USING COMMERCIAL MARKET DATA FOR STRATEGIC PROGRAM PLANNING

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ABSTRACT

This paper demonstrates a method for utilizing market data and projections obtained from end use forecasting models to target conservation programs to the consumers. The method assures that the programs both meet the needs of consumers, and encourage conservation actions which would not have taken place without the programs.

Economic and end use analyses are used to estimate the potential long term savings to BPA from 12 building types. Attitudinal studies are then used to show differences in interest in energy conservation among different demographic groups. Demographic studies are used to track the frequency of these factors within each of 12 major commercial building types. The amount of conservation available from each building type is then compared to the degree of interest in conservation among the consumer groups which occupy that building type. This comparison provides an indication of the level of conservation activity which could be expected with and without conservation programs.

The major factors influencing consumer interest include the size of the business, the ownership/lease status, the type of corporation or institution, the intensity of load, and the conservation potential per building.

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INTRODUCTION

This paper reviews the major characteristics of the market for conservation in existing commercial buildings and their implications for design of conservation programs. This analysis provides a framework for better understanding of where the Bonneville Power Administration (BPA) could most effectively focus its commercial retrofit programs to achieve long term electric energy savings. At this time, enough data is available to develop and tentatively support some hypotheses, but not to establish definite priorities. This framework should be used to structure market evaluation of BPA's pilot programs and to provide guidance for early decisions about BPA's acquisition programs for the late 1980's and early 1990's.

This analysis focuses exclusively on existing commercial buildings. An analysis of the market for conservation in new commercial buildings has been previously published.[1/] The issue of how to get consumers to maintain conservation measures which are already in place is not addressed here. The detailed characteristics of specific building types and market segments are not discussed herein.

Because the commercial sector is so diverse, it is inevitable that the residents in any segment will behave in a diverse fashion. Thus, the segmentation scheme shown below is intended to create groups which show significant differences in <u>average</u> expected behavior.

Why BPA is Interested in the Market for Commercial Conservation

BPA is charged, under the Pacific Northwest Electric Power Planning and Conservation Act (the Act), with acquiring the least cost energy resources to meet the needs of the electric energy consumers of the Pacific Northwest. The Act requires that BPA regard conservation as a first priority resource. BPA's own analyses indicate that conservation is the least cost energy resource available to BPA.[2/]

Because BPA will face a power surplus for several more years, the main purpose for conservation programs in the late 1980's is to assure that BPA is prepared to acquire most of the cost-effective conservation before a power deficit occurs. During the surplus period, BPA must maintain a modest level of expenditures to minimize the impact of conservation on electric rates. Programs over the next few years should be designed to assure that conservation can be acquired from all major commercial subsectors, and to assure that savings acquired in the early years will still be around in the 1990's. To meet these goals, BPA must answer the following questions:

1. Which consumer groups will require the most time and effort to acquire their conservation? How can these consumers be reached? These groups should be high priorities for near term program activity.

2. Which groups are so disinterested in conservation that program efforts may be fruitless?

3. Which consumers are likely to achieve a large fraction of their conservation even if BPA offers no programs?

4. Where can savings be acquired quickly? If certain consumer groups can be brought into a conservation program quickly, it may be possible to run pilot programs to develop methods for working with those groups, and then focus efforts on other consumer groups until shortly before the savings are needed.

A MODEL FOR ESTIMATING CONSERVATION POTENTIAL IN COMMERCIAL BUILDINGS OF THE PACIFIC NORTHWEST

Using an end-use/econometric supply curve model, BPA has produced preliminary estimates of energy use and electric energy conservation potential in the Pacific Northwest for 12 different categories of commercial buildings over the next 20 years. These estimates are based on limited data and are probably more reliable in aggregate than for specific building types. Nonetheless, the model probably is reliable enough to portray the order of size of conservation potential and consumer response among building types.

The conservation opportunities and costs are modeled through a series of prototypes of different building types simulated on the DOE-2 computer model.[3] Each prototype depicts how the "typical" building of each building type operates. A "new" (post-1980) and "existing" (pre-1980) version of each building type is simulated. The building types include: (1) Large Offices (greater than 30,000 square feet); (2) Small Offices (less than 30,000 square feet); (3) Large Retail Buildings (dry good, greater than 20,000 square feet); (4) Small Retail Buildings (dry good, less than 20,000 square feet); (5) Groceries; (6) Restaurants; (7) Hospitals; (8) Elementary/Secondary Schools; and (9) Warehouses.

The simulations are used to estimate both the baseline energy use and the costs and savings from different combinations of conservation measures in each building type. Weighted averages of the results for several of the prototypes are used to develop additional estimates of energy use and conservation costs and savings for colleges, health buildings, and "other" buildings. Regional forecasts of floorspace by building type are used to extrapolate regional load and conservation potential from the individual building types.[4]

The supply curve model uses consumer discount rates and a life cycle costing algorithm to estimate which conservation measures consumers are likely to install in response to current and future energy prices. The discount rates are estimated by building type, based on a rather limited consumer poll.[5] The penetration function in the model assumes that five percent of the building stock can choose to retrofit equipment in a given year. Using this analysis, the model estimates the share of the conservation potential which consumers might achieve without BPA help in response to electric rates.

Estimates of Conservation Potential

In 1985 the Commercial sector used about 3200 average megawatts (Ave MW) of electricity.[6] For purposes of comparison, an average megawatt is enough energy to serve the annual needs of about 500 homes. Thus, the entire commercial load is comparable to that from one and one half million residences. Out of the 3200 Ave MW of load, BPA's supply curve model indicates that about 862 Ave MW could be saved if all conservation measures that cost less than 52 mills per kilowatt hour, in 1985 dollars (m/kWh) were achieved in every building in the Region.[7] Fifty-two m/kWh is the Northwest Power Planning Council's estimate of the maximum that BPA should pay for electric energy conservation.

The supply curve model also estimates that, if electric rates do not change, out of the 862 Ave MW of conservation, consumers would achieