Good Morning –

Attached you will find both Word and PDF copies of the NJAA's formal written comments, as well as a PDF of the *New York Energy Research & Development Authority's Residential Electric Submetering Manuel*, as referenced in our comments.

The NJAA applauds the Board's policy decision to include sub-metering in the draft Energy Master Plan and wish to express our strong support for **swift approval of the expanded application of sub-metering technology in multi-family rental housing settings as an effective, proven, and reliable conservation tool.**

Sub-metering is one of the few conservation tools included in the EMP that does not require any State funding, as it represents a long-term investment by private market-rate, non-government subsidized rental housing providers. Accordingly, New Jersey should move quickly to join the 49 other states, and implement rules to allow for the immediate introduction of gas and electric sub-metering in multi-family rental housing settings.

As always, any savings in energy consumption resulting from sub-metering is directly contingent upon ***adoption of policies in New Jersey that encourage property owners to make the capital investment in the infrastructure needed*** to meter gas and electric usage in individual units. This investment, especially for retro-fits of many current multi-family properties, will be significant, and represents a long-term investment by property owners.

Again, the New Jersey Apartment Association applauds the Board's decision to include gas & electric sub-metering in the draft Energy Master Plan. The NJAA believes that New Jersey should move to join the 49 other states, and implement rules immediately to allow for the expedited introduction of gas and electric sub-metering in multi-family rental housing settings.

The NJAA is pleased to offer our continued support, expertise, and resources to the Board in collaborative efforts to secure swift approval and implementation of policies to advance effective, proven, and reliable energy conservation technologies like sub-metering in multi-family rental housing.

Thank you.

CGF

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July 24, 2008

New Jersey Board of Public Utilities
Office of Policy and Planning
Attention: Draft EMP Comments
Two Gateway Center
Newark, New Jersey 07102

RE: Draft EMP Comments

On behalf of the New Jersey Apartment Association (NJAA), I am writing to applaud the Board's policy decision to include sub-metering in the draft Energy Master Plan and wish to express our strong support for **swift approval of the expanded application of sub-metering technology in multi-family rental housing settings as an effective, proven, and reliable conservation tool.**

Sub-metering is one of the few conservation tools included in the EMP that does not require any State funding, as it represents a long-term investment by private market-rate, non-government subsidized rental housing providers.

Accordingly, New Jersey should move quickly to join the 49 other states, and implement rules to allow for the immediate introduction of gas and electric sub-metering in multi-family rental housing settings.

There are over 1 million rental units in New Jersey, and approximately 500,000 of those are located in properties of 5 units or more. The NJAA is the largest advocacy organization for multi-family rental housing providers in the state as it represents owners and managers of approximately 150,000 units. The NJAA believes there should be – and is committed to achieving – a statewide sub-metering policy that will be fair and equitable for both residents and providers of multi-family rental housing.

Consumer education is key to any effective energy conservation initiative. Sub-metering of utilities empowers consumers by providing them with information on their personal usage practices. **Common sense dictates that when a consumer pays for a commodity – electricity, natural gas, propane, fuel oil, water, etc. – they become more cognizant of their usage.** (This "common sense" conclusion has been supported by the US Environmental Protection Agency and numerous other studies.) Most consumers will try to reduce usage that might be wasteful or inefficient as part of an effort to lower overall consumption, and lower their bill.

Sub-metering is a means to monitor and account for utility usage in each unit of multi-family housing. In the alternative – which is now the case in the majority of multi-family properties served by regulated utilities – utility use in is measured by a single **"master meter"** that is owned, maintained and monitored by the investor-owned utility. This single master meter does not distinguish between usage in one apartment or the next, only total consumption for the entire building or property.

Master meters encourage waste and are counterproductive to the conservationist's goal because they do not differentiate between consumption from one apartment to the next, and therefore provides residents no direct financial benefit for conserving either water, electricity, or fuel.

This wasteful scenario of unchecked consumption runs counter to clear, longstanding public policy that favors conservation and education.

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Unfortunately, current BPU policies prohibit gas or electric sub-metering in market-rate multi-family rental housing settings, yet allows sub-metering in condominiums and co-ops. This uneven policy on sub-metering application places rental housing residents at a distinct disadvantage, depriving these residents of vital knowledge on their own usage practices, and the ability to reduce their living cost through reducing their utility usage. Multi-family owners are further disadvantaged because the owner of a condominium or co-op can rent their unit and charge the tenant for their utility usage via sub-metering!

The NJAA actively participated in the Board's working group process on sub-metering in 2004-2005. BPU staff conducted four public stakeholders' meetings and at the fourth such meeting, staff reported that it had been directed to work jointly with the Department of Community Affairs to develop a sub-metering rule. These discussions resulted in a **joint BPU-HMFA pilot project for gas and electric sub-metering** in the very narrow and limited setting of HMFA-managed, government-subsidized rental housing. **Unfortunately, market-rate, non-subsidized rental housing was not included in this sub-metering pilot.**

From an energy conservation policy perspective, the decision to exclude market-rate rental housing was major failure of the joint pilot project.

In subsidized rental housing, the housing provider is guaranteed a certain rate of return by the government through the traditional budget-based operating cost adjust factor (OCAF) mechanism. In this scenario, any cost increases associated with managing the rental property – fuel, insurance, property taxes, etc. – are simply included in the management contract OCAF calculation, which results in an increased government subsidy, not an increase in rents paid by residents.

Alternatively, especially in rent controlled municipalities, when fuel costs increase suddenly and dramatically, market-rate rental housing providers must simply absorb these huge cost increases, and are unable to pass them along, dollar-for-dollar, to their residents.

In non-subsidized, market-rate rental housing, with a master meter measuring total consumption – and, accordingly, where meter-based unit-by-unit consumption cannot be gauged – the overall energy usage is folded into the general rent figure, inelegantly estimated, and applied across the entire population. The inability to gauge a resident's personal usage precludes any attempt to reward those residents who conserve, as there is no way to measure personal usage habits. By the same token, the inability to gauge personal usage actually benefits those residents with more wasteful usage practices, as there is no effective method to measure their usage, either.

Again, this wasteful scenario of unchecked consumption runs counter to clear, longstanding public policy that favors conservation and education.

The economic dynamics behind non-subsidized rental housing presents both owners and residents with a far more advantageous scenario to advance energy conservation, as market-rate rental housing is not insulated from wide fluctuations in energy prices in the same manner as government-subsidized housing. It is in the best economic interests of the property owners and residents to conserve energy, as it reduces overall utility usage and helps to relieve ***some*** of the intense upward economic pressures associated with providing quality, affordable rental housing in these challenging times.

Accordingly, the inclusion of gas and electric sub-metering in the EMP for all multi-family rental housing settings is an opportunity to redress the policy failure of the pilot project and expeditiously expand the proven conservation technology of sub-metering.

The NJAA believes that any statewide policy to promote the voluntary introduction of the proven conservation technology of sub-metering should be implemented immediately, and must include the following **ten key consumer protections**:

1) Require property owners who opt to install sub-metering devices cannot pass-through the cost of sub-metering equipment or installation;

2) Require that gas and electric billing via sub-metering could only commence at lease renewal or inception of a new lease, not in mid-term of a current lease;

3) Require that copies of bills for six consecutive months must be provided to the current residents, as a resource to gauge personal consumption, before billing may commence;

4) Require disclosure in the lease agreement of bill method and description, specified charges and fees, if any, and late fees;

5) Require that bills sent to resident include clear identification of the billing company;

6) Require that sub-metering companies have a toll-free telephone number and website for residents to use for questions or to express concerns;

7) Require usage of stringent, nationally-recognized meter accuracy standards;

8) Monetary cap of $7.50 on one-time account set-up fee, with increases tied to the CPI;

9) Monetary cap of $4.00 on monthly service fee, again, tied to the CPI;

10) Direct regulatory authority over sub-metering in rental housing settings shall be placed with the Department of Community Affairs, under the Hotel and Multiple-Dwelling Act.

New York's independent investigation into electric sub-metering, by the NY Energy Research & Development Authority, found **reductions in electric consumption of 10%-26%**. Even if we use the minimum 10% figure for New Jersey, the potential for genuine conservation via sub-metering is far too significant to ignore as we search for proven and reliable methods to lower total energy consumption in the Garden State. *(Copy of New York State Energy Research & Development Authority's Residential Electric Submetering Manuel is attached.)*

As always, any savings in energy consumption resulting from sub-metering is directly contingent upon ***adoption of policies in New Jersey that encourage property owners to make the capital investment in the infrastructure needed*** to meter gas and electric usage in individual units. This investment, especially for retro-fits of many current multi-family properties, will be significant, and represents a long-term investment by property owners.

Again, the New Jersey Apartment Association applauds the Board's decision to include gas & electric sub-metering in the draft Energy Master Plan. The NJAA believes that New Jersey should move to join the 49 other states, and implement rules immediately to allow for the expedited introduction of gas and electric sub-metering in multi-family rental housing settings.

The NJAA is pleased to offer our continued support, expertise, and resources to the Board in collaborative efforts to secure swift approval and implementation of policies to advance effective, proven, and reliable energy conservation technologies like sub-metering in multi-family rental housing.

Sincerely,

Conor G. Fennessy
Vice President – Government Affairs

The NJAA represents over 600 multi-family rental housing providers and affiliated businesses. We are a statewide organization dedicated to maintaining, improving and building new and affordable rental housing that serves hundreds of thousands of New Jersey's working families, young couples and seniors.

New York State Energy Research and Development Authority

RESIDENTIAL ELECTRICAL SUBMETERING MANUAL

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October 1997, revised October 2001
NYSERDA Contracts #4483-IABR-BR-97, #5037

NOTICE

This report was prepared by the Project Team of Applied Energy Group, Inc., Herbert E. Hirschfeld P.E., Ruth Lerner, and Schechter and Brucker P.C. in the course of performing work contracted for and sponsored by the New York State Energy Research and Development Authority (hereafter "NYSERDA"). Any opinions expressed in this report do not necessarily reflect those of NYSERDA or the State of New York, and reference to any specific product, service, process or method does not constitute an implied or expressed recommendation or endorsement of it. Further, NYSERDA, the State of New York, and the contractor make no warranties or representations, expressed or implied, as to the fitness for particular purpose or merchantability of any product, apparatus, or service, or the usefulness, completeness, or accuracy of any processes, methods or other information contained, described, disclosed or referred to in this report. NYSERDA, the State of New York, and the contractor make no representation that the use of any product, apparatus, process, method, or other information will not infringe privately owned rights and will assume no liability for any loss, injury, or damage resulting from, or occurring in connection with, the use of information contained, described, disclosed, or referred to in this report.

ABSTRACT

Residential submetering is the measurement and billing of electric use in individual apartments in master-metered buildings. In master-metered building situations, residents do not bear electricity costs in proportion to consumption levels. As a result, studies have confirmed that residents in master-metered buildings tend to consume more electricity than residents with individual apartment metering, and have established electrical submetering as an effective energy conservation measure.

The New York State Energy Research & Development Authority (NYSERDA) has commissioned a project called Submetering Manual and Information Package to develop educational materials, as recommended and described in the project Facilitating Submetering Implementation (Report 96-7). These materials are designed to provide information, sources, supporting documentation and overall guidance for representatives of agencies, government, and buildings that are considering the implementation of submetering. Experienced professionals in the technical, legal, regulatory, analytical, financial, and other aspects of submetering were retained to develop this manual. This manual is intended for information purposes only and is presented as the best information available at the time of publishing.

Key words: submetering
demand-side management
master-metering
multi-family buildings

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NEW YORK STATE ENERGY RESEARCH & DEVELOPMENT AUTHORITY

SUBMETERING MANUAL

I. PURPOSE OF MANUAL

This manual is designed to serve as a guide to implementating submetering in master-metered buildings. The simple question and answer format informs private owners, coop and condominium boards, directors and managing agents how to proceed with a submetering conversion. For ease of reference in this manual, private owners, cooperatives and condominiums will be referred to as "owners". This manual includes discussion of topics such as economic feasibility (cost and savings potential), obtaining required approvals, and how to manage the conversion process.

II. SUBMETERING BASICS - WHAT, HOW AND WHY?

1. What is submetering?

Submetering is the measurement and billing of electric use in individual apartment units in a master-metered multi-family building.

2. What are the different types of metering?

There are only two different methods by which multifamily buildings are metered for electricity: direct metering and master-metering.

In a direct-metered building (also known as individually metered), the utility owns the meter and supplies electricity to each apartment. Residents receive an electric bill from the utility at the residential retail rate (e.g., Con Edison's SC-1 or SC-7). The building receives an electric bill for electric usage in the common areas, typically at a commercial retail rate (e.g., Con Edison's SC-9).

In a master-metered building, the utility supplies electricity to the entire building. One utility-owned meter serves the building. The building receives one electric bill from the utility, often at a rate (e.g., Con Edison's residential rates SC-8 or SC-12) that results in a bill significantly lower than the retail residential rate. Individual apartments are not metered and actual apartment consumption cannot be determined or used as the basis for billing electric charges. For example, many coops apportion electric costs to individual apartments based on the number of shares.

In a direct-metered building, residents pay for the electricity they consume. In a master-metered building, the cost of the total electric consumption for the building is divided among apartments, not taking into account actual consumption. Submetering combines the best of both metering systems.

3. How does submetering work?

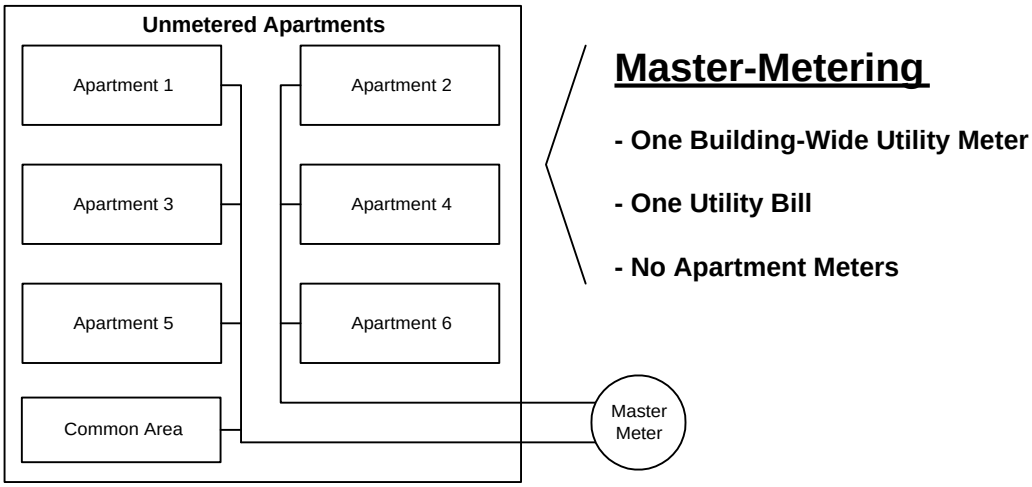
Submetering permits the measurement of electric use in individual apartments via a building- owned meter that is installed for each apartment. The building continues to purchase its electricity on the less expensive commercial or bulk residential rate basis, but now the owner is able to bill electric to individual apartments on an actual consumption basis. The relationship between the building and the utility remains exactly the same as before. The building continues to receive one bill from the utility and the owner allocates the utility costs based on the usage recorded by the apartment submeters. The types of multifamily building metering and submetering configurations are illustrated in Figures 1a and 1b on the following pages. Table 1 details the differences among the metering configurations for key elements.

The submeters are owned by the building and not the utility. Residents are billed by the owner through its manager or designated vendor. Current submetering technology facilitates reading of the submeters without apartment entry. Available software systems enable automated billing procedures. The owner continues to be responsible for the remaining portion of the utility bill that covers the building's common areas.

Electrical submetering in master-metered buildings is unlike virtually any other energy conservation measure that can be undertaken by a building owner. When a building undergoes a typical energy conservation measure (installation of a new boiler, etc.), the owner reaps the benefit of lower energy costs. Submetering, as an energy conservation measure, is qualitatively different in two respects. First, it will result in lower electric consumption only to the extent that individual residents decide to reduce consumption. Second, the financial savings flowing from the reduced consumption directly benefit the residents who conserve.

To be sure, owners obtain a significant benefit from submetering, by shifting the potentially volatile apartment electricity component of their building's budget to the individual residents. Experience shows that the change from master-metering to submetering typically reduces the consumption of electricity in apartments by 10-26%.

