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ABSTRACT

This paper reports the results of two studies designed to evaluate the effects of a group contingency for conservation on use of electricity. Residents of 166 apartment units in three towers participated in the first study. The group contingency consisted of biweekly payments to residents of the value of the electricity they saved, as compared to predicted use based on temperature. In addition, resident meetings were held in each tower. The group contingencies were initiated in each tower at three-week intervals in a multiple baseline design. Subjects in the second study were residents of 255 apartment units, also in three towers. They experienced the same group contingencies in the same multiple-baseline design, except that they received only 50% of the value of their savings. In addition, they received a one-time bonus of five dollars if they used 10% or more less than baseline. Results are discussed in terms of theoretical and practical implications. (Author/HM)

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A GROUP CONTINGENCY FOR ELECTRICITY CONSERVATION IN MASTER METERED APARTMENTS

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through three programs to achieve its objectives. The Policy Studies in School Desegregation program applies the basic theories of social organization of schools to study the internal conditions of desegregated schools, the feasibility of alternative desegregation policies, and the interrelation of school desegregation with other equity issues such as housing and job desegregation. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large-scale study of the effects of open schools, has developed the Teams-Games-Tournament (TGT) instructional process for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The School Process and Career Development program is studying transitions from high school to post secondary institutions and the role of schooling in the development of career plans and the actualization of labor market outcomes.

This study, conducted under a grant from the Energy Research and Development Administration, examines the effectiveness of group contingencies in changing individuals' conservation behavior.

Abstract

Two studies were conducted to evaluate the effects of a group contingency for electricity conservation on use of electricity. In Study 1, residents of 166 apartment units in 3 towers served as subjects. The group contingency consisted of biweekly payments to residents of the value of the electricity they saved, as compared to predicted use based on temperature. In addition, resident meetings were held in each tower. The group contingencies were initiated in each tower at three-week intervals in a multiple baseline design. Results indicated that the program produced substantial savings in one tower (11.2% of temperature-adjusted baseline), moderate savings in another (4.0%), and minimal savings in a third (1.7%). Overall, the apartments saved 6.2%. Subjects in Study 2 were residents of 255 apartment units, also in 3 towers. They experienced the same group contingencies in the same multiple-baseline design, except that they received only 50% of the value of their savings. In addition, they received a one-time bonus of $5 for using 10% or more less than baseline. Results in Study 2 indicated savings in all three towers at 9.5%, 4.7%, and 8.3% of baseline, a total of 6.9%. Results are discussed in terms of theoretical and practical implications.

Acknowledgment

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The energy crisis of 1974-75 created a burgeoning of interest among social scientists in energy conservation. Before the crisis, imaginative programs directed at such environmental problems as littering (Hayes, Johnson, and Cone, 1975) and pollution control (Geller, Farris, and Post, 1973) were successfully evaluated, but research on energy conservation is a recent phenomenon. Interventions based on experimental analysis of resource-consumption behaviors have been used to reduce gasoline consumption among college students (Foxx and Hare, 1977), and several studies have used feedback, incentives, or both to reduce residential energy consumption in individually metered houses, apartments, and dormitories (Hayes and Cone, in press; Palmer, Lloyd, and Lloyd, in press; Seligman, Darley, and Becker, 1976; Winett, Kaiser, and Haberkorn, 1977).

Although the studies that have used monetary incentives to produce significant reductions in energy consumption in individually metered buildings show that energy-consuming behaviors can be modified, their practical utility is questionable. It is unlikely that government will apply monetary incentives to induce individuals to use less fuel, except indirectly by raising prices, and no one else is motivated to do so, mainly because the costs of the incentives or feedback programs are typically far greater than the value of the energy saved.

However, practical and effective programs could be readily adopted to reduce residential energy use in a substantial proportion of housing in the U.S. These are master-metered apartment buildings, in which residents pay a fixed rent regardless of their individual energy consumption. In these buildings, decreased energy use directly benefits apartment managers by reducing their operating costs. As a consequence, it is in the managers' interests to implement an incentive program if the incentives cost less than the value of the energy saved. Further, potential savings are large. It has been estimated that master-metered apartments use 35% more electricity than identical individually metered buildings (Midwest Research Institute, 1975). About one-third of all apartment units in the U.S. are master-metered, and their total waste is estimated to be 9.1 billion kilowatt hours per year. Comparable figures for natural gas use are unavailable, but because a substantially higher proportion of buildings are master-metered for gas than for electricity, the total waste is probably higher.

