PEAK DEMAND ALLOCATION PANEL - REBUTTAL
ELECTRIC

Q. Please state your names and business addresses.

A. Our names are Lynn M. Urbano and Brian P. Daly and collectively we make up the Peak Demand Allocation Panel for this case. We are both employed by Consolidated Edison Company of New York, Inc. ("Con Edison" or "the Company") and our business address is 4 Irving Place, New York, New York 10003.

Q. In what capacity are the panel members employed and what are their professional backgrounds and qualifications?

A. (Urbano) I am the Section Manager of Demand Forecasting within the Energy Management Department. I have been employed by Con Edison since 1994 with a short hiatus for a few years to pursue an MBA full-time. My current responsibilities include managing and leading a team of 12 analysts that develops the demand forecasts for electric, gas, and steam. I began employment in the Company's two-year management intern program. I held positions in Purchasing and Planning and Analysis before leaving the Company in September 1998 to pursue my MBA full-time, where I also worked part-time as a Graduate Assistant for two

professors in the Economics Department. I returned to the Company in January 2001 and held positions of increasing responsibility as a Senior Analyst and Senior Planning Analyst in Electric Forecasting (now known as Demand Forecasting) where my primary responsibility was the development of the system forecast by sector and tracking performance of economic variables. I have been the Section Manager of Demand Forecasting since August 2004. I earned a Bachelor of Science Degree in Mathematics from Manhattan College, Master of Business Administration (MBA) from Villanova University, and a Master of Arts in Economics from Hunter College, City University of New York.

(Daly) I am a Senior Planning Analyst in the Energy Management Demand Forecasting Section. I have been employed at Con Edison since 1974, and in the Forecasting section since 1986. My current responsibilities include constructing daily peak demand versus weather models, conducting the post-summer weather adjustment analysis, constructing full-service customer forecast models, and representing Con

Edison and O&R as a member of the NYISO Load Forecasting Task Force. While employed at Con Edison, I have held supervisory positions in Credit and Collection, the Call Center, and Property Protection. I held an analytical position in Central Customer Service and was administrator of the electric meter portion of the capital budget. I earned a Bachelor of Science degree in Management from Mercy College and a Master of Science in Human Resource Management from Mercy College.

Purpose of Testimony

Q. What is the purpose of your testimony?

A. We respond to the direct testimony of Department of Public Service Staff Witness Anping Liu, as it relates to the Company's peak demand forecast. We respond to Mr. Liu's recommendations that (1) Con Edison reduce its 2008 weather adjusted peak demand by 200 MW, and (2) Con Edison's forecasted peak demand growth through the year 2013 should be reduced by 100 MW. This 100 MW reduction by 2013 includes a proposed 25 MW reduction in commercial sector growth and 75 MW reduction for residential sector growth. In total,

Mr. Liu decreases the Company's demand forecast by 300 MW by 2013. As a result of the lower peak demand forecast, Mr. Liu suggests that the Company's capital infrastructure investment reflect the reduced peak demand level. The Company's IIP testimony addresses the investment reduction. Our rebuttal testimony explains the basis for our peak demand forecast, the various flaws in Mr. Liu's positions, and demonstrates that the Con Edison peak demand forecast for 2013 as originally submitted and based on the data at the time, was correct.

Peak Demand Forecast

Q. What are the responsibilities of the Demand Forecast section as it pertains to electric?

A. The Demand Forecasting section of the Resource Planning department in the Energy Management organization calculates daily, annual, and long-term electric peak demand forecasts. The electric demand annual and long-term analysis and forecast is conducted at the end of the summer for the following ten year period. It is the combination of the summer demand growth most recently experienced and the growth

expected to be realized over a ten year period from known projects, the economy, and consumer behavior. It is presented as the (1) Service Area Peak Demand Forecast and (2) Network Area Peak Demand Forecast. The electric demand forecasting process involves the weather adjustment process of demand experienced in the most recent summer, a top-down as well as a bottom-up evaluation for each of the major sectors in the economy (commercial & residential). The weather adjusted demand, the top-down and bottom-up process are reconciled to establish the peak demand forecast. So, for example, after the summer of 2007, the Company looked at the demand that was forecast and performed a weather adjustment to determine the weather adjusted demand. This weather adjusted demand, in combination with developing a top-down, bottom up forecast, lead to the development of a peak demand forecast for 2008. After the summer of 2008, the same process was repeated to develop the 2009 forecast.

