediate priorities of REV
21 implementation.”¹⁵ The Commission view is based on the premise that
22 peak reduction “will reduce need for bulk power investment as well as

¹⁵ REV Track 2 Order, at 72.

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1 transmission and distribution investment.”¹⁶ Central Hudson recognizes
2 the potential value of peak reduction and agrees that appropriate metrics
3 and goals should be established in order to reduce future customer bill
4 pressure.

5 Q. Please describe Central Hudson’s recent efforts in determining the value
6 of peak demand reduction.

7 A. Central Hudson has had a lead role in the effort to quantify the impact of
8 reducing peak demand on a system-wide and area specific basis. These
9 efforts are critical to determining the value of peak demand reduction,
10 developing an accurate Benefit Cost Analysis, and appropriately
11 compensating DERs for the value they provide to the distribution grid. As
12 part of Central Hudson’s initial DSIP filing, Central Hudson engaged with
13 Nexant to develop a probabilistic load forecasting methodology for
14 granular transmission areas and substations as well as a method to
15 develop a system-wide avoided cost value for transmission and substation
16 reinforcements identified in the probabilistic forecast. The full report of this
17 analysis was filed as part of Central Hudson’s initial DSIP and within the
18 Value of DER proceeding. The analysis allowed Central Hudson to
19 assess the potential to defer or eliminate the need for traditional
20 transmission and distribution (“T&D”) infrastructure investments through
21 the use of DER. The analysis included a quantification of the potential to
22 avoid or defer infrastructure upgrades at a very granular level. To our

¹⁶ Id.

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1 knowledge, no other utility to date has attempted to implement a location
2 specific avoided T&D cost study that relies on probabilistic analysis and
3 quantifies the option value of reducing peak demand, at \$14.04 per kW-
4 year on a Central Hudson system-wide basis. Additionally, as part of
5 Central Hudson's compliance with ordering clauses 13 and 14 within the
6 Order On Net Energy Metering Transition, Phase One of Value of
7 Distributed Energy Resources, and Related Matters ("Value of DER
8 Order"),¹⁷ Central Hudson provided and demonstrated a methodology for
9 determining Locational System Relief Values ("LSRV") for four areas
10 within its service territory. The LSRV would be utilized to increase the
11 value stack compensation for projects under three circumstances: 1)
12 projects compensated under the Value of DER Order, 2) projects that
13 locate within the identified areas or can be used to geographically
14 differentiate the value of EE incentives; or 3) participants in the
15 Company's Commercial System Relief Program ("CSR"). However,
16 based on this methodology there were no areas identified with an LSRV
17 higher than \$14.04 per kW-year and as a result no areas outside of the
18 NWA projects have been assigned a location specific demand reduction
19 value.

¹⁷ Case 15-E-0751 – In the Matter of the Value of Distributed Energy Resources and Case 15-E-0082 – Proceeding on Motion of the Commission as to the Policies, Requirements and Conditions For Implementing a Community Net Metering Program, Order On Net Energy Metering Transition, Phase One of Value of Distributed Energy Resources, and Related Matters (Mar. 9, 2017).

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1 Q. Were the unique characteristics of Central Hudson’s service territory taken
2 into consideration when evaluating potential metrics for the SE EAM?

3 A. Yes, the following service territory characteristics were evaluated and
4 considered during the development of the MW Peak Load Reduction
5 target or are included in the BCA evaluation of the cost to achieve the
6 target.

7 1. Current NWA programs – Central Hudson’s current NWA program
8 is aimed at reducing peak demand in three distinct areas of the
9 services territory. The load within these areas represents
10 approximately 17% of Central Hudson’s 2016 peak demand.

11 2. Flat Peak Load Forecast – Outside of Central Hudson’s current
12 NWA program, Central Hudson is forecasting minimal peak load
13 growth of approximately 0.07% through 2021. This very low peak
14 load growth is the primary driver of the low system-wide Demand
15 Reduction Value, which is included within the BCA and used to
16 evaluate the CSR and EE programs.

