SEARCHING FOR AN IMPLEMENTATION STRATEGY FOR THE MODEL CONSERVATION STANDARDS: A UTILITY PERSPECTIVE

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ABSTRACT

The Northwest Power Planning Council (Council) has made conservation the cornerstone of its regional power plan. It has also made the regionwide adoption of model conservation standards (MCS) to substantially increase the energy efficiency of new buildings the focal point of its conservation efforts. Since 1983, the Council's principal approach to MCS has emphasized the adoption of building codes. The goal was for the entire region to be building to the MCS performance standard by 1986. However, with the region still experiencing an energy surplus, progress has been much slower than expected.

As a result, the Council recently adopted a new MCS implementation strategy that emphasizes BPA and utility marketing and incentive programs. In designing this new approach, the Council rejected much of the guidance offered by BPA and most of the region's utilities. Early indications suggest widespread utility opposition to the new approach.

This paper chronicles the interplay between the Council, BPA, and the utilities as they searched in vain for a mutually acceptable MCS implementation strategy. Secondary attention is given to other important actors such as the state and local governments, builders associations, and the environmental community.

The paper concludes with a mildly positive assessment of the future prospects for MCS.

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INTRODUCTION

The Northwest Power Planning Council (Council) has made conservation the cornerstone of both its 1983 and 1986 Regional Power Plans. Furthermore, it has made the Model Conservation Standards (MCS) for new electrically-heated buildings the centerpiece of its conservation effort. Since the adoption of its first Regional Power Plan in 1983, the Council's principal strategy for implementing MCS throughout the Pacific Northwest has been through the adoption of codes. By January 1, 1986, residential and commercial building codes reflecting MCS savings levels were to have been adopted throughout the region. If certain jurisdictions failed to adopt and implement the standards by this date, the Bonneville Power Administration (BPA) was to levy a 10 percent surcharge on the power purchased from BPA by the local utility serving those jurisdictions.

However, as the 1986 deadline drew closer, it became increasingly clear that most of the region was not about to adopt MCS codes in time. This is not to say that no significant progress was occurring. By the spring of 1985, statewide code improvements had been authorized in Washington and were under consideration in Oregon, although these "compromise" offerings were projected to achieve only about 50 percent and 33 percent, respectively, of the savings the Council assumed for MCS in the residential sector.[2] Five local jurisdictions in Washington State, including Tacoma, had adopted the MCS as local building codes. And some 50 publicly-owned utilities had signed up for a BPA sponsored marketing program, called "Super Good Cents", aimed at encouraging new home construction to the MCS level and making code adoption politically more feasible.

While important, these advances hardly constituted regional acceptance of MCS. Faced with the prospect of recommending to BPA that a surcharge be levied upon most of the region's ratepayers, the Council wisely chose to announce that it was considering extending the timetable for MCS and modifying the nature of the implementation strategy.

This paper chronicles the interplay between the Council, BPA, the utilities, and other parties as they searched in vain for a mutually acceptable MCS implementation strategy. Primary emphasis is placed on the perspective developed by most Pacific Northwest electric utilities. It concludes with an assessment of the future prospects for the widespread adoption of MCS in the Pacific Northwest.

COUNCIL'S PROPOSED MCS AMENDMENTS

On March 15, 1985, the Council released a "Model Conservation Standards Review: Issue Paper"[3] which proposed the adoption of a phased approach to implementing MCS. This proposal was further refined and released as proposed formal MCS amendments to the Council's 1983 Regional Power Plan.[4] The principal effects of the proposed amendments would be to extend the deadline for adopting the full standards for electrically heated residential buildings to January 1989 and create a set of interim standards that would need to be met by January 1987. The MCS for new commercial buildings would need to be met by January 1987.

With this phased approach to MCS implementation, the Council also introduced the concept of "consumer optimum". Based on preliminary cost data from 160 demonstration homes built to MCS specifications, the Council concluded that some MCS measures were sufficiently cost-effective that their adoption would be "economically optimal for the average regional residential consumer of electricity." The Council called this level of energy-efficiency "consumer optimal". It was to be at this interim level of energy savings that 85 percent of the new residences were to be built by January 1987. These interim energy savings could be achieved through building codes, utility-sponsored marketing programs for energy-efficient homes (such as the Super Good Cents program), utility-funded incentive programs, or a combination of these. A utility which successfully pursues any of these programs or which develops an alternative program that saves an equivalent amount of energy by January 1987 would avoid a surcharge.