Social scientists have begun to address this problem by applying group contingencies for energy use to apartment residents who share the same electric or gas meters. A group contingency is defined here as a reward system in which members of a group receive equal individual rewards based on the performance of the entire group. Group contingencies have been effectively used in education (see Litow and Pumroy, 1975) and in other performance areas. In the area of energy conservation, Newsom and Makranczy (in press) used a competition between buildings to reduce electricity consumption in master-metered dormitories. However, the savings were small, averaging 5.25% less than baseline use during the four-week treatment period. In a similar contest among dormitory buildings, McClelland and Cook (1977) documented savings of about 6% in electricity use over a 12-week period. Slavin and Wodarski (1977) evaluated a group contingency in which residents received 75% of the value of the natural gas they saved, as determined by actual use compared to predicted use based on past usage and temperature. Unlike the Newsom and

Makranczy and the McClelland and Cook studies, which took place in university-affiliated housing, this study was conducted in an apartment complex unassociated with any university. Slavin and Wodarski found a 3.3% reduction in gas use over a two-month period, but even this dropped off in a third month of project implementation.

Why have these programs had such modest effects? If there is a waste of 35% in master-metered buildings, these projects are barely scratching the surface of the problem.

The present paper reports the results of two studies designed to maximize the effects of a group contingency on electricity use in non-university affiliated, master-metered apartment buildings. These studies incorporate two features not present in the earlier Slavin and Wodarski interventions:

1. Resident meetings. Slavin (1977) and others have noted that group contingencies are relatively inefficient reward structures; that they depend on formation of strong group norms in favor of exhibition of the criterion behaviors to be effective. However, strong group norms are unlikely to be formed in the absence of face-to-face interaction among group members. Both Newsom and Makranczy and Slavin and Wodarski conducted their studies entirely by mail. While this may be appropriate in a college dormitory, where resident interaction is relatively high, it is probably impossible to form group norms in a typical apartment without specifically structuring group interaction. Therefore, both studies described in this paper employed a resident meeting at the beginning of the treatment in which residents heard appeals for conservation, learned how to save energy, and participated in group activities designed

to maximize group commitment to a conservation goal.

2. Increased incentives. Payments to residents in all three studies cited above had been relatively small. The winning dorms in the Newsom and Makranczy study divided $30 among 211 to 245 residents, or had a raffle in which each resident in the winning dorm had one chance to win $30. In the McClelland and Cook study, the first place group won $80 to divide among 44 to 70 residents, and the second place group won $50. Payments in the Slavin and Wodarski study rarely exceeded $1.50 per resident.

In the present study, payments were increased to the maximum amount seen as practicable for managers. In Study 1, residents received 100% of the value of their savings; in Study 2, they received only 50%, but also received a one-time bonus of $5.00 the first time their tower exceeded a savings of 10% in a two-week period.

The studies took place during the summer of 1977, and thus focused on air conditioning as the primary form of electricity consumption.

In addition to attempting to document an effect of a group contingency on a population of practical interest (non-university affiliated, master-metered apartments), the two studies presented in this paper seek to determine the effectiveness of a group contingency based on the performance of very large groups (residents of 40 to 88 apartment units). Most studies of group contingencies have involved small, face-to-face groups; will the same techniques be effective in much larger groups that have only limited interaction?

Study 1

Method

Subjects and Setting. The subjects were the residents of 166 apartment units in a condominium in Baltimore, Maryland, which will be referred to as "Rice Hill." The residents of Rice Hill were primarily elderly and middle to upper middle class. The apartments were all-electric and had individual thermostats for air conditioning.

The apartments were organized into three towers, each with its own electric meter. Tower 2 had 40 units, Towers 1 and 3 each had 63 units. Occupancy was at 100% during the entire length of the project.

Data Collection

Each of the meters was read three times each week at the same time of day. Average daily use was computed by dividing the difference between the kilowatt hours shown on the meter and those recorded in the previous reading by the number of days in the period (two or three). Periodic reliability checks yielded inter-reader reliabilities of 100%.