Q. What is the Company's peak demand forecast?

A. The peak demand forecast is the amount of electric demand the Company believes will be required on a hot

summer day when certain design criteria are met for both the system, as a whole, and in networks, individually. The design criteria are explained below. The Company expects that it will engineer and build its system to meet this projected peak summer day. The forecast is based on several scenarios including approaching the forecast from a bottom-up and top-down perspective.

Q. Please describe what is meant by a top-down, bottom-up process.

A. The peak demand forecasting process involves a top-down as well as a bottom-up evaluation for each of the major sectors in the economy, which includes the residential and commercial sectors. From a top-down perspective, the commercial demand forecast is based on an econometric model that reflects the economic inputs Private Non-Manufacturing employment and U.S. Gross Domestic Product ("GDP"), and a few other variables. The top-down residential demand forecast is based on an appliance end-use model that reflects projections of the number of households, saturation of appliances, household occupancy, coincident use of

appliances, and appliance efficiency based on government standards. We would like to define some of the inputs to the model that need some explanation.

Q. Please provide those definitions.

A. Saturation is defined as the percentage of households that have a particular appliance; household occupancy is the percentage of households estimated to be occupied during the time of the system peak demand; and coincident use of an appliance is the percentage of a particular appliance that is on, e.g., consuming electricity, at the time of the system peak demand.

Q. Please continue.

A. The purpose of utilizing these two methodologies is primarily motivated by the fact we must also forecast the electric peak demand for not only the system in its entirety but for each network area within Con Edison's service territory, which includes New York City and Westchester County. Without a bottom-up approach, all top-down system demand growth would be allocated to the network areas based on an allocation methodology and not based on any actual construction growth expected to take place in that network. The

forecast, however, cannot be developed with just the bottom-up methodology. The top-down approach is an important aspect of the forecasting process and it is necessary for several reasons: it looks at many different factors that influence the level of demand growth; it provides a long-term trend based on growth in these factors; and it provides growth of existing customers that cannot be captured by new construction activities. Therefore, the top-down approach is supplemented by a bottom-up approach that reflects construction activities in specific network areas. Through the use of both of these methodologies, each individual network area forecast is developed based on known construction activities in the appropriate areas and through the allocation of system growth of existing customers.

Q. What is a system peak?

A. The system peak is the highest one-hour integrated demand experienced during each year. The all-time system peak is the highest annual peak ever achieved. For Con Edison, the all-time system peak is 13,141 MW, and it occurred on August 2, 2006. Since that time,

we have had three consecutive cooler than normal summer periods (July and August), which has not resulted in a new system peak being established.

Q. What is a network peak?

A. Unlike the system as a whole, the peak for each network area is represented in two ways - on both and independent and coincident basis. By independent, we mean the peak specific to a network, whenever that may have occurred and by coincident, we mean the network peak demand that occurred simultaneous with the service area peak day and time.

Q. Does the Company expect to set an all-time peak demand day every summer, for either the system or for each network?

A. No. All peaks are completely weather dependent. While every summer will have a peak day, very high peaks near or exceeding the all-time system, or network, records are expected to occur as we near or exceed our design criteria, which are projected to occur once every three years.

Q. Why is forecasting the system and network peaks properly so important?

A. The prime importance of both is to ensure and maintain electric delivery reliability, which is critical for the economic growth of the region and the health and well being of our customers. The New York Independent System Operator ("NYISO") is responsible for state-wide reliability issues. The system peak demand forecast is important because it is a direct input into the NYISO determination of installed capacity ("ICAP") requirements for the State as a whole, and for New York City's distinct locational requirements in the electricity market. Proper forecasting of the networks is important because the reliability requirements of the network area forecast drive the Area Station Ten-Year Load Relief Plan, directly affecting the Company's transmission and distribution ("T&D") capital budget

Q. Please further explain the Network Area Peak Demand Forecast.

A. The Demand Forecasting Section is responsible for the evaluation and analysis of the electric peak experience for each of the Company's network areas. The purpose of the analysis is to develop a weather

adjusted, base-year peak demand, for each network area, and as mentioned before, on a coincident and independent basis. Most significant of the two in terms of the T&D budget is the independent weather adjusted peak demand because it serves as the basis for the Network Area Peak Demand Forecast, which, in turn, becomes the foundation of the Area Station Ten-Year Load Relief Plan.