By January 1989, new residences would need to be built to the Council's full model conservation standards. The full standards include additional conservation measures which were considered cost-effective to the region's electrical power system. The test of regional cost-effectiveness was assumed to be the estimated cost of electricity generated by a coal plant operated in conjunction with the rest of the regional system. This "avoided cost" was set initially at 55 mills per kWh. The list of MCS measures that were not found to meet the "consumer optimum" test but were still found to be "regionally cost-effective" varied slightly among the three regional climate zones; but in all cases it included the two most controversial and least accepted measures--the continuous air/vapor barrier and the air-to-air heat exchanger. These measures have been met with strong builder resistance throughout the Pacific Northwest. This builder resistance is based largely on cost and reliability considerations, as well as a simple lack of familiarity with these measures.

BPA AND UTILITY RESPONSE

Reaction to the Council's proposal was surprisingly hostile. Environmental groups such as the Natural Resources Defense Council and the Northwest Conservation Act Coalition criticized the Council's decision to back off so far from the 1986 surcharge date.[5] The NRDC urged that the Council not impose a "watered down" interim standard for the residential sector during the

1987-1989 period. Instead, the Council should set January 1, 1987 as the surchargable date for both the residential and commercial sectors.

Not surprisingly, most electric utilities advanced a different perspective. While there was no one consistent viewpoint that was fully agreed upon by the over 125 electric utilities in the Pacific Northwest, there was a surprising degree of consensus that was sufficient to allow the two regional trade associations--the Public Power Council (PPC), representing 115 publicly-owned or cooperatively-owned utilities, and the Pacific Northwest Utilities Conference Committee (PNUCC), representing most of these utilities plus the region's investor-owned utilities and the direct service industries--to present a consensus utility position on many aspects of the Council's proposal.

What is perhaps more surprising, this industry position was consistent in most respects with the position presented by BPA. BPA supported delaying the requirement for MCS adoption until January 1989.[6] The agency argued that phasing in the MCS over several years in two direct steps would divert attention and effort away from reaching the full MCS and focus attention instead on the interim standards. Interim standards would most likely send confusing and distracting signals to perspective homebuyers, builders, and those governmental agencies responsible for code adoption. State and local governments would be less inclined to adopt building codes that achieve the full MCS level. Moreover, labeling a standard that is less that the full MCS as "consumer optimal" would make it much more difficult to convince builders or homebuyers to accept the full MCS, not to mention the state officials responsible for code adoption. BPA recommended dispensing with the interim standard and focusing attention toward supporting efforts to reach the full MCS for new residential and commercial construction by January 1, 1989.

Several of the large urban utilities with a strong conservation track record, such as Tacoma and Seattle City Light, argued that a "surchargable" interim standard was necessary to persuade state legislatures that the future threat of a surcharge is credible. They noted that a decline in the credibility of a surcharge threat would increase the difficulty of future efforts to convince state legislatures to adopt more stringent codes.[7] However, while appreciating these concerns, most utilities, including a number with strong conservation track records, agreed with BPA that the adoption of interim standards would ultimately be more harmful than helpful.

Most utilities recognized that the Council, environmental organizations, and others would be concerned about the extent to which utilities, state and local governments, the building industry and other parties would use the additional time to work judiciously to move common building practice to the MCS level. As a result, these utilities authorized PPC and PNUCC to propose a detailed implementation strategy to attain a broad base of support for MCS by January 1989, and to establish a process to promote steady progress toward that goal during the 1986-1989 time period.[8] As part of this strategy, utilities serving jurisdictions that have yet to adopt MCS as codes would be required to submit to BPA by the fall of 1986 Model Conservation Standards

Development Plans that would establish how the utility, the local jurisdictions, and other parties would ensure compliance by January 1, 1989. BPA would be responsible for reviewing and commenting on whether the utilities' plans and contingency strategies appeared adequate. Utilities would also submit annual status reports to BPA describing the results of program efforts to date.