Figure 1a
Types of Multi-Family Building Metering



Master-Metering

- One Building-Wide Utility Meter

- One Utility Bill

- No Apartment Meters

Direct (Individual) Metering

- Each Apartment Metered By Utility

- Common Area Metered By Utility

- Common Area and Each Apartment Billed By Utility

U = Utility Meter

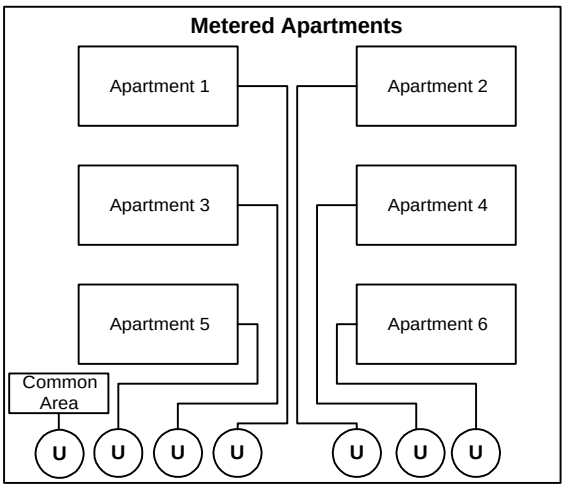
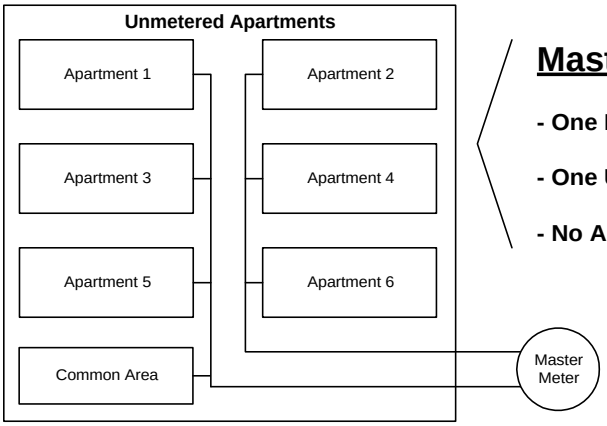


Figure 1b
Submetering a Master-Metered Building

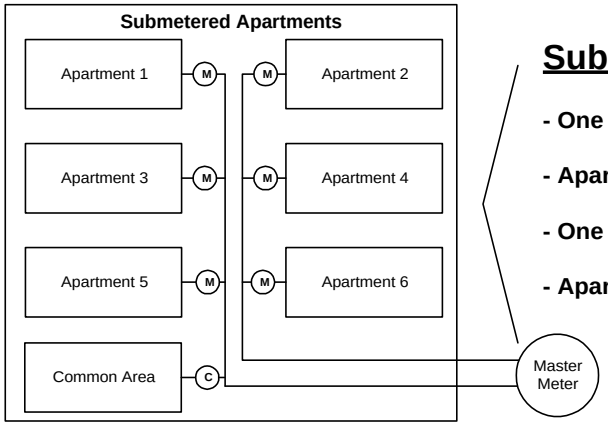
BEFORE



Master-Metering

- **One Building-Wide Utility Meter**
- **One Utility Bill**
- **No Apartment Meters**

AFTER



Submetering

- **One Building-Wide Utility Meter**
- **Apartment Submeters**
- **One Utility Bill**
- **Apartments Billed By Building Owner**

(M) **= Apartment Meter**

(C) **= Common Area Meter (Optional)**

TABLE 1 - Multi-Family Metering Options

	Directly (Individually)-Metered Building	Master-Metered Building without Submetering	Master-Metered Building with Submetering
Building Metering / Ownership	! Utility meter for each apartment ! Utility meter(s) for common areas	One utility meter for entire building	! Building-owned submeter for each apartment ! Utility master-meter for building (original)
Apartment Metering	Utility Meter	None	Submeter
Rate	! Residents: Retail Residential Rate ! Common Area: Retail Commercial Rate	Applicable bulk rate (where available)	! Owner pays bulk rate ! Apartments pay allocated portion of owner's bulk rate costs
Billing	Residents and common areas billed separately by utility	Utility	! Utility bills owner ! Owner bills residents
Resident Payment vs. Use	Residents pay for what they use, as measured by utility meters	Residents do not pay for what they use - costs not allocated based on electric use (e.g. coop shares)	Residents pay for what they use - costs allocated based on actual electric use, as measured by individual submeters

4. What are the benefits of submetering?

A number of studies and demonstration projects cited in Appendix A confirm both the short-term and long-term benefits of submetering, including:

1. Submetering saves energy. An analysis of submetered buildings (where data have been made available) conclusively illustrates that annual savings of 10-26% of total apartment electric consumption were achieved in the first year. (Specific results are cited in response to Question 7, Table 2; Question 33, Table 4; and in Appendix A.)

2. Submetering energy savings persist over time. Submetering savings have proven to be maintainable over long periods of time as demonstrated in a number of studies described in this manual (Question 7, Table 2; Question 33, Table 4; and in Appendix A). Some likely reasons are: (a) that conservation is reinforced each month by the resident's receipt of an electric bill; and (b) residents will invest in efficiency (e.g., more efficient refrigerators and lighting) because they will reap the benefits directly.

3. Approximately 60 to 70% of residents benefit from submetering The only residents who fare worse under submetering than under other means of allocating electric cost are those who use excessive amounts of electricity. Those residents who find that their electric bills are excessive have the ability to reduce cost by reducing consumption. They have joined the vast majority of New Yorkers who are directly metered, but they often retain a distinct advantage — where applicable, they continue to pay at the bulk rather than the retail rate.

4. Submetering is eminently fair. Submetering simply restores the "pay for what you use" concept. Con Edison data reveal that 20-25% of total apartment usage is consumed by only 10% of the residents, yet under master-metering, these excessive users pay the same as other residents. Individual apartment consumption has been shown to vary by a factor of as much as 10:1, and,

typically, by approximately 5:1 in apartments of the same size in the same building! From the point of view of fairness, submetering is equally beneficial to all buildings regardless of type. Analysis of data from buildings that installed submetering as part of the Con Edison Residential Submetering Program (cosponsored by NYSERDA) confirmed this fact quite dramatically. The variability of apartment consumption was consistent regardless of building and resident characteristics, so there were always inequities that submetering would resolve.

5. Submetering benefits owners - Submetering largely eliminates a volatile, variable, and difficult-to-control factor from a building's operating budget–apartment electric usage costs. Whether the building is a rental, cooperative, or condominium, owners can better predict costs when the only electric usage to be considered is for common areas under management control.

6. Submetering benefits utilities and society - Submetering benefits utilities and society in the same way: by reducing the waste of energy and deferring the need to site, build, or otherwise acquire electric generating capacity, as well as reduce the use of fossil fuels (e.g., oil), still the primary source of power generation in New York State. Reducing fossil fuel use is a giant step toward enhancing the environment by improving air quality. Decreasing our dependence on foreign oil clearly benefits all Americans.

These conclusions confirm the benefits of submetering to society, utilities, owners, and consumers, given the appropriate allocation of costs and benefits.

5. What are some of the problems that submetering addresses?

Submetering allocates the building's total apartment sector electric charges to the individual apartments in direct proportion to their individual usage. It provides a mechanism for individual residents to monitor and reduce their own monthly electric expense by practicing conservation.

Additionally, once the issue of fairness has been addressed, apartment residents are less inclined to scrutinize each other's lifestyle as far as electric usage is concerned.

Finally, in those buildings where monthly charges are assessed for appliances such as air conditioners, dishwashers, freezers, washing machines, and dryers, submetering eliminates the building management task of estimating and billing residents for the additional electric consumption associated with these appliances. It eliminates the need for annual apartment inspections to count appliances, many of which are hidden by the residents to avoid the extra charge. Elimination of this task tends to diminish the adversarial relationship between the owner and the residents.

6. How Does Submetering Achieve its Energy Savings Benefits?

Submetering achieves its savings because residents reduce their own consumption in order to re-duce their individual electric costs. Unlike other conservation or load management measures, such as energy management systems, which may force conservation by outside control, submetering savings are the result of a purely voluntary decision by the resident electricity users. Thus, residents who choose to maintain a wasteful energy use pattern can do so, but will pay for this choice.

Because residents are now paying for what they use, they tend to become more aware of their electricity use and, in turn, the monetary benefit they can realize from reducing unnecessary use of electricity. For example, prior to submetering, residents who left their air conditioners running while they were not at home during the day were not specifically penalized for this waste. This added cost (a function of increased consumption and peak load demand) would be borne by both the conservers and non-conservers. On the

other hand, residents who conserved electricity or who were not at home (such as those who spend summers away) for extended periods did not receive any specific benefit.

With submetering, residents have an incentive to conserve and to invest in conservation since they can obtain a direct benefit through reduced electric charges. Short-term conservation means turning off lights, air conditioners, and other appliances when not in use. Long-term conservation also can include purchase of more efficient appliances, lighting, and timers, which results in more persistent energy savings.

7. How Have Submetering Savings been Confirmed?

A number of studies, including several sponsored by New York State (e.g., NYSERDA) and utilities (e.g., Con Edison) have been performed since submetering was reinstated by the Public Service Commission in 1979 as a valid metering method for multifamily buildings. Appendix A illustrates some case studies. The key findings of these studies, in terms of savings in annual energy consumption (kWh), summer peak demand (kW), and annual cost ($), are summarized in Table 2, which shows both short- and long-term savings.

TABLE 2 - Savings Results from Submetered Buildings

Building (Year Submetered)	Year Analyzed	kWh % Savings	kW% Savings	$ Cost Savings
Carlyle Towers (1987)	1991	12%	25%	12%
	1995	15%	29%	16%
Scott Towers (1987)	1991	19%	20%	20%
	1996	17%	24%	20%
Goddard Riverside (1989)	1990	20%	23%	21%
	1996	19%	30%	19%

III. SUBMETERING EQUIPMENT AND TECHNOLOGY

8. What equipment and systems are required for submetering?

Submetering requires the following equipment and systems:

- Apartment meters - These may either be installed in each apartment or (when feasible) in a common area;
- Meter-reading system - While manual reading is an option, a typical installation includes a data communications system connected to a data collection central station in the building;
- Remote Interrogation System (optional) - A data communications system capable of remotely reading the data collection central station from a remote site may be implemented;
- Central Building Information Panels (optional) - A display for building management or residents to monitor apartment usage may also be implemented.

9. What equipment is available for submetering?

As part of the Con Edison/NYSERDA Residential Submetering Program, interested vendors were asked to submit information to Con Edison regarding their submetering equipment, including results of testing and compliance with national standards. Con Edison then qualified these manufacturers' meters for inclusion in the incentives then provided by Con Edison. Appendix B indicates the source (as of October 2001) for names and addresses of equipment vendors, manufacturers, and local representatives, where applicable.

10. What are the national standards for submetering equipment?

The American National Standard Code for Electricity Metering, ANSI-C12.1-1988, and the American National Standard for Solid-State Electricity Meters, ANSI-C12.16-1991, are the most common standards. There are other versions that apply to related metering equipment as well.

11. Who has adopted metering standards within new york state?

Con Edison, the New York State Division of Housing and Community Renewal (DHCR), and the New York State Public Service Commission (PSC) have adopted ANSI-C12.1-1988 as an eligibility requirement for submetering equipment to be used by buildings under their jurisdiction. Other agencies and utilities also may have adopted some or all of the metering standards referred to above.

12. What types of submetering equipment are available for apartment metering?

Equipment for apartment metering can be either electromechanical or electronic. Some electromechanical meters can be combined with an electronic data communications system, such as a powerline carrier (PLC) or wireless data communications (see Question 19). Some electronic metering systems can monitor multiple apartments with a single metering device.

13. What are the advantages and disadvantages of electro-mechanical meters?

Electromechanical meters are the same type that have been used for more than 50 years by the electric utility industry. They have a more extensive track record and typically offer equipment warranties of 25 years or more, compared with one to five years for electronic meters. Unlike electronic meters, manufacturers have many years of reliability data for electromechanical meters as the basis for long warrantees.

A drawback of electromechanical meters is that they can be read remotely only when combined with

electronic communication systems (see next paragraph). Otherwise, they would need to be accessible to manual reading, so placing meters in apartments would not be practical. Compared to electronic meters, they tend to be somewhat larger and may present more aesthetic difficulties in their installation if location inside the apartment is required.

Electronic communication systems that include remote interrogation capability facilitate the installation of electromechanical meters inside apartments, enabling remote interrogation, meter reading, and billing. Another advantage of combining an electromechanical meter with electronic communications such as a PLCor wireless (see Question 19) is that in the event of a communications or computer failure, the meter-reading data can be retrieved by directly (manually) reading the meters.

14. What are the advantages and disadvantages of electronic meters?

Electronic meters were first evaluated by New York State agencies (NYSERDA and DHCR) shortly after the PSC re-instituted submetering in 1979. However, only during the past decade have submetering installations given building owners/managers sufficient confidence in electronic metering to warrant its extensive use in submetering applications. The electronic meter is a newer, more compact technology that presents fewer aesthetic problems than electromechanical meters. The warranty periods offered by manufacturers for electronic meters tend to be shorter than those offered for electromechanical ones. Electronic meters, like electromechanical ones, must meet ANSI-C12 standards (see Question 10), so their reliability and accuracy have been verified.

Some electronic meters can be installed in common-area closets or electric rooms, providing access to multiple apartments with a single meter-reading device. This reduces the number of apartment meters required by the building and, accordingly, reduces the submetering implementation cost. However, if this type of meter fails (a rare case), data from all the apartments being scanned by that meter would be unavailable until it is repaired or replaced.

15. How and where are the apartment meters installed?

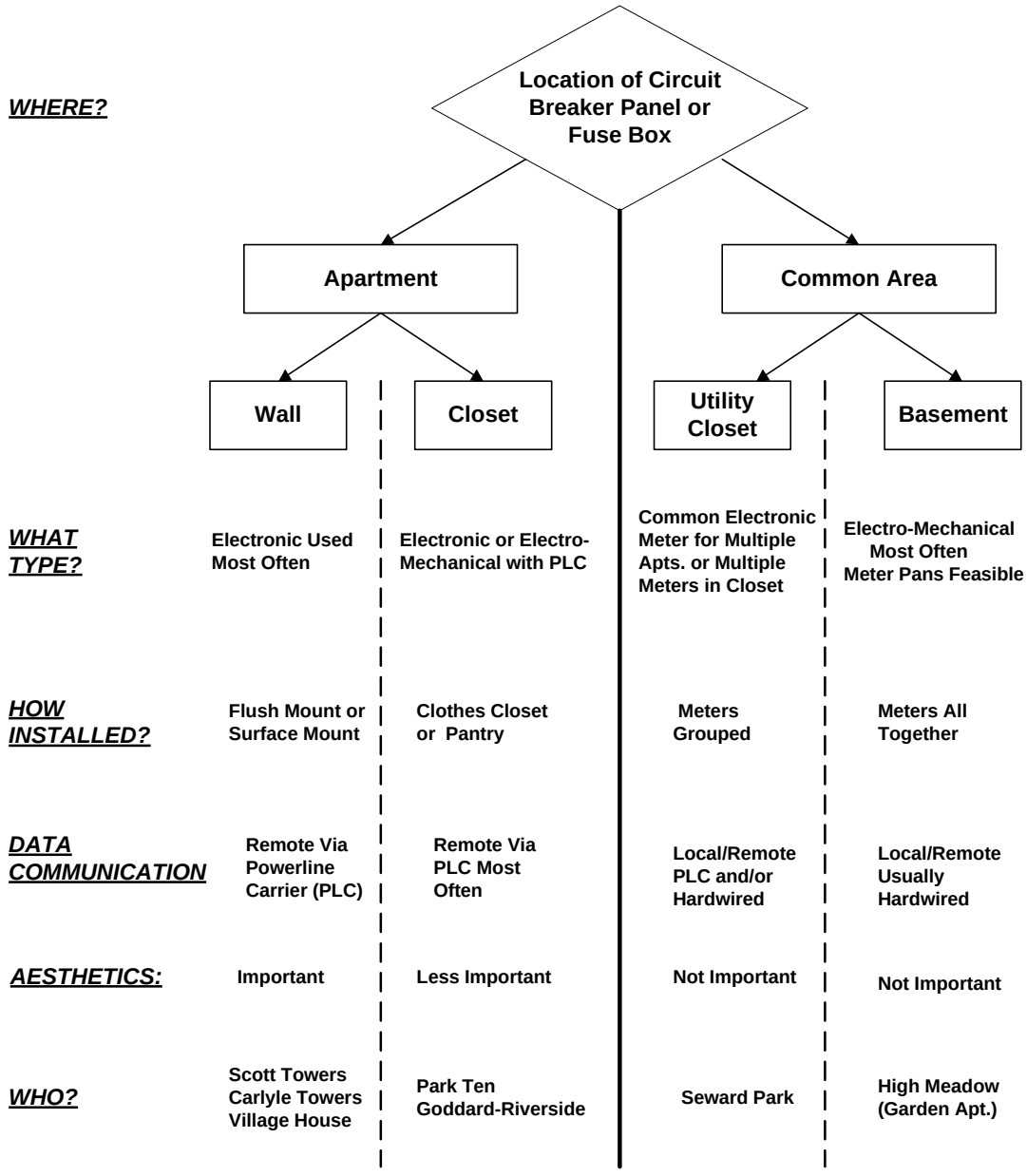
Apartment meters are almost always installed near a dedicated apartment circuit-breaker panel or fuse box, either on the same wall as the circuit-breaker panel or fuse box or in a closet that shares that wall.

Figure 2 illustrates the decision-making process involved in determining where the meters are to be installed.

16. What type of submeter is most commonly installed inside an apartment and why?

In the majority of buildings surveyed during the most recent New York State retrofits, the only dedicated apartment circuit-breaker panel (or fuse box) locations were inside apartments. Because this was the only location where all the electricity consumed by the apartment could be measured, the meter had to be installed inside the apartment in the proximity of the circuit breaker panel (or fuse box). If the breaker panel or fuse box shares a wall with an apartment closet, either an electronic or electromechanical meter with PLC or wireless (see Question 19) communications can be installed inside the closet subject to applicable local building department approval. This type of installation addresses apartment aesthetic requirements and also facilitates meter reading without requiring apartment entry. Without access to an available closet, the most typical installation is an electronic meter that is flush-mounted in the wall (wall construction permitting) adjacent to the apartment breaker panel (or fuse box).

Figure 2
SUBMETER INSTALLATION:
WHERE, WHAT AND HOW



17. What type of submeter is most commonly installed outside an apartment and why?

In many buildings recently surveyed, the dedicated apartment circuit breakers (or fuses) were located either in electric closets, usually located in hallways, or in electric rooms, usually located in the basement. It is preferable to locate the meters outside apartments, if possible, either in electric closets or electric rooms because these installations tend to be less expensive, easier to accomplish, offer virtually no interaction with the building residents, and present no aesthetic problems or other concerns. The simplest installation is an electromechanical meter in an existing or modified meter pan. Any type of metering (electromechanical, electronic, combination, or multiple) can also be installed in these common areas. If the closets are distributed throughout the building, PLC or wireless (see Question 19) can be incorporated with the selected meter type for data collection. If all the meter pans or breaker panels are in an electric room confined to one or two locations, PLC and wireless may not be warranted. To facilitate automatic meter reading and off-site billing, all meters should be equipped with electronic or radio-frequency communications.

18. How are the meters read?

Both electronic and electromechanical (when equipped with an electronic interface) meters can be read remotely, either through dedicated wiring , PLC or wireless, each with modem capability for off-site access. Manual reading is practical only when the meters are in an accessible common area. This option may be more costly in the long run (time-consuming readings) and may be prone to human error.

19. What are powerline carrier (plc) and wireless data communications and how are they useful for electrical submetering?