17 3. Locational Based Marginal Price of Energy and Wholesale Market
18 Capacity Prices – The wholesale market facilitated by the New York
19 Independent System Operator (“NYISO”) determines the wholesale
20 price of energy and capacity throughout New York State. Central
21 Hudson’s BCA analysis of all system efficiency related programs
22 reflects the appropriate wholesale energy and capacity prices.

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- 4. AMI opt-in versus Full AMI deployment – As discussed in Appendix F of Central Hudson’s DSIP filing, Central Hudson does not have an implementation plan for a full deployment of AMI, because such an implementation would be cost-ineffective for customers under all perspectives and scenarios investigated. Although AMI has the potential to offer customers, market participants, and utilities increased visibility and resolution with regard to energy usage and flow, this increased visibility comes at a cost. The cost to integrate AMI systems with new and existing applications and devices to improve analytical capabilities and customer tools would be cost prohibitive, given the characteristics of Central Hudson’s territory and operations. Although Central Hudson has proposed an AMI opt-in to provide customers a choice to receive granular data the absence of a full AMI deployment limits the ability to measure improvements in system efficiency for mass market customers.
- 5. Target Appliances and System Efficiency – Within Central Hudson’s service territory the penetration of central air conditioning is approximately 32%. This low penetration rate presents challenges associated with size of the potential market, program design, and development of customer segmentation and target marketing. Although programs associated with the control of central air conditioning are generally seen as effective demand

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1 response measures their effectiveness will be limited within Central
2 Hudson’s service territory.

3 6. Central Hudson Customer Profiles – We analyzed the contribution
4 to system peak demand and load factor for each customer class in
5 order to consider customer class within program development.
6 Customers within SC1, SC2, and SC3 (“mass market customers”)
7 have the lowest load factors and may represent the best
8 opportunity to improve system load factor.

9 Q. What metric is being proposed by Central Hudson within the SE EAM?

10 A. Central Hudson is proposing a MW Peak Load Reduction metric as its
11 SE EAM.

12 Q. Please describe the MW Peak Load Reduction metric and the
13 development of the associated target.

14 A. The MW Peak Load Reduction metric is tied to achieving results in
15 programs designed in part to reduce Central Hudson’s system peak.
16 Central Hudson considers this metric to be a hybrid of both program and
17 outcome based measures. The Company plans to achieve peak load
18 reduction through program based measures from its EE programs detailed
19 within its 2017 through 2019 ETIP and its CSR. The EE program impact
20 on peak demand will be calculated using the NYISO peak coincident for
21 each EE measure as outlined in the New York State Technical Resource
22 Manual. Peak demand reduction achieved through the CSR will be
23 calculated as the average MW of demand reduction achieved within all

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1 demand response events and tests within the year. Central Hudson will
2 also encourage PV and other distributed generation (“DG”)
3 interconnections and take into account the annual peak demand reduction
4 from these sources calculated based on average coincidence for each
5 specific DG technology. The expected impacts of the EE and CSRP
6 programs, new Time-of-Use (“TOU”) rate enrollments, and the impact from
7 distributed generation interconnections were utilized to develop the annual
8 MW Peak Load Reduction targets. These calculations are shown in
9 Exhibit __ (EAMP-6).

10 Q. Was system load factor considered as a potential metric for inclusion
11 within the SE EAM?

12 A. Yes, however, based on the results of an analysis by the Brattle Group
13 (“Brattle”)¹⁸ conducted for the Joint Utilities, and described within the JU
14 SE EAM filing, a system-wide load factor metric was not considered.

15 Q. Please briefly describe the results of the Brattle analysis.

16 A. As described in the JU SE EAM filing, after extensive research and
17 analysis, both Brattle and the Joint Utilities concluded that a metric based
18 on system load factor is unlikely to produce changes that could be
19 reasonably relied upon. This result appears to be due to at least three
20 considerations. First, it is unlikely that there will be sufficiently large levels
21 of DER to have a meaningful impact on system load factors. Second,

¹⁸ Case 16-M-0429 – In the Matter of Earnings Adjustment Mechanism and Scorecard Reforms Supporting the Commission's Reforming the Energy Vision, Joint Utilities’ Assessment of Load Factor as a System Efficiency Earning Adjustment Mechanism (Feb. 17, 2017).