Virtually all utilities expressed concern that the Council appeared to be backing away from and, perhaps, even giving up on the premise that MCS could be achieved through code adoption. They argued that the adoption of building codes is the most certain and, at least from the utilities' ratepayers perspective, the most cost-effective means of achieving and sustaining new construction to the full MCS level and urged that the Council's MCS implementation strategy be designed to achieve the codification of these standards. They noted that the regionwide adoption of MCS will require the active involvement of many interests, including not only the Council, BPA, and the utilities, but other parties as well, such as the state and local governments and the building industry. While utilities share in this responsibility, theirs is by no means the only share. Yet, if the state or local government fails to enact MCS through codes or the builders refuse to accept all of the MCS measures, it is the utility (and its consumers) alone that are held responsible and subject to the 10 percent surcharge on their rates.

Testimony offered by PPC accepted the Council's premise there was an important role for utility-sponsored marketing and incentive programs to encourage builders to construct, and prospective homebuyers to purchase homes built, to the MCS level. However, PPC added that it should be clearly understood by all parties, particularly the building industry and state and local governments, that these utility programs will be offered for a limited duration. They are a bridge to help reach codes, not a substitute for codes.

PPC also endorsed the use of BPA revenues paid for by ratepayer funds to support local governments that agreed to pass MCS through codes. This "Early Adopter" program support would consist of: (1) a reimbursement to government jurisdictions for the incremental costs of MCS code adoption and enforcement, (2) training for shelter industry participants in the MCS construction practices, and (3) financial incentives to builders and/or buyers of residences built to the MCS.

The utilities were widely split on one aspect of BPA's proposal to the Council. This involved a BPA funded program of financial incentives to supplement the Super Good Cents marketing program and help convince builders and homebuyers to adopt MCS. A majority of utilities argued that such an incentive program could serve to discourage support within the building industry for MCS code adoption by rewarding and subsidizing builders in jurisdictions that do not adopt MCS. These utilities emphasized that incentive programs should be used only when both code adoption efforts and those marketing programs that do not include incentives have been tried and proven insufficient. Proponents of this perspective argued that since

incentives should be used as a last resort, the utilities themselves and not BPA, should pay for them. This would preclude the need for utilities that have determined that they do not need incentive programs to pay through their rates for other utilities that do require incentives. If adopted on a regionwide basis, this approach avoids inequities associated with ratepayers from low-growth areas subsidizing those in high-growth areas. Some utilities argued further that incentives could be counterproductive by counteracting market pressures to reduce conservation measure costs over time. The Eugene Water and Electric Board, a utility with one of the strongest conservation records, for example, argued that incentives can "artificially inflate the cost of measures by eliminating market forces, which normally work to drive prices down. Expecting prices to drop in a subsidized market is unrealistic."[9]

A strong minority of utilities agreed with the alternative viewpoint advanced by BPA, namely that the adoption of new codes tends to follow rather than lead significant changes in building practice. They accepted BPA's view that a combination of research, demonstration and training, vigorous marketing, plus incentives would be required if substantial changes in building practices are to develop over a short period of time. According to this view, incentives offered in conjunction with a marketing program would provide the "carrot" to advance common building practice to the point where code adoption to the full MCS level is politically feasible and economically more attractive.

Both perspectives were premised on the belief that incentive programs, if they are to exist at all, should be of a short duration. Both viewed incentive-supported new construction practices as ephemeral unless the advances are quickly "solidified" through code adoption. The utilities agreed that it was dangerous to assume that builders or homebuyers would automatically continue to embrace all of the MCS measures once incentives were phased out. Each perspective offered a different means to reach the same objective: to support the codification of new construction that meets the MCS performance levels at the earliest possible date.