Design

Study 1 employed a multiple baseline design across subjects (Hersen and Barlow, 1977), where the "subjects" were the towers taken as a whole. The three towers were introduced to the group contingencies in a randomly determined order at three-week intervals. Tower 1 received the treatment first, followed three weeks later by Tower 2, and three weeks after that by Tower 3. The contingencies went into effect at Tower 1 on June 13, 1977.

Baseline

Beginning in late May, baseline meter readings were begun in all three towers. A total of 14 readings were taken before the contingencies went into effect at Tower 1. A total of 23 baseline readings were conducted at Tower 2 before it began in the group contingency, and 32 readings were taken before Tower 3 began.

The fourteen baseline observations were used to generate a linear regression equation relating temperature to electricity usage. This prediction was necessary to establish an "expected" level of electricity use for each level of "degree days." Degree days are units used to describe the need for cooling. They are computed as the daily average Fahrenheit temperature ((high + low)/2) minus 65, with a minimum of zero. The prediction formulas generated were as follows:

For Tower 1: $Y_1 = 18.75 + 1.58D$, $R^2 = .707$

For Tower 2: $Y_2 = 15.41 + 1.09D$, $R^2 = .761$

For Tower 3: $Y_3 = 22.92 + 1.72D$, $R^2 = .828$,

Where Y = electricity use per apartment per day, D = mean degree days per day over the 2-3 day period, and R^2 = proportion of the total variance in Y explained by the equation.

Treatment

The treatments followed a regular pattern at each of the three towers. The steps were as follows:

1. Notification of resident meeting. Two weeks before the contingencies were to go into effect, all apartment residents were sent a brief letter inviting them to a meeting. Little was said about the meeting except that it concerned energy conservation and that refreshments would be served. Six days later, a

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reminder was sent.

2. Resident meeting. Five days before the contingencies were to go into effect in each tower, a meeting of the residents in the tower was held at or near the building. The meeting followed a structured sequence of activities, as follows:

   A. Appeal for conservation. The experimenters gave the residents a short talk on the importance of saving energy.

   B. Description of program. The group contingency was described (see below).

   C. Energy saving tips. The residents were given a list of energy saving tips, such as setting up their thermostats, closing drapes on hot days, and not using heat-generating appliances during the hot part of the day. The tips were briefly reviewed by the experimenters.

   D. Solicitation of resident suggestions. The residents were asked to form 4-5 member groups to discuss other ways that they could save electricity. These discussion groups were used both to generate additional tips and to make group norms in favor of energy saving more salient.

The resident meetings took 60-90 minutes, and included extensive question-and-answer periods in addition to the activities listed above. Attendance at the meetings ranged between approximately one-fourth and one-half of the residents.

3. Letters to residents. On the morning after each meeting, a letter was sent to all tower residents (whether or not they had attended the meeting). This letter reviewed the suggestions brought out

in the meeting and described the group contingency, and included a copy of the energy tips. It also contained a sticker with the words "We Conserve Energy" on it, and a second sticker containing a reminder to turn off the air conditioner, turn out lights, and close drapes before leaving the apartment. The residents were asked to display these stickers in their apartments.

4. Implementation of group contingencies. On the Monday following the meeting, the tower's use of electricity began to count toward group rewards. The group reward system operated as follows:

   A. Every two weeks, the total amount of electricity used by the tower was compared to the amount predicted based on the daily degree days for that period and the prediction equation for the tower.

   B. If the amount of electricity used was less than that predicted, the difference between the predicted use and the actual use was computed, and multiplied by the electricity rates then in effect. These rates averaged 2.8¢ per kilowatt hour.

   C. The total savings earned by the tower was divided by the number of apartments in the tower, and a check for that amount was sent to each resident. Whether or not the tower saved enough to earn a payment, the residents received a feedback letter explaining how much electricity the tower was expected to use, how much was actually used, and how much was earned (if anything).

The group contingency was continued through the summer, for a total

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of 14 weeks for Tower 1, 12 weeks for Tower 2, and 8 weeks for Tower 3.

