Q. Would the members of the Demand Analysis and Cost of Service Panel (the “Panel”) please state their names and business address?

A. Maureen Nihill, Lucy Villeta, Kristin Graves and Yan Flishenbaum, 4 Irving Place, New York, New York 10003.

Q. By whom are you employed, in what capacity, and what are your professional backgrounds and qualifications?

A. (Nihill) I will act as chairman of the Panel. We are employed by Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”). I am Department Manager of Load Research and Cost Analysis in the Rate Engineering Department. My background is as follows: I received a Bachelor of Arts Degree in Mathematics and Economics from the College of Mount Saint Vincent in 1979 and a Master of Business Administration Degree in Finance from Pace University in 1985. In 1981, I began my employment with Con Edison in the Demand Analysis Division of the Rate Engineering Department. Between 1983 and 1987, I worked in positions of increasing responsibility in the load research and electric class demand analysis areas. In 1989, I was promoted to Division Analyst and placed in charge of the Load Testing Division. I was promoted to
Demand Analysis and Cost of Service Panel - Electric

Department Manager in 1996, taking on the additional responsibility for the Cost Analysis section. I currently serve on the Load Research Committee of the Association of Edison Illuminating Companies. I have previously testified before this Commission.

(Villeta) I am Section Manager of the Cost Analysis Section of the Rate Engineering Department. I received a Bachelor of Business Administration Degree in Finance with a minor in Management Information Systems from Pace University in September 1989. In October 1989, I began my employment with Con Edison as a Management Intern with rotational assignments in Forecasting and Economic Analysis, Accounting Research and Procedures ("ARP") and Power Generation Services. In June 1990, I accepted my permanent assignment as an Associate Accountant in ARP. In 1995, I was promoted to Budget Analyst in Central Customer Service. In 1998, I was promoted to Senior Analyst in Customer Operations responsible for managing the Call Center and Service Center budget. In 2001, I was promoted to Financial Manager of Staten Island and Electric Services. I have been in my current position since

-2-
November 2005 and have previously submitted testimony before this Commission.

(Graves) I am a Senior Rate Analyst in the Load Research and Cost Analysis section of the Rate Engineering Department. In that capacity, I am responsible for preparing demand analyses related to electric service. Additionally, I have a variety of duties related to load research sample design and data analysis. I have been in this capacity since beginning my employment with Con Edison in 2005. I received a Bachelor of Arts degree in Economics from the University of California at Davis in 1977 and a Master of Science degree in Consumer Economics from Cornell University in 1981. I am currently pursuing a GIS Certificate and a Master of Arts degree in Geography at Hunter College in New York. Prior to working for Con Edison, I worked for the New York Power Authority for over 13 years in the areas of load research and customer billing. I have previously submitted testimony before this Commission.

(Flishenbaum) I am a Senior Rate Analyst in the Rate Engineering Department of Con Edison. I received a Bachelor of Business Administration Degree in
Economics from Pace University in 2001 and a Master of Business Administration Degree in Finance and Economics from New York University in 2008. In 2001, I began my employment with Con Edison in the Cost Analysis Area of the Rate Engineering Department. In 2003, I was promoted to Analyst, mainly involved in the development of the costing methodologies related to unbundling. I was promoted to Senior Analyst in 2005. In 2008, I was promoted to my current position in which I am responsible for developing the Company’s cost-of-service models. I previously testified before this Commission.

Q. What is the purpose of the Demand Analysis and Cost of Service Panel’s testimony?

A. Our testimony:

(1) presents the Company’s Class Demand Study;

(2) presents the results of the Load Diversity Study;

(3) presents the Company’s Electric Embedded Cost-of-Service (“ECOS”) study;

(4) presents an analysis of the Company’s marginal transmission and distribution (“T&D”) costs for electric service; and

(5) proposes funding for Dynamic Load Shaping.
Q. Please summarize your testimony.

A. The Panel’s testimony is divided into five sections:

First, the Class Demand Study Section presents the Company’s Class Demand Study for the calendar year 2010. The study presents energy and demand cost responsibility measures that are used in the ECOS study for each Company Service Classification (“SC”) and for NYPA delivery service customers.

Second, the Load Diversity Study section shows the results of a load research study of individual SC accounts for service to residential apartments in multi-family buildings.

Third, the Embedded Cost-of-Service section presents the Company’s ECOS study and the associated unbundled cost components, pursuant to the Commission’s Tariff Filings, issued August 25, 2004, in Case 00-M-0504 (“Unbundling Policy Statement”), for the calendar year 2010.

Fourth, the Marginal Cost Study section presents the marginal transmission and distribution cost components for the years 2011 through 2030. It also presents a comparison of marginal costs to T&D rates for use in
setting discounts under the Excelsior Jobs Program and Business Incentive Rates.

Fifth, the Dynamic Load Shaping section describes a program request for load research system enhancements.