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1 because the energy-to-peak ratio of the expected portfolio of DER is
2 similar to the system load factor, any increase in penetration of these
3 types of DER will not cause a substantive change to the system load
4 factor. Lastly, annual variations in load factor are significantly greater than
5 measured changes from DER penetration which impair the ability to
6 accurately measure the impacts of DER on the system load factor.

7 Q. Were load factor metrics other than system load factor considered for
8 inclusion within the SE EAM?

9 A. Yes, Central Hudson reviewed customer load factor as a potential metric
10 for inclusion within the SE EAM.

11 Q. Why wasn't customer load factor included as a potential SE EAM metric?

12 A. Central Hudson performed an analysis of load factor by customer class.
13 The results of this analysis are shown in Exhibit __ (EAMP-6). These
14 results show that Central Hudson's mass market customers have the
15 lowest load factor and could benefit the greatest through load factor
16 improvement measures. However, there are significant limitations to
17 developing a program for mass market customers and measuring the
18 impact on load factor. Many of these limitations are similar to the
19 difficulties described in the Brattle analysis of system load factor, however,
20 these limitations are exacerbated by Central Hudson's lack of hourly
21 consumption data for individual mass market customers. In order to
22 remain aligned with the guidance to avoid counterfactuals within the REV
23 Track 2 Order, Central Hudson proposes that it is more appropriate to

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1 measure customer engagement with programs that should incent load
2 factor improvement within these customer classes. These programs
3 include opt-ins to newly designed TOU rates, Smart Home Rates, and
4 Insights+. Measurement of customer engagement associated with these
5 programs will be discussed in greater detail later within this testimony.

6 **IX. INTERCONNECTION EAM AND TARGETS**

7 Q. Please describe the rationale for providing Central Hudson with an
8 Interconnection EAM.

9 A. In the REV Track 2 Order, the Commission directed the Joint Utilities to
10 propose a DG interconnection survey process and EAMs. The DG
11 interconnection process is integral to meeting the goals of the REV
12 Proceeding. The IEAM is an opportunity to further align the Company's
13 interests with that of DER stakeholders in an increasingly effective
14 manner.

15 Q. Please describe Central Hudson's past performance regarding
16 interconnection of DG.

17 A. Central Hudson has always facilitated the interconnection of distributed
18 generation in a timely and efficient manner, and has frequently been the
19 first utility in the state to reach the net metering caps for technologies
20 covered under PSL §66j. We take this role very seriously. Central
21 Hudson experienced a year-over-year increase of 576% from 2015 to
22 2016 in new applications for solar PV 50kW and above. Nonetheless, in
23 2016, Central Hudson achieved nearly a 100% timeliness record for all

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1 applications based upon the requirements established within the New
2 York State Standardized Interconnection Requirements¹⁹ (“SIR”) as
3 summarized below:

- 4 - Completeness Review - 99.3% (2,357 out of 2,373)
- 5 - Preliminary Review - 100% (422 out of 422)
- 6 - Coordinated Electric System Interconnection Review (“CESIR”) - 100%
- 7 (33 out of 33)

8 In 2016, the Company connected 1,977 solar PV installations
9 totaling 17.0 MW, including 19 installations and 2.6 MW from systems
10 50kW and above. The total solar PV interconnection queue reached 729
11 MW by December 2016. The Company experienced a system peak load
12 of 1088 MW in 2016. Although the queue was reduced to 187 MW by
13 May 30, 2017 and the systems remaining would only offset a fraction of
14 this peak load when fully interconnected, this value is indicative of the
15 interconnection applications on which Central Hudson finished a
16 Completeness Review and Preliminary Review relative to its size.

17 Q. What has Central Hudson done to improve the interconnection process?

18 A. As the application volume has exponentially increased since the inception
19 of net metering, Central Hudson has taken a leadership role in the area of
20 interconnections and worked collaboratively with solar developers.