THE COUNCIL'S REVISED PROPOSAL

By mid-September of 1985, it had become clear that the Council's proposed amendments had not been well received. The next question became: how would the Council respond to this situation? With BPA and nearly all of the Pacific Northwest utilities closing ranks on a reasonably coherent strategy to implement MCS, it would seem prudent for the Council to take advantage of this momentum rather than reject it. After all, the utilities had agreed to accept a significant share of the responsibility for making the regionwide adoption of MCS a reality. If the Council could agree to work in partnership with BPA and the utilities, the prospects for significant progress would be very large. Some in the environmental community seemed to recognize this "golden opportunity". Even though they may not have agreed fully that the utilities' strategy was necessarily the best way to reach MCS, they saw it as a reasonable approximation. An "approximate strategy" that the utilities

supported was more likely to succeed than a "perfect strategy" that utilities opposed. The witness for the NRDC seemed to be adopting this philosophy when he indicated that "our main job now appears to be to get behind the utilities and push."[10]

At first, the Council appeared willing to meet BPA and the utilities half-way. The Council released a staff paper which offered a revised MCS implementation strategy and the public comment period was reopened.[11] The Council's revised strategy did not adopt BPA or the utilities' recommendations in whole. Instead, it accepted some features and added some new ones. Under the Council's revised proposal, responsibility for financial incentives would be shared between BPA and the utilities. To best understand how this arrangement would work, consider Figure 1. Based on the preliminary cost data from 290 MCS demonstration homes, the Council established that the responsibility of the local utility would be to pay that portion of the incentive payment that corresponded with the cost measures that would be required to move building construction from the level of current practice (defined as common practice in 1983) and the "minimum life cycle cost" level for homebuyers (a new phrase for the "consumer optimum"). BPA's "regional responsibility" would be for that portion of the incentives payment required to move building practice from the minimum life cycle cost level that is cost-effective to the homebuyer to the full MCS that is regionally cost-effective. BPA would be responsible for setting the total incentive amount; the Council's responsibility would be for establishing the local utilities' and BPA's shares of the incentive.

In its new proposal, the Council staff explained that the proposed cost sharing ratios would be driven by the level of current building practices in the states compared to the residential MCS standard. Utilities in Washington State, where codes have been improved to be nearly equivalent to the minimum life cycle cost level for homebuyers, would pay a far lesser share than utilities in Idaho and Oregon, for example, where current practice is not as efficient as the new Washington code. As codes are improved in a jurisdiction, the local utility's share of the total acquisition payment would be decreased until the code reached or exceeded the minimum life cycle cost level for homebuyers. At that time, the local utility's share of acquisition payment would drop to zero, and BPA would make the entire payment, up to the level of regional cost-effectiveness.

The proposal added:

> The Council expects that costs of conservation measures beyond the current minimum life cycle cost level for homebuyers will fall rapidly over the next several years as the market for heat recovery ventilators matures, builders gain experience in using high R-value exterior walls, and lower cost infiltration techniques come into practice. To the extent reductions in costs occur, BPA's share of the total acquisition payment would fall and would become zero when the full residential standard results in the minimum life cycle cost level for homebuyers.

The Early Adopter program and other provisions from the previous proposal were preserved.

BPA AND UTILITY RESPONSE

Reaction from BPA and the utilities to this new proposal was mixed. There was a widespread disappointment that the Council had not accepted more of the utility recommendations. But there was also a more widespread acceptance of the use of incentive payments as a short term bridge to help to reach MCS through codes. The Executive Committee of PPC voted to offer a compromise proposal that accepted the Council's incentive proposal. PPC's testimony[12] suggested a declining incentive structure beginning with $2000 per residence in 1986, between $1000 and $1500 for 1987, and between $500 and $1000 in 1988. The incentives would terminate in 1989. PPC and many of its member utilities argued that a declining incentive structure and definite termination date were critical to give to building community and code adoption officials the clear signal that MCS incentives would be a transient event on the path to code adoption. BPA offered a very similar position through a letter from the Assistant Administrator for Conservation to the Council.