PLC uses existing building wiring for data communications between apartment meters and the building central station microprocessor/computer. PLC eliminates the need for expensive building rewiring and addresses aesthetic concerns, as well. Wireless data communications uses radio frequencies to communicate over short distances within a building. Data can be transmitted from each apartment meter (or other devices, such as temperature sensors) to as many data collectors as required to ensure reliable coverage, such as on each floor, or to a central building collector. A combination of wireless to/from each apartment to local wireless data collectors and PLC from these “regional” data collectors to a central building complex collector is also typical for larger building complexes. Each meter would need to be installed with either PLC or wireless transmitters (one-way) or transceivers (two-way).

IV. SUBMETERING IMPLEMENTATION COST FACTORS

20. What factors affect submetering implementation costs?

The basic factors to be considered are: (a) the type of meter; (b) the installation cost, including data communications (if applicable), which can vary based on meter location; (c) the warranty and service costs to maintain the meter; and (d) the administrative costs of reading the meter and billing the electric charges.

The type of meter selected is largely determined by the meter location. The installation cost is largely determined by the location of the meter, building electrical characteristics, and the type of meter selected. The warranty cost is usually determined by the type of meter selected (i.e., electromechanical meters tend to offer longer equipment warranties than electronic meters). The meter-reading and bill-rendering costs are determined by a combination of factors that include the type of meter, the location of the meter, the availability of remote meter-reading capability, and the marketing strategy of the equipment provider (i.e., some companies will reduce the equipment and installation costs and extend the installation's warranty in exchange for a contract to provide meter reading and bill rendering for a specified period of time).

21. How does the meter location affect the equipment and installation costs?

Meter installations inside apartments tend to be more costly than those installed in a building's common areas (basement or electric rooms). The time it takes to install a meter in an apartment is greater for a number of reasons. Meters and installation equipment and tools must be brought to each apartment. Access to the apartment must be obtained by management. The installers must work neatly and efficiently and must clean up after the installation is complete. Sometimes, the resident is at home during the installation and may engage the installer in conversation, further delaying the process. Generally, flush-mounted installations, preferred to surface-mount installations (less visible), are more costly because a hole must be cut in the wall to insert the meter. Sheetrock walls present less of a problem than plaster walls.

Installations outside the apartment, in common areas such as the basement or hallway utility rooms, are easier because they eliminate many of these problems. Aesthetics are less of an issue and a meter-communication system may not be necessary. In some cases, common area installations can enable the use of a multiple apartment meter, either in a basement common area or closet, that can separately store several apartments' readings within one meter device.

22. How significant are equipment warranty costs?

Warranties for submetering equipment can be the hidden cost in the implementation process. When evaluating equipment vendors' proposals for warranties, a life-cycle or present-value analysis for a minimum of 10 years should be conducted. Some equipment vendors offer only a one-year warranty. The cost in present-value dollars to extend this warranty an additional 10 years can turn out to be significant. It is not uncommon to find that equipment that appears to be less expensive in the short run actually will be more expensive when examined in the light of a 10-year warranty.

23. Do equipment vendors offer all types of meters?

No. Some vendors specialize in either electromechanical or electronic meters. Others offer a selection of electromechanical meters (with or without the option of connecting to a PLC), electronic meters that measure consumption in multiple apartments, and electronic meters that measure a single apartment's

consumption (some with wireless). Buyers should examine the pros and cons of the different types of meters as they relate to the building's needs. A feasibility study is an excellent means of effectively evaluating which meter and installation method is most suitable for the building's configuration. Price should never be the sole deciding factor. The installation of inappropriate equipment can result in hidden costs and increase complications associated with operating the submetering system.

24. What factors affect meter reading costs?

Meter location largely dictates meter-reading costs. Apartment meters are typically read using a PLC system, which enables the meter data to be transmitted through existing building wiring and eliminates the need to obtain apartment access each time the meter must be read. Wireless communications are also being offered. While hard-wired communications between the meter and the central data collector is an option, the installation is more costly, so it is considered only when PLC and/or wireless is not viable. If meters are installed in common areas, wiring may be less costly, especially if the meters are grouped together in a basement area. In any common area installation, data communications such as PLC or wireless may not be necessary at all, if the building elects to read the meters manually. However, this will not necessarily save costs, especially if an outside vendor is used.

The degree of detail associated with billing will also affect meter-reading costs. For example, if individual bills must be rendered, as opposed to a master report for adding to existing rent or maintenance bills, costs will increase. Administrative costs for billing are typically passed on to residents, including conversion of the consumption data to dollars and cents.

25. What are the approximate costs to implement submetering?

Cost items include the submetering equipment, equipment installation, extended warranty costs, and meter-reading/bill-rendering charges.

The cost of equipment and installation will be largely influenced by the building's characteristics (location of circuit breakers, wall construction, availability of space for installation, etc.) and building requirements (i.e., aesthetics, level of meter-reading automation). The warranty cost will be largely influenced by the type of metering and data communications configuration selected. Electromechanical meters generally offer longer extended warranties at no additional cost.

The estimated range of costs (equipment plus installation, including warranty) for specific types of metering configurations are as follows:

Electronic apartment wall-mounted: For flush-mounted, add $20-50/apt.	$350-550/apt.
Electronic or electromechanical apartment closet-mounted:	$400-600/apt.
Electromechanical common area closet: Combination meter for remote reading capability add $100-200/apt.	$150-250/apt.
Electromechanical common area basement: Combination meter for remote reading capability add $100-200/apt.	$125-225/apt.

Multiple electronic common area location: $200-300/apt.
Remote reading capability included.

The owner may authorize a consulting engineer's services, including preparation of the feasibility study, overseeing the equipment installation, conducting/witnessing submetering system verification and remote monitoring for a 30-to-90-day period. Fees for this service will vary depending on site specifics and the experience and credentials of the consulting engineer.

Estimates for meter-reading/bill-rendering range from $2-4/apt./month depending on whether remote-reading capability exists and whether individual bills for each apartment must be rendered.

26. What are some key issues involved in selecting equipment and installation vendors?

Vendors should be prepared to provide references and cite specific experience, preferably locally (within New York City or State), and specify what warranty conditions they are prepared to offer. The issues of vendor stability and support, and the track record of equipment, installation, and meter-reading vendors (if applicable) are important. Ideally, the consulting engineer should have some experience with the vendor(s) and be able to offer opinions on the vendor's strengths and weaknesses for the type of installation planned.

When negotiating contracts with submetering installers, building management should ensure the following issues are included in the contract, clearly defined, and understood:

- Who will guarantee the equipment?
- Guarantee against faulty work by installers.
- Length of warranty for all components, including hardware and software.
- Warranty of software, which should address how long support will be provided and what happens if the company can no longer support the software. (Access to original software code is an important feature in case the vendor cannot support it, for any reason, so that another vendor can take over.)
- What recourse will the owner have if the vendor goes out of business?
- Detail on what equipment and software will be installed
- Schedule and proposed order of installations, including assumptions and contingencies for access constraints.
- Number of meter tests included in the contract and price for additional tests.

V. ASSESSING ECONOMIC POTENTIAL FOR SUBMETERING

27. What are the issues involved in assessing the economic potential of submetering?

Generally, the owner should consider all the information available, specifically addressing the following issues:

- What will it cost to implement submetering?
- What are the overall economic benefits?
- What are the costs and benefits specific to the residents and the owner?

These issues may require an evaluation by a qualified consultant or consulting engineer, especially if no in-house building experience exists, which is typically the case. This consultant or consulting engineer's expertise should include a high level of knowledge of submetering systems and project economic analysis techniques, as well as some knowledge of multifamily building heating, ventilation, and air-conditioning systems and building codes. Experience communicating with and obtaining approvals from regulatory and supervisory agencies, such as the PSC and various housing agencies, is invaluable and even critical, particularly if the building includes rental units. The consultant or consulting engineer should be able to prepare an economic feasibility study, as described in this manual, that addresses the first two items above, as well as an assessment of the third, taking into account legal and regulatory constraints and rules. Experience with equipment vendors and installers is also important.

28. What is an economic feasibility study?

As it relates to submetering implementation, an economic feasibility study is a technical and economic assessment of the overall costs, benefits, payback, and issues involved in submetering a specific site. As part of the Con Edison Residential Submetering Program study from 1991-94 (cosponsored by NYSERDA), a format for an economic feasibility study was developed and used for nearly 100 buildings evaluated during that study. This format, primarily intended to screen buildings for overall economic submetering potential, is the basis for the economic feasibility analysis described in this manual (see Questions 29 and 30, and the diskette provided with this manual).

Items addressed in this submetering economic feasibility study include: equipment and installation costs, estimated savings (in terms of kilowatt-hours, kilowatt demand, and dollars), logistics, common area vs. apartment area electric use breakdown, fuels for main systems (heating, cooling, water heating), prospective location of meters, base load vs. heating (if applicable) and cooling loads, and mitigating factors (e.g., apartment leases, until renewed, may preclude separate electric billing).

29. How do you conduct an economic feasibility study?

According to the model and procedures established in the Con Edison/NYSERDA Residential Submetering Program, the following six steps should be taken in a submetering economic feasibility study:

1. Conduct site visit The site visit is performed to: (a) establish the number, type, and location of meters required; (b) identify building heating, cooling, and electrical systems; (c) estimate the number and capacity of individual apartment and common area air-conditioning and heating units; and (d) evaluate the physical characteristics of the building that may affect the submetering system installation.

   Observations during the site visit will be used to estimate apartment/common area electric usage

ratios. This calculation is important because submetering savings occur only in the apartment sector of the building as a result of voluntary reduction of electric usage by apartment residents. It should be noted, however, that owners and managers of buildings that implement submetering tend to conserve in the common areas as well by using more efficient equipment and adjusting equipment operating schedules.

2. Obtain utility billing history The most recent 24 months of utility billing history should be obtained should to determine the consumption (kWh), demand (kW), and cost ($) for electricity for the building. These data will also be used to examine usage patterns that may be helpful in the analysis.

3. Make estimates and key assumptions Because submetering savings occur in the apartments only, it is essential to accurately estimate components of the building's electricity usage. The ratio of apartment/common area base load (non-cooling/heating), cooling load, and electric heating load (if applicable) must be estimated based on the observations made during the site visit, coupled with the examination of the billing history and the experience of the consultant preparing the study. Estimates of the potential energy savings achievable by the particular installation also must be made based on the site visit observations and past case study results for similar buildings. Buildings containing apartments with electric heating, air-conditioning, and significant base loads (lighting and other appliances) offer a greater savings potential than those containing lesser loads.

4. Estimate equipment, installation, and meter-reading costs A determination must be made as to the likely optimal location of the apartment meters and the data communications system (if desired), again based on the observations made during the site visit, particularly on the physical characteristics of the building. This will facilitate estimation of meter, installation, and meter-reading/billing costs. If cross-wiring problems are suspected, then estimates for appropriate testing and possible rewiring may be warranted. Should the building have non-standard requirements, cost for options to address these requirements will be included.

5. Identify mitigating factors It is generally assumed that apartment residents whose electric charges continue to be included in the rent and not based upon actual electric consumption will continue their usage pattern after a building is submetered. Accordingly, they are unlikely to contribute to the savings achieved by submetering. The number of apartments occupied by such residents should be identified and estimated savings adjusted to account for this factor. Within the Con Edison Economic Feasibility Study format, this is accomplished by assuming no savings for such rental apartments in the initial screening analysis.

6. Prepare Submetering Feasibility Report This may include running the feasibility study model developed for the Con Edison Residential Submetering Program (provided with this manual) and accompanying text (see Question 30).

30. Is there a computer model available to perform the feasibility calculations?

Yes. A LOTUS 1-2-3 spreadsheet is available with the Submetering Manual that provides a menu-driven process for inputting relevant data and printing out results of the feasibility analysis. Appendix C provides a set of instructions for running the model, along with a table of required inputs. It also provides a WordPerfect (V6.1 format) text file associated with the Feasibility Study Report format.

31. What are the inputs required to operate the feasibility study model?

Table 3 includes a complete list of data, estimates, assumptions and corresponding typical sources required to conduct a Feasibility Study analysis.

TABLE 3 - Feasibility Study Data Inputs

ITEM	DESCRIPTION	SOURCE
Monthly Utility Billing Data	Two years of monthly billing data (kWh, kW Peaks, Cost), which also produces average monthly and annual rate (¢/kWh).	Building utility billing records
Number of Apartments	Number of apartments, including rentals not yet subject to separate billing, will generally determine number of meters required, plus any common area meters projected.	Based on Site Visit and Building Management Data
Apartment vs. Common Area Base Load	Estimate of the split of non-cooling and non-electric heating building load attributable to apartment sector vs. common area sector	Based on Site Visit
Apartment vs. Common Area Heating / Cooling Load	Estimate of the split of cooling and electric heating building load attributable to apartment sector vs. common area sector	Based on Site Visit
Equipment and Installation Costs	Estimate of the costs for meters, installation and related costs. These will vary based on the type of meters and installation best suited to the specific building requirements. Incentives may also be available from NYSERDA or other sources.	Based on engineer estimate or vendor bids and site visit
Meter Reading Costs	Estimate for monthly costs for meter-reading and billing	Based on engineer estimate or vendor bids

32. What does an economic feasibility study report look like?

Appendix D provides a sample economic feasibility study report, reflecting, for the sake of illustration, a somewhat more complex set of factors than typically found in multifamily buildings.

In terms of overall economics, simple paybacks of under three years imply that submetering is an excellent overall investment, while a three-to-five-year payback implies that submetering is a good investment. A payback of five to seven years is considered a marginal investment and greater than seven years a poor investment. Simple payback is determined by dividing the total submetering implementation cost by the net annual savings obtained from submetering. Where investment is not necessarily economically beneficial, submetering may be warranted when considered strictly from the standpoint of fairness.

33. Are certain types of buildings better candidates for submetering from an economic standpoint?

Yes. Buildings that contain individual electric heating or electric air conditioners (i.e., air-cooled heat pumps, incremental units, window- or wall-sleeve-mounted air conditioners) in apartments are generally the best candidates for submetering from an economic standpoint. Table 4 illustrates this, with Park Ten a prime example of an all-electric building (apartment electric heating and cooling) with higher savings potential. Buildings with apartment air-conditioning units also are good economic candidates for submetering, with High Meadow Coop a prime example of this type of building. Buildings that are centrally heated and air-conditioned have the lowest potential for submetering, because their apartments have little discretionary cooling and heating load, except for fan coils. Village House is a typical example of this type of building.

The higher the total building electric usage that is under the control and at the discretion of the residents,

the greater the capacity for residents to reduce usage.

Buildings that have existing meter pans or provision for meter placement in common areas of the building (basement or hallway electric rooms) are better candidates than buildings where meters must be placed inside apartments.

TABLE 4 - Submetering Savings from Selected Con Edison Program Buildings

Building/Type	Installation Date	Year Analyzed	kWh % Savings	kW% Savings	$ Cost Savings
Park Ten All-electric	1993	1995	17%	9%	17%
High Meadow Apartment A/C	1994	1995	14%	14%	14%
Village House Central A/C	1993	1996	10%	11%	10%

34. What are the economic feasibility issues related to savings realized by owners and residents?

While the prior discussions addressed the overall economic feasibility of submetering, submetering must also be evaluated on the basis of owner- and resident-specific economic feasibility. A successful result from the economic feasibility study described above represents a necessary condition for further evaluating submetering, at least in terms of economic viability. An acceptable payback in this first stage will mean that sufficient overall benefits are available to warrant submetering. The next stage is to determine how these costs and benefits can be allocated to ensure that both owners and residents benefit from submetering.

Typically, owners incur the costs of submetering implementation, while residents, who are now being billed for their electric usage, realize the benefits. In the case of cooperatives and condominiums, electric charges are transferred from common charges allocated to residents to resident-specific charges. In this situation, however, the "owners" are also the residents, for the purposes of allocating costs and benefits.

For rental properties, however, the owners must have a means to recover the costs of submetering implementation. If these costs cannot be passed on to residents due to legal, logistic, or regulatory constraints, then the owners will have no incentive to incur the costs associated with submetering. The owners may be able to recover some costs through utility or other incentives, tax abatements, or approved major capital improvements (MCI - see Question 60) that can be passed on to rental tenants under rent regulation rules.

Therefore, in some cases where submetering is economically feasible overall, it is possible, particularly for rental properties, that the costs and benefits cannot be allocated in a way that provides sufficient incentive for both owners and residents to support submetering. These issues are addressed later in the manual under the Legal and Regulatory Section (see Questions 50-66).

VI. RESIDENTIAL IMPLEMENTATION ISSUES

35. What, if any, key decisions will an owner have to make that will directly affect residents?

The first decision is to determine where to locate the submeters. If the building can accommodate submeters in the common areas, installation will have no direct effect on residents. If the submeters are to be installed in apartments, the owner has several decisions to make. Because the submeter must be installed close to the dedicated circuit-breaker panel or fuse box, the installer must inspect at least one apartment in each line to ensure that the owner can discuss all major variations prior to start of work. Any variations in particular apartments can then be pointed out as well.

Installation cost depends on ease of access to the circuit-breaker panel or fuse box. The owner must decide whether to flush- or surface-mount the submeter and whether electronic (generally smaller) or electromechanical (generally larger) submeters are to be used. If the wall on which the circuit-breaker panel or fuse box is mounted backs up on a closet or pantry, the owner must decide whether it is more desirable (for aesthetic purposes) to "hide" the meter in the closet or pantry, rather than expose it to, in many cases, a foyer or living room wall. The owner must determine whether residents would prefer to trade meter exposure for a few inches of closet space and whether to offer the option at all.

36. How will submetering installation affect apartment residents?

If the meters are to be installed in apartments, there will be some inconvenience. Residents will be asked to grant access to the installers for a one- to three-hour period to complete the installation. If the meters are to be installed in a closet, they will be asked to remove their clothing or other items to provide access for the installers. For residents who require assistance because of physical constraints, management should make arrangements to assist in the closet preparation. Further, a short (several minutes) interruption in the power to the apartment circuits may be necessary, depending on the installation method. Some appliances and electronic equipment may be affected by the loss of power or the initial surge of restored power. Residents should be advised to disconnect such items during the installation process.