Q. What happens if the forecasted demand is too low or too high as compared to the adjusted demand?

A. If the demand is underestimated, reliability can be jeopardized because the Company will not have properly prepared for the amount of demand to be experienced in either a single network, several networks or the system as a whole during the upcoming summer. If the demand is overestimated, it could possibly mean that T&D improvements were made unnecessarily or ahead of actual requirement timeframe, thus potentially increasing rates. Either situation is undesirable, either from a Company or customer perspective. In fact, the reliability performance mechanism that the Company is subject to

penalizes the Company for failure to meet its reliability criteria.

Q. How does Con Edison "weather adjust" the peak experience of a particular year, and why is it important?

A. Con Edison uses a weather concept called Temperature Variable ("TV") as a reference point used in designing its electric transmission and distribution systems. The TV is the Company's design criteria. It is used in calculating and forecasting future system peak demands, taking into account near extreme summer weather conditions -- sustained high temperatures and humidity over a three-day period -- that we would expect to experience in the metropolitan New York area in one of every three years. The system design TV used by Con Edison is 86°F (dry bulb-wet bulb average). At its simplest, there is an expectation that annual observed peak demands that occur at a TV less than design would be adjusted upward, while the observed peak demands occurring at a TV greater than design would be adjusted down.

However, Con Edison does not adjust a "single" point. It is much more representative to arrive at a final determination of the annual adjusted peak demand after considering all of the weekday peak versus weather responses to mitigate the potential bias of a single day.

Q. Please continue.

A. In the weather adjustment process, weekday peak demands for July and August (sometimes very late June) are included in the analysis. Peaks are evaluated and modified (or "rebuilt") to account for the impact of demand mitigation measures, such as:

a. Demand reduction programs, either self-invoked programs, such as the Company's Distribution Load Relief Plan or ("DLRP") programs, or emanating from the NYISO, such as the Emergency Demand Response Program ("EDRP") or Special Case Resources ("SCR") or NYPA's Peak Load Management Program. These programs enroll customers that can reduce their demand when notified to do so (for which they receive a payment of some sort). The programs are usually invoked to

relieve some strain on either the transmission or distribution systems.

b. Voltage reductions are actions that can be invoked by either the NYISO or Con Edison's System Operation department to reduce voltage levels that are being provided to customers in a manner that does not harm equipment or appliances, thereby reducing demand.

c. Significant outages which can be defined as the loss of an entire network or a significant portion thereof.

d. Friday or pre/post-holiday impact, which means that generally during the summer, people leave the service territory on Fridays or pre-holidays and therefore, demand is less than it otherwise would have been.

Q. Why are peaks evaluated and rebuilt to account for demand mitigation measures?

A. Since all weekday peaks are evaluated in one process, it is necessary to represent each day as if no mitigation measures were taken. By not doing so, the peaks experienced (most likely occurring at the high

end) will be understated, as will the resulting final adjusted demand.

Q. Does the Company include early June peaks in its peak forecast?

A. Historically, we have not used early June peaks in our analysis because we do not believe that early June peak response would be representative of a true summer peak. Our peak-eliciting design conditions are driven by residential air-conditioning use, after an installation ramp-up period as weather progressively warms. We believe that the full impact of residential air-conditioning is not manifested until we reach a mature level of installation, which usually occurs by July.

Q. Is there a relationship between peak demand and TV?

A. Yes. Weekday peak demands, whether original or modified ("rebuilt") and their corresponding TVs are graphically represented to demonstrate a relationship between the two. Several standard regression models (or "best fit") analyses are used to estimate what the peak demand would have been at the design TV criteria of 86°F.

Q. Please explain what the Panel means by "best fit."

A. While we use standard regression analysis as part of the adjustment process, "best fit" to us does not necessarily mean best "statistical" fit. Instead, the curve fit is a tool that we use to establish the most reasonable adjusted peak range at our design criteria of 86°F TV.

Q. Why are regressions performed on the results of the peak demand TV?

A. Regression analysis is a standard tool used to determine the relationship between variables - in this case, peak demand and weather.