Q. Is the panel sponsoring any exhibits?

A. Yes, we are sponsoring the following three exhibits:

Exhibit ___ (DAC-1) – Electric Class Demand Study
Exhibit ___ (DAC-2) – Embedded Cost-of-Service Study
Exhibit ___ (DAC-3) – Electric Marginal Transmission and Distribution Cost Analysis
Exhibit ___ (DAC-4) - Dynamic Load Shaping (DLS) Enhancement.

CLASS DEMAND STUDY

Q. Please describe the purpose of the Class Demand Study.

A. The Class Demand Study presents energy and demand cost responsibility measures for each Company service class and for NYPA delivery service customers. These cost responsibility measures, in turn, were used in the ECOS Study to be presented in this proceeding.

Q. Would you briefly describe the cost responsibility measures developed in the Class Demand Study?

A. There are two general types of cost responsibility measures used in the ECOS study - energy cost
responsibility measures and demand cost responsibility measures. Energy cost measures reflect total kilowatthours that customers use over the entire year. Demand cost measures reflect customer demands during peak periods and are divided into two categories. The first is system peak responsibility, which reflects customer demands at the time of the Con Edison system peak. The second is class non-coincident peak responsibility, which reflects customer demands at the times of individual class peaks. The Class Demand Study develops a set of demand and energy cost responsibility measures for various delivery systems. We will describe these delivery systems later in our testimony.

Q. Have you prepared an exhibit showing the Class Demand Study?
A. Yes.

Q. Is this exhibit a document consisting of a title page entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., CLASS DEMAND STUDY – ELECTRIC DEPARTMENT, YEAR 2010," four pages of descriptive text, a two-page index, and about 170 pages of tabular reports?
A. Yes.
MARK FOR IDENTIFICATION AS EXHIBIT ___ (DAC-1)

Q. What period does your study cover?
A. It covers calendar year 2010, and includes specific analyses of the summer and winter peak periods for that year.

Q. Please explain the general organization of Exhibit ___ (DAC-1), Schedule 1.
A. The title page is followed by four pages of explanatory notes and an index for the study’s tabular data. Tabular Reports 2A through 4 show step-by-step development of demand and energy cost responsibility measures for each service class. Tabular Reports 5 through 8 summarize results of the detailed class-by-class analyses contained in Reports 2A through 4.

Q. Please summarize the demand and energy cost responsibility measures developed in the Class Demand Study and indicate where these data are found.
A. The following table shows this information:

<table>
<thead>
<tr>
<th>Cost Responsibility Measure</th>
<th>Report Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Responsibility</td>
<td>5</td>
</tr>
<tr>
<td>Class Summer and Winter System</td>
<td></td>
</tr>
<tr>
<td>Peak Demand Responsibility</td>
<td>6</td>
</tr>
<tr>
<td>Class Summer and Winter Non-Coincident</td>
<td></td>
</tr>
<tr>
<td>Demand Responsibility by Delivery System</td>
<td>8</td>
</tr>
</tbody>
</table>

Q. Let us now turn to an explanation of the method used in developing Exhibit ___ (DAC-1), Schedule 1. Please describe the explanatory notes.

A. The text briefly explains the procedures used to develop the class energy and demand responsibility estimates shown in the exhibit. It includes a short discussion of Con Edison's customer load testing program, which is the starting point for many of the calculations in the exhibit. Finally, it provides a brief description of each report in the exhibit.

Q. Please explain the analyses shown in Reports 2A through 4.

A. These reports show the step-by-step development of demand cost responsibilities for each service class. Data are first organized by energy or demand strata. The strata data are then added to form subclass data,
and the subclass data are further aggregated to form class data. Reports 2A and 2C show the starting data utilized in developing the class demand responsibilities. Report 2A shows either sample test customer load research data or time-of-day billing profile data by stratum. For certain classes, Report 2C summarizes the results of special customer analyses. Report 3 shows a summary of class population data by stratum for each service class. Finally, Report 4 shows the resulting class demand responsibilities by stratum for each service class. Reports 2A, 2C, 3, and 4 are provided by class for both the summer and winter peak periods.

Q. Please continue with your explanation of the remaining reports in this exhibit.

A. Report 5 shows electrical energy flows for the Con Edison System for the year 2010. This report forms the basis for energy cost responsibility measures, and develops the annual energy flow, in kilowatthours, through the various paths of the electrical T&D system, starting at the system input level and continuing to the customers' meters. It takes into consideration cable and equipment losses and
unaccounted-for-energy. The report shows total
kilowatthours registered at the customers' meters,
total kilowatthours at the system input level, sales
to other utilities, and kilowatthours delivered to the
local distribution system.

Q. Please continue with your explanation of Report 5.
A. Report 5 also shows the kilowatthours distributed and
sold, the distribution efficiency for each delivery
system, and the resultant annual energy distribution
efficiency for each customer class. This efficiency
calculation reflects the various paths that energy
takes from delivery system input to customers.

Q. Please explain what you mean by "delivery system."
A. Power generally flows from generation sources to
customer loads through an electrical grid composed of
high voltage transmission lines and substations and
lower voltage distribution lines and substations. For
purposes of the Class Demand Study, the grid is
subdivided into separate serially-connected systems,
which are called delivery systems.