37. How can the installations be scheduled with minimal inconvenience to the residents?

Management must establish an installation schedule with the installers to avoid resident confusion and to expedite the installation. Generally, the installation would commence at the top floor of the building and the installers would work down to the lobby. An early notice should be sent to all residents advising them that the installation will be upcoming and that they will receive a fixed appointment date. If submeters are to be installed in a closet, the notice should advise the residents of their need to empty the closet prior to the appointment date. Subsequently, a notice should be sent to the residents advising them of their particular appointment and stressing the fact that these dates cannot be changed because of the nature of the floor-by-floor installation. However, management should try to accommodate reasonable requests for special arrangements due to resident work schedules, etc.

38. Must a resident be present when the installation is performed?

If possible, the resident should be home during installation for security reasons. The notice to the residents should state that management prefers that the resident remain at home during the installation or designate a responsible adult (relative, friend) who will admit the installers. In those instances when such arrangements cannot be made and the resident cannot be present but consents to the installation in his/her absence, the installers should be accompanied by a representative of management or building staff.

39. May the resident change the date of installation?

Barring an emergency of major proportions, installations should proceed according to the installers' schedule. When equipment vendors quote a project, including installation, the price negotiated is contingent upon the installer's ability to obtain reasonable access to the apartments. The installers bring the meters in advance to the floor on which they plan to work. If an installer has to send the crew from the 20th floor to the 2nd floor, and then to the 15th floor and up again, including carrying the meters to the new locations, the delay can increase the cost of the job. Of course, a vendor should accommodate management's request for a variance from the established schedule in cases of dire necessity. This matter should be resolved before the contract is executed.

40. What happens if a resident does not permit the installers to enter his or her apartment?

There is no simple answer to this question, but, fortunately, the situation rarely occurs. Most leases contain language that permits the "landlord" or the "landlord's agent" to be admitted to an apartment to make repairs, alterations, improvements, or additions in any part of the apartment. Owners should seek advice from an attorney regarding this matter. The likelihood is that owners have had to deal with this issue in a number of other instances (e.g., toilet replacement) and have established procedures for addressing it. In the case of government-aided buildings, management may seek assistance from the supervising agency. If building policy permits and the resident is persistent in his/her lack of cooperation, it would be reasonable to charge the resident for any related additional costs.

41. How large are submeters?

Electronic meters vary in size and configuration, ranging from approximately 3" x 4" x 9" to approximately 6" x 4" x 10". Electromechanical meters fit inside a space of approximately 6" x 8" x 10".

42. What happens if the installation needs to be customized?

Generally, the installing contractor quotes a price per apartment based on a standard installation. If necessary, provision can be made for the contractor to be paid an additional fee to cover incremental costs associated with additional work required for custom installations, such as special wall or customized closet situations. This matter should be resolved during negotiation of the overall contract. If the number of customized installations is relatively few, the installer should perform this work at little or no additional cost. If customized installations exceed a designated number, a per-apartment price for the extra labor should be written into the contract. In any event, the owner should try to accommodate residents' needs.

43. Does a submeter give off enough heat for residents to be concerned about hanging clothes or placing boxes or other paper items near it?

The amount of heat generated by an electronic or electromechanical meter is not significant (i.e., much less than a 60-watt light bulb). Residents commonly install larger-capacity light bulbs inside clothes closets without concern about safety. Common sense rules here. Some areas may require approval of the local building department to install submetering equipment inside an apartment closet. In New York City, approval (i.e., a waiver) by the Advisory Board (of the Department of Buildings) is required. The installing contractor or equipment vendor can apply for such a waiver. In recent installations, approval was granted for closet installations.

44. How can the apartment resident be assured the submeter is accurate?

Submetering equipment must adhere to standards ANSI-C12.1-1988 or ANSI-C12.16-1991 to be recognized by utilities such as Con Edison or by New York State agencies such as DHCR. Random accuracy testing after the meter is installed, as part of the system verification process, is recommended and was required by

Con Edison as part of its incentive program. Usually, testing is conducted by the contractor under the supervision of the building consultant, management, or a utility representative.

45. What if the resident believes the submeter is inaccurate?

A resident may request that his or her meter be tested to determine its accuracy. Because of the shift in responsibility for electric costs, residents may be concerned that their meters are not precise and that, as a result, they may be over-billed. It is common practice to include in the contract a certain number of these tests to be performed by the installer at no additional cost. Standard practice in the Con Edison Residential Submetering Program was to test up to 5% (not to exceed 30 units) of the apartment submeters for compliance with ANSI-C12.1 accuracy requirements. Generally, after the first few months of submetering, most residents accept the submeter readings and billings without further complaint. In the event a resident continues to complain even after testing and confirmation of the meter's accuracy, the resident should be obligated to assume the financial burden of any further testing. Obviously, if the meter is found to be inaccurate, the meter should be re-calibrated or, if necessary, replaced, and the cost should be borne by the building or vendor, depending on warranty contract provisions.

46. What does the submeter measure?

The submeter measures the electricity consumed within the apartment. The meter is connected to the circuit breaker or fuse box, which is the single location through which all electricity flows to the apartment.

47. What happens if the apartment resident refuses to have the submeter installed?

Depending on the particular building's rules, the owner, as an interim measure, may charge the resident for the maximum amount of electricity consumed by same-sized apartments each billing period. This approach tends to accelerate the process of reconciliation between the owner and the resident. The building attorney should be consulted on this matter.

48. How can residents be sure that they are paying only for their own apartment's electricity?

Initially, all electrical appliances are turned off in the apartment to determine if the apartment meter will record "zero" consumption during a short time period. If the consumption is "zero," it is reasonable to conclude that the meter is only monitoring the electric usage in that particular apartment. However, if the submeter detects some consumption, then "cross-wiring" may be suspected. Cross-wiring is where two apartments, usually adjacent, share a common branch circuit, so some electricity measured by one apartment is actually consumed by the other. In some older buildings, a certain amount of "cross-wiring" may exist. If this rare situation occurs, it can be readily corrected. The electrical contractor can perform continuity testing or use other means to identify the problem. In most cases, some re-wiring can correct the situation.

49. Because one of the primary goals of submetering is "fairness" to all residents, what happens when a particular apartment (because of its location, structural condition, etc.) requires additional heating or air conditioning to make it comfortable for the resident?

In cases where an apartment is adjacent to a heated main steam riser and requires additional, and occasionally year-round, air-conditioning, a monthly allowance against the submetering bill may be offered to offset the additional expense. There may be other situations where increased usage is not the resident's responsibility; however, these cases are rare and can typically be resolved between the owner and the resident.

VII. LEGAL AND REGULATORY ISSUES

50. What is the approval process for rental properties?

Rental property owners seeking to submeter their master-metered buildings must obtain explicit approval from the PSC, a New York State agency responsible for regulating utilities and utility charges. Under PSC regulations, electric utilities may permit submetering in master-metered rental buildings provided an application is made to and approved by the PSC. This application requires a significant amount of information on the building. Typically, a consulting engineer is retained to assemble the required information and prepare the application to the PSC.

Upon receipt and processing of the application (which may take six weeks or more), the PSC must (in accordance with the State Administrative Procedures Act, SAPA) publish a notice in the New York State Register for a minimum of 45 days to provide interested parties with notice and an opportunity to comment. Assuming there are no problems with the application, the PSC staff person processing the application will prepare a memo to the Commission and place the matter on the agenda for Commission review and approval..[1] Because the Commission meets twice monthly, the matter may not be actually voted on and approved until two or three months after expiration of the SAPA notice date. Because PSC approval is not required for non-rental properties, the process for rental properties is much more time-consuming than for cooperatives and condominiums.

51. What must a rental property submetering application to the PSC include?

The following items must be included with a rental property PSC application:

1. A statement substantiating the economic advantages of submetering over direct utility metering;[2]

2. A description of the type of submetering system to be installed and a validation of its reliability and accuracy.

3. The method and basis for calculating rates to tenants that includes a maximum rate provision (rate cap) preventing charges to tenants from exceeding the utility's tariffed residential rate for direct metered service to such tenants.

4. Complaint procedures and tenant protections consistent with the Home Energy Fair Practices Act (i.e., HEFPA) (Public Service Law, §§ 31-50; 16 NYCRR Parts 11 and 12); Appendix E gives acceptable examples for meeting this requirement.

5. A procedure for notifying all tenants of the submetering proposal in writing. The notification must include a summary of the information provided to the commission under items 1 through 4 above and an invitation to comment to the Commission. The notification must prominently display the address and telephone number of the nearest Commission Consumer Services Division office.

6. A demonstration that an enforcement mechanism is available to tenants to ensure their legal rights

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[1] A source for examples of PSC staff memos to the Commission is listed in Appendix G.

[2] This can be accomplished by having the utility prepare sample bills for the building under both the direct-metered (retail) rates and the rate for master-metered submetered buildings.

are protected.

7. Certification that the method of rate calculation, the rate cap, complaint procedures, tenant protections, and the enforcement mechanism will be incorporated in plain language into all leases governing submetered premises.

8. A description of an appropriate rent-reduction formula that accurately reflects the applicant's overall reduction in total electric costs resulting from conversion to submetering (see Question 62).

52. What is the submetering approval process for cooperatives or condominiums?

Cooperatives and condominiums must implement submetering in accordance with requirements stipulated by the PSC and be able to certify to the utility that they have conformed to those requirements. The time period for this largely depends on how long it takes for the coop/condo to obtain the required vote and then prepare the certifications that are submitted to the utility. During the Residential Submetering Program in 1991-94, Con Edison developed certification letters and forms that can be used for this purpose. A modified version of the letter and forms is provided in Appendix F. The sample letter can be used for either cooperative or condominium properties. Certificate "A" applies to cooperatives, while Certificate "B" applies to condominiums. The owner/board of the building must complete the forms, checking in Item 2 on the certificates whether all residents were owners/shareholders and, if not, providing the number of apartments of each type, as indicated.

In residential cooperatives where all residents are shareholders or in condominiums where all residents are unit-owners, conversion to submetering is permitted without a PSC application under the following conditions:

1. The prospective submeterer must certify to the utility that a majority of the shareholders (coops) or unit-owners (condos) participating in a canvass, conducted upon adequate written notice to all, voted in favor of the submetering proposal.

2. The prospective submeterer must certify to the utility that the approved submetering proposal includes a rate cap at the utility's tariffed rate for directly metered service to the residents, and grievance procedures as provided in paragraphs (3) and (4) above (see also Questions 55 and 56) for rental apartments, provided, however, that any excess revenues resulting from charges to residents that exceed the utility's billings to the submeterer are to be used for energy conservation.

The requirement for grievance procedures consistent with the Home Energy Fair Practices Act can be satisfied with grievance procedures similar to those set forth in Appendix E of this manual.

53. What is the voting requirement for submetering cooperative or condominium properties?

The voting requirement for cooperatives and condominiums specifies approval of submetering by "a majority of the shareholders (coops) or unit-owners (condos) participating in a canvass, conducted upon adequate written notice to all shareholders, voting in favor of the submetering proposal." This represents a recent (1996) change by the PSC (the vote previously required a majority of all shareholders/unit-owners in the cooperative/condominium). While each shareholder/unit-owner must be afforded an opportunity to cast a vote, only those casting a vote will be considered in determining whether approval is granted. The vote may be taken in conjunction with other cooperative and condominium business, such as board of

directors/board of managers membership, or as a separate canvass. (It should be noted that regulations require that buildings seeking to convert from direct metering to submetering must obtain the approval of 70% of the shareholders/unit-owners voting.)

54. What government approvals are required for a cooperative to submeter where not all residents are shareholders?

In cooperatives where not all residents are shareholders, conversion to submetering is permitted if:

1. The prospective submeterer certifies to the utility that all non-shareholder residents have approved a plan that includes a rate cap at the utility's tariffed rate for directly metered service to the residents, and that a grievance procedure is provided. Excess revenues resulting from charges to residents that exceed the utility's billings to the submeterer are to be used for energy conservation.

2. Where one or more non-shareholder residents refuse to agree to the plan proposed by the submeterer, submetering of such residents will be permitted only upon approval by the PSC of an application by the submeterer that contains the same provisions as for rental properties (refer to items (1) through (7) above under Question 51 on the conversion of rental properties).

55. What are the required dispute resolution procedures for rental properties?

The PSC requirement for a dispute-resolution procedure for rentals goes beyond "consistency with the Home Energy Fair Practices Act" (HEFPA) (see also Questions 51 and 52). It also must include "tenant protections" consistent with HEFPA. At the time this manual is published, only a few rental properties (all recent) have converted from master-metering to submetering. In at least two cases (300 East 34th Street[3] and Waterside Plaza), the dispute-resolution procedure approved by the PSC was based on the format developed by the City of New York Department of Housing Preservation and Development (HPD), which is included in this manual as Appendix E, along with a recommended procedure for HUD and DHCR.

In the rent-regulated sector, the supervising agency, the New York State Division of Housing and Community Renewal (DHCR), has not, as yet, issued formal regulations establishing a grievance procedure. The required tenant protections presumably include:

- Restrictions on the right to terminate electric service.
- The obligation to negotiate deferred-payment agreements with those customers who do not pay in a timely manner for services provided.
- Special protections for the elderly, blind, and disabled; persons with medical emergencies; and persons receiving public assistance, supplemental security income benefits, or additional State payments.
- Third-party notification procedures.
- Certain requirements for the format of and information required in bills.

Rental owners seeking to convert to submetering should consult their own counsel with respect to these issues.

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3 The PSC Staff letter to the Commission recommending the approval of the included petition for submetering 300 East 34th Street, a rental property, can be obtained from the source listed in Appendix G. In this case, only fair-market rentals were to be billed for the submetered electricity. Rent-regulated apartments were to be billed only when the apartment was converted to a fair-market (non rent-regulated) rental.

56. What if a government-supervised cooperative or rental building already has developed dispute-resolution procedures?

The PSC will defer to regulations setting forth a dispute-resolution procedure for cooperatives under the supervision of government agencies, such as Mitchell-Lamas under the supervision of HPD and the DHCR and other cooperatives supervised by HUD. At the time this manual is published, only HPD has issued dispute-resolution regulations for submetering. The HPD regulations apply to both cooperatives and rental properties and include both rent-reduction and dispute-resolution rules. Applicants are advised to check with their supervising agency to determine whether dispute-resolution procedures have been adopted that can be included in the application to the PSC (for rentals). A sample dispute-resolution procedure is provided in Appendix E.

57. What legal options does a rental owner have to recover investments in submetering?

Rental owners may recover investments through pass-throughs to their rental tenants in several ways, including rates charged to rental tenants, major capital improvement (MCI) under DHCR rules, and J-51 tax abatements. Each of these recoupment mechanisms has specific rules and regulations that will be discussed in detail in the following pages under Questions 58 and 59 (for rate charges), 60 (for MCI), and 61 (for J-51).

58. What rate may an owner charge to residents under submetering?

PSC regulations cap submetered electricity charges residents are required to pay at the direct-metered rate of the utility supplying the building. An owner is permitted under submetering regulations to charge more than the master-metered rate (up to the direct-metered rate) to cover administrative costs if the excess is allocated to other energy conservation measures.

59. How can the owner of a rental property recover submetering installation costs through rates?

If the owner charges the submetered resident the direct-metered rate, from the average resident's point of view, the change from master-metering to submetering provides no financial benefit to them. On the other hand, if the owner charges only the master-metered rate, with only additional fees for administration, the owner cannot recover the initial submetering investment.

Under submetering regulations, an owner is permitted to charge more than the master-metered rate as long as the excess is allocated to conservation investments, which include recovery of the submetering equipment investment. From the owner's perspective, therefore, the submetering investment can be recovered from the difference between the master-metered rate, which the owner continues to pay to the utility, and the rate charged to individual residents for electricity use in their apartments.

For utilities, the difference between the master- and direct-metered rate schedules reflects the utility's administrative expense of purchasing, installing, and reading meters; billing customers; resolving customer complaints; and providing other services. Utilities do not provide these services to individual apartment residents in master-metered buildings. Building owners may be more efficient than the utility in providing some of these services once apartment residents are metered. The addition of submetered electric charges to a monthly rent bill results in little additional administrative expense. For example, acting on resident complaints is already included in the services provided by building management, although submetering may presumably increase the number of complaints, at least initially. As a result, the incremental administrative cost of implementing submetering may be minimal compared to the difference between the master-metered and direct-metered rate and should be easily absorbed by the owner within the allowable

rate differential.

Some owners may elect to offer the submetered electricity at less than the direct-metered rate to induce residents to approve the conversion from master-metering to submetering or to reduce the rate to residents from the direct-metered rate to a lower rate after the costs of installing the submetering system have been recovered from electric charges collected.

60. Are major capital improvement rent increases available for submetering installations?

Submetering by itself does not constitute a major capital improvement (MCI) under existing DHCR rules, although to further improve the economics of submetering and provide a greater incentive for building owners to submeter, DHCR has agreed to reevaluate this ruling in response to a request by NYSERDA. This issue is being considered as this manual is being revised and clarification shall be available from either DHCR or NYSERDA within the near future.

An MCI is defined as a property improvement investment by landlords that is considered 100% recoverable through rent via a standard formula. DHCR considered submetering a procedure that, while perhaps desirable for the general public policy aim of reducing energy consumption, was not necessarily an improvement to a housing accommodation, required for an MCI. In 1992, DHCR issued an Advisory Opinion in which it stated that the cost of submetering does not qualify as an MCI because submetering does not directly benefit tenants.

If the submetering conversion is done in conjunction with rewiring the building or another improvement that qualifies as an MCI, the owner may be entitled to receive MCI benefits for the portion of costs not associated with submetering. For rewiring to qualify as an MCI under current rules, it must include new copper risers and feeders extending from the basement property box to every apartment and must be of sufficient capacity (220 volts) to accommodate the installation of air-conditioner circuits in a living room or bedroom.[4]

In cases of conversions to direct metering in conjunction with rewiring, DHCR typically invoked the "70/30" rule, designed for conversion from electrical inclusion to direct metering, to applications for MCI. This rule states that only 30% of the combined rewiring and metering costs could be recovered as an MCI, while 100% of the cost of rewiring could be recovered if not accompanied by metering. This allocation was based on the assumption that metering would require running new lines to each apartment, an expense no longer required with today's technology, specifically with PLC and wireless data communications (see Question 19).