Results

- -

Insert Figure 1 and Table 1 About Here

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Figure 1 depicts the weekly electricity use in hundred kilowatt hour units per resident for each of the three towers, adjusted for degree days. The adjustment was carried out by computing a linear regression of degree days on electricity use per resident over the entire study, and then adjusting each weekly total to remove the effect of temperature. The linear regression was as follows:

$$Y = 2.28 + .025D,\ R^2 = .930,$$

where Y = 100 kilowatt hour units used per week per resident, D = total degree days per week, and R^2 = proportion of variance explained in electricity use. The adjustment for temperature thus subtracts 0.25 $(D - \bar{D})$, where $\bar{D}$ = 71.18 degree days, from each day's use per resident. This adjustment is necessary to eliminate spurious changes in electricity use due to changes in temperature; the numbers in Figure 1 represent the usage that would have been observed had the weekly temperature mean been 75.2 degrees Fahrenheit every week.

The initiation of the group contingency in Tower 1 produced an immediate and sustained decrease from baseline in electricity use. Table 1 summarizes the percentage use greater or less than baseline over each three-week period beginning with implementation of the group contingency in Tower 1. The table shows that the greatest savings were made immediately following initiation of the group contingency, with the savings decreasing as time went on. A similar pattern was observed by McClelland and Cook (1977). Overall, Tower I used 11.2% less electricity during treatment than during baseline.

The results in Figure 1 and Table 1 for Tower 2 show that the experimental contingencies were not effective with this group. Electricity use actually increased from baseline during the first three weeks of the group contingency. Overall, Tower 2 did use slightly less during treatment than during baseline (1.7%), but this difference may be due to random variance.

The results for Tower 3 are less clear than those for Tower 1, but they do show a decrease in use of 4.0% during treatment.

Summing the electricity use during baseline for all towers and comparing it to the total use during treatment, the apartment complex used 6.2% less electricity during treatment than during baseline, a total value of $1521.13 saved over the entire treatment period. Payments to residents over the course of the treatment averaged $1.78 every two weeks and totalled $1452.70. This figure differs from the value of the electricity actually saved because (1) the payments were determined by savings compared to predictions computed from baseline use only, and (2) the payments represented the value of the electricity actually saved, without controls for temperature (so that a constant percentage saving earned more for residents during a hot period than during a cool one).

In summary, the results of Study 1 indicated that the group contingencies were effective in two towers, but not in a third. In the buildings in which the treatments were effective, the effects were strongest immediately following the initiation of the treatment.

Study 2

Method

Subjects and Setting. The subjects in Study 2 were the residents of 255 apartment units in a rental apartment complex in Baltimore which will be referred to as "Nevermoor." Like the residents of Rice Hill, those at Nevermoor were primarily elderly, but they were lower middle to middle class instead of middle to upper middle. The apartments had electric air conditioning, but gas ranges; they had individual thermostatic control of their air conditioning.

The Nevermoor apartments were organized into three towers, as at Rice Hill. Tower A had 82 units, Tower B had 88, and Tower C had 85. Occupancy was near 100% during the length of the project.

Data Collection

Meters at Nevermoor were read in the same way and on the same schedule as those at Rice Hill.

Design

Study 2 also employed a multiple baseline design across towers, where the towers were introduced to the experimental contingencies in a randomly determined order at three-week intervals. The contingencies went into effect at Tower A on June 20, 1977, one week after the first tower at Rice Hill began under its group contingency.

Baseline

Baseline readings were begun at about the same time at Nevermoor as they were at Rice Hill. Twelve readings were taken before the group contingency began at Tower A; 21 before Tower B began; and 30 before Tower C began. The first twelve baseline observations were used to generate the following electricity-use prediction equations:

For Tower A: $Y_A = 16.37 + 2.11D$, $R^2 = .903$

For Tower B: $Y_B = 14.58 + 1.85D$, $R^2 = .906$

For Tower C: $Y_C = 15.11 + 2.25D$, $R^2 = .898$

The prediction equations at Nevermoor explained substantially more of the variance than did the equations at Rice Hill. This is possibly due to the fact that at Nevermoor, the air conditioner was by far the biggest user of electricity, while electric ranges were also important at Rice Hill. Range use is unlikely to be affected by temperature, and the inclusion of ranges probably attenuated the correlation between temperature and electricity use.