Q. Please continue with your explanation of the reports
shown in Exhibit ___ (DAC-1), Schedule 1.
A. Report 6 provides a summary of the class demand responsibilities for each season, obtained from the individual pages of Report 4. Report 6A develops the low tension non-coincident billing kilowatts based on the low tension kilowatthours shown in Report 5. Report 7 is similar to Report 5, except that it shows in greater detail the kilowatthour flow, by class, from the system input level through the various delivery systems, to the customers' meters. Report 8 traces the class non-coincident summer and winter peak demands through the various levels of the delivery system, starting at the customers' meters and terminating at the system input level.

Q. As a typical example of the calculation procedure used for each class in this exhibit, please describe the method employed in developing the summer and winter class demand responsibility estimates for SC 1, the Residential and Religious class.

A. Referring first to Report 2A (summer page 1, winter page 1), the data in Columns 3 through 9 were developed from load tests that the Company performed on sample residential and religious test customers. Column 2 lists the sample test strata. Columns 3 and
DEMAND ANALYSIS AND COST OF SERVICE PANEL - ELECTRIC

4 show the range of consumption or demand for the
customers in each test stratum. Column 5 shows the
number of customers in each stratum for which test
results were obtained. Column 6 shows the calculated
average consumption or demand per customer for each
test stratum. Columns 7 and 8 show the load test
results reduced to average kilowatts per customer for
each test stratum. Column 7 lists the average of July
and August (December and January averages are used for
winter) maximum demands per customer. Column 8 lists
the maximum coincident demand per customer for each
test stratum, based on averages for five selected
system peak days for the summer or five selected
system peak days for the winter during the test
period. Column 9, derived from Columns 7 and 8, shows
the calculated coincidence factor for each test
stratum.

Q. Please describe the derivation of the coincidence
factors.

A. The coincidence factors are derived from interval
metered data collected during the load test program.
For each stratum of test customers, the recorded half-
hourly demand data obtained from each test location
were averaged for the five system peak days. For this study, the coincidence factor is defined as the ratio of the per-customer maximum coincident half-hour demand of a stratum of test customers, averaged for five days, to the per-customer individual maximum non-coincident half-hour demands of the test customers in that stratum.

Q. Please continue your explanation of the SC 1 reports.

A. Turning to Report 3, the stratum definitions are shown in columns 3 and 4. The stratum level customer count and kilowatthours for the residential class shown in columns 5 and 6 were derived from billing records for the year 2010. Column 7 contains the average usage by stratum based on columns 5 and 6. The summer and winter coincident maximum half-hour demands for each stratum in the class population were then calculated using the respective sample test stratum load characteristics. These results appear in Column 11, and the computations are described in footnotes.

Q. Please continue.

A. Since each stratum's maximum half-hour demand (shown in Column 11) occurs at different times, complete daily profile curves were computed for each stratum in
the class, again based on test results. Summation of all 24-hour stratum load curves at the customers' meters produced composite summer and winter load curves for the entire class. The summer and winter coincident half-hour demands for each stratum shown in Column 5 of Report 4 were obtained by examining the stratum load curves at the time of the class peak. The summer and winter class load curves were further examined to determine the average class demands for the highest continuous four-hour period. Those results are shown in Column 6 of Report 4.

The demands described so far have all been based on measurements and calculations at the customers' meters. To determine the system input level class responsibility shown in Column 8, the class demand at the customers' meters was divided by the annual distribution efficiency for the class. The class distribution efficiencies are shown on Report 5 of this exhibit. After applying class distribution efficiencies, the calculated grand total of all the class load curves, developed through the procedures described thus far, closely approximates but does not exactly match the known total system load curve at
each half-hour. The total discrepancy during the high
load periods of the day is generally found to be a few
percent during any half-hour. For those classes where
sample data were collected in 2010, a percentage
adjustment factor for every half-hour was applied to
each of the class demands. For those classes with
sampled test data that were borrowed, an adjustment
factor equal to two times the above mentioned
adjustment factor was applied. Classes that are 100%
profile-metered did not receive any adjustment. After
adjusting the class data, the total of all class
profiles exactly matched the total system load curve.
The demand values in Columns 7, 9, and 10 of Report 4
are the adjusted class demands. These values are the
average demands obtained from class load profiles for
the four peak hours of the system peak load shape or
the class peak load shape.

Q. Please continue with the explanation of the
development of the demands for SC 1.

A. Report 6 (starting at Page 6-1), Columns 5, 6, 7, and
8, summarizes the class seasonal demand
responsibilities developed in Report 4. Report 6A
(starting at Page 6A-1), Column 7, develops the low
Demand analysis and cost of service panel - Electric

tension non-coincident billing kilowatts, using the
total non-coincident billing kilowatts in Report 3 and
the relationship of low tension kilowatthours to total
kilowatthours found in Report 5.