In its 1992 Advisory Opinion, however, DHCR indicated that the "70/30" rule applicable to a switch-over to direct metering is not applicable to a switch-over to submetering. Thus, if the MCI application is approved, the owner will be entitled to a rent increase based on 100% of the approved costs directly associated with the rewiring, excluding the cost of submetering. The division of costs between submetering and rewiring alone would be based on actual expenditures rather than an assumed allocation (i.e., 30% /70%) between upgrading and submetering. DHCR has indicated a willingness to allow the owner to recoup administrative costs in the rent as well, but has also indicated an intent to carefully scrutinize the charges ascribed to these costs to ensure they are reasonable.

[4] For a description of other work that qualifies as an MCI see 9 NYCRR §2522.4(3)(f)

61. Is J-51 tax abatement/exemption available for submetering?

Submetering of master metered buildings have been eligible for J-51 tax abatement/exemptions for several years. During 2001, the New York City Council conducted hearings to evaluate issuing the same J-51 tax abatement/exemption for submetering of directly metered buildings, in order to further encourage the adoption of advanced metering as sponsored under NYSERDA's Residential Customized Energy Management (CEM) Program. This measure was approved by the Council, reaffirmed by the Mayor of New York City, adopted by HPD and is now law. Under these new regulations, building-wide submetering of apartments in either master-metered or directly-metered buildings will be eligible for J-51 benefits if the apartments have adequate wiring consistent with J-51 standards. Buildings containing rent-regulated tenants also must demonstrate that rents have been reduced. Thus, owners otherwise eligible for J-51 benefits can receive those benefits for a submetering conversion.

62. In rent-regulated properties, how is rent adjusted to reflect the tenant's responsibility for paying electrical charges for the apartment?

Rent control and rent stabilization both inside and outside New York City treat a change from electric rent inclusion to individual metering (whether direct or submetered) as a reduction in essential or required services. As a result, an application must be made to DHCR for approval of a conversion.

As long ago as 1968, the rent-control authorities issued guidelines for converting from master-metering to direct metering, setting forth a procedure for calculating the rent-reduction requirement to be passed through to the rental tenants. To date, DHCR has not promulgated specific regulations for converting from master-metering to submetering in rent-regulated housing.

DHCR Fact Sheet 29 discusses converting from master-metering to individual metering (also applicable to submetering) and provides a guideline for the procedure to be followed. The owner must submit to DHCR an "Owner's Application For Termination Of Rent Inclusion Of Electric Current." If permission is granted, the owner may proceed to convert to submetering. The new rent would be determined by the following procedure::

> The rent-reduction procedures for all systems of regulation are similar except that the rent-stabilized rents in New York City and Emergency Tenant Protection Act (ETPA) rents outside New York City are subject to an extra adjustment. First, for rent-stabilized and ETPA apartments, prior rent guideline adjustments for electric inclusion are removed. A second reduction is then made based on usage. In rent-controlled apartments, the rent is adjusted based on usage only.
>
> The reduction based on usage is calculated in two stages. Stage 1 covers the first year of submetering. During that first year, rents are temporarily reduced by set amounts. Prior to 2001, the reductions were based on a schedule published in DHCR Operational Bulletin 96-2, which, for New York City, were:
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> $31 per month for each studio apartment
> $35 per month for each 1-bedroom apartment
> $41 per month for each 2-bedroom apartment
> $46 per month for each 3-bedroom apartment
> $49 per month for each 4-bedroom or more apartments

The schedule varies for other jurisdictions within New York State. The owner is required to file a Stage 2 application one year after the conversion including information on the reduction in usage during the year and the cost of electricity to the owner. The rents are permanently reduced by the owner's monthly savings due to the building's conversion. The owner's monthly saving due to submetering is determined by a formula based on the pre- and post-conversion cost of electricity, energy conservation, and the differing electrical rate structures. This second adjustment may result in an increase or decrease from the temporary Stage 2 level established for the first post-conversion year.

During 2001, the New York State Supreme Court invalidated Operational Bulletin #96-2, stating that new rent reductions had to be devised by DHCR, as the rent reductions numbers listed above no longer reflect current energy costs. At the time that this manual is undergoing revision, DHCR is in the process of developing this new schedule of rent reduction amounts. Until such time that a revised schedule is developed, submetering of rent-stabilized buildings can only proceed at the owners' risk, as the newly developed rent reductions may not provide the economics that the owners sought at the time that they elected to implement submetering. Building owners/management should check with their supervising housing agency and/or DHCR Office of Rent Administration at their Rent Infoline at the Queens Central Office (718-739-6400) or NYSERDA for current regulations in effect.

63. What are the rules governing submetering in supervised housing?

Each type of supervised housing may have its own specific set of rules and procedures governing submetering conversions. Only HPD has formally published specific rules governing submetering. Research has failed to disclose any comparable published regulations governing conversion to submetering in DHCR-supervised subsidized housing under either the Private Housing Finance Law or the Public Housing Law. It is clear, however, that DHCR approval is required both to modify the rent schedule and to let a contract for installing submetering equipment.

HPD Submetering Rules. HPD has promulgated rules and regulations governing the City-aided limited-profit housing companies (those organized under Private Housing Finance Law, Article 2). Section 3-11 (b) of these rules and regulations governs submetering. These regulations provide that the consent of HPD must be obtained before a housing company can install submetering equipment. The regulations further provide that a housing company seeking to convert to submetering must comply with PSC

Plans and specifications for the submetering equipment must be submitted to HPD for approval and electrical design must be in accordance with the National Electrical Code and local ordinances and regulations of regulatory agencies with competent jurisdiction. The regulations set forth bidding requirements and grievance procedures.

With respect to eviction in HPD buildings, Section 3-11 (b) (4) (vi) provides that before a housing company can commence an eviction proceeding based solely upon non-payment of submetered electric charges, the housing company, through its attorney, must submit a verified petition to HPD setting forth the grounds for the occupancy agreement being terminated. A copy of the petition is to be served on the cooperative and a hearing with respect to the allegations set forth in the petition held by HPD. The hearing officer is to submit a written report of the findings to the Assistant Commissioner and the Assistant Commissioner thereafter advises the parties in writing whether the hearing officer's recommendations are accepted, modified, or rejected.

HPD has no comparable regulations under Articles 5, 8, or 11 of the Private Housing Finance Law.

64. How do the New York State Energy Conservation Construction Code and local building codes affect submetering implementation?

The New York State Energy Conservation Construction Code (NYSECCC) is applicable in all jurisdictions of the State. Local codes also may be involved. For example, in New York City, the New York City Electrical Code applies. The Code affects submetering in two ways:

1. Submetering in New Construction or Major Retrofits. Master-metering is banned in new construction. The State Energy Conservation Construction Code mandates that if more than 50% of a building's electrical system is being replaced, new construction requirements apply (i.e., the owner is required to individually meter, using utility-owned meters).[5] This Code addresses electrical metering in two sections:

   - 7813.52 (b) Electrical System. In all residential buildings, each dwelling unit will be provided with a separate electric meter.

   - 7810.16 (32) Electrical Meter. A mechanical/electrical device that can individually measure the electricity consumed by each dwelling unit and that is owned and operated by the electric utility.

   Although an acceptable electric meter is defined as "utility-owned and operated," if building management wanted to install submetering, it would apply to the Department of State, currently the administrator of NYSECCC, for an interpretation that would allow submetering. Previously, when the State Energy Office (SEO) or DHCR administered the Code, it addressed this on a case-by-case basis, and indicated that a submeter would be routinely permitted as long as the building met PSC submetering regulations. This is expected to continue under the administration of the Department of State.

2. Submetering Building Code Requirements In terms of installation compliance, a permit to perform the submetering installation is required. The application for this permit is similar to an application for a permit for construction work in the building. In New York City, for example, it requires a review by the New York City Department of Buildings to ensure compliance with applicable safety codes in the wiring used, the placement of the wiring, and the placement of the meters. The Code does not prohibit the placement of electric meters in closets or other concealed locations. Special permission (a waiver) is required from the New York City Electrical Code Advisory Board (a division of the NYC Department of Buildings) for the wiring method and enclosure of the meter in a closet. The Advisory Board meets every third week throughout the year and special permission can generally be obtained at the next meeting of the Advisory Board after the request is submitted. The request can be submitted by the licensed electrician installing the system..

65. What can an owner do if a resident fails or refuses to pay submetered electric charges?

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5 The State Energy Conservation Construction Code is set forth at 9 NYCRR Parts 7810 to 7815. §7810.6 of the State Energy Conservation Construction Code provides that with respect to substantial renovations of existing buildings, whenever such substantial renovations equal more than 50% of any building system, measured in units appropriate to that system, within any twelve month period, that portion of such building system which is replaced shall be made to conform to the provisions of the Code. 9 NYCRR §7813.52(d) provides that all residential buildings other than one- two-family dwellings must separately meter individual dwelling units to determine the energy consumed by each resident.

There are two potential remedies for an owner if a resident fails or refuses to pay submetered electric charges. One is to discontinue supplying the electric service. The other is to sue for either recovery of the unpaid amounts or eviction.

As noted in the section discussing PSC requirements, New York State has extensive regulations in place to protect residents against their electric service being shut off. An owner seeking to continue the tenancy while discontinuing the service will most likely be required to comply with all tenant-protection regulations applicable to utilities for discontinuing the service. These include various notice and payout requirements and protections for the elderly and disabled, which are time-consuming, burdensome to the owner, and inconsistent with continuation of the rental tenancy. Moreover, special arrangements with respect to electric charges are likely to cause confusion in billing and collection procedures. As a result, owners may want to consider legal action for eviction of the resident or recovery of unpaid amounts as the primary enforcement mechanism for nonpayment of submetered electric charges.

66. How do apartment lease provisions affect submetering implementation?

Owners should focus on their lease to ensure that submetering charges can be collected, including the availability of eviction for nonpayment of submetered electric charges. Leases in master-metered buildings may include language requiring the owner to provide electric service as part of the rent. Owners should check with their own counsel to determine if such language would preclude billing residents for submetered electricity based on actual consumption. If such a restriction appears in the lease, owners may want to consider changing the lease form upon renewal or vacancy, requesting that residents voluntarily consent to a change in the lease form or deferring implementation of submetered billing until one of these alternatives can be implemented in a particular apartment. Where the submeter is actually in place, voluntary agreement may be forthcoming when the tenant can see that submetered charges are lower than the portion of the rent attributable to previous electric charges.

In cooperatives, the proprietary lease typically includes provisions for amendment by vote of the shareholders. If the proprietary lease form requires that the cooperative include electricity as part of maintenance, the restrictive provision can be modified by adopting an amendment in accordance with procedures from the proprietary lease.

Where the lease agreement permits separate billing for electric charges based on consumption as read by a submeter, collection of these charges should be available through a nonpayment-of-rent eviction proceeding. If lease language is being modified, submetered electricity charges should be specifically defined as rent to avoid any issue about the availability of the nonpayment-of-rent eviction remedy.

In the rent-regulated sector, treatment of submetered electric charges as rent is an unresolved issue. The problem stems from the maximum rent provisions of the rent-control laws. These laws establish the maximum rent that can be charged to rent-regulated apartments. If a rent reduction is approved by DHCR, the legal regulated rent is presumably established as the reduced rent, not the reduced rent plus submetered electric charges. Eviction for nonpayment of the submetered electric charges, therefore, becomes problematic. If, on the other hand, the submetered electric charges are considered part of the legal regulated rent, then an error in billing that resulted in a charge in excess of that authorized by DHCR could constitute a rent overcharge for which penalties including triple damages may be imposed. This remains an unresolved issue and owners of rent-regulated housing who seek to convert to submetering should have their counsel consult with DHCR.

VIII. BUILDING MANAGEMENT IMPLEMENTATION ISSUES

67. How will submetering affect the building utility bill?

The building's utility billing process and meter-reading schedule will not be affected by the implementation of submetering. The building will still be billed under the same rate as before and any changes in utility rates will not be affected by the presence of submetering in the building.

68. What happens to the portion of rent and maintenance previously allocated to electricity?

When actual billing for submetered electricity begins, the portion of the maintenance or rent (subject to regulatory approvals) that was previously apportioned for apartment electricity use is deducted from the maintenance or rent. After a pre-determined and appropriate period of time (typically one year), this estimate may then be revised.

69. How are residents billed for electricity?

There are several ways in which residents can be billed. Typically, the amount of the electric charges are added to the rent or maintenance bill by management. A separate bill also can be rendered, although this generally requires additional administration and attendant costs.

70. What happens if a building resident disputes the submeter bill?

According to the PSC conditions for approving a submetering implementation, the building must have a grievance procedure in place consistent with the Home Energy Fair Practices Act (HEFPA), which provides guidelines for resolving disputes and other issues involved in a utility-customer service relationship (see also Questions 51, 52, and 55). The actual procedure will depend on the type of building ownership (e.g., coop, rental) and the supervising housing agency involved (if applicable). See the following section (IX) for specific procedures for dispute resolution.

IX. DISPUTE RESOLUTION

71. What are dispute resolution procedures?

A dispute-resolution procedure is implemented at the time submetering is implemented and is designed to establish procedures in the event a resident does not agree with the meter reading, billing, or other aspects of the electric charges. A resident may file a complaint to the designated party, after which a process is implemented to resolve the complaint as efficiently as possible. These procedures are intended to augment existing resident/manager/owner administrative and complaint procedures. For cooperatives and condominiums, these include existing bylaws. For rentals, these include other rules set up by the supervising housing agency and procedures submitted to the PSC, as required in the application to submeter.

72. Are there dispute-resolution procedures in place now for submetered buildings?

Yes. In general, dispute-resolution procedures should conform to the Home Energy Fair Practices Act (HEFPA) (see also Questions 51, 52, and 55), to which utilities also must conform. Examples of procedures in place include those for the HPD, included as Appendix E.

73. May a resident file a complaint regarding a submetering bill directly to the utility company supplying the electricity to the building?

No. The utility is not responsible for metering, billing, or maintenance of submeters. The utility is responsible only for the master meter measuring the entire building's electric service. The submeters are owned and operated by the building and complaints must be addressed to the owner through procedures established at the time of implementation. Typically, this involves contacting the managing agent.

74. What recourse does a resident have with regard to filing a complaint about the operation of a submeter, a submeter billing amount or other related issue?

An owner of rental property must obtain PSC approval before implementing submetering in a master-metered building. The application submitted by the owner must set forth a grievance procedure that will be adopted to protect residents from erroneous billings or other submetering problems (see additional discussion under Regulatory Issues). A coop or condo board must be able to certify that: (a) all unit owners/shareholders were notified, and (b) a majority of voting shareholders approved the implementation of submetering.

The following set of questions and answers are based on the premise that a dispute resolution procedure consistent with the example set forth in Appendix E, based on the HPD rules, is to be implemented. The HPD grievance procedures are the best example, as they have been in place for many years and have been tested in actual cases. As indicated in Question 71, coop/condo bylaws, supervised housing rules, and other existing procedures should be the foundation for any dispute-resolution procedures specific to submetering.

75. What steps may a resident take with regard to filing a complaint about the operation of a submeter, a submeter billing amount or other related issue?

A suggested grievance procedure would operate as follows: The resident may submit a written complaint to

the owner, typically through the managing agent, indicating the action or relief requested. No specific complaint form is required; a letter is satisfactory. Copies of canceled checks or other evidence of payment of any contested submetered charges should be submitted with the complaint.

76. How would resident complaints be processed?

If a resident complaint about a submetering bill relates to administrative matters, the owner is obligated to respond to the complaint within 30 business days of receiving it. The response must either acknowledge the validity of the complaint and set forth the remedy to correct the error or reject the complaint and advise the resident/complainant as to the reasons for the rejection.

If the complaint relates to a submeter malfunction, the owner must arrange for testing the submeter within 10 business days of receiving it. An independent meter tester or representative of the metering company used by the owner must provide the owner with a written report regarding the accuracy of the submeter within 30 business days of the date the submeter is tested. The owner must provide a copy of the test results to the resident/complainant within 10 business days after receipt by the owner. For the complaint to be processed, the resident must provide access to the submeter during normal business hours upon reasonable notice by the meter tester.

77. What happens if the disputed submeter is found to be accurate?

If a resident files a complaint and the meter is found to be accurate, the resident/complainant must pay any open electric charges within 15 business days of receiving the test results or be subject to legal action.

78. What happens if the disputed submeter is found to be defective?

In that event, the owner must include with the copy of the test report a proposed remedy to correct the defect and an appropriate billing adjustment.

79. Who pays for the disputed submeter to be tested?

Many submeters available on the market have been tested as part of the Con Edison Residential Submetering Program (1991- 94). Standard practice in the program was to test up to 5% (up to 30 units) of the apartment submeters for compliance with ANSI-C12.1 accuracy requirements.

Before implementing submetering, the owner can request that the vendor test meters randomly (typically up to 30 meters per installation). If the results of the random tests demonstrate that the meters are accurate, the system will become operational. Once submetering is implemented, the cost of resolving complaints regarding submetering accuracy will be borne by either the vendor, if the meter is found to be inaccurate (subject to warranty provisions), or the resident, if the meter is found to be accurate, unless the building dispute-resolution process specifies otherwise.

80. What if the resident is not satisfied with the proposed remedy or billing adjustment or a timely response to the complaint is not obtained?

In a government-aided building (see Question 82 for non-government-aided buildings), if a resident is dissatisfied with the first level of dispute resolution, he or she may request a review of the owner's determination by filing a written protest with the appropriate administrative agency within 30 business days from the resident/complainant's receipt of the owner's determination.

Upon receipt of the protest, the agency reviews the complaint and response. A written report of the agency's findings and recommended disposition of the matter is then sent to the owner and the resident/complainant.

81. What steps may the agency take to resolve the dispute?

The agency may require an independent inspection of the submeter, inspect building records, call a conference of disputing parties, or take any other actions necessary to resolve the dispute.