Treatment

The experimental treatment applied at Nevermoor was the same as that used at Rice Hill, with one important exception. At Rice Hill, the residents received 100% of the value of their entire savings as a group, and received their checks every two weeks. At Nevermoor, residents received only 50% of the value of the energy they saved, and after the first two weeks of treatment they received feedback letters every two weeks, but they received payments only every four weeks. In addition, residents received a one-time bonus of \$5.00 the first time their tower exceeded a 10% savings in a two-week period. This bonus was expected to serve as an early, highly visible indication to residents that they could save energy if they tried, and to make the group contingency salient. The four-week payment schedule was used instead of a two-week schedule to increase the size of each payment, as 50% of actual energy savings was a small sum even if the residents saved a great deal.

The group contingency was in effect for a total of 14 weeks for Tower A, 11 weeks for Tower B, and 8 weeks for Tower C.

Results

Insert Figure 2 and Table 2 About Here

Figure 2 depicts the weekly use (100 KWH) per resident, adjusted for degree days, for each of the three towers in Study 2. The linear regression used to remove the effect of temperature on electricity use was as follows:

$$Y = .747 + .031D, \quad R^2 = .953$$

As is depicted in Figure 2, the group contingency was clearly effective in Towers A and C, and somewhat effective in Tower B. Table 2 shows that overall usage was 9.5% less than baseline at Tower A, 4.7% at Tower B, and 8.3% at Tower C. Unlike the finding at Rice Hill's Tower 1, the savings did not decrease over time at any of the Nevermoor towers. Over the treatment period, the entire complex used 6.9% less electricity during treatment than it did during baseline, a value of $1925.15. Average monthly payments to residents not including the $5.00 bonuses were $1.44, and totalled $952.34 Towers A and C earned their $5.00 bonuses for exceeding a 10% savings in a two-week period. Including the bonuses, the residents received a total of $1787.34.

In summary, the results of Study 2 show even more conclusively than those of Study 1 that group contingencies can reduce electricity consumption in master-metered apartment buildings. As in Study 1, the second of the three towers to begin in the group contingency saved considerably less than the first and third towers. However, unlike Study 1, Study 2 did not find any trend toward diminishing treatment effectiveness over time.

Discussion

The studies reported here demonstrate the effectiveness of a group contingency for saving energy in master-metered apartments. The primary significance of this finding is that, for the first time, a group contingency has been found to be effective in apartment buildings unaffiliated with any university, and the size of the incentives given and procedures employed are within the means of apartment managers.

The finding of an effect of the group contingency is a very interesting result for a theory of group contingencies. According to classical motivation theory, a group contingency should be maximally effective when the group is small, because the larger the group whose collective behavior constitutes the criterion for reward, the smaller the relationship between individual behavior and individual outcome (see Slavin, 1977). In the Nevermoor apartments, which ranged between 82 and 88 residents per tower, the correlation between individual behavior and individual outcome is +.11; about 1% of the variance in any resident's rewards is explained by his own behavior. Interestingly, the smallest tower in the two studies, Tower 2 at Rice Hill (40 apartments), was the only building in which the group contingency did not appear to be effective. In the Slavin and Wodarski (1977) study, which evaluated both a "large group"

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contingency (24 units) and a "small group" contingency (12 units), the large group contingency was more effective than the small group. While there is not yet enough evidence to demonstrate that the larger the group subjected to a group contingency, the larger the effect on energy conservation, there is certainly no evidence in the present study or in Slavin and Wodarski (1977) to support the more theoretically justifiable expectation that the opposite relationship would be observed.

