STATE OF CONNECTICUT

BEFORE THE DEPARTMENT OF PUBLIC UTILITY CONTROL

The Application of Connecticut Light	**)**	
and Power Company to Implement	**)**	**Docket No. 05-10-03**
Time-Of-Use, Interruptible or Load	**)**	
Response, and Seasonal Rates	**)**	

SUPPLEMENTAL TESTIMONY OF

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ON BEHALF OF

THE OFFICE OF CONSUMER COUNSEL

Resource Insight, Inc.

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I. Introduction

Q: Are you the same Paul Chernick who filed direct testimony in this proceeding?

A: Yes.

Q: What is the purpose of your supplemental testimony?

A: Connecticut Light & Power provided responses to discovery less than two days before my testimony was filed. This supplemental testimony responds to issues raised or reinforced in that discovery.

Q: What subjects do you cover in this supplement?

A: I cover the following subjects raised in the discovery responses:

- The shortcomings of fixed charges, which CL&P advocates increasing (IR EL-005).
- Flaws in the rate designs CL&P proposes in IR EL-005 and IR EL-006.
- The benefits of three-period TOU rates, which CL&P criticizes in IR EL-009.
- The importance of seasonal TOU peaks, to avoid the 12–16-hour peak period advocated in IR EL-008

II. Shortcomings of Fixed Charges

Q: What does CL&P see as the proper role of fixed charges in rate design?

A: The Company takes the puzzling position that many costs are driven by peak demands but nevertheless do not vary with time of day. In CL&P's view, these costs are best be reflected in demand charges:

> [O]nly the supply component of rates (GSC/EAC) is time-of-use dependent. Therefore, time-of-use allocations are not appropriate for the remaining components (Distribution, Transmission, CTA, SBC, Conservation, Renewable and FMCC) and should have the same charges in both the on and off peak periods. However, many of these other component charges are driven by peak demands, and thus consideration may be given in the future to including a demand component to these rate components. (EL-005)

Q: Does the Company provide a proposal for including a demand charge component in "these rate components"?

A: No. The Company does not specify which of the costs it would propose to recover through demand charges. The Company appears to believe that some of the costs that are "not time-dependent" (in particular, distribution costs) should be recovered through customer charges.

Q: Should the Department consider moving cost recovery from energy charges to fixed charges?

A: No. Extending the use of demand charges to more rate classes and to more cost components is likely to result in increased loads at high-cost times. Demand charges are determined by customers' individual maximum demands. Peak-related costs are driven by coincident loads at the times of system peak, not by the non-coincident maximum demands of individual customers. Generation energy, congestion, and loss costs are determined by energy use, particularly during high-cost hours; those high-cost hours tend to occur when loads are high, but need not be monthly peak hours either for the system or for many individual customers.

Customer maximum demands, which determine demand charges, do not track well the drivers of CL&P's costs. As I described in my direct testimony, this disconnection prevents demand charges from providing effective price signals for system costs. Demand charges confuse and frustrate customers, giving them less control over the size of their bills. Rather than promoting

conservation at high-cost times, or shifting of load from system peak periods, demand charges encourage customers to waste effort on the arbitrary tasks of flattening their personal maximum loads, even if those occur at low-cost times.

Similarly, increasing customer charges to recover distribution costs is not cost-based and discourages conservation. The Company's own 1992 Marginal Cost Study (at 2), recognizes that the only costs that should be considered customer-related are those for the service drop, meter and controller, and meter reading. All other costs are affected by load.

The Company's advocacy of higher fixed charges—demand charges and customer charges—serves the Company's desire for revenue stability, but is antithetical to the goal of conservation, cost-based rate design, and reduction of system costs.

Q: Can you illustrate the relationship between customer maximum demands and system peak loads?

A: Yes. Exhibit PLC-S-1 provides a highly simplified example. I randomly generated daily load shapes for 100 hypothetical customers, with loads varying from 0.1 to 10 kW. I used a different probability distribution for each hour.

This example understates the problems of demand charges on customer peak by ignoring the fact that customers peak on different days, and in different months, as well as in different hours. I have also used only 100 customers, rather than the thousands on a feeder or substation or the hundreds of thousands on the system. Unfortunately, including more hours and more customers would make the example excessively complex.

Q: What lessons do you take from this example?

A: First, there is a big difference between the sum of customer maximum demands and the coincident peaks that drive most utility demand-related costs. In the

example, the sum of the customer peaks is 928 kW, while the group peak is just 635 kW.