82. Who reviews submetering disputes in buildings not supervised by a government agency?

In a non-government-aided building, an owner may select a grievance arbitrator from the American Arbitration Association or equivalent organization. If the resident (complainant) is dissatisfied with the first level of dispute resolution, he or she may request a review of the owner's determination by filing with the owner a written protest for action to be taken by the grievance arbitrator within a reasonable period of time as spelled out in the particular grievance procedure. Both the owner and the resident/complainant present documents supporting their views to the grievance arbitrator and the decision of the arbitrator is binding on all parties.

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APPENDICES

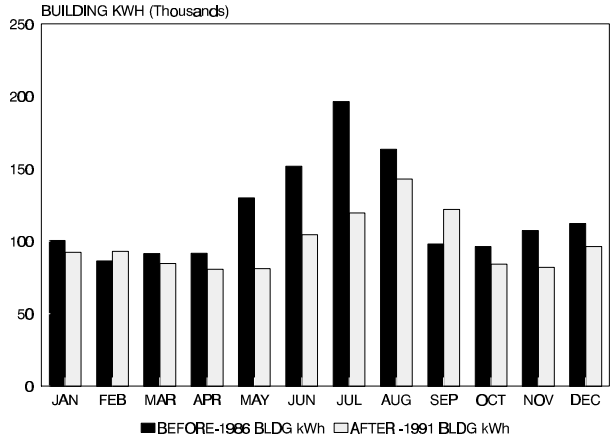
APPENDIX A - Submetering Case Studies

Residential Submetering Case Study

Carlyle Towers Cooperative **Scott Towers Cooperative**

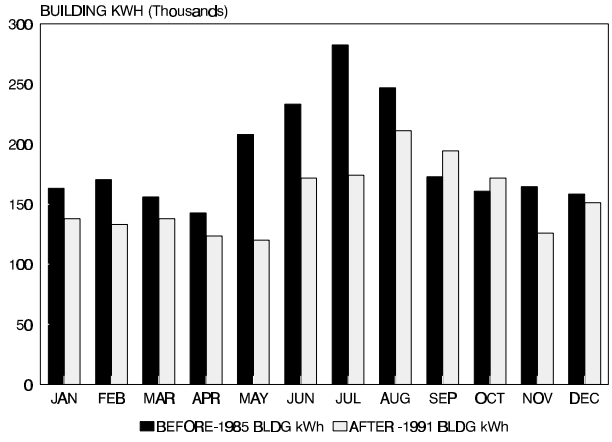
Residents at Carlyle Towers and Scott Towers have been saving on their energy costs for many years - Thanks to Submetering!

CARLYLE TOWERS ENERGY USE



(Adjusted to 1991 weather conditions)

SCOTT TOWERS ENERGY USE



(Adjusted to 1991 weather conditions)

Comparison of Building Energy Consumption Before and After Submetering

Submetering - The Solution

If you live in a cooperative or condominium, wouldn't you rather pay *only* for the electricity that *you* use? That way, you can decide how much you pay and how much you save!

Submetering provides multiple-unit residential buildings with individual apartment meters, so each resident pays only for the actual amount of electricity they use. It allows your building to distribute electric costs fairly, yet you still pay the lower bulk rate. It's just like your phone bill, where you pay only for the calls *you* make, not those of others.

Studies have shown conclusively that submetered buildings use less electricity; so they have lower energy costs. Submetering means lower costs for those who use less electricity and motivation for others to conserve. It offers a way to significantly lower your electric bills from now on.

Carlyle Towers Cooperative

Location:	138-10 Franklin Avenue Flushing (Queens), New York
Size:	194 units (15 floors) (74 one bedroom; 90 two bedroom; and 30 three bedroom units)
Common Areas:	Lobby, laundry, garage and one commercial tenant

Scott Towers Cooperative

Location:	3400 Paul Avenue Bronx, New York
Size:	352 units (21 floors) (62 one bedroom; 207 two bedroom; and 83 three bedroom units)
Common Areas:	Lobby and laundry

Information Package sponsored by The New York State Energy Research and Development Authority

"Users of Electricity will vote for submetering, abusers will vote against it."
Charles Rappaport (dec.) - former Carlyle Towers Representative and President of Federation of New York Housing Cooperatives

Submetering Savings History

Carlyle Towers and Scott Towers, original participants in the Con Edison Residential Submetering Program, each installed their submetering systems by 1987. Each building had good reasons to participate and both recognized the advantages of submetering to their residents, namely cost savings, energy conservation and fairness. Their experiences confirm these benefits and have shown that submetering savings DO PERSIST! Savings at these buildings have been maintained at levels at least as high or higher than originally demonstrated for over five years!

Significant Cost and Energy Savings

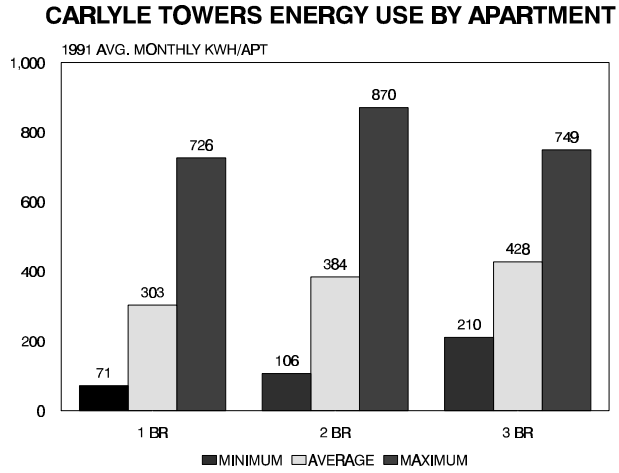
Based on a comparison between 1986 (before submetering) and 1991 (after submetering) for Carlyle Towers and between 1985 and 1991 for Scott Towers, each saved over 18% in building electric costs, after adjusting for weather and utility rates. This represents a 25% reduction in average apartment energy consumption for each building.

Impact on Shareholders

The impact of submetering on residents has varied widely, based on each resident's individual usage habits, conservation efforts and occupancy patterns. Overall, 73% of residents in Carlyle Towers now use *less* energy than the pre-submetering average, so they *PAY LESS* for electricity than they would have without submetering. Only 7% are using significantly more than the pre-submetering average, so they pay more, and should, because they use more than their neighbors. Those who take extended vacations can also save with submetering, since they won't pay for what they don't use.

Fairness to All Residents

In Carlyle Towers and Scott Towers, like most Coops, residents in the same apartment size used to be charged approximately the same for their electric usage, based on their shares in the cooperative. In fact, there is a wide range of usage levels. For Carlyle Towers' two bedroom apartments, for example, usage in 1991 varied from 106 kWh/month to *870 kWh/month* - a difference of over *eight times*! With submetering, these residents are *NO LONGER* charged the same amount for electricity. Submetering provides a *FAIRER* allocation of building electric costs.



Consumption Comparison by Apartment Size

If you want to pay only your fair share for electricity, save money and energy, like they do at Carlyle Towers and Scott Towers, consider residential submetering for your building.

Switch to Submetering. Save Energy. Save Money, Too!

Information Package sponsored by The New York State Energy Research and Development Authority

APPENDIX B - Submetering Equipment Vendors and Representatives

For current information on Submetering Vendors, please refer to NYSERDA's web site (NYSERDA.org) or the Submeteronline.com web site.

APPENDIX C - Instructions for Feasibility Study Model

The operation of the Submtering Feasibility software module, a LOTUS 1-2-3 spreadsheet template, requires a number of inputs in order to complete, as follows:

1. Billing history (from utility or building billing records)
2. Estimate of percentage of base load from apartment sector (site visit)
3. Estimate of percentage of cooling and heating (if electric) load from apartment sector (site visit)
4. Estimated installation cost (from site engineer or vendor estimate)
5. Estimate of energy savings in the apartment sector (site engineer estimate)
6. Estimate of monthly meter-reading costs

These inputs are developed as follows:

The billing history for the past 24 months is requested or compiled from the utility Customer Information System (CIS). This billing history includes monthly consumption (kWh), monthly billing demands (kW) and amount of the bill (dollars). These values are input to the SCFORM97 software in order for the system to calculate the following values:

- Average annual consumption based on the two year period
- Base consumption during two non-summer months, which was used to estimate total cooling consumption
- Average cost of electricity, based on the average cents per kWh

During the initial site visit, the site engineer inspects the building to determine several estimates. First, the estimated percentage of cooling and base load attributable to the apartment sector was obtained, based on the amount of cooling in apartments vs. common area, and the amount of electric use in the common area (including whether central cooling or electric heating was being provided on the master meter). Next, the type of submetering system that would be required was determined, along with its associated equipment and installation cost with the meter-reading cost. These cost estimates may be made with the assistance of a submetering equipment vendor.

Finally, the estimated energy savings in the apartment sector is estimated, based on the degree of air conditioning (a primary source of potential savings) and other electric usages. The guidelines for this estimate are based on previous studies on actual submetering savings, such as NYSERDA Reports 86-8 or 96-7, which document savings in the range of 10-26%.

Once all this information is obtained or estimated, the SCFORM97 software is run. Within the system, a menu-driven set of key-strokes (Ctrl-key combinations) provides the means to input, view and print results.

Under the initialization menu item, the user inputs the following:

- Building name and Feasibility code number (e.g. starting with #1001 for the first building)
- The number of total apartments and the number of rental or non-shareholder apartments
- Estimate of monthly non-cooling base load (based on an average of at least two non-cooling months per year)
- Estimates for the percentage of non-cooling (and heating, if electric) base load and cooling (and heating, if electric) load attributable to the apartment sector
- Whether the building is electrically heated
- Estimate of projected apartment savings percentage due to submetering
- Interest for loan (used in cash flow calculation)
- Incentive amount (if any), per apartment
- Meter reading costs (typically $2.50 - $2.75 per month)

Under the billing input menu item, the user inputs the following:

- Dates of meter readings for the most recent 24 month period
- Monthly consumption (kWh)
- Monthly actual demand (kW)
- Monthly billing amount (dollars)

Under the equipment cost input item, the user inputs one of the following:

Either a) Lump sum estimate of installed submetering equipment costs

or b) Per-apartment costs for equipment (meters) and installation, plus any auxiliary equipment (e.g. common collectors, data communications, display or central computer equipment)

The user may also revise the designations of summer months, based on the pattern of demand for the shoulder months (between summer and winter). The loan interest rate is input in case there will be a loan involved.

Based on these inputs, calculations are performed (sample attached). Section IV of the output documents the calculations, as follows:

- The non-cooling base load (Section IV, line #2) is deducted from the total annual building consumption (IV-1)
- The estimated percentage of apartment (IV-3) vs. common area (IV-4) is applied.
- The total building cooling load (IV-5) is then separated into apartment (IV-6) and common (IV-7) usage
- The total apartment load (IV-8) is thus the sum of lines apartment base load (IV-3) and apartment cooling load (IV-6)
- Peak winter (IV-9a) and summer (IV-9b) demand per apartment is then calculated
- Energy savings due to submetering (IV-10) is then based on applying the apartment savings percentage input to the total apartment usage (IV-8)
- The average cost per kWh from the past two years' billing records is then applied to the savings kWh to produce the dollar savings due to submetering (IV-11)
- The project implementation cost is summarized (IV-12), along with the monthly meter reading cost (IV-13)
- The net annual savings (IV-14) is calculated as the gross dollar savings (IV-11) less the meter reading costs (IV-13)
- The simple payback (IV-15), in number of years, is calculated as the net implementation costs (gross costs (IV-12) less incentives) divided by the net annual savings (IV-14)

If the building contains rental apartments, additional calculations are performed based on the assumption that non-shareholder or rental tenants will not initially be charged separately for electricity. Since they will not be billed, they will not have any incentive to reduce their consumption. Eventually, through rent reductions on new leases and other procedures, rental tenants may be billed, so both scenarios are presented, i.e., renters saving and renters not saving. The additional calculations presented are revised apartment savings (IV-16) and revised payback period (IV-17).

The system provides outputs for the general inputs, the two year billing data, the payback analysis and also the cash flow analysis. The cash flow analysis is based on the calculation of the annual savings vs. the annual debt service of paying off the net equipment and installation costs (after any incentives) over the term of the loan presumed to be used to finance the submetering implementation. Although for Cooperatives, the capital reserve fund may be used to finance submetering implementation, the analysis

assumes that a separate loan is used, since use of the reserve fund simply defers the refinancing of the underlying building mortgage or assessing the shareholders which must eventually be used to replenish the reserve fund. Thus, the assumption of separate financing is conservative.

Maintenance/Rent Reduction

Since as a result of the implementation of submetering, the rent or maintenance charged to each resident must be adjusted to reflect the separation of each resident's charges into apartment electric and other common charges, estimates of this allocation must be developed by the building as part of the submetering process. This module computes the average dollar amount per unit (typically per share for a cooperative) that would be attributable to the apartment sector electricity. The inputs to this calculation include the following:

- Number of apartments
- Total number of shares
- Annual Electric Budget
- Total building annual consumption
- Apartment sector annual consumption
- Number of common area meters
- Appliance collection fees per unit
- Installation cost, interest, rebate
- Typical apartment shares, number of bedrooms, appliances
- Apartment savings percentage and non-rental apartment percentage
- Meter reading charges

The calculations performed are as follows:

- The common area electric budget is calculated based on the average cost and common area usage allocation
- The apartment portion electric budget is then calculated (total less common) and the average electric cost per share is determined
- Appliance charges are then deducted to determine the portion of electric currently in maintenance/rent

- Additional costs for debt service and metering costs are then calculated to determine the increased maintenance/rent due to these costs during the loan repayment period (debt service) and from now on (meter reading)

- A typical apartment case is calculated, based on applying input typical shares and appliances
- Common area electric cost allocation, apartment allocation and appliance charges currently incurred
- Estimated maintenance/rent reduction and reduction in appliance charges are calculated
- Maintenance/rent increases due to debt service and meter reading are also calculated

- Post-submetering savings during both debt service period and after debt service payment completion is calculated
- Both dollar savings and % savings calculations for the typical apartment are performed

- As an additional input and calculation set, the number of A/C units per apartment size and appliance charges can be input to produce the total and average appliance charges.

- A slightly simplified output calculation is also presented, using a single page output designed for providing to the buildings.

- Based on the phased elimination of non-shareholder apartments, another output is provided that enables the sensitivity analysis of various levels of non-shareholder percentage

RESIDENTIAL SUBMETERING date ___/___/___
ECONOMIC FEASIBILITY STUDY DOCUMENTATION

BUILDING:_____ # _____

Surveyor _____ **Report Author**_____

I. NON-COOLING BASE LOAD ESTIMATE

A. Average of Billing Period(s): _____ kWh/month (Feas. Study IV.2)

_____/_____ _____/_____ _____/_____ _____/_____

II. APARTMENT/COMMON AREA ALLOCATION

A. Base Loads

1. APARTMENT Sector: _____ % (Feas. Study IV.3)

a) Cooking **G** Electric **G** Gas

_____

2. COMMON AREA Sector: _____ % (Feas. Study IV.4)

a) Building Type **G** High-Rise >7 fl. **G** Low-Rise 4-7 fl **G** Garden 1-3 fl

b) Elevators: **G** Yes Number _____
G No

c) Hallway Lighting Use: **G** High **G** Medium **G** Low

d) Laundry Room: **G** Yes **G** Electric **G** Gas
G No

e) Garage on Master Meter: **G** Yes Capacity _____
G No

f) Community Rooms on Master Meter: **G** Yes Number _____
G No

g) Boiler Room **G** Common **G** Per Building _____ bldgs

Notes_____

II. APARTMENT/COMMON AREA ALLOCATION (cont.)

B. Cooling and Heating Loads

1. APARTMENT Sector: _____ % (Feas. Study IV.6)

a) Apt A/C Units **G** Many Units **G** Some Units **G** Few/No Units
G 208v Units **G** 110v Units (check all that apply)

b) Apt Electric Heat **G** Yes **G** No

Type _____

2. COMMON AREA Sector: _____ % (Feas. Study IV.7)

a) Central A/C: **G** No **G** Individual Apartment Units
G Yes
G Electric system
G Steam Absorption

Type/Tonnage _____

_____

b) Central Heat: **G** No
G Yes Fuel/Type/Capacity _____

_____

c) Domestic Hot Water **G** From Boiler **G** Separate Unit
G Natural Gas
G Electric Central

d) Common Areas and Community Rooms on Master Meter:

Electric A/C Units: **G** No **G** Not applicable
G Yes Type/Tonnage _____

_____

Electric Heat Units: **G** No **G** Not applicable
G Yes
If Yes, Type/Capacity _____

_____

III. APARTMENT SUBMETERING SAVINGS

A. APARTMENT SUBMETERING SAVINGS ESTIMATE _____ % (F.Study IV.10)

B. USE PER APARTMENT: _____ kWh/Month/Apartment

G High Use (>475 kWh) **G** Medium Use (400-475 kWh) **G** Low Use (<400 kWh)

C. PERCENT COOLING/HEATING _____ %

G High (>30% of Annual) **G** Medium (22%-30%) **G** Low (<22%)

D. LIFESTYLE/DEMOGRAPHICS

1. Percent of Elderly **G** High **G** Low

2. Percent of Full-time working **G** High **G** Low

IV. IMPLEMENTATION COSTS (Feas. Study IV.12)

A. CONTRACTOR _____
(For Cost Quote)
G Meter Vendor _____

B. METER TYPE **G** Electronic **G** Electromechanical
G To Be Determined

C. LOCATION OF SUBMETERS

G In apartments
Number of Breaker/Fuse Panels _____
If >1, same wall? (Y/N) _____

G Meter Closets

G Other Common Area (e.g. Basement)

Notes _____

Other Notes/Comments _____

APPENDIX D - Sample Feasibility Study

ELECTRICAL SUBMETERING
TECHNICAL/ECONOMIC FEASIBILITY
EVALUATION

FOR:

SAMPLE COOP
123 Main Street
New York, NY 10001

FORMAT DEVELOPED BY:

CONSOLIDATED EDISON COMPANY
OF NEW YORK

IN ASSOCIATION WITH:

THE NEW YORK STATE ENERGY
RESEARCH AND DEVELOPMENT AUTHORITY

DATE OF REPORT:

(Date here)

REPORT NO.: 1000

EXECUTIVE SUMMARY

The results of a Consolidated Edison Company of New York (Con Edison) pilot program conducted in two New York City cooperatives from 1986 through 1988 and the Residential Submetering Program Project (1991-1995), co-sponsored by the New York State Energy Research and Development Authority (NYSERDA), generated useful estimates of the potential energy conservation benefit of electrical submetering. Accordingly, in an effort to promote conservation and to reduce the utility peak demand, NYSERDA has initiated a program designed to encourage the widespread implementation of electrical submetering, targeting the approximate 400,000 dwelling units contained in master-metered multi-family residential buildings comprising cooperatives, condominiums, and rentals in New York State.