The effectiveness of the very large group contingency demonstrated in the study can be explained by a theory of the effectiveness of large group contingencies advanced by Slavin (1977). This theory is based on the observation that although individual behavior is poorly linked to individual rewards in a large group contingency, it may be very well linked to interpersonally applied contingencies among group members. Because it is difficult for any individual to increase his own rewards acting alone, there is a strong motivation to socially reinforce others for their behaviors that help the group attain its goal. In this study, neighbors presumably reminded one another of the group norm favoring conservation and reinforced actual conservation and reports of conserving behaviors. In a post-experimental questionnaire, 45% of the respondents at Rice Hill and 31% of those at Nevermoor reported that they had talked about saving electricity with residents of five other apartments or more; only 18% at Rice Hill and 20% at Nevermoor reported never having talked to their neighbors about saving energy. Also, only 5% of the respondents at Rice Hill and 3% at Nevermoor thought that "only a few" of their neighbors were trying to save energy, and no respondents thought no one was saving. On the other hand, 60% of the Rice Hill respondents and 62% at Nevermoor thought that most of their neighbors were saving electricity. In other words, the apartment residents both perceived a group effort toward the group goal and discussed the goal with their neighbors. It may be that the larger the group in a large group contingency, the stronger the normative pressure in favor of exhibition of the behavior that helps the group achieve its goal. Individuals may feel that there is a larger number of others trying to influence their behavior and that individuals who do not perform the group-approved behavior are an isolated minority.

Several questions remain about the effectiveness of group contingencies in modifying energy consumption in master-metered apartments. First, why were the group contingencies in the studies reported here so much more effective than the very similar program evaluated by Slavin and Wodarski (1977)? There are several differences. The earlier study did not employ resident meetings, and the payments to residents for the same percentage savings were much smaller in the earlier study. The residents in the earlier study were young and transient; in the present study they were elderly and quite stable. The earlier study involved winter natural gas use, as opposed to summer electricity; it may be easier to conserve on air conditioning and other electrical appliances than it is to conserve on heating, the source of most gas use. Any of these factors may be important. Only systematic research varying each of them can determine which are important in mediating the effects of group contingencies on energy consumption.

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A second question concerns maintenance. How long will the experimental contingencies continue to modify energy conservation behaviors? Here, the evidence is mixed. McClelland and Cook (1977) and Slavin and Wodarski (1977) found a decrease over their 12-week treatments in the effectiveness of group contingencies in modifying energy use. Newsom and Makranczy (in press) did not find such a decrease, but their treatment lasted only four weeks. In the present studies, Tower 1 at Rice Hill showed a pattern of initial savings followed by a gradual reduction in conservation, but none of the five other towers (two at Rice Hill and three at Nevermoor) showed any tendency for treatment effects to diminish over time. Further research must establish whether the falling off of the treatment effects does occur, and whether specific procedures (such as followup resident meetings) can minimize this effect, or even accelerate the savings over time.

Another practical question concerns the importance of having the resident meetings run and contingencies applied by the managers themselves, instead of presumably trustworthy researchers from a prestigious university. In conducting the present research, the authors had many occasions to observe the considerable hostility and mistrust [illegible] many residents have for their apartment management. Would the contingencies be effective if they were administered by the managers?

This study adds to the evidence that while group contingencies can modify energy conserving behaviors, their effects are likely to be moderate. If the waste in master-metered apartments is 35% or more of the total electricity used, the 5-7% savings found by McClelland and

and Cook, Newsom and Makranczy, and ourselves is only a small portion of what could be saved. These savings are still important, given the magnitude of the problem, but can social science develop a means short of individual metering that can have a greater impact on energy waste? Group contingencies for energy use represent a first step in this direction, but there is much more to be done.