Report 7 (starting at page 7-1) provides a more
detailed analysis of the kilowatthour flow for each
class through each of the delivery systems listed in
Column 3. Column 4, which comes directly from Report
5, Column 4, shows total kilowatthours (high tension
plus low tension service) delivered to customers' meters. Column 5 of Report 7 shows only low tension
kilowatthours delivered to the customers' meters.
Column 6 shows kilowatthour input to the secondary
(line) transformers, and Column 7 shows kilowatthours
distributed at the system input level. Kilowatthours
shown in Columns 6 and 7 are calculated using the
electrical path efficiencies shown in Report 5.

Report 8 (starting at Page 8-1) traces the four-
hour class non-coincident peak, obtained from Column 7
of Report 4, through each of the delivery systems
shown in Columns 5 through 7. Report 8 utilizes the
energy flows shown in Report 7, and assumes that the
energy delivered through each component of the system
has a load factor identical to that of the entire class.

Q. Do the computations and analyses, which you have just described for SC 1, apply to the other classes shown in this exhibit?

A. Yes. With a few exceptions, which we will describe, the analyses for the remaining classes are similar to those for SC 1.

Q. Please describe the exceptions to which you referred.

A. For customers served under time-of-day rates, the data shown in Report 2A were obtained from the time-of-day billing profile recorders. For street lighting and traffic signals load shape estimation, lamp wattages in service and lamp burning hours (with an allowance made for lamp outages) were used to arrive at the estimated class demand responsibilities. For computing class demand responsibilities for NYPA Delivery Service to the railroad or electric traction customers, including New York City Transit Authority Substation Delivery to the subway systems, high tension demands were obtained from billing recorder profiles.
Q. Were any changes in methodology made to the development of demand cost allocation factors?

A. Yes. High tension costs are allocated to classes on the basis of maximum (summer or winter) non-coincident class peaks. In the past there was an exception to this in that heating classes were allocated high tension costs based on their summer peaks. In continuation of the effort to phase out declining block rates, the cost allocation for heating classes will conform to the methodology used for all other classes.

LOAD DIVERSITY STUDY

Q. The Commission Order in Case 09-E-0428 required (page 16) that the Company reflect the results of its multiple dwelling load diversity study in the ECOS study filed with the next rate increase filing. Please describe the intent and the findings of this load diversity study.

A. The intent of the load diversity study was to address the issue of cost-of-service allocation of low tension costs, specifically the allocation used for individually-metered residential customers, i.e., SC 1 customers. An assumption of our analyses is that low
tension cost allocation is based on an average of class non-coincident peak demands ("NCP") and individual customer maximum demands ("ICMD") for all classes except SC 1. The use of the ICMD is to recognize that the maximum load of a building plays an equal role with the NCP in determining class responsibility for the use of the low tension system. When addressing the issue of building load, particularly in New York City, the ICMD of individual SC 1 residential customers does not map directly to a building load. Approximately 45 percent of SC 1 customers reside in multi-family buildings. To use the sum of their ICMDs as a proxy for connected building load would over allocate this class’s use of the low tension system.

Q. What allocation methodology has the Company historically employed for the residential SC 1 class?

A. Recognizing that ICMDs should not play as much a part in determining the residential class’s use of the low tension system because of the large portion of customers living in multi-family buildings, the Company adopted an allocation that assumed that the use of the ICMD is half as important for this class as
DEMAND ANALYSIS AND COST OF SERVICE PANEL - ELECTRIC

it is for commercial classes. Thus instead of the 50/50 split between NCP and ICMD used for commercial classes, the residential allocation is a 75% blend of NCP with 25% ICMD.

Q. Please continue.

A. This 75% NCP and 25% ICMD split for the residential class has been the subject of numerous interrogatories and intervenor-sponsored testimony in previous rate cases, and as such, the Company undertook a load study to analyze this issue using current data. Traditional load research sampling of residential customer populations is random and therefore, the chance of obtaining more than one sample point in a particular multi-family building is unlikely. In order to better understand the usage characteristics of several SC 1 residential customers within a multi-family building, the Company installed load research metering at 10 buildings, covering over 200 sample points, with as many as 40 points per building.

Q. What were the findings from this load research data?

A. Examination of building coincident peak loads versus the ICMDs of individual apartments within the buildings shows coincidence factors that average about
60%. In other words, the sum of the ICMDs for the individual SC 1 accounts in an apartment building far exceeds the independently calculated ICMD for that entire building.