21 Central Hudson has hosted an Annual Solar Summit for seven years,

¹⁹ New York State Public Service Commission, New York State Standardized Interconnection Requirements and Application Process for New Distributed Generators 5 MW or Less Connected in Parallel with Utility Distribution Systems, New York State Public Service Commission, (Feb. 2017).

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1 bringing together utility representatives, solar developers, and other key
2 stakeholders throughout the state to ensure the utility interface is as
3 seamless as possible while providing developers an opportunity to learn
4 about other programs available to them. Our website includes technical
5 documentation as well as sample drawings. And the Company has
6 always complied with the Web-based Interconnection requirements
7 outlined in the SIR and completed a process improvement project to
8 reduce the administrative burden of application review. As described in
9 the Distributed System Platform Panel’s testimony in this case, the
10 interconnection portal that was developed internally is being replaced to
11 meet the requirements of the DSIP Order. Central Hudson has increased
12 internal staffing and supplemented with contracted resources as required.

13 Central Hudson is the utility lead for the Interconnection Technical
14 Working Group (“ITWG”) and Interconnection Policy Working Group
15 (“IPWG”), which are co-led by DPS Staff and NYSERDA. Our leadership
16 and collaboration with the developers has reduced interconnection costs
17 through agreements such as the Interim JU Anti-Islanding Criteria
18 document adopted by the ITWG on February 9, 2017.

19 Q. Has Central Hudson taken any steps to address the significant increase in
20 the number of projects within the interconnection queue?

21 A. On September 30, 2016, the IPWG members, including Central Hudson,
22 petitioned the Commission for queue management and cost sharing that
23 ultimately resulted in the Commission’s January 25, 2017 Order Adopting

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1 Interconnection Management Plan and Cost Allocation Mechanism, and
2 Making Other Findings in Case 16-E-0560 (“Queue Management Order”).
3 As a result of the Queue Management Order, the Commission required
4 developers to provide property owner consent within 30 business days of
5 Commission action. The result of the requirements of the Queue
6 Management Order reduced our interconnection queue from 774 MW to
7 183 MW by April 2017. The Queue Management Order provides
8 mechanisms to continue to clean out the queue to ensure projects that are
9 not moving forward do not stall projects behind it. The Queue
10 Management Order and the SIR changes in 2016 and 2017 will influence
11 developers to make informed decisions about whether to continue on a
12 path to interconnection or exit the queue to allow more viable projects to
13 move ahead. These actions will support the REV goal of facilitating as
14 much solar PV interconnection as possible.

15 Q. What other actions has Central Hudson taken to facilitate interconnection
16 of distributed generation?

17 A. In 2016, Central Hudson published a DER System Indicator Map to
18 identify areas of the system where interconnection will be more costly.
19 Central Hudson has actively participated in and led components of the
20 Hosting Capacity Supplemental DSIP working groups. The testimony of
21 the DSP Panel further discusses Central Hudson’s plans for hosting
22 capacity maps and increasing hosting capacity.

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1 Q. Has Central Hudson made past filings associated with Interconnection
2 EAMs and targets?

3 A. Yes.

4 Q. Please provide a brief overview of past filings associated with
5 Interconnection EAMs and targets.

6 A. In the REV Track 2 Order, the Commission noted that the DG
7 interconnection process will promote market development of DERs, and
8 directed the New York State electric utilities to propose a DG
9 interconnection survey process and associated EAM metrics.²⁰ On
10 September 2, 2016, the Joint Utilities made a common Interconnection
11 Survey Process and Proposed Earning Adjustment Mechanism filing in
12 Case 16-M-0429 (“Initial IEAM Proposal”) for distributed generation
13 applications above 50 kW. A subsequent stakeholder engagement
14 session was conducted on October 17, 2016. In the Commission’s
15 March 9, 2017 Order Directing Modifications to the Joint Utilities’
16 Proposed Interconnection Earning Adjustment Mechanism Framework,
17 the Commission found that the Joint Utilities’ proposed frameworks for the
18 DG interconnection survey and metric did not go far enough to adequately
19 address this need for improved interconnection processes and ordered the
20 JU to submit a revision to the Initial IEAM Proposal within 60 days from
21 the issuance of that Order. On May 8, 2017 the JU filed a revised

²⁰ REV Track 2 Order, at 86-87.