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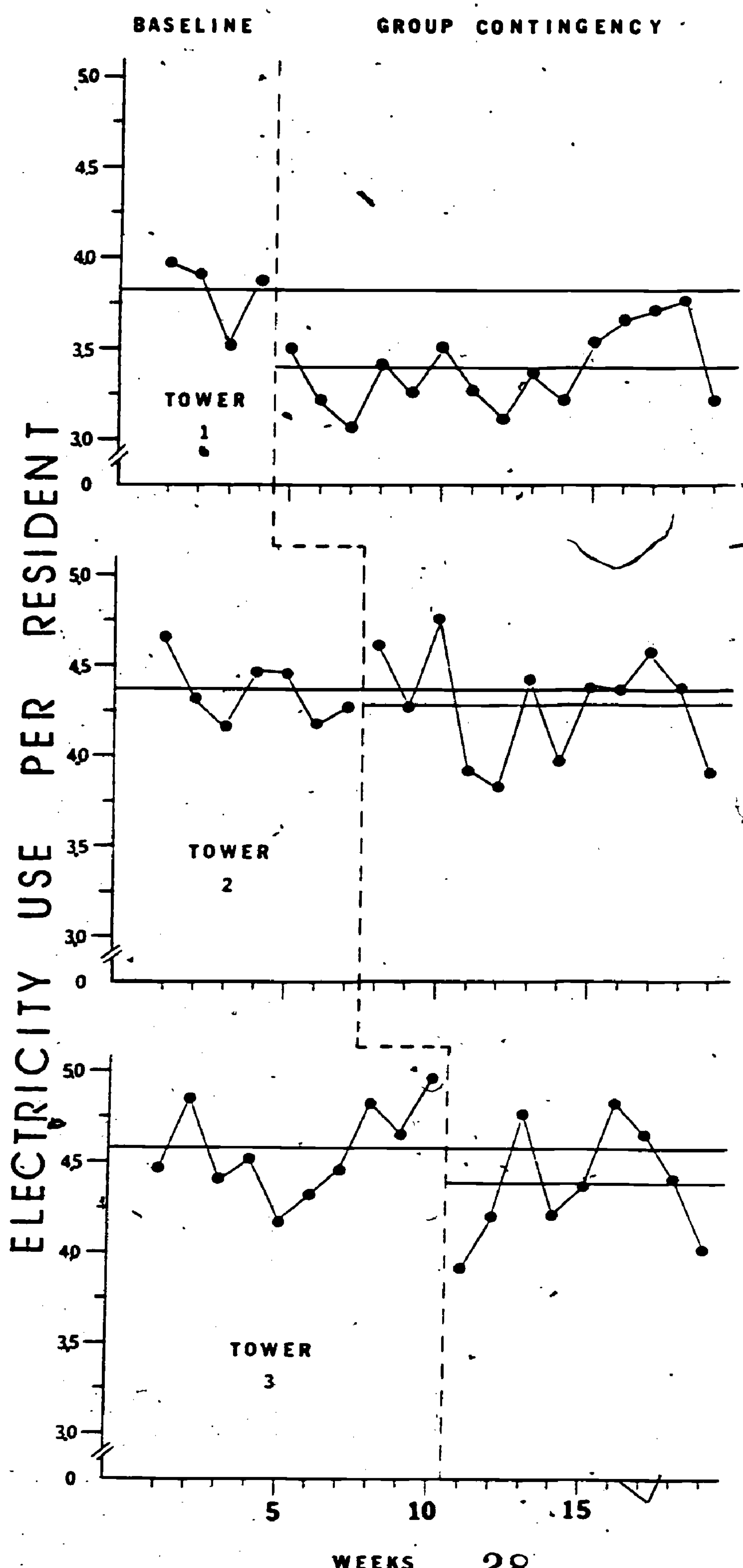
Figure Captions

Figure 1. Weekly electricity use per resident in 100 KWH units, adjusted for temperature, Study 1 (Rice Hill Apartments). The horizontal lines indicate mean use during baseline and mean use during treatment, respectively.

Figure 2. Weekly electricity use per resident in 100 KWH units, adjusted for temperature, Study 2 (Nevermoor Apartments). The horizontal lines indicate mean use during baseline and mean use during treatment, respectively.