Second, many of the individual peaks are not even close to the system peak. Only 4 of the 100 customers experience their maximum load at the 8 am group peak; 79% of the customers are at less than 90% of their maximum demand at the group peak hour. A demand charge would encourage a customer with a maximum demand in the early afternoon, when many of the customers in this example hit their maximum demands, to reschedule some activity to the 8 am group peak, increasing CL&P's costs.

Q: What TOU rate structure would be effective in encouraging reduction in peak-period costs?

A: Costs that are driven by peak demands and energy are best reflected in peak-period or critical-peak energy charges, not demand charges. In addition, demand charges in TOU rates should be reduced, and the cost recovery should be transferred to peak-period energy charges. This approach will encourage customers to reduce usage in high-cost, high-load periods, when transmission and distribution equipment is heavily loaded. For customers without TOU meters, distribution costs should continue to be recovered through energy charges rather than being transferred to demand or customer charges.

III. Review of CL&P's Sample Rate Designs

Q: Have you reviewed the illustrative rate designs filed by CL&P in response to IR EL-005 and EL-006?

A: Yes.

Q: Are the TOU rate designs in IR EL-005 appropriate?

A: No. In IR EL-005, CL&P makes the following errors in TOU rate design:

- The rate design includes only two periods, and the peak periods do not vary by seasons. These shortcomings reflect both CL&P's policy positions (opposition to three-period TOU rates and seasonal variations) and the ready availability of data. Had CL&P taken this proceeding seriously from the time the Act was passed, it could have developed appropriate data.
- The rate design excludes the EAC and FMCC. The exclusion of the EAC is simply confusing, since the resulting rates are so different from the actual current rates. The exclusion of the FMCC is more important, since most of the FMCC costs are driven by the peak period and most by the summer period.
- Distribution costs are not time-differentiated, as a matter of CL&P policy.
- Transmission costs are not time-differentiated, even though they are driven by peak loads.
- Demand charges are retained for rates with those charges, even though most costs are more effectively tracked by TOU energy rates.

Q: Are the seasonal rate designs in IR EL-005 appropriate?

A: No. In IR EL-006, CL&P makes the following errors in seasonal rate design:

- As with the TOU examples, CL&P ignores the FMCC and EAC charges. The installed-capacity, congestion and loss costs in the FMCC are strongly seasonal.
- The Company models monthly variation in energy price using what it describes as its "Type B bids." While CL&P does not define "Type B" in this docket, and has released only limited information about the supply bids it received for TSO service, these "Type B" bids appear to be for energy at the ISO hub, so the prices omit congestion and losses from the

hub to Connecticut. Those additional costs, which CL&P collects partly through the GSC and partly through the FMCC, are strongly seasonal.

- The Company forces the difference in energy price between the peak and off-peak periods to remain constant across seasons, even though the TOU differentials for energy price vary by season.
- Distribution costs are not seasonally differentiated, as a matter of CL&P policy.

Q: Would correcting these errors produce substantially different rate designs?

A: Yes. Differentiating losses, FMCC, transmission and distribution costs by season and time of use would significantly increase summer and on-peak prices, compared to CL&P's illustrative designs. Moving costs from demand charges to on-peak energy charges would also substantially increase the later.

Q: Would improved rate designs better achieve the goals of §13 of the Act than would the rates in CL&P's example?

A: Yes. A rate design with properly-differentiated costs and greater use of energy charges is likely to result in greater customer response, including more conservation in the critical peak periods and shifting of usage to off-peak hours. Three-period rates and properly-defined seasons would allow still more reductions in the high-cost periods. Those shifts would reduce CL&P's costs and hence total customer bills.

Specifically, CL&P's seasonal-pricing approach counter-intuitively *reduces* summer rates. This approach would do nothing to reduce the need for ICAP, LICAP, RMR, distribution investments, or other resources driven by summer system and area peaks, while an improved rate design could give customers incentives to reduce summer usage, through more-efficient air

conditioners, tighter ductwork, lighter roofs, better window shading, daytime temperature setbacks, and so on.

IV. Three-Period TOU Rates

Q: Do CL&P's responses to the Staff's discovery responses clarify its position on three-period TOU rates?