Q. How did you incorporate these coincidence factor findings into the development of the ICMDs of the SC 1 class?

A. We proceeded to use the number of dwelling units by building structure obtained from New York City and Westchester Census data to map SC 1 customer counts to these building structures. We then made use of load research ICMD findings for private dwellings and derived ICMDs obtained from the multi-family building survey. High and low scenarios were calculated using mean and median data as well as assumptions about the number of units in larger buildings. This analysis served to reorder the SC 1 class into buildings and resulted in the sum of the building ICMDs to be in the range of 6,699 MW to 7,358 MW as shown on Exhibit ___ (DAC-1), Schedule 2. The NCP value of 4,043 MW shown on Exhibit ___ (DAC-1), Schedule 1, Summer Page 3, Column 7, line 7 was combined, using a 50/50 weighting, with each of these ICMD estimates to yield
low and high scenario calculations of the low tension demand allocator for the residential class. The low scenario estimate is 5,371 MW and the high scenario estimate is 5,700 MW. The current low tension demand allocator for the SC 1 residential class is calculated by taking 75% of the 4,043 MW (NCP) and 25% of the 9,873 MW (ICMD) shown on Exhibit ____ (DAC-1), Schedule, 1, Summer Page 2, Column 9, line 7, yielding 5,500 MW.

Q. What are the conclusions of the Load Diversity Study?
A. This study showed that there are observed differences between the sum of the ICMDs for individual apartments within a building versus the coincident peak for the entire building. Creating high and low scenario estimates of the low tension allocator using the results of this multi-family building study confirms the validity of the Company’s current allocation methodology. Specifically, the current methodology yields 5,500 MW, which falls within the range of the high (5,700 MW) and low (5,371 MW) scenario results that are shown on Exhibit ____ (DAC-1), Schedule 2. Given these findings, the Company concludes that a
change in the current allocation methodology is not warranted.

EMBEDDED COST-OF-SERVICE STUDY AND UNBUNDLED COST COMPONENTS

Q. Please present the Embedded Cost-of-Service study and Unbundled Cost Components analysis. Have your prepared an exhibit showing the ECOS study and unbundled cost components analysis?

A. Yes.

Q. Is this exhibit a document consisting of a title page entitled “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. – EMBEDDED COST-OF-SERVICE STUDY – ELECTRIC DEPARTMENT – YEAR 2010 RATES IN EFFECT April 1, 2012”?

A. Yes.

Q. Please describe the exhibit.

A. The ECOS study and unbundled cost components exhibit consists of five schedules. Schedule 1 shows the results of the study. Schedule 2 shows the Merchant Function Charge (“MFC”) calculations. Schedule 3 shows the unbundled metering costs, consisting of the meter ownership, meter service provider (including meter installations) and meter data service provider functions. Schedule 4 shows metering costs associated with customers eligible for the Mandatory Hourly
Pricing “MHP” program. They consist of the meter ownership, meter service provider (including meter installations) and meter data service provider costs the Company incurs to serve MHP-eligible customers. The development of MHP functions will be discussed later in this testimony.

Schedule 5 shows the unbundled costs for printing and mailing a bill and receipts processing functions.

Q. Was this exhibit prepared under your direction or supervision?
A. Yes.

MARK FOR IDENTIFICATION AS EXHIBIT ___ (DAC-2)

Q. Please provide a general description of the ECOS study.
A. The ECOS study (Schedule 1) analyzes, on a class basis and for a past period, revenues and book (accounting) costs for specific cost categories.

Q. What cost categories are analyzed in this ECOS study?
A. The ECOS study analyzes costs and revenues associated with the Company’s delivery system (i.e., transmission and distribution), and customer-related cost categories or functions, and also includes cost categories related to the electric merchant function,
DEMAND ANALYSIS AND COST OF SERVICE PANEL - ELECTRIC

competitive metering functions, MHP functions, the receipts processing function and the printing and mailing a bill functions. The major supply function costs, i.e., purchased power and generation costs, are not included in the ECOS study. Also, revenues and expenses associated with the uncollectible component of the MFC, System Benefits Charge ("SBC"), Demand Side Management ("DSM"), Regulatory 18-A Assessment, and Renewable Portfolio Standard Program ("RPS") charge have been excluded from the study.

Q. What time period does the ECOS study cover?
A. The study covers Con Edison's electric operations for the calendar year 2010.

Q. What electric revenues are reflected in the ECOS study?
A. Electric revenues reflect current delivery rates, which went into effect April 1, 2012.

Q. What customer classes are analyzed in the ECOS study?
A. The study analyzes classes of customers corresponding to SCs contained in our electric rate schedules, including retail access customers and customers of NYPA served by Con Edison under the P.S.C. No. 12 - Electricity schedule. For this study, the SC 1 and SC
7 classes have been combined into a single residential class. Due to the termination of the economic development programs served under the EDDS rate schedule as of July 1, 2012, the former end-users under the EDDS rate schedule are included in their otherwise applicable SC 9 conventional and SC 9 Time-of-Day (“TOD”) classes. Costs have also been allocated to the Con Edison Steam Department for its use of Electric Department plant facilities, including a portion of common plant. A description of the type of customers served under each SC is shown beginning on page 17 of the ECOS explanatory notes.

Q. How are the results of the ECOS study expressed?
A. The results of the ECOS study are expressed as Total Company (“total system”) and class rates of return.