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1 framework for the common interconnection survey process and EAM
2 (“Modified IEAM Proposal”).

3 Q. Please provide a brief description of the Initial IEAM Proposal filed by the
4 Joint Utilities.

5 A. The Initial IEAM Proposal included three main elements: 1) an earnings
6 opportunity based on the Joint Utilities’ ability to meet certain SIR
7 timeliness requirements; 2) an earnings opportunity based on the results
8 of a telephone-based interconnection survey for completed projects and a
9 process for administering it; and 3) a process aimed at better
10 understanding the reason(s) for withdrawn and abandoned applications to
11 improve the interconnection process going forward.”²¹

12 Q. Please provide a brief description of the Modified IEAM Proposal filed by
13 the Joint Utilities.

14 A. The Modified IEAM Proposal included the following updates:²²

- 15 1. The establishment of SIR timeliness requirements as a threshold
16 condition to unlock IEAM earning opportunities, with certain
17 exceptions to 100 % compliance due to events outside of
18 utility control;
- 19 2. The development of a “mid-point survey” and the modified
20 continuation of the “completion survey;” the core questions of each
21 forming the basis of each of the JU’s earnings opportunities;

²¹ Modified IEAM Proposal, at 3.

²² Id. at 2.

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- 1 3. A proposal for the weighting of each respective survey, as well as
- 2 the core survey questions;
- 3 4. The creation of a multi-modal survey format, offering web- and
- 4 telephone-based options for SIR applicants; and
- 5 5. A process to collect data on recent abandoned or withdrawn SIR
- 6 applications, as well as supplementary information on the Joint
- 7 Utilities' proposed closeout process.

8 Q. Please describe the exceptions to the 100% SIR timeliness compliance in
9 further detail.

10 A. As described in the Modified IEAM Proposal, exceptions to the 100% SIR
11 timeliness are intended to maintain utility priority to provide safe and
12 reliable service for all customers, enable the utility to work with a
13 developer on changes to the scope and design of a project without
14 restarting the application process, and balance quality and cost of
15 application review. These exceptions include force majeure events such
16 as major storms, applicant-driven delays, and exceptional application
17 volumes, as well as a provision based upon other events that cannot be
18 anticipated at this time. For example, during Hurricane Sandy, Central
19 Hudson missed the proposed SIR timeliness metrics on eight applications.

20 Q. Is Central Hudson's proposed IEAM aligned with the Modified IEAM
21 Proposal filed by the Joint Utilities?

22 A. Yes, Central Hudson's proposal is generally aligned with the Modified
23 IEAM Proposal filed by the JU. Central Hudson proposes to adopt the

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1 mid-point survey and completion survey questions, scoring of survey
2 questions, and the mid-point versus completion survey weighting
3 described in the Modified IEAM Proposal. Also as described in the
4 Modified IEAM Proposal, Central Hudson will offer a multi-modal survey
5 and study withdrawn or abandoned applications.

6 Q. How does the Company’s proposal differ from the JU Modified IEAM
7 Proposal?

8 A. Central Hudson proposes additional modifications to the timeliness
9 component of the metric to allow flexibility in situations that do not clearly
10 fall into a specific measurement. The Company believes these
11 modifications will not adversely impact its commitment to meet or exceed
12 the timeliness requirements for each SIR application. As shown in Exhibit
13 __ (EAMP-9), for each instance that Central Hudson misses the timeliness
14 metric in a calendar year, the Company proposes a 5% reduction (0.2
15 basis points for calendar years 2019 through 2021; or 0.1 basis points in
16 calendar year 2018) in the earnings incentive for the IEAM attributed to
17 the survey results. For example, if Central Hudson were to earn the
18 maximum 4 basis points available based upon the survey results, but
19 missed the SIR timeliness requirement for two completeness reviews, one
20 preliminary review, and one CESIR, Central Hudson’s maximum EAM for
21 interconnections would be:

22
$$4 * (1 - 5%*4) = 3.2 \text{ basis points}$$

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1 Under the Company's approach, survey results will become the
2 threshold, with the number of timeliness targets missed driving the total
3 incentive available.