Q. Is a regression analysis the only component of the weather adjustment process?

A. No. It is important to note that regression results alone do not dictate the final determination of the adjusted demand process. Several regression model views are usually performed in an effort to narrow the range of estimated demand response to the design criteria. This is especially true in those years where there is an absence of data points across the TV spectrum, most notably at the top end. To corroborate

results from regressions, input is solicited from other analysts performing the network area adjustments, network area review of construction activity, and general economic review.

Q. What input is provided and how does that fit into your process?

A. Solicited input may typically include results from the residential end-use model, updated economic data from Moodys-Economy.com, large customer account demand analysis, and updates on the phasing of particularly large construction projects. We would also like to note that this is a non-additive process. By non-additive, we mean that the other intelligence or input solicited does not become part of a mathematical formula, but instead is intended to assist in trend recognition.

Q. Have you ever detailed the adjustment process before?

A. Yes, we have. In the Management Audit conducted by Liberty Consulting, we explained our process to Liberty.

Q. Were any objections raised or corrections requested to the Con Edison adjustment process by the Liberty Audit?

A. No. In fact, the Liberty Audit stated the following:

- CECONY's fundamental approach to load forecasting, which features multiple approaches to developing electric peak demands, is sound, and includes quality inputs and tools (Page VII-29).
- The models employed by the Company in its electric load forecasting activities are sound, tested, and effective in their intended use (Page VII-30).
- Models used in load forecasting are well-managed, including appropriate updating and revision as well as control of quality. (Page VII-30).

Q. Has Mr. Liu or any other Staff member previously objected to the Company's peak demand forecasting process in prior rate cases?

A. To our knowledge, no. And, in fact, the Company has been using this forecasting methodology for more than 20 years.

2008 PEAK FORECAST

Q. What is the Company's 2008 Weather adjusted peak demand?

A. As noted by Mr. Liu, the actual peak demand for 2008 was 12,987 and the weather adjusted peak demand is 13,700.

Q. Was an all-time system peak realized in 2008?

A. No. As stated earlier, the all-time actual system peak is 13,141 MW reached on August 2, 2006. The weather in 2007 and 2008 did not reach temperatures where we would have expected to see a new system peak. The same is true in 2009.

Q. Mr. Liu states (p. 6) that the Company uses a model with a flawed assumption that contradicts theory and evidence. Do you agree?

A. No. Mr. Liu focuses solely on the statistical output of a modeling technique.

Q. What does he say about the relationship of air conditioning demand to temperature?

A. Mr. Liu contends that the pattern of temperature response to demand is that as the temperature increases, demand will increase. But, the pattern

will reverse once the temperature reaches a certain point. At the point where the temperature nears or exceeds the expected peaking conditions, cooling appliances reach full capacity. As a result, each degree increase in temperature leads to smaller response in demand and the rate of demand response to temperature decreases.

Q. Do you agree with this statement?

A. We agree with the generality of the statement, but disagree that the peak response begins to abate as the design criteria is reached. We believe that the peak ramp rate will be consistent up to design, and abate thereafter.

Q. On page 10, lines 15-17, Mr. Liu asserts that Con Edison summer models in general are partially U-shaped. Do you agree with this characterization?

A. No. The term "U-shape" or even "partially U-shaped" implies a line with a deep or sharp bend in the body of the graphical representation of the model. The curves that is included in Exhibit __ (AL-2, page 3) that Mr. Liu is referring to, while reflecting a soft bend, show nothing that can be construed as a deep or

sharp bend. Additionally, the X-Axis scale on Exhibit __ (AL-2, page 3) reflects a maximum TV of 96°F. Since historically (from 1953) the TV has never reached 90°F, referring to the model as partially "U" shaped and including six additional degrees implies a results-oriented analysis.

Q. On page 10, lines 17-22, Mr. Liu states that, "Unrealistically, Con Edison's assumption implies that cooling appliance capacity is not a finite number, and it will not start reaching full capacity even when the temperature goes above the design weather conditions." Do you agree with this statement?

A. We have never implied that our models, although containing a soft bend upward, are applicable beyond the design of 86°F. In fact, we specifically have stated to various involved people - Staff, the NYISO, and internal personnel -- that we expect a ramp of about 300 MW of demand per degree of temperature increase up to and including a TV of 86°F, and a reduced ramp rate of 150 MW per degree beyond a TV of 86°F. Again, this mischaracterization that there is an infinite ramp-up implies that Mr. Liu either

misunderstands the Company's model or that he is performing an analysis to come up with a particular result.