Q. What is the total system rate of return shown in the ECOS study?
A. The total system rate of return is 10.88% as shown on Table 1, Page 1, Column (1), Line 17 of the ECOS study. In addition, Table 1 shows rates of return for all classes analyzed in the ECOS study. For example, the SC 1 return is 10.67%, the SC 9-General Large-Non-
Time-of-Day ("NTD") return is 12.22% and the NYPA return is 8.88%.

Q. Has the Commission historically employed "tolerance bands" around the system rate of return in developing class revenue responsibilities?

A. Yes. Based on past practice, class revenue responsibility has been measured with respect to a \( \pm 10\% \) tolerance band around the total system rate of return. Classes would not be considered "surplus" or "deficient" if the class ECOS rate of return falls within this tolerance band. Classes that fall outside this range would be either surplus or deficient by the revenue amount, including appropriate state and federal income taxes, necessary to bring the realized return to the upper or lower level of the band. We propose to continue this practice in this case.

Q. Based on the application of the \( \pm 10\% \) tolerance band around the calculated total system rate of return of 10.88%, what are the ECOS study class surpluses and deficiencies?

A. The revenue surpluses are shown on Table 1, Line 26 and the revenue deficiencies are shown on Line 27. For example, the NYPA class has a revenue deficiency
The SC 9-General Large-NTD class has a revenue surplus of $17,106,854.

Q. What is the significance, for example, of the NYPA class deficiency?

A. The deficiency is the amount of revenue increase, at current rates, required to bring NYPA’s return to the lower level of the tolerance band around the system rate of return.

Q. Please describe what is shown on Table 1A, which is the last page of Exhibit ___ (DAC-2).

A. Due to the application of a 10 percent tolerance band around the system rate of return, the total of the ECOS surpluses and deficiencies in this study is a net system deficiency. To ensure that ECOS study indications are revenue neutral to the Company, Table 1A adjusts average classes on an across-the-board percentage basis to offset the net system deficiency. A further check was made to ensure that average classes remained average after reflecting the adjustments shown in Table 1A. In order to mitigate the rate impacts associated with the change in cost allocation for the SC 12 and SC 12 TOD classes, the Electric Rate Panel directed that Table 1A be adjusted
to reflect one third of the ECOS deficiencies for these classes. The adjusted ECOS study indications are used in revenue allocation as described in the testimony of the Electric Rate Panel.

Q. Let us now turn to the methodology used in developing the ECOS study. Please describe the procedures followed in the preparation of this study.

A. There are two main steps in the preparation of the ECOS study: (1) functionalization and classification of costs to operating functions, such as transmission, distribution, customer accounting and customer service with further division into sub-functions, such as distribution demand, distribution customer, services, overhead and underground; and (2) allocation of these functionalized costs to customer classes.

Q. Please describe the functionalization and classification step.

A. The functionalization and classification step assigns the broad accounting-based cost categories to the more detailed categories employed in the ECOS study. This level of detail is required to differentiate, for example, demand-related costs from customer-related
costs. This allows for the proper allocation of these costs to the classes based on cost causation.

Q. Please continue.

A. During the process of functionalization, all costs are classified as being demand-related, energy-related or customer-related. Demand-related costs are fixed costs created by the loads placed on the various components of the electric system. Energy-related costs are variable costs resulting from the total kilowatthours delivered during the year. Customer-related costs are fixed costs that are caused by the presence of customers connected to the system, regardless of the amounts of their demand or energy usage.

Q. Were any costs functionalized differently in the ECOS study because of rate design requirements?

A. Yes. The study separately identifies metering costs associated with customers that are MHP-eligible. These costs are shown in the ECOS as separate MHP functions. Meter ownership-MHP, meter installation-MHP and meter service provider-MHP functions contain costs associated with installing and maintaining interval meters for the benefit of MHP-eligible
customers within the conventional SC 8, 9 and 12 service classes. The meter data service provider-MHP function consists of phone line installation costs and ongoing meter reading and communication expenses. The meter data service provider-MHP function is applicable to all MHP-eligible customers within the conventional SC 8, 9 and 12 service classes, and all customers in the Company’s time-of-day service classifications. Schedule 4 of Exhibit ___ (DAC-2) shows the above described components of the $132.45 MHP metering charge.

Q. Please describe the allocation step in the study.
A. The allocation step allocates the functionalized and classified costs to the customer classes based on the appropriate demand, energy or customer allocation factors, which are shown on Table 7 of the ECOS study.

Q. Please explain the general organization of the ECOS study.
A. The ECOS study begins with explanatory notes detailing sources of data and methods used in the preparation of the ECOS study followed by seven tables of cost data.
Q. Does the ECOS study present unbundled functional costs for competitive services as set forth in the Unbundling Policy Statement?

A. Yes. The ECOS study separately identifies the following competitive functions: merchant function, meter ownership, meter service provider, meter installations, meter data service provider, receipts processing, and printing and mailing a bill.

Q. What costs are included in the merchant function?

A. The merchant function contains costs associated with procuring electric commodity, including an allocation of customer care-related activities, customer service-related activities, and Information Resources ("IR").