4 Q. Please identify Central Hudson's proposed metric for the survey results.

5 A. Central Hudson supports the Modified IEAM proposal's weighting of the
6 surveys and questions. If the weighted average survey results, for the
7 mid-point and completion surveys exceed the baseline results then
8 Central Hudson should earn the proposed 4 basis points.

9 Q. How will the survey baseline be developed?

10 A. As described in the Modified IEAM Proposal, completing a sufficient
11 number of surveys to reduce the margin of error is a concern. Moreover,
12 developer satisfaction with the impacts of the Value of DER Order and the
13 Queue Management Order may impact the results of the surveys.
14 Furthermore, surveys completed earlier in the process of developing the
15 baseline and during the transition of implementing the mid-point survey
16 may also have biased results due to the amount of time that can elapse
17 between completion of the mid-point step / project installation and
18 completion of the survey. These delays may diminish over time as web
19 based surveys are implemented. As a result of the potentially biased
20 survey results early in the process of setting the baseline, Central Hudson
21 proposes a cumulative baseline updated semi-annually.

DIRECT TESTIMONY OF THE EAM PANEL

1 Q. Are there any additional components of the IEAM that Central Hudson
2 proposes?

3 A. Yes. Because Central Hudson has exhibited historically exceptional
4 performance, the Company proposes an additional standalone incentive
5 for continuous improvement. In addition to periodically reporting the
6 information as described in the Modified IEAM Proposal, Central Hudson
7 proposes one additional basis point of earnings opportunity if the average
8 number of days for completion is less than 95% of the allowable number
9 of days in the SIR on average across the three items being measured:
10 application review, preliminary review, and CESIR study. Central Hudson
11 will work with DPS Staff to identify a reporting format that is easily tracked
12 and measured for this purpose.

13 Q. How many basis points is Central Hudson proposing to allocate to the
14 Interconnection EAM?

15 A. Central Hudson proposes an incentive of 2.5 basis points in 2018 and 5
16 basis points each year from 2019 through 2021, as shown in Table 1.

17 **X. CUSTOMER ENGAGEMENT EAM AND TARGETS**

18 Q. Please describe the purpose of the Customer Engagement EAM.

19 A. Central Hudson will continue to strive to increase customers' ability to
20 understand and manage their energy use and bills by encouraging
21 customers to: 1) sign up to the CenHub customer engagement platform; 2)
22 adopt TOU rates or participate in the Smart Home Rate demonstration
23 project; and, 3) subscribe to the Insights+ demonstration project in order to

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1 gain access to granular energy usage data. Central Hudson is proposing
2 an EAM that measures the customer adoption of these four customer
3 engagement initiatives.

4 Q. How does increasing customer enrollment in CenHub or Insights+ align
5 with the overall policy objectives of REV?

6 A. As discussed within the Customer Engagement Panel testimony, CenHub
7 is a customer engagement platform that provides insights regarding
8 customer usage and bill amounts, provides actionable information that
9 customers can utilize to manage their bills, and provides residential
10 customers with the ability to purchase energy-related products and
11 services. Enrollment in CenHub is an important step in increasing
12 customer choice and awareness associated with opportunities to manage
13 and control their energy usage. Furthermore, enrollment in Insights+
14 provides customers with temporally granular information that can increase
15 their awareness of energy use while providing information that can be
16 used to assess or increase the effectiveness of utility and third party
17 product and service offerings.

18 Q. How does increasing customer enrollment in TOU rates or Smart Home
19 Rates align with the overall policy objectives of REV?