Q. Please comment on Mr. Liu's statement (p. 11) that the demand temperature relationship is not partially U-shaped for temperatures above normal weather conditions and his claims that a recent demand forecast uncertainty study performed by the NYISO supports his theory.

A. On page 17, lines 7-11, Mr. Liu states that at design weather conditions, the NYISO estimated the Con Edison system peak for 2008 at approximately 13,500 MW. In the exhibit referenced, Exhibit __ (AL-2, page 5) the design temperature listed is in Composite Temperature Humidity Index (CTHI), the NYISO's weather component, not TV, which is the Con Edison weather component. Additionally, the demand corresponding to the design listed on the exhibit would be less than 13,000 MW which would severely understate Con Edison's system peak. Actually, we could not find the 13,500 MW Mr. Liu refers to. In fact, in that same report (page 22), the NYISO reflects a 2010 forecasted demand of

13,750 MW, which is consistent with the Con Edison forecast.

Q. Do you agree with Mr. Liu's findings and recommendations that the peak demand adjustment for 2008 be reduced by 200 MW?

A. No, we do not. Mr. Liu's analysis is based solely on his pooled regression model. The pooled regression, on its own, is a thorough and accurate methodology, and the results of the model can be considered to be statistically sound. Since Mr. Liu focuses solely on statistic driven results and fails to recognize the reliability risk associated with under-forecasting at the design criteria of 86°F, his 200 MW reduction to the 2008 peak should be rejected.

Q. Has the Company ever used a pooled regression model?

A. Yes. In fact, we actually used a variation of it this year to gauge year-over-year peak changes from 2008 to 2009.

Q. What other information should be used to consider the validity of the forecast?

A. After standard regression methodology, we look at peak response in the upper TV range, specifically around

86°F. That does not mean to imply that we ignore higher or lower than the design TV of 86°F. Our prime focus for design purposes is peak at 86°F.

Q. What are the drawbacks of only using a final fit or demand adjustment based solely on statistical best fit?

A. Regression analysis essentially will find the middle ground between a set of data points. If this middle ground undercuts actual data points at the top end, the difference would be attributed to model "variability." The resultant adjustment at the design TV, while statistically acceptable, could be set too low, thereby jeopardizing system reliability.

Q. Was this the result of Mr. Liu's pooled methodology?

A. Yes. When we adjusted the 2006 data points, we did not include those over 87°F TV specifically because it tended to suppress the estimated peak response at 86°F. Mr. Liu did include those points, with the net result that his estimation of peak response would always be lower than the actual peak experienced below 87°F.

Q. How does Mr. Liu's model perform over 87°F?

A. Very well, but as we stated, it compromised the peaks around 86°F. This suggests that Mr. Liu's forecasting method is not representative of the weather and the peaks.

Q. Mr. Liu claims that pooling the four years worth of data allows him to forecast the peak despite the absence of warm days in 2007 and 2008. Do you agree?

A. While pooled analysis is a statistically valid approach, we believe that the absence of hot days in 2007 and 2008 (and now 2009) leads to assumptions that can seriously jeopardize reliability, especially when the outcome has no flexibility in terms of range assessment.

Q. On page 16, lines 14-23, Mr. Liu questioned our mid-range peak versus TV analysis for 2007 and 2008 that showed a 1.1% growth. He agreed that there was a 1.1% difference, but he specifically objected to applying the 1.1% to higher-end 2007 data points as a proxy, saying that, "Con Edison assumed that the temperature response is constant at the middle to higher temperatures and increasing as the temperature goes

even higher near design conditions. This is counter-intuitive". Do you agree with his statements?

A. No. In fact, the Con Edison analysis used actual comparative 2007 and 2008 data up to about 82°F TV, and then applied the 1.1% to actual 2007 points beyond the 82° threshold at 82.3°F, 83.1°F, and 83.2°F. The data was not extrapolated to the full design level of 86°F. We did not imply that the 1.1% would grow as it reached 86°F, but instead that it maintained a relative consistency, and believe it was a reasonable approach. Mr. Liu's own analysis indicates that the ramp rate from 81°F to 86°F starts at 2.4% and slows down to 1.9%, but does not reflect a complete compression of the demand response.

Q. To summarize, do you agree with Mr. Liu's recommendation that Con Edison reduce its 2008 weather adjusted peak demand by 200 MW?