BASELINE
GROUP CONTINGENCY
ELECTRICITY USE PER RESIDENT
TOWER 1
TOWER 2
TOWER 3
5.0
4.5
4.0
3.5
3.0
0
5
10
15
WEEKS

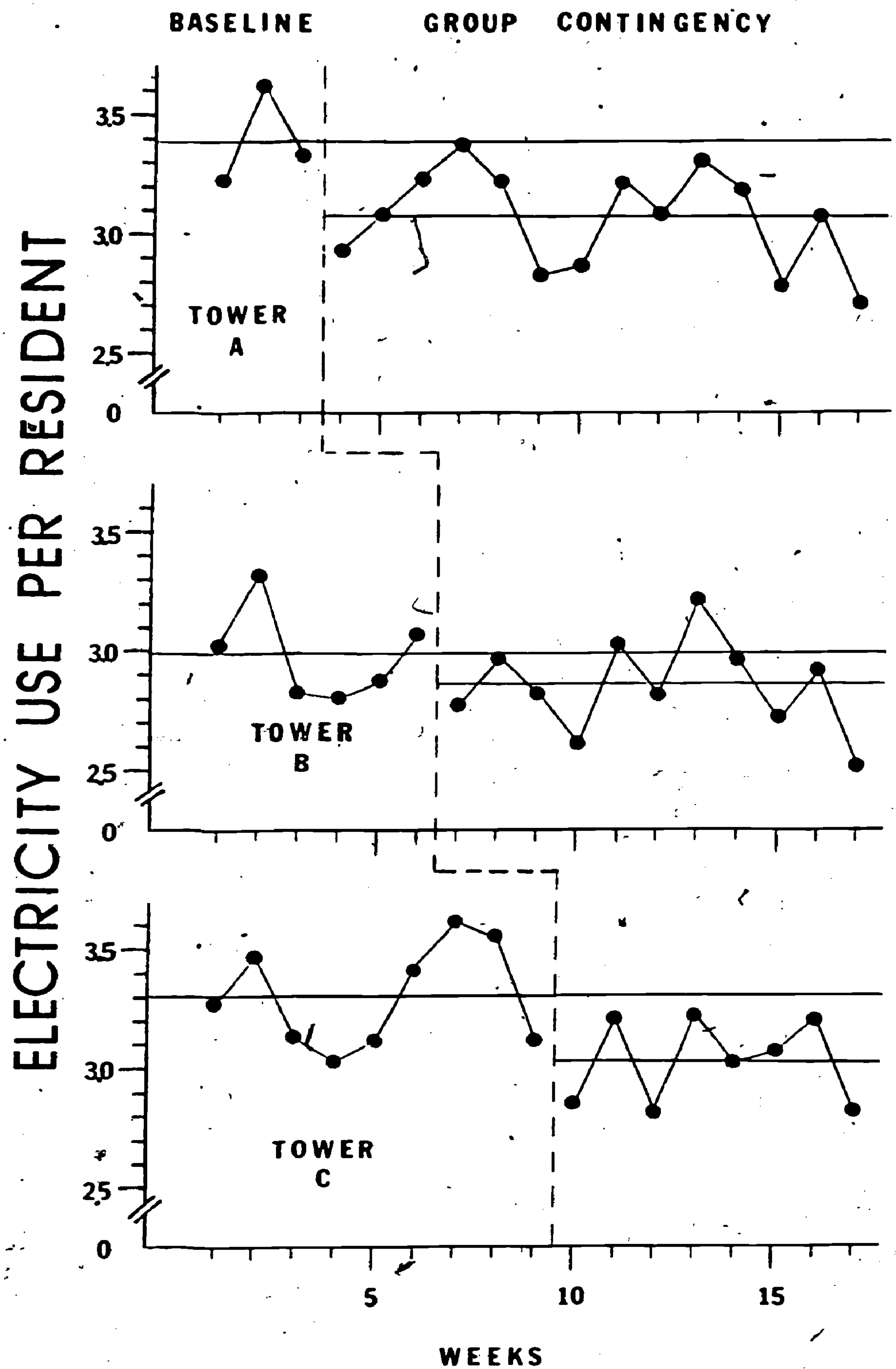

BASELINE
GROUP CONTINGENCY
ELECTRICITY USE PER RESIDENT
3.5
3.0
2.5
0
TOWER A
TOWER B
TOWER C
5
10
15
WEEKS

Table 1: Percent Changes From Baseline in Electricity Use During Treatment, Study 1

	Three-Week Periods					
	1	2	3	4	5	Total
Tower 1	-14.7	-11.1	-14.8	-9.0	-6.4	-11.2
Tower 2		+4.3	-5.5	-2.7	-1.6	-1.7
Tower 3			-5.8	-1.9	-4.3	-4.0

Table 2: Percent Changes From Baseline in Electricity Use During Treatment, Study 2

	Three-Week Periods					
	1	2	3	4	5*	Total
Tower A	-8.8	-7.2	-9.6	-8.6	-14.9	-9.5
Tower B		-4.3	-5.7	-0.9	-9.3	-4.7
Tower C			-10.4	-5.9	-8.8	-8.3

* Two-week period