Q. What costs are included in the allocation of customer care and customer service-related activities?

A. The customer care allocation includes costs associated with the Company’s Call Centers, Service Centers, and credit and collection/theft activities. The customer service allocation also includes an assignment of education and outreach costs.

Q. How were these costs allocated to the merchant function?
A. Pursuant to the Unbundling Policy Statement, customer care and customer service-related costs were allocated to the merchant function on the basis of total revenues (including SBC, RPS, Regulatory 18-A Assessment, MSC, MAC, T&D, NYPA, EDDS, MFC, Metering and BPP revenues).

Q. How were IR costs allocated to the merchant function?

A. Pursuant to the Unbundling Policy Statement, IR costs were allocated on the basis of total revenues with 50 percent of the resultant allocation included in the merchant function.

Q. Have you further unbundled the merchant function for use in developing rate components for competitive services?

A. Yes. The ECOS study includes the development of separate supply-related and credit and collection-related ("C&C-related") MFCs to recover the costs for these commodity-related competitive services from three categories of customers.

Q. How have you defined these costs?

A. The MFC is made up of two components. The first consists of the costs associated with procuring commodity, IR, and education and outreach associated with commodity (hereafter referred to as the competitive
DEMAND ANALYSIS AND COST OF SERVICE PANEL - ELECTRIC

supply-related MFC component). The second consists of costs associated with credit and collection/theft (hereafter referred to as the competitive credit and collection related MFC component). Only full service customers will pay the competitive supply-related and competitive credit and collection-related MFC components.

Q. How are these components allocated to the service classifications within the study?

A. One hundred percent of electric procurement activity costs and 25 percent of credit and collection/theft, IR, and education and outreach costs were allocated on a per kilowatthour basis. The remaining 75 percent of credit and collection/theft, IR, and education and outreach costs were allocated on a per customer basis.

Q. Why were the customer care-type costs, such as credit and collection/theft, allocated predominantly on the basis of number of customers, while the electric procurement activity was allocated entirely on a volumetric (i.e., kWh consumption) basis?

A. The Company followed basic cost causation principles and determined that customer care-type activities are
DEMAND ANALYSIS AND COST OF SERVICE PANEL - ELECTRIC

predominantly driven by the existence of customers on the system as opposed to their usage characteristics. On the other hand, the functional cost of purchasing commodity is aligned with sales volumes. This allocation is consistent with the Order Adopting Unbundled Rates and Backout Credits and Specifying Terms for the Recovery of Revenues Lost As a Result of Such Rates and Credits, issued April 15, 2005, in Case 04-E-0572, (“April 15th Order”), approving Con Edison’s unbundled rates.

Q. Is the allocation of the MFC components to various groups of customers shown in Exhibit ___ (DAC-2)?

A. Yes. Schedule 2 of Exhibit ___ (DAC-2), pages 1 and 2, shows the allocation of the competitive supply-related MFC cost components and the competitive C&C-related MFC cost components to the residential and two non-residential/commercial categories of customers. The exhibit presents these two components as percentages of total revenues, i.e., the sum of the T&D and competitive revenues (MFC, Metering and BPP revenues) used in the ECOS study. Separate percentages are shown for the residential and the two non-residential/commercial groups of customers for use in the development of the
MFC, as detailed in the testimony of the Electric Rate Panel.

Q. Did the Company unbundle costs associated with metering?
A. Yes. The Company unbundled the metering function and created five separate costing functions: (1) Meter Ownership, (2) Meter Service Provider, (3) Meter Installations, (4) Meter Data Service Provider and (5) Utility Metering.

Q. Did the Company allocate the separate metering functions to various groups of customers?
A. Yes. Schedule 3, pages 1, 2 and 3 of Exhibit ___ (DAC-2), shows the allocation of the metering functions to the customer classes eligible to take metering services competitively. Schedule 3 presents the costs for the competitive metering functions as percentages of the T&D and competitive revenues (MFC, Metering and BPP revenues) used in the ECOS study. Separate percentages are shown for the CECONY Non-Time-of-Day and TOD classes and the NYPA Non-Time-of-Day and TOD classes.

Q. Is the allocation of unbundled costs for the printing and mailing a bill and receipts processing functions shown on Exhibit ___ (DAC-2), Schedule 5?
A. Yes. Schedule 5 of Exhibit ___ (DAC-2), pages 1 and 2, shows the unbundled costs for printing and mailing a bill and receipts processing functions. The printing and mailing a bill function and the receipts processing function consist of the customer accounting expense of accepting customer payments and billing customers, including both direct costs and an allocation for Call Center and Walk-in Center operations based on a detailed study of those activities. Credit and collection, education and outreach, and uncollectibles expenses were allocated to these functions on the basis of functional revenues. The unbundled average unit cost for receipts processing is 74 cents per bill. The average unit cost for printing and mailing a bill is 58 cents per bill. The costs for these two functions combined yield $1.32 per bill in unbundled costs. The costs associated with billing and payment processing do not vary by service classification and, thus, the system-wide $1.32 per bill in unbundled costs is applicable to all service classifications.
Q. Did you perform an analysis of the marginal cost to supply an additional kW of load on the transmission and distribution (“T&D”) delivery system?