To facilitate electrical submetering implementation, NYSERDA has compiled and adapted information developed during past submetering projects since 1980, including this document, a technical/economic submetering evaluation for a cooperative building (SAMPLE COOP, INC.). This report is designed to be used by a cooperative's Board of Directors and management to provide guidance in the decision making process with respect to the implementation of electrical submetering.

Upon completion of the required site survey, discussions with the building's superintendent and management, equipment manufacturers and contractors, review of pertinent building energy usage data and completion of the analyses described in this report, the following findings are offered:

1. The simple payback for an electrical submetering retrofit, is estimated at 5.11 years based on projected apartment energy savings of 25% (i.e., overall building energy savings of 19.8%); if all tenants and cooperators make efforts to conserve energy. If the non-shareholders (5 apartments) do not make such efforts to conserve energy, the estimated simple payback is 5.32 years.

2. The anticipated electrical savings by submetering is estimated at approximately 224,000 KWHR annually; if all tenants and cooperators make efforts to conserve energy. If the non-shareholders do not make such efforts to conserve energy, the anticipated electrical savings by submetering is estimated at approximately 218,000 KWHR annually.

3. Net implementation costs for all 168 apartments are estimated at $96,600.

4. The availability of proven submetering equipment meeting both Con Edison and applicable ANSI-C.12.1-1982 standards provides a choice of competitive equipment for this building application.

Several manufacturers have demonstrated their ability to satisfy these requirements (See current Qualified list).

5. Five (5) apartments are occupied by non-shareholders (rent stabilized or fair market rental tenants). It is likely that the owner of these apartments will continue to pay such apartment electrical costs until such time that the apartment is turned over to a successor occupant when the apartment is sold.

It should be understood that as long as these units continue to be occupied by residents who do not pay separately for their own electricity that in all likelihood there will be no benefit of submetering attributable to these particular units unless the owner provides these residents with an incentive to conserve (i.e.; rent reduction allocation due to electrical costs or a rent reduction in proportion to their reduced electrical usage). This rent reduction may have to meet the guidelines established for rent stabilized apartments. In other words, the total savings attributed to submetering all apartments may be reduced by 0.6% of total building annual consumption until this issue is addressed.

EXISTING CONDITIONS

1. Building Description

SAMPLE COOP is a 16 story, 50 year old residential cooperative (100% shareholders) located at 123 Main Street, New York City, NY. SAMPLE COOP contains 168 apartments.

2. Power Plant Equipment

The building has its own boiler plant which burns #6 oil to provide space heating via radiators and domestic hot water (DHW).

Apartment cooling is provided by window air conditioners. Common area cooling in the Lobby is provided by an air conditioner system estimated at 7-1/2 tons.

Each apartment has a single phase fuse box (original) and a 2-phase fuse box (which was an upgrade to accommodate apartment air conditioners) both located in the kitchen.

The building contains 1 electric room and 1 master-meter.

There are unused meter pans located in the basement as the building was originally designed to be directly metered. These meter pans are connected only to the original apartment single phase fuse boxes.

3. Utilities

Electricity is supplied to each building by Con Edison under rate schedule SC-8, Multiple Dwelling.

4. Energy Usage

Electrical energy data for the September 1989 through August 1991 twenty-four month period indicates an average annual electrical purchase of 1,062,000 KWHR at an average annual cost of $115,707 for an average unit cost of 10.90¢ per KWHR (see Table 1 and Figure 1). The maximum peak demand of 330.00 KW occurred during the period 6/25/91 - 7/24/91 and is largely attributed to existing apartment (window) air conditioning unit use, together with other uses of electricity.

Table I

SAMPLE COOP

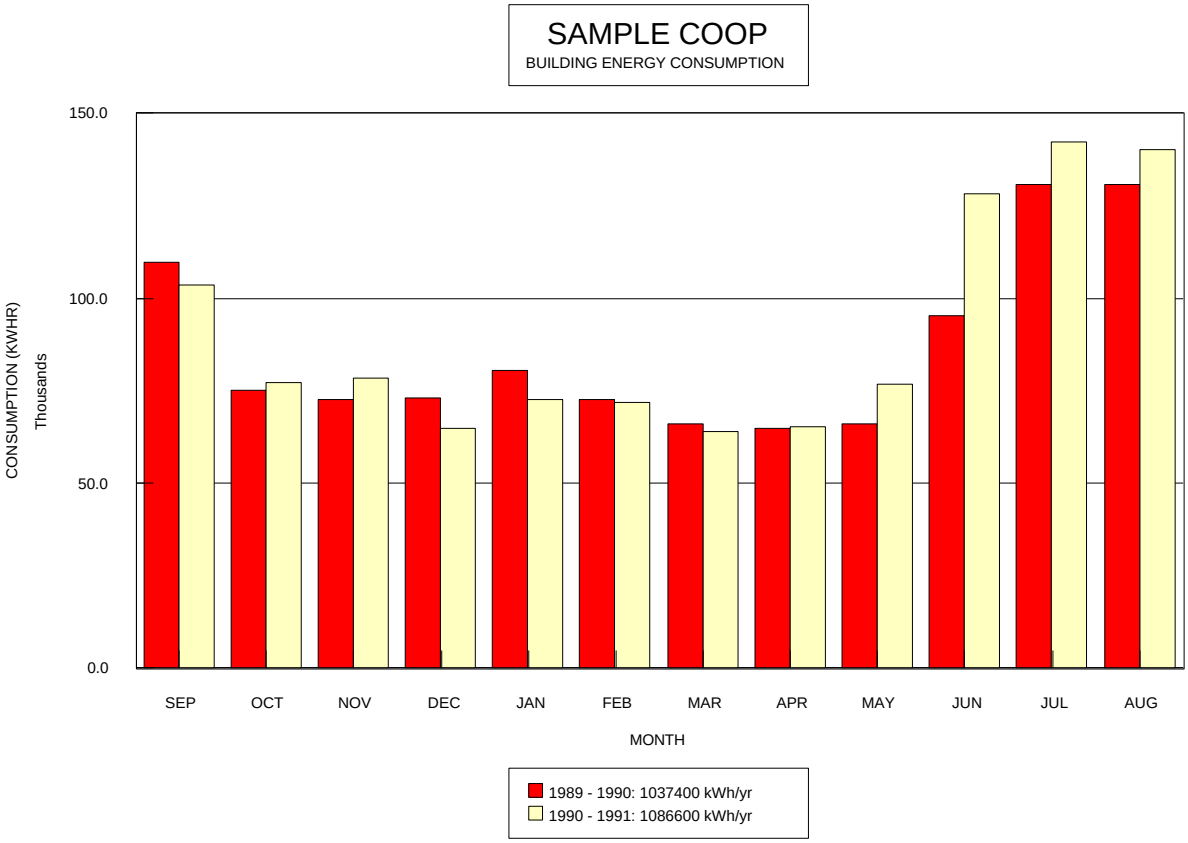
Electrical Energy Billing Data

Sep-89 Through Aug-91

	Year 1 Billing Period			Consumption kWh	Demand kW		Total Cost of Electricity		
1	08/23/1989	-	09/21/1989	109,800	318.00	*	$13,058.00		
2	09/22/1989	-	10/22/1989	75,000	234.00		8,301.00		
3	10/23/1989	-	11/21/1989	72,600	144.00		6,431.00		
4	11/22/1989	-	12/21/1989	73,200	150.00		6,999.00		
5	12/22/1989	-	01/24/1990	80,400	150.00		7,525.00		
6	01/25/1990	-	02/25/1990	72,600	144.00		7,471.00		
7	02/26/1990	-	03/26/1990	66,000	150.00		6,601.00		
8	03/27/1990	-	04/24/1990	64,800	150.00		6,768.00		
9	04/25/1990	-	05/23/1990	66,000	174.00		7,377.00		
10	05/24/1990	-	06/24/1990	95,400	222.00		10,850.00		
11	06/25/1990	-	07/24/1990	130,800	318.00	*	14,683.00		
12	07/25/1990	-	08/22/1990	130,800	306.00		13,615.00		
Total	08/23/1989	-	08/22/1990	1,037,400	318.00		$109,679.00		
					* Annual Peak				
	Year 1 Monthly Averages			86,450			$9,139.92	10.57	¢/kWh

	Year 2 Billing Period			Consumption kWh	Demand kW		Total Cost of Electricity		
1	08/23/1990	-	09/23/1990	103,800	288.00		$12,936.00		
2	09/24/1990	-	10/22/1990	77,400	240.00		8,881.00		
3	10/23/1990	-	11/25/1990	78,600	150.00		7,669.00		
4	11/26/1990	-	12/23/1990	64,800	150.00		6,456.00		
5	12/24/1990	-	01/24/1991	72,600	150.00		7,559.00		
6	01/25/1991	-	02/25/1991	72,000	144.00		7,289.00		
7	02/26/1991	-	03/26/1991	64,200	138.00		6,397.00		
8	03/27/1991	-	04/24/1991	65,400	216.00		7,789.00		
9	04/25/1991	-	05/23/1991	76,800	240.00		8,989.00		
10	05/24/1991	-	06/24/1991	128,400	306.00		15,643.00		
11	06/25/1991	-	07/24/1991	142,200	330.00	*	16,367.00		
12	07/25/1991	-	08/25/1991	140,400	288.00		15,759.00		
Total	08/23/1990	-	08/25/1991	1,086,600	330.00		$121,734.00		
					* Annual Peak				
	Year 2 Monthly Averages			90,550			$10,144.50	11.20	¢/kWh

For Two Year Period:		330.00	(2 Year Peak)	
Average Annual Usage/Costs:	1,062,000		$115,706.50	
Average Monthly Usage/Costs:	88,500		$9,642.21	
Average Annual Electric Cost:			**10.90**	¢/kWh


SAMPLE COOP
BUILDING ENERGY CONSUMPTION
150.0
100.0
50.0
0.0
CONSUMPTION (KWHR)
Thousands
SEP
OCT
NOV
DEC
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
MONTH
1989 - 1990: 1037400 kWh/yr
1990 - 1991: 1086600 kWh/yr

SUBMETERING

I. INTRODUCTION

Submetering was authorized by the PSC in November, 1979 for residential buildings which are master-metered. It has been demonstrated to be an efficient method for conserving energy, reducing building operating costs, and providing a more equitable way of distributing the electric costs among the building residents. By assigning accountability for the resident electric costs, a building can significantly reduce the annual operating costs.

NYSERDA, Con Edison and the State Division of Housing and Community Renewal (DHCR) have determined, during field demonstrations, that electrical submetering is an effective method for reducing a building's contribution to the utility peak demand, while also providing conservation benefits to the building.

This technical/economic feasibility study is designed to assist building management and the Board of Directors in evaluating electrical submetering as a retrofit for this residential building. The building will retain its electric rate service classification "SC-8; Multiple Dwellings - Redistribution" and will continue to receive the benefits associated with "master-metering" such as the lower (bulk) rate. There is no intent on the part of Con Edison to eliminate or modify that service classification.

II. METHODOLOGY

To determine both the economic and technical feasibility of a submetering retrofit the following tasks were performed:

Task 1

A site survey was conducted on 9/16/91 to determine the physical characteristics that could impact the feasibility and implementation costs of submetering. The items investigated include:

1. Availability, location, and type of space required for installation of submeters and peripheral equipment.

2. Number and type of electric service entrances.

3. The apportionment of apartment, common area, and other building electric usage.

4. Identification of other submetering related cost items.

Task 2

Energy usage data for two years was obtained from Con Edison, tabulated and analyzed to determine the existing specific electric consumption attributable to the various loads of the building (Apartments and Common Area).

Task 3

Calculations were performed to determine the economic impact of the submetering conversion using accepted methodologies.

The estimate of implementation cost was determined by taking into account prior submetering studies that have shown that for buildings such as SAMPLE COOP, savings vary in the range of 18% to 26%. We estimate that the apartment sector of SAMPLE COOP will save 25%, or 21.1% in terms of total building savings. In determining estimated savings for this building, previous studies such as New York State Energy Research and Development Authority (NYSERDA) report 86-8, entitled "Demonstration of New Submetering Technologies", dated October 1986, were referenced.

Task 4

Various manufacturers' equipment was reviewed to insure availability of appropriate submetering systems for this building.

Task 5

The following were contacted to obtain information used in performing a submetering feasibility study for SAMPLE COOP:

Woody Allen - Manager

III. FINDINGS

1. It does not appear feasible to access the individual apartment's air conditioning load from the electric room. Accordingly, a 3-phase electronic meter should be installed in each apartment with 2 current transformers (C.T.'s) connected at the apartment (air conditioner) fuse box and 1 C.T. (original) at the apartment fuse box. The apartment fuse boxes are both located in the kitchen. It should be noted that the technology is such that the installation of a submeter in the apartment does not require apartment or building access in order to read the meter.

2. The typical apportionment of this type of building complex is 80%/20% for apartment sector and common area sector, respectively. The site survey indicates that this apportionment is likely for this building.

3. The additional costs shall be (1) the wiring of the electronic meter to two fuse boxes rather than one; and (2) a 3-phase meter rather than a 2-phase is required, including an extra C.T.

4. The survey indicated that SAMPLE COOP is typical of the buildings analyzed during the Demonstration of New Submetering Technologies program. NYSERDA report 86-8 was used as a basis for establishing projected savings.

IV. ANALYSIS

1	Average Building Annual Consumption:				1,062,000	kWh
	(Refer to Table 1)					
2	Non-Cooling Base Load				781,200	kWh/year
					65,100	kWh/month
3	Apartment Sector Base Load		80.0%	of Line 2 =	624,960	kWh
	(See Note 1)					
4	Common Area Sector Base Load		20.0%	of Line 2 =	156,240	kWh
	(See Note 1)					
5	Total Building Cooling Load				280,800	kWh
	Line (1) - Line (2)					
6	Apartment Cooling Load		97.0%	of Line 5 =	272,376	kWh
	(See Note 2)					
7	Common Area Cooling Load		3.0%	of Line 5 =	8,424	kWh
	(See Note 2)					
8	Total Apartment Sector Load:				897,336	kWh/year
					445.1	kWh/Apt/Month
	Annual Base Load =		624,960	(Line 3)	5,341	kWh/Apt/Year
	Annual Cooling Load =		272,376	(Line 6)		
			897,336			
9a	Peak Winter Demand/Apartment:		*(See Note 3)*		1.03	kW/Apt
	80.0% of	216.00	÷ 168 Apts			
9b	Peak Summer Demand/Apartment:		*(See Note 3)*		1.75	kW/Apt
	89.2% of	330.00	÷ 168 Apts			
10	Energy Savings Due to Submetering:					
	(See Note 4)		25.0%	of Line 8 =	224,334	kWh/year
			[% of Total Building Energy:		21.1%	]
11	Dollar Savings Due to Submetering:					
	(See Note 5)		Line 10 @ 10.90 ¢/kWh =		$24,442	/year

(1) Estimated % Based on Experience For Similar Existing Submetering Sites.

(2) Estimate based on Cooling Tonnage

(3) Estimated percentage based on peak month

(4) Estimated Probable percentage (NYSERDA Report 86-8).

(5) Two Year Average Cost of Electricity

IV. ANALYSIS (cont.)

12	Estimated Project Implementation Costs:			(See Note 6)			
	a. Equipment (Submeters) at		$375	$63,000			
	b. Installation at		$200	$33,600			
		Total for 168 Meters			$96,600		
13	Meter Reading, Bill Rendering and Meter Maintenance Costs:						
	168 Meters @ $2.75 /month/meter * 12 months				$5,544	/year	
	(See Note 7)						
	($2.75 is Current Monthly Charge by a leading NYC Meter Reading Company)						
14	Net Annual Savings:						
	= Submetering Dollar Savings (Line (11)) - Meter Read Costs (Line (13))						
	= $ 24442 - $ 5544				$18,898	/year	
					[16.3 %	of Annual Costs]	
15	Simple Payback (P/B), including incentive of $0 /Apt.:						
	P/B = Net Implementation Cost ÷ Net Savings						
	Net Implementation Cost:						
		$96,600	Installation Cost (Line 12)				
	-	0	Utility Incentive				
		$96,600	Net Implementation Cost				
	Simple Payback = Net Implementation Cost ÷ Net Annual Savings						
	= $ 96600 ÷ $ 18898				5.11	years	
16	Revised Savings to Account for Rental Apartments (5) where residents would not be separately billed for electricity (No savings is assumed)						
	Annual Energy Savings:						
	= Non-Rental Apts ÷ Total Apts * Line (10)						
	= 163 ÷ 168 * 224334 kWh/year				217,657	kWh/year	
		[% of Total Building Energy:			20.5%	]	
	Net Annual Dollar Savings:						
	= (Non-Rental Apts ÷ Total Apts * Line (11)) - Line (13)						
	= (163 ÷ 168 * $ 24442) - $ 5544				$18,170	/year	
					[15.7 %	of Annual Costs]	
17	Revised Simple Payback (P/B) with incentive, to account for 5 Rental apartments where no savings is assumed						
	= Net Implementation Costs (Line 15) ÷ Revised Dollar Savings (Line 16)						
	= $96600 ÷ $18170				5.32	years	

(6) Estimate based on Electronic Meters

(7) Number of Meters = 168 (one per apartment)

NOTICE

This report is based upon information provided by various sources and SAMPLE COOP and upon electric rates, costs, equipment capacities, laws, building codes, rules and regulations in existence as of this date. The engineer conducting this study has attempted to verify the accuracy of the information obtained and to document sources, and is not liable for errors in information provided from other sources including, but not limited to, building owners, management, regulatory agencies and equipment manufacturers. The findings presented in this report are provided in good faith based upon the facts as detailed in this study. Actual savings will depend on many factors, including conservation measures implemented, seasonal variations in fuel price, weather, and specific energy use practices of the building occupants.