A: Yes. The Company once again complains about complexity and the limitations of its billing system

> If this type of rate design is implemented prior to implementation of CL&P's new C2 billing system, which is expected to occur on or about April 1, 2007, then by necessity the billing process would have to be manual. (IR EL-009)

But the Company's also warns of dire consequences of three-period TOU rates:

> Three period time-of-use pricing will benefit certain customers, and be financially harmful to others....Inevitably, some number of customers will realize higher electric bills sufficient enough to cause business closures. This will have far reaching impacts for both the Company as sales and revenues are reduced, and for the state as a whole. (IR EL-009)

The Company provides no basis for these unsubstantiated claims. Any business still operating in CL&P's service territory has endured enormous increases in utility bills in the past couple years; it is hard to see how three-period TOU rates could be so much more traumatic than recent rate increases. If some customers with expensive-to-serve load shapes are harmed, others who are inherently less expensive to serve (and have been overcharged) will be helped by three-period TOU rates. Since customer response to properly designed TOU rates should decrease total bills for CL&P customers, and will certainly provide improved opportunities for customers who wish to control their bills to do so, the net effect should be fewer business closures, not an increase.

V. Seasonal Time-of-Use Peaks

Q: Do CL&P's responses to the Staff's discovery responses clarify its position on seasonally-differentiated peak periods?

A: Yes. The Company acknowledges that the periods with the highest energy costs last only a few hours a day and occur at different times of day in the various seasons. The Company also recognizes that seasonally-differentiated three-period TOU rates would better reflect costs. Nevertheless, CL&P opposes implementation of seasonal TOU periods:

> [B]oth the monthly peak demand and annual peak demand impact certain FMCC-related costs. Because the monthly peak demand occurs at varying times over the year, no single hour or short duration of hours would capture each monthly peak period. This would suggest that the on-peak period would need to be a longer, rather than shorter, duration window. Absent a longer duration, the on-peak period would need to vary across months or seasons to capture each month's absolute peak. The Company opposes changing the on-peak, shoulder and off-peak periods across months or seasons as reflected in our Application and in response to OCC-1, OCC-021. (EL-008)

Q: Is the Company's proposal of a broad on-peak period to cover every month's peak hours an effective rate design?

A: No. The on-peak periods currently used in CL&P's rates cover too many hours to provide effective price signals. Broader on-peak periods provide less information about the high-cost periods and leave customers with less opportunity to save by shifting loads off high-cost periods.

Q: Does the Company agree that seasonal TOU rates would reduce peak loads?

A: Yes. CL&P expects that seasonally differentiated three-period TOU rates would reduce peak consumption. However, the Company claims that it cannot estimate the savings unless the rates are in place—which it opposes:

> The difficult question is whether the resulting benefits from reduced peak consumption and resulting overall cost savings outweigh the negative impacts of this proposed rate design. The Company does not know the answer to that question, and believes it can only be answered once rates are actually in place. (EL-010)

In short, the Company acknowledges that it is rejecting the rate design changes proposed by the Act without even attempting to estimate their cost-effectiveness.

Q: Does CL&P propose an alternative to a seasonally-differentiated three-period TOU rate?

A: Yes. CL&P suggests two options:

> If the Department elects to pursue a three period TOU rate, some options may include:
>
> - limit[ing] the on-peak period to the summer months in which the annual peak is likely to occur (this would mean different definitions for the periods across months),…
>
> - defin[ing] the shoulder period as the limited number of hours between 7 a.m. and 11 p.m. in which no monthly peak is likely to occur. (EL-008)

Q: Do either of CL&P's suggested options offer an acceptable substitute for a seasonal three-period rate?

A: No. First, the Company's proposed approaches are based on a conceptual error. CL&P proposes to limit the peak period to the summer hours when the highest peak loads are likely to occur, or to hours when peaks may occur in any month. The appropriate goal of TOU rate design is to reduce loads when costs are highest, not necessarily the times when system load is highest.[1]

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[1]This confusion on CL&P's part is particularly odd, since CL&P does not propose to time-differentiate the costs driven by peak monthly or annual loads, such as most distribution, transmission, and FMCC costs.

Second, since CL&P regards a three-period summer TOU rate as feasible, and since some of the highest generation energy costs occur in the winter, adding to CL&P's first alternative a three-period winter TOU rate with appropriate peak period hours would provide useful price signals. This approach would not add much more complexity or significantly increase the risk of disruptive rate impacts.

Third, CL&P has not actually identified the range of hours that would cover all "likely" peaks in all seasons for its second option. Depending on the definition of "likely," this may be a very broad peak period, which would not be much better than CL&P's existing TOU rate structures.

Fourth, it is difficult so see why the peak hour in April would be as important as the peak hour in July. Giving equal weight to peak and off-peak months makes no sense.

Q: Does this conclude your supplemental testimony?

A: Yes.