A. No, we do not for the following reasons:

- The sole basis for his recommendation is a statistical output of four years of data, the last two of which did reach near design conditions of

86°F TV. The conclusion is fixed and inflexible and does not allow for range consideration.

- Mr. Liu's analysis, while statistically valid, would seem to understate the peak demand at the most critical juncture, the design range in and around 86°F TV, which could jeopardize system reliability.
- The Con Edison methodology has been used successfully for more than 20 years without challenge.
- As explained below, our preliminary 2009 weather adjustment has already resulted in a reduction of 125 MW from the 2009 weather adjustment of 13,700 MW. Anything more than that at this point, especially with the absence of higher TV peak demands for the past three years, could jeopardize reliability.

Q. Do you plan on modifying your adjustment process moving forward?

A. We are currently benchmarking several utilities across the country to indentify "best" practices, which is also a recommendation contained in the Liberty audit.

Q. Since you are now in the midst of the 2009 adjustment process, what have your preliminary 2009 adjustment findings been?

A. Our preliminary peak adjustment for 2009 is 13,575 MW, 125 MW less the 2008 adjusted peak of 13,700 MW. It is our understanding that this preliminary 2009 peak data will be incorporated into the Ten-Year Area Substation Plan which is developed after the conclusion of the summer. Any investment changes resulting from this changed forecast are undetermined at this point since the Ten-Year Plan has not been developed. The IIP also discusses this issue and the Company's plan to update its revenue requirement.

Q. Why is the adjustment lower?

A. Our lower adjustment primarily reflects the continued impact of general economic conditions on the projected peak.

Q. Is the new five-year forecast lower as well?

A. Yes. The peak forecast being challenged by Mr. Liu reflects a 2013 peak of 14,455 MW. Mr. Liu has stated the 14,455 MW should reduced by 100 MW based on his residential and commercial adjustments. The current

preliminary forecast, starting with the 2009 weather adjustment, reflects a 2013 peak of 14,225 MW, which is a reduction of 230 MW, and is based on more recent economic data. This does not mean that the Company accepts Mr. Liu's adjustment, which he would presumably deduct from the Company's forecasted peak reduction. This is simply the latest forecast which results from a complete analysis of the 2009 actual information as well as a top-down and bottom-up evaluation.

Q. Does this mean that you are partially agreeing with Mr. Liu in that you are reducing the forecast by 230 MW of the 300 MW he suggested?

A. No. Mr. Liu's testimony pertains specifically to current Con Edison forecast, with a 2008 adjusted peak demand if 13,700 MW and the methodology used to create it. We are responding to his criticism of that forecast, and explaining the methodology, including the data used at that time. His recommendation to reduce the overall forecast by 300 MW included a 200 MW reduction in the 2008 peak demand adjustment from

13,700 MW base point to 13,500 MW. We believe that the 2008 adjusted demand of 13,700 MW was correct. [

Q. Please continue.

A We stated above that the preliminary 2009 peak demand analysis is reflecting an adjusted demand of 13,575 MW, or 125 MW less than the adjusted demand of 13,700 MW. It is possible that Mr. Liu would argue that the 125 MW reduction should be made against his suggested 2008 adjusted peak demand of 13,500 MW, thus making the 2009 adjusted peak demand 13,375 MW. His argument would be incorrect as we have explained how the 2008 forecast was sound.

Q. Since there is a preliminary decrease in the system forecast, does this mean that T&D investment should be reduced?

A. No. As we said previously, in addition to each network contributing to the system peak, each network also has an independent peak that will drive the T&D budget. Once the network area analysis is completed, there may be some individual networks that continue to reflect growth, especially in the residential sector

Failure to properly design for each network will jeopardize system reliability.

2013 FORECAST FOR RESIDENTIAL AND COMMERCIAL

Q. What adjustments did Mr. Liu make to the system forecast?

A. Mr. Liu reduced the commercial and residential forecasts by 25 MW and 75 MW, respectively, by 2013.

Q. Do you agree with Mr. Liu's assessment that the commercial forecast should be reduced by 25 MW over the next five years?

A. No.

Q. Please explain why you disagree with his assessment.

A. Mr. Liu's testimony overlooks and understates the significance of the bottom-up perspective of the forecasting process. Mr. Liu's methodology is too narrow and, therefore, an incomplete approach for modifying the commercial forecast. Mr. Liu correctly explained on page 17 of his testimony that, "Con Edison combines top-down and bottom-up approaches to forecast the system peak demand." But to develop his adjustment, he only utilizes the top-down methodology.