Some recommendations may require additional review by qualified specialists. Costs to implement the submetering project are estimated using the best available data and are intended to be conservative. Although every reasonable effort is made to be accurate, exact conditions may vary, and qualified, firm quotes from a consulting engineer/architect, equipment supplier, or contractor are recommended prior to actual implementation, particularly for high cost measures.

This report is intended solely for the use of the building and NYSERDA for the purposes of evaluating electrical submetering and may not be transmitted to others not involved in this particular building project without the written consent of the building (SAMPLE COOP).

CASH FLOW ANALYSIS

SAMPLE COOP Submetering

$96,600	Loan
10	Year Term
10.0%	Interest
25%	Apartment Energy Savings due to Submetering

Year	Net Annual Savings ($)	Debt Service ($)	Net Savings ($)	Cumulative Savings ($)
1	18,170	15,721	2,449	2,449
2	18,170	15,721	2,449	4,898
3	18,170	15,721	2,449	7,347
4	18,170	15,721	2,449	9,796
5	18,170	15,721	2,449	12,244
6	18,170	15,721	2,449	14,693
7	18,170	15,721	2,449	17,142
8	18,170	15,721	2,449	19,591
9	18,170	15,721	2,449	22,040
10	18,170	15,721	2,449	24,489
Totals:	$181,701	$157,212	$24,489	

APPENDIX E - Sample Dispute Resolution Procedure

This Appendix contains the following:

(1) Proposed Dispute Resolution Procedure for DHCR and HUD
(2) Generic Grievance Procedures
(3) Excerpt from HPD regulations relating to Grievance Procedures.

(1) PROPOSED DHCR AND HUD DISPUTE RESOLUTION PROCEDURES

The following grievance/dispute resolution procedure is recommended for adoption by HUD and DHCR for their publicly-assisted housing portfolio. The procedures are readily adaptable to rentals and cooperatives. HPD has regulations in place for cooperatives, which are including in Appendix D, Section (3).

A shareholder (complainant) with a complaint related to the operation of a submeter, a submeter billing amount or practice, or any related submetering issues shall present to the owner/Board of Directors, through its managing agent, a written complaint that may be in letter form, including the action or relief requested and shall attach to the complaint copies of canceled checks or other evidence of payment of any contested submetered electrical charges.

If the complainant has paid the disputed charges, the owner/Board shall process the complaint as set forth below. If the complainant has not paid the disputed charges, but is otherwise up-to-date in the payment of rent/carrying charges -- and the disputed charges are fifty percent (50%) or more higher than the highest charge for any comparable time period during the prior twelve months, the owner/Board is obligated to process the complaint. If, however, the disputed charge is unpaid and is less than fifty percent (50%) higher than the highest charge for any comparable time period during the prior twelve months, and/or the complainant's rent/carrying charges are not otherwise up-to-date, the owner/Board may summarily reject the complaint and **file a verified petition with the supervising agency setting forth the grounds why the lease/occupancy agreement should be terminated.**

A copy of the petition shall be served upon the complainant and a hearing with respect to the allegations set forth in the petition shall be held by the supervising agency. The parties may be represented by counsel and may summon witnesses to testify on their behalf. The hearing officer shall submit a written report of his findings and recommendations to the commissioner. The commissioner shall thereafter advise the parties in writing whether a Certificate of Eviction shall be issued. The commissioner's final decision shall be binding on the parties, subject to judicial review.

Upon receipt of a written complaint regarding **administrative** matters, the owner/Board or its managing agent has thirty (30) business days to respond. The response must either acknowledge the validity of the

complaint and set forth the remedy to correct the error or reject the complaint and advise the complainant as to the reasons for the rejection. The complaint may bring an unsolved matter before the supervising agency if:

(1) The owner/Board or its managing agent fails to respond to the initial complaint within the thirty (30) business day period

(2) The owner/Board or its managing agent rejects the complaint

(3) The owner/Board or its managing agent accepts the complaint, but the proposed remedy is unsatisfactory to the complainant

(4) The owner/Board or its managing agent accepts the complaint, but fails to effect the agreed upon remedy within thirty (30) additional business days from the data of acceptance by the complainant.

Upon receipt of a written complaint regarding submeter malfunction, the owner/Board or its managing agent shall arrange for testing of the submeter within ten (10) business days after receipt of the complaint. Solely at the discretion of the owner/Board or its managing agent, an independent meter tester or a representative of the metering company employed by the owner/Board shall provide the owner/Board or its managing agent with a written report regarding the accuracy of the submeter within thirty (30) business days from the date the submeter is tested. The owner/Board or its managing agent shall provide a copy of the test results to the complainant within ten (10) business days after receipt.

If the results of the submeter test confirm that the submeter is functioning accurately, the complainant must pay any open electricity charges within fifteen (15) business days from receipt of the test results or be subject to an administrative hearing as described above. If the submeter is found to be defective, the owner/Board shall include with the copy of the test report a proposed remedy to correct the defect and an appropriate billing adjustment. If this complaint was the first initiated by this complainant, the owner/Board shall pay the cost of the test, despite the outcome. The cost of resolving subsequent complaints regarding submeter accuracy shall be borne by the party in error.

The complainant may bring an unresolved submeter dispute to the supervising agency if the complainant is dissatisfied with the proposed remedy and/or billing adjustment or if the owner/Board fails to implement the remedy or make the billing adjustment within thirty (30) business days from the date of acceptance of the remedy and billing adjustment by the complainant.

A complainant, dissatisfied with the determination of the owner/Board as delineated above, may request an agency review by filing a written protest with the supervising agency within thirty (30) business days from the complainant's receipt of the owner/Board determination. A copy of the owner/Board's response, a copy of the test report, and other pertinent documents shall be included with the protest. Upon receipt of the protest, the supervising agency shall have the complaint and response reviewed. The agency may require

an independent inspection of the submeter, may seek to inspect building records, may call a conference of the parties to dispute, or take any other steps necessary to resolve the dispute. The agency representative designated to review the protest shall, within a reasonable time period, submit a written report of his or her findings and a recommended disposition of the matter. Once the report is accepted by the agency commissioner, a copy shall be sent to the owner/Board or its managing agent and the complainant. The determination of the agency is final, subject to judicial review.

The complainant must provide access to the submeter during normal business hours upon reasonable notice by the meter tester. If the complainant refuses access to the submeter within fourteen (14) business days from the date of receipt by the owner/Board of the initial complaint and the outstanding electricity charges remain unpaid, the owner/Board may apply to the supervising agency for a certificate of eviction without further notice.

(2) GENERIC DISPUTE RESOLUTION PROCEDURES

Upon completion of the interview process and the two submetering forums, the Project Team proceeded to analyze the data collected. One consistent thread runs through the testimony -- that of procedural uncertainty -- and the one aspect of uncertainty that was emphasized by agencies, owners/Boards, and tenants/shareholders alike is the lack of a standardized grievance/dispute resolution procedure. Every agency declared that no submetering application would go forward without a procedure in place. Owners sought to be assured that they will be able to collect submetering charges and tenants would not consider support of submetering without a mechanism to resolve faulty meter and erroneous billing issues.

At the second submetering forum, a number of agency participants expressed the view that if a standardized grievance procedure were established, it could conceivably be adopted by the agencies and the housing companies under their jurisdiction. The following is a proposed set of guidelines for dispute resolution:

<u>Dispute Resolution</u>

A standardized dispute resolution procedure should be adopted for handling disputes regarding submetered electricity charges. References in the PSC regulation to the Home Energy Fair Practices Act should be deleted and an applicant seeking permission to submeter should be required to affirmatively adopt a standardized dispute resolution procedure prescribed by PSC.

The first level of dispute resolution should be handled by the owner/Board/management. Disagreements that cannot be resolved at this level would be referred to an administrative agency charged with the responsibility for oversight of these matters. In the case of publicly assisted buildings, it would be the

respective supervising agency. In the private and rent regulated sectors, a determination would have to be made as to which entity would accept responsibility for dispute resolutions. In seeking to balance the potential for tenant/shareholder abuse in fabricating billing disputes to avoid payment and owner/Board abuse in refusing to remedy legitimate tenant complaints, the following format is recommended.

Complaint Procedure

To initiate a review of their bill, a tenant/shareholder (complainant) shall present to the owner/Board in writing a complaint relating to the operation of a submeter, a submeter billing amount or practice, or any related submetering issues. The complaint may be in letter form indicating the action or relief requested. If the complainant has paid the disputed charges, the owner/Board is obligated to process the complaint as set forth below. If the complainant has **not** paid the disputed charges, but is otherwise up-to-date in the payment of rent/carrying charges and the disputed charges are fifty (50%) percent or more higher than the highest charge for any comparable period (i.e., month) during the prior twelve months, the owner/Board is obligated to process the complaint. If, however, the disputed charge is unpaid and is less than fifty (50%) percent higher than the highest charge during the prior twelve months, and/or the complainant's rent/carrying charges are not otherwise up-to-date, the owner/Board is entitled to summarily reject the complaint and initiate suit against the complainant for the recovery of the money due or for eviction. HPD regulations presently in effect **mandate** that prior to the commencement of an eviction proceeding based solely upon non-payment of submetered electricity charges, the matter must be brought before the agency. A determination will have to be made regarding this issue.

If the complaint relates to **administrative** matters, the owner/Board shall be obligated to respond to the complaint within thirty (30) business days after receipt of the complaint. The response must either acknowledge the validity of the complaint and set forth the remedy to correct the error or reject the complaint and advise the complainant as to the reasons for the rejection. The complainant may bring an unresolved matter before an appropriate agency if:

(1) The owner/Board fails to respond to the initial complaint within the thirty (30) business day period
(2) The owner/Board rejects the complaint
(3) The owner/Board accepts the complaint, but the proposed remedy is unsatisfactory to the complainant
(4) The owner/Board accepts the complaint, but fails to effect the agreed upon remedy within thirty (30) additional business days from the date of acceptance by the complainant.

If the complaint relates to submeter malfunction, the owner/Board is obligated to arrange for testing of the submeter within ten (10) business days after receipt of the complaint. An independent meter tester or a representative of the metering company employed by the owner/Board must provide the owner/Board with a

written report regarding the accuracy of the submeter within **thirty (30) business days form the date the submeter is tested**. The owner/Board is obligated to provide a copy of the test results to the complainant within ten (10) business days after receipt by the owner/Board. For the complaint to be processed, the complainant must provide access to the submeter during normal business hours upon reasonable notice by the meter tester.

If the results of the submeter test confirm that the submeter is functioning accurately, the complainant must pay any open electricity charges within fifteen (15) business days from receipt of the test results or be subject to legal action. If the submeter is found to be defective, the owner/Board must include with the copy of the test report, a proposed remedy to correct the defect, and an appropriate billing adjustment. If this complaint was the first initiated by this complainant, the owner/Board will pay the cost of the test, despite the outcome. The cost of resolving subsequent complaints regarding submeter accuracy will be borne by the part in error.

The complainant may bring an unresolved submeter dispute to the attention of the appropriate administrative agency if the complainant is dissatisfied with the proposed remedy and/or billing adjustment or if the owner/Board fails to implement the remedy within thirty (30) business days from the date of acceptance of the remedy by the complainant.

Agency Review

A complainant, dissatisfied with the first level of dispute resolution, may request a review of the owner/Board's determination by filing a written protest with the appropriate administrative agency within thirty (30) business days from the complainant's receipt of the owner/Board determination.

Upon receipt of the protest, the agency shall have the complaint and response reviewed. The agency may require an independent inspection of the submeter, may seek to inspect building records, may call a conference of the parties to the dispute, or take any other steps necessary to resolve the dispute. The agency representative designated to review the protest shall, within a reasonable time period, submit a written report of his or her findings and a recommended disposition of the matter. Once the report is accepted by the agency commissioner charged with the responsibility for oversight, a copy shall be sent to the owner/Board and the complainant. The determination of the agency is final, subject to review by an Article 78 proceeding.

Unresolved Issue

State-of-the-art technology presently does not generally enable the owner/Board to **shut off** electric service to the tenant/shareholder for refusal to pay submetering charges, given that all efforts at mediation have

failed. Even if technology permits, the most effective goal of the dispute resolution mechanism should be to facilitate the collection of electricity charges as if they were rent or common charges, rather than the additional capability to turn off the electric service. Given that the amount of the shortfall in rent/common charges due to the failure to pay for electricity charges is sufficient to trigger provisions in the lease justifying eviction, this provision could be applied in cases where all mediation efforts have failed and the tenant/shareholder continues to withhold the amount corresponding to electricity charges.

(3) HPD REGULATIONS RELATING TO GRIEVANCE PROCEDURES

Excerpts from RCNY (6-30-91) Chapter 3 - City-Aided Limited Profit Housing Companies, §3-11, pages 11655-11657:

* * * * * * * * * * * * * * * * * * *

(b) *Submetering of Electricity*. Wherever allowable as determined by the Public Service Commission, a housing company which is master metered for electricity may, pursuant to HPD approval, install equipment for the submetering of electrical charges within dwelling units and bill cooperators for their individual consumption, plus administrative costs and amortization of equipment. A housing company seeking to convert to submetering must comply with all requirements of the Public Service Commission with respect to such conversion. Rent/carrying charges shall continue to reflect the cost of electricity for public areas and usages.

(4) *Grievance Procedures*.

(i) The tenant/cooperator (complainant) shall present to the housing company or its managing agent, a written complaint which may be in letter form, including the action or relief requested and shall attach to the complaint copies of cancelled checks or other evidence of payment of any contested submetered electrical charges. No complaint will be processed without proof of payment.

(ii) The housing company or its managing agent shall investigate and respond to the complainant in writing within ten (10) days of the receipt of the complaint. The complainant shall be advised of the disposition of the complaint and the reasons therefor.

(iii) If the complainant is dissatisfied with the managing agent's response, he or she may request a review of said determination by filing a written protest with HPD within fourteen (14) days from the date of the response. No particular form of protest is required.

(iv) Upon receipt of the protest, HPD shall have a representative review the complaint and the response by management. If necessary, an inspection of the meter may be ordered or a conference may be scheduled with the housing company or its managing agent and the complainant. HPD's representative shall, within a reasonable time period, submit to the Assistant Commissioner or a designee of the Division of Housing Preservation of HPD, a written report containing a recommended disposition of the matter. A copy of the report shall be sent to the housing company and to the complainant.

(v) The Assistant Commissioner or a designee shall review the report and shall either affirm, modify or reject the report in writing to all concerned parties.

(iv) Prior to the commencement of an eviction proceeding based solely upon non-payment of submetered electrical charges, the housing company through its attorney must submit a verified petition to HPD setting forth the grounds why the occupancy agreement should be terminated. A copy of the petition shall be served upon the cooperator and a hearing, with respect to the allegations set forth in the petition, shall be held by HPD. The parties may be represented by counsel and may summon witnesses to testify on their behalf. The hearing officer shall submit a written report to the Assistant Commissioner of his findings. The Assistant Commissioner shall thereafter advise the parties in writing whether the hearing officer's recommendation is accepted, modified or rejected.

* * * * * * * * * * * * * * * *

Date:_____

Utility Representative
Address

Re: Submetering for:

_____

_____

Type of Building Ownership:___ Cooperative ____ Condominium

Dear ***(name)***:

On ***(date)*****_____** a vote was taken of the shareholders/unit owners of the above corporation/condominium. A majority of voting shareholders/unit-owners voted in favor of submetering the individual apartments in the building. I have enclosed a certification of that vote with this letter.

Sincerely,

Name_____

Title _____

"Letter"

CERTIFICATION OF COOPERATIVE COOPERATION

We _____, President of _____ of Cooperative Corporation, and _____, Secretary thereof, do hereby certify:

1. _____ Corporation owns the premises at _____.

2. Check one:

____ **All tenants are shareholders or their sublessees**. (For the purpose of this certification, "sublessee" means a person occupying a unit vacated after the premises became a cooperative or previously occupied by a shareholder.)

____ **Not all tenants are shareholders or their sublessees**. The total number of residential units is _____. The number of units occupied by shareholders or their sublessees is _____. (For the purpose of this request, "sublessee" means a person occupying a unit vacated after the premises became a cooperative or previously occupied by a shareholder.) The number of units occupied by persons who are not shareholders or their sublessees is _____.

3. At a meeting of the shareholders duly held on (date) _____, submetering was adopted by a majority of all voting shareholders and has not since been amended or rescinded.

IN WITNESS WHEREOF, we have make and subscribed this certification and request this _____ day of _____, 19___.

_____

Name (print) _____
President

_____

Name (print)_____
Secretary

"Certificate A"

CERTIFICATION OF CONDOMINIUM

We _____, President of the Board of Managers, and _____, Secretary thereof, do hereby certify:

1. The premises at _____ are a condominium pursuant to a Declaration of Condominium dated _____, and recorded in the office of the clerk of the county of _____.

2. Check one:

____ **All tenants are unit-owners or their subtenants**. (For the purpose of this certification, "subtenant" means a person occupying a unit vacated after the premises became a condominium or previously occupied by a unit-owner.)

____ **Not all tenants are unit-owners or their subtenants**. The total number of residential units is _____. The number of units occupied by unit-owners or their subtenants is _____. (For the purpose of this certification, "subtenant" means a person occupying a unit vacated after the premises became a condominium or previously occupied by a unit-owner.) The number of units occupied by persons who are not unit-owners or their subtenants is _____.

3. At a meeting of the unit-owners duly held on (date)_____, submetering was adopted by a majority of all voting shareholders and has not since been amended or rescinded.

_____

Name (print) _____
President

_____

Name (print)_____
Secretary

"Certificate B"

APPENDIX G - Example PSC Staff Recommendation to Commission to Approve Rental Property Submetering Petition

For example, please contact the Submeteronline.com web site.