Despite these conciliatory moves, new information was also emerging that challenged the cost-effectiveness of MCS and ensured continued controversy. The Pacific Northwest Generating Company (PNGC), a generating and transmission cooperative serving 13 member coops in 5 states, presented the results of a survey on residential energy consumption in its members' service territories and other observations about the cost-effectiveness of MCS. PNGC's testimony raised three key points:

> First, average electrical space heat usage in single family dwellings in our Members' service areas is less than one-half of the engineering estimates for new dwellings used by the Council to calculate the cost-effectiveness of the model conservation standards (MCS). Actual space heat usage in PNGC Members' service areas appears to be at MCS levels if it is not already well below. As a result, the potential savings being claimed for the MCS simply do not appear to be available, at least in the service areas of our Members. Indeed, the Council's expected savings are greater than our present use. It appears that the savings that would actually result from implementing the MCS in our Members' service areas will not even approach being economic even if one accepts all of the Council's other assumptions used to evaluate the economics of the standards.
>
> Second, preliminary information from other credible studies now underway suggests that a similar picture could emerge for the region as a whole. Should this prove to be the case, the MCS resource almost certainly will not be available in the magnitude assumed in the Council's Draft Plan. In addition, most, if not all, of the MCS measures would not appear to be cost-effective today.

> Third, the method used in the Draft Plan to calculate the expected economics of the MCS is fundamentally flawed. It seriously overstates the amount of energy the MCS would actually save for the system, and it understates substantially MCS costs.[13]

This cost-effectiveness concern was embraced by a number of utilities, especially those serving rural areas east of the Cascades. PPC's testimony suggested that BPA be given the responsibility to establish a cost-effectiveness task force comprised of all interested parties to attempt to resolve this issue.

COUNCIL'S FINAL MCS PLAN

After the public comment period closed, the Council began deliberations on its final MCS Plan. This process involved long and acrimonious negotiations among Council members over a 5 week period. The final MCS amendments were approved by a 6 to 2 vote on December 4, 1985.[14]

A majority of the Council members decided that the time and incentive dollars required to implement MCS now appeared to be much more than the Council staff's proposal or PPC's proposal assumed. As for the dollar levels, the Council set BPA's share of the incentive amount at $2500 per residence. Local utility payments would vary from state to state depending on climate zone and local building practice. The range was from $130 per residence in western Washington to $1070 per residence in Idaho. Thus total incentive levels per residence would range from $2630 to $3570. Incentive payments would be expected to last much longer than three years. In fact, they would be available until 85 percent of the new electrically-heated homes in a utility's service territory were built to the standards.

By September 1, 1987, utilities would be required to choose to participate in the "BPA/Utility MCS program" involving Super Good Cents marketing and incentive payments or submit their own equivalent "alternative program" to BPA for review and approval. Utilities choosing an "alternative program" would not qualify for the $2500 per residence incentive from BPA even though the cost of these incentives would be incorporated in their rates. The programs would be scheduled to begin in 1987. Each utility program would need to produce at least 30 percent of the savings deemed possible through MCS in that utility's service territory. For 1988 the Council would set a new, higher penetration target. In 1989 and each succeeding year, a still higher target would be set based on the relative performance of utilities during the previous year, until an 85 percent "penetration rate" is reached and maintained.

An innovative and complex "rolling surcharge" concept was established, whereby utility performance would be graded on the curve. The penetration rates of each utility would be compared. Those utilities falling in the lowest 20th percentile in any given year would be subject to the 10 percent surcharge in the next year if they did not improve their performance beyond

the particular penetration rate found at the 20th percentile. Performance would be measured by the percent of energy saved out of the total savings that would have occurred had all new homes in that utility's area been built to the standards. The utility located at the 20th percentile would set the minimum performance level all utilities would need to meet in the next year to avoid being surcharged. The process would be repeated each year.

It became clear that several Council members had all but abandoned the goal of achieving the full MCS through the adoption of state or local building codes. They indicated that states should not be expected to pass codes that set standards beyond the "minimum life cycle cost" or "consumer optimum" level since this is the level that is presumed to be economically feasible for the homebuying consumer. According to this view, the incremental savings between the consumer optimum and regionally cost-effective level should be paid for indefinitely either by BPA or the utilities. Incentives should not necessarily disappear at some arbitrary date; they should be continued as long as there is variance between the consumer optimum level and the full regionally cost-effective MCS.

The Council not only set the incentives for the BPA/Utility Marketing program at a substantially higher level than the utilities or BPA wanted. It also set the Early Adopter builder incentives at very high levels, ranging from $5000 to $6000 per residence, depending on the climate zone. In contrast, local governments already participating as Early Adopters were receiving incentive payments of approximately $3000 per residence.