Updating the commercial sector forecast for this one component undermines the forecasting process since Mr. Liu did not review and update, as necessary, other inputs to the forecast.

Q. Can those other inputs be updated?.

A. No. We cannot accurately assess the true impact of the reduction in the commercial sector on the system or network forecast as of the time of the T&D forecast because construction project information is fluid and it is not practical to maintain point-in-time iterations.

Q. Please continue.

A. Since the corresponding forecast for each network area is prepared by allocating the system-wide growth among networks with specific consideration for new construction, Mr. Liu's approach disregards one-half of the forecasting approach utilized to determine the system growth.

Q. Did Liberty review the Company's forecasting approach?

A. Yes. The Liberty Audit Report, page VII-29, states that "CECONY's fundamental approach to load forecasting, which features multiple approaches to

developing electric peak demands, is sound, and includes quality inputs and tools." Also on page VII-30, Liberty states "Models used in load forecasting are well-managed, including appropriate updating and revision as well as control of quality."

Q. How would Mr. Liu's adjustment affect the forecast?

A. By relying solely on one part of the forecasting process to make his assessment, Mr. Liu cannot make a proper adjustment. Any reduction Mr. Liu asserts should be made to the commercial forecast at a system level needs to also be reduced at a network level. Typically, growth from construction projects is reviewed in conjunction with the trend in growth from the commercial econometric model to determine the incremental growth in the commercial sector. The forecasted growth ultimately needs to capture the total growth in this sector, but the top-down process and bottom-up process are different ways of looking at the growth in the peak demand. It is important to review the results of both when developing the forecast and making any revisions to it. The risk of not doing so could be an incorrect amount of growth

being added to or taken away from the forecast in a particular year compared to the specific projects in the forecast for that given year. The econometric model results are useful as a means to determine the trend in growth over the entire 10-year forecast horizon and provide information on growth of existing customers.

Q. When Mr. Liu states on page 18 of his testimony that "the economic inputs to Con Edison's commercial peak demand forecast are inconsistent with the economic inputs to Con Edison's T&D revenue forecast" and on page 19 that "the economic inputs to Con Edison's T&D revenue forecast were provided at a later date and should also be used for the commercial peak demand forecast", is his assessment correct and does his rationale justify changing the commercial forecast?

A. As we have explained, the demand forecast is needed by a certain time so that the T&D capital budget (based on the 10 -year relief plan) can be developed in order to plan for the following summer and beyond. The demand forecast was updated from the fall 2008 issuance to an updated forecast in the winter of 2008

to account for the decline in the economy. The revenue forecast was updated shortly after the demand forecast was updated. However, the timing of each forecast was not so different as to make a significant difference in the commercial forecast on a system basis. A 25 MW reduction over a five-year period equates to a 5 MW reduction per year. However, this reduction needs to also be placed on the network area forecast without consideration of the bottom-up process. Therefore, Mr. Liu's adjustment does not accurately assess whether the demand forecast for the commercial sector should be changed. We do not agree with his assertion that the commercial forecast should be decreased by 25 MW by 2013 based on all the reasons given in this testimony.

Q. Do you agree with Mr. Liu's statement on page 20 of his testimony that, "The Company's forecast for the residential peak demand growth is overstated and should be reduced by 75 MW over the next five years"?

A. No, we do not agree with Mr. Liu's assessment and rationale behind the 75 MW reduction to the residential sector's demand forecast. Mr. Liu states

on page 21 of his testimony that his "adjustment results from assuming slightly lower growth rates of appliance saturation than the levels that Con Edison assumed for consistency with the historical trend and the current economic forecast in Con Edison's service area". While the Company uses recent historical trends to gauge the potential future growth in appliance saturation in the service territory, it also forecasts based on potential future trends in appliance ownership.

Q. Please continue.

A. Mr. Liu's assessment does not consider the fact that over time, appliances, such as air conditioners, become less of a luxury item for households and that prices of appliances come down over time, making them more affordable. In addition, people can choose to use air conditioners only on the hottest and most humid days, allowing them to save money when the weather is not extremely hot, but use it when needed most.