A. Yes, the analysis is shown on Exhibit ___ (DAC-3), “CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. - ELECTRIC MARGINAL COST OF SERVICE ANALYSIS.”

Q. Was this exhibit prepared under your direction or supervision?

A. Yes.

MARK FOR IDENTIFICATION AS EXHIBIT ___ (DAC-3)

Q. Before turning to the exhibit, please provide a general background and description of the marginal cost analysis that you are presenting.

A. The Commission’s order in Case 09-E-0428 directed that a marginal cost study be performed to enable the evaluation of the costs and benefits of the energy efficiency programs operating in Con Edison’s service area. The Company retained NERA Economic Consulting (“NERA”) to direct this effort. The Marginal Cost of Service (“MCOS”) Analysis presented in this testimony is an expansion on the analysis done for the evaluation of the energy efficiency programs. As a
result of the collaboration with NERA, the MCOS Analysis was developed based on a planning/engineering approach, with the marginal costs determined based on transmission and distribution planning practices and the cost quantification derived to the maximum extent practicable from either engineering estimates or actual costs of specific projects.

Q. Please describe the planning/engineering approach in more detail.

A. This methodology develops marginal costs by identifying load growth that drives expansion of a system element and examining the engineering costs of constructing and operating that element. More specifically, the Company identified segments of the transmission and distribution system where expansions due to load growth were planned. For each segment, the unit cost of a planned or undertaken project to serve incremental demand was developed. Total investment dollars were converted to annual marginal costs using carrying charges, O&M and other applicable loading factors, such as common plant and working capital. For transmission, subtransmission and area station segments of the system, marginal costs were
developed on a year-by-year basis to reflect the phased-in nature of the Company’s long term construction schedules for these portions of the system.

Q. Please continue.

A. We developed marginal costs for the primary, transformer and secondary segments of the system based on samples of recent engineering jobs. These samples reflected both network and non-network investment. An important difference between these segments and the transmission and area station facilities is that the primary and secondary distribution system segments do not have significant amounts of excess capacity, and work is continually performed throughout these system segments to expand capacity as load grows. As such, similar projects are done year after year. Hence, the marginal cost for these elements is stated in current dollars and is applicable to all future years. The MCOS Analysis also presents marginal customer costs. These include service costs, metering costs, customer accounting, customer service and informational expenses.
Q. Turning to Exhibit ___ (DAC-3), please describe this exhibit.

A. Schedule 1 presents total system transmission and distribution marginal costs. These costs are presented in nominal dollars and are stated on a per-kW of system peak basis. Schedule 2 presents a comparison of marginal costs developed in Schedule 1 to current T&D revenues. The functional marginal costs in column 2 of Schedule 2 represent 10-year averages in current dollars. This 10-year averaging was done to reflect the parameters of the Excelsior Jobs Program and Business Incentive Rates. The “by-class” comparisons of marginal costs to T&D revenues shown on Schedule 2 are used by the Electric Rate Panel in setting rates under these programs.

**Dynamic Load Shaping**

Q. What is the Dynamic Load Shaping system?

A. The Dynamic Load Shaping (“DLS”) system supports the preparation of the Demand Analysis that accompanies each rate filing as well as other load research support activities. The DLS system provides a platform for standardization of demand analysis and 8,760 hourly load shape
DEMAND ANALYSIS AND COST OF SERVICE PANEL - ELECTRIC

development. It combines billing information from our mainframe billing system, interval data from our interval data repository, assorted weather data, and historical and forecasted system loads. It replaced a stand-alone mainframe-based load research system with a flexible modular system that has a user-friendly interface and enhanced functionality. The Company is proposing to further enhance the DLS system.

Q. Have you prepared an exhibit describing the proposed enhancements to the Dynamic Load Shaping system?
A. Yes.

Q. Is this exhibit a three-page document entitled "Dynamic Load Shaping (DLS) Enhancement"?
A. Yes.

MARK FOR IDENTIFICATION AS EXHIBIT ___ (DAC-4)

Q. Please explain the reasons for the further enhancements.
A. Since the development of the DLS system, the Company has implemented a new interval data repository. The purpose of this proposed program is to enable the DLS system to interface with the Company's new interval data repository. To accomplish this interface, four enhancements to the DLS system are required. The
first enhancement expands the DLS front-end to include kVar interval data. The second enhancement migrates load research data that is not used for billing into the Company's new interval data repository. The third enhancement creates a link between the Company's new interval data repository and the DLS system. The fourth enhancement provides for an improved front-end to the Company's new interval data repository to better accommodate load research requirements.

Q. Please describe the capital costs associated with this project.

A. The project is budgeted as a capital project for $200,000 in the first year and $150,000 in the second year.

Q. Does this conclude your testimony?

A. Yes.