The utility community responded with outrage to the Council's final amendments. The Council's decision was widely viewed as an outright rejection of the utilities' efforts to reach a compromise position. The "rolling surcharge" was seen as an attempt to divide and conquer the utilities by attempting to ensure that they would compete with each other to avoid falling within the lowest 20th percentile. In response, many utilities urged BPA to ignore the Council's decisions and follow the strategy that BPA and the utilities had jointly developed.

So far, BPA has proceeded to develop a structure of declining incentives over a three year period as part of its Super Good Cents program. The incentive levels are consistent with those BPA and the utilities had recommended. However, incentive levels may not decline if reasonable progress is not made in moving the new housiung market toward MCS. BPA has also proposed a declining incentive structure for its Early Adopter program beginning at $3500 per residence in 1986. It appears that BPA may adopt the Council's rolling surcharge concept, although the official surcharge policy has yet to be announced.

PROSPECTS FOR THE FUTURE

What is the future of the Pacific Northwest's experience with the MCS program? There are ample reasons to argue that the prospects for MCS are not

good. First, the considerable tension and distrust that emerged between the Council and the utilities has only dissipated slightly. Many utilities that had begun the process as Council supporters have since reversed their position. Second, the cost-effectiveness issue has not yet been resolved, and many utilities remain skeptical of the cost-effectiveness of a least some of the MCS measures. BPA has adopted PPC's proposal to establish a cost-effectiveness workgroup charged with reaching a determination on cost-effectiveness by September of this year. The workgroup includes representatives from all interested parties including the Council staff, utilities, state and local governments, and the environmental community.

Third, builder opposition to the continuous vapor barrier and air-to-air heat exchanger has not lessened. Fourth, powerful builder associations are threatening to sue local governments that attempt to become Early Adopters. These are not idle threats. Both Tacoma and Seattle have been sued over their energy codes.

Despite these significant problems there are also important signs that suggest the possibility of an improving outlook for MCS. The utility community generally accepts the view that MCS represents a "lost opportunity" resource that should not be ignored. They recognize that the average new home will last between 50 and 60 years, far longer than the current surplus. They also recognize that the cost of incorporating energy efficient features from the start is about half the cost of retrofitting a comparable existing house. Second, the Council is renewing its efforts to work constructively with all interested parties. Considerable Council staff time has been dedicated to working with the various groups to find ways to overcome remaining barriers to implementation. Emphasis is being placed on promoting the Early Adopter program.

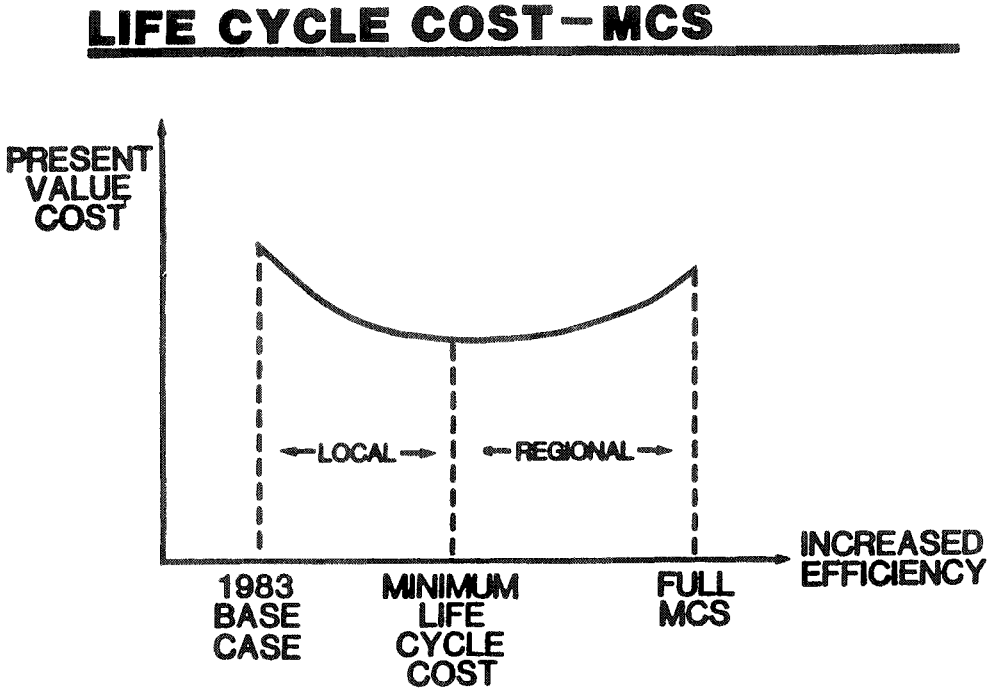
Third, there are some signs that the Council may decide to compromise on the air-to-air heat exchanger which is the least cost-effective and most controversial measure. Utilities have argued that house tightening measures such as the MCS infiltration package may have an impact on the quality of indoor air, but not in all cases. In some homes, mitigation of unhealthly radon levels may require an air-to-air heat exchanger, while in others additional crawl space ventilation may be sufficient. One solution proposed by the utilities is to build new homes with a dedicated circuit and redimentary trunk lines for future ducting to ensure easy installation of a heat exchanger if it is found necessary. Free radon monitoring would be provided each home during the first winter. If the results show a higher than acceptable level of radon, a heat exchanger would be installed with the incentive money that would have paid for it in the first place. If no indoor air pollution mitigation is required, the heat exchanger would not be installed. Since fewer would be installed on a program basis, the heat exchangers that are used would be expected to be considerably more cost-effective. Utilities have also proposed the use of mechanical ventilation that does not include heat recovery.