Q. What other factors cause you to disagree with Mr. Liu's reduction to the residential demand?

A. The residential forecast's main economic input is the number of households, which is linked to population growth. At the time of the development of the demand forecast in question (with an adjusted 2008 peak demand of 13,700 MW) actual population data showed an average annual growth rate of 0.3% per year over the period 2003-2008 and a forecast of 0.3% per year over the next five years (2008-2013). If the population is expected to continue to grow, new households will be created and/or vacant ones will be filled, which leads to growth in saturation of appliances. Mr. Liu states that "employment and real personal income are two of the key determinants of electric consumption and electronic appliance ownership."

Q. Do you agree?

A. No. His statement is misleading. The statement does not speak specifically about annual peak demand, which is the highest usage during one hour of the year, but instead refers to consumption, which we define as usage over the course of a 24 hour day for 365 days a year. The Company must plan for the demand of residential customers in one hour of a hot and humid

summer day, which may only require one heat wave to occur, as opposed to consumption, which people can vary depending on weather and other factors over the course of a year.

Q. What is the primary driver of residential demand?

A. The residential electric peak demand is primarily driven by air conditioning usage on a hot and humid day or several days of hot and humid weather.

Q. Can the economy and weather possibly affect this driver?

A. Yes, that is possible. However, on pages 21 and 22, Mr. Liu cites the fact that "employment growth over the next five years is forecasted to be approximately one-third of that observed in the last three to five years and real personal income growth for the next five years is expected to be less than one-half of the level observed over the past five years" as his rationale for reducing the saturation levels of appliances by 2013. While the growth in employment and personal income may be slower for 2008-2013 compared to 2003-2008 and 2005-2008, the link between

these indicators and peak demand is not present as Mr. Liu suggests.

Q. Please continue.

A. In the period 2000-2005, the adjusted system peak demand increased at an average annual growth rate of 2.1%. during the same period, personal income increased at an average annual growth rate of 3.6% and private non-manufacturing employment declined at an average annual growth rate of 0.2%, as calculated from the data on page 7 of 11 in Mr. Liu's workpapers. Comparing these rates to the ones Mr. Liu uses for his testimony for the time period 2008-2013, which are 3.1% average annual growth rate in personal income and 0.6% average annual growth rate growth in employment, we believe that the argument cannot be made that the growth in these specific economic indicators will necessarily trend in the same direction or magnitude for peak demand, as shown in 2000-2005.

Q. Are there other factors that you disagree with in the suggested reduction of the residential demand forecast by 75 MW by 2013?

A. Yes. It is also possible that residential demand can experience some years of slow growth, negative growth, and then a period of faster growth that get you to the healthy final demand forecasted by 2013. Using Mr. Liu's logic about growth in personal income and employment affecting appliance saturation growth, since the forecasted growth rates for both of these economic variables are positive (4.8% for personal income from 2009 to 2013 and 1.7% for private non-manufacturing employment for the same time period) and close to historical levels, one could assume that saturation would also increase during this period. An increase in saturation would result in a bounce back of the residential appliance saturation and demand by 2013.

Q. Are there any other factors that Mr. Liu fails to consider in his analysis?

A. Yes. As with the commercial forecast, Mr. Liu ignores the fact that both a top-down and bottom-up approach is taken to develop the residential forecast. Without a bottom-up approach, all of the top-down system demand growth decline proposed would be

allocated to the network areas based on an allocation methodology and not based on any actual residential construction growth, or lack thereof. In addition, the bottom-up evaluation cannot be completed to determine if the decline is reasonable or necessary since we cannot assess the construction project information at the time the T&D forecast was issued. Reducing saturation growth is not realistic based on the reasons stated by Mr. Liu and his numbers are a judgment based on economic indicators that have not historically been linked to declines in demand. Mr. Liu's assessment is a results-oriented analysis which does not utilize the correct indicators or a complete process to make his conclusion. Therefore, we do not agree that the residential demand should be reduced by 75 MW.

Q. Are there any other considerations to be addressed with regard to reducing the commercial and residential forecasts without completing the top-down and bottom-up forecast?

A. Yes. The Liberty Audit points out on page VII-10 that "the longer-term demand forecasts (for electric

demand) have been consistently under-estimating the peak." Mr. Liu's adjustments to the forecasts for commercial and residential sector growth are likely to continue the under-forecasting of the long-term demand.

Q. Does this conclude the Panel's rebuttal testimony?

A. Yes, it does.