20 A. TOU rates have been identified as an improvement over flat rates in the
21 pursuit of consumption modification to achieve certain goals, such as peak
22 reduction, since these rates offer improved “correlation between the
23 temporally changing costs of providing energy and the customer’s actual

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1 consumption of energy.”²³ Reduction of peak demand and reduction of
2 customer bills are two primary policy objectives of REV that can be
3 facilitated through the enrollment of mass market customers into TOU
4 rates and Smart Home Rates.

5 Q. Please describe the metric associated with the Customer
6 Engagement EAM.

7 A. As illustrated in Exhibit __ (EAMP-7), the Customer Engagement EAM will
8 measure the percent of Central Hudson’s residential customers that sign
9 up to one or more of the previously discussed customer
10 engagement initiatives.

11 Q. What are the proposed targets for the Customer Engagement EAM?

12 A. Through the CenHub demonstration project, Central Hudson has
13 established a baseline of engaged customers. As of December 31, 2016,
14 approximately 41.4% of Central Hudson’s customers were engaged in
15 better understanding their energy use through CenHub. Central Hudson
16 proposes to increase customer engagement to 47%, 50%, 53%, 56%
17 in 2018, 2019, 2020, and 2021, respectively.

18 Central Hudson also proposes to promote its TOU rate programs
19 and Smart Home demonstration project in order to achieve a 4%
20 penetration of TOU rates within its residential customer base by 2021. On
21 an annual basis Central Hudson proposes an annual TOU penetration rate
22 of 1%, 2%, 3%, and 4% in 2018, 2019, 2020, and 2021, respectively.

²³ Jim Lazar & Wilson Gonzalez, Smart Rate Design for a Smart Future, Regulatory Assistance Project, at 76 <http://www.raonline.org/document/download/id/7680> (“RAP Report”).

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1 Finally, Central Hudson proposes to enroll approximately 4,000
2 customers within its Insights+ service offering by 2021. Central Hudson
3 proposes an annual enrollment target of 1,000 customers beginning
4 in 2018.

5 Q. How many basis points is Central Hudson proposing to allocate to the
6 Customer Engagement EAM?

7 A. Central Hudson proposes an incentive of 1.25 basis points during 2018 for
8 the successful attainment of the target for each component of the
9 Customer Engagement EAM. From 2019 through 2021, Central Hudson
10 proposes that the potential basis points awarded for each component
11 would increase to 2.5.

12 **XI. DER UTILIZATION EAM AND TARGETS**

13 Q. Please describe the purpose of the DER Utilization EAM.

14 A. The DER Utilization EAM incents utility encouragement and promotion of
15 DER growth, and measures the impact of newly added DER in Central
16 Hudson's service territory.

17 Q. Please describe the metric that underlies the DER Utilization EAM.

18 A. The DER Utilization metric measures the impact of newly added DER in
19 Central Hudson's service territory. The metric considers all MWhs
20 produced, consumed, discharged, or reduced by DER, including solar PV,
21 battery storage, Energy Efficiency Programs, Demand Response
22 programs and the beneficial electrification included within the Carbon
23 Reduction Program such as electric vehicles, geothermal heat pumps and

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1 air source heat pumps. As such, this metric is very interrelated with the
2 results of the Carbon Intensity EAM, Energy Efficiency EAM, and the
3 Interconnection EAM.

4 Q. What is the proposed target for the DER Utilization metric?

5 A. The proposed DER Utilization target is based on the projected generation,
6 discharge, or reduction of MWhs associated with the DER technologies as
7 shown in Exhibit __ (EAMP-8). Central Hudson proposes a target
8 of 80,417 MWh, 35,586 MWh, 38,745 MWh, and 39,499 MWh of DER
9 utilization in 2018, 2019, 2020, and 2021, respectively. The cumulative
10 DER MWhs increase by a compound average growth rate of 31%
11 through 2021.

12 Q. How many basis points is Central Hudson proposing to allocate to the
13 DER Utilization EAM?

14 A. Central Hudson proposes an incentive of 7.5 basis points in each year
15 from 2019 through 2021 and 3.75 basis points in 2018.

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

17 A. Yes, it does.