Fourth, utility interest in BPA's Super Good Cents marketing and incentive program is growing. As of this writing, there are 68 Super Good Cents participants. Another 15 utilities appear ready to sign as soon as the new incentive package becomes available.

There is also growing interest among local jurisdictions in the Early Adopter program, despite the threat of lawsuits. Utilities remain strong supporters of this program. In fact, when BPA proposed its revised Early Adopter program in March, the utilities argued that there was not enough financial support for technical assistance. PPC has worked closely with the state associations of cities and counties in developing appropriate levels of financial support for this program.

In sum, there is little question that utility enthusiasm for MCS has been dampened as a result of the Council's decision to ignore the recommendations of the utility community. However, if the cost-effectiveness issue can be resolved, there is a good chance that substantial progress will resume in moving the region toward the model conservation standards.

Figure 1



FOOTNOTES

1. The views expressed in this paper are those of the author and do not necessarily reflect the views of the Public Power Council or its member utilities.

2. Northwest Power Planning Council, "Model Conservation Standards Review Issue Paper," Addendum II, August 22, 1985.

3. Northwest Power Planning Council, "Model Conservation Standards Review Issue Paper," March 15, 1985.

4. Northwest Power Planning Council, "Northwest Conservation and Electric Power Plan, Proposed MCS Amendment Hearings and Public Comment Period," July 26, 1985.

5. Natural Resource Defense Council, "Comments on the MCS Amendments Proposed by the Northwest Power Planning Council," September 13, 1985.

6. Bonneville Power Administration, "Comments on the Northwest Power Planning Council's Proposed Amendments to the 1983 Power Plan Regarding MCS," September 13, 1985.

7. City of Tacoma, "Comments - Proposed MCS Amendment," September 9, 1985; Seattle City Light, "Model Conservation Standards," September 9, 1985.

8. Public Power Council, "Model Conservation Standards Comments," September 12, 1985; Pacific Northwest Utilities Conference Committee, "Comments on the Proposed Amendments to the Model Conservation Standards," September 12, 1985.

9. Eugene Water and Electric Board, "Comments on the Proposed Modifications to the Model Conservation Standards," October 21, 1985.

10. Personal conversation between Ralph Cavanagh, NRDC, and Dan Ogden and Jeff Hammarlund, PPC, September 12, 1985.

11. Northwest Power Planning Council, "Modification of Model Conservation Standards Amendments," September 23, 1985.

12. Public Power Council, "Testimony on Model Conservation Standards," October 21, 1985.

13. Pacific Northwest Generating Company, "Testimony on Regional Council's 1985 Draft Electric Power Plan," October 21, 1985.

14. Northwest Power Planning Council, "Notice of Final Model Conservation Standards Amendments," Federal Register, Vol. 51, No. 41, March 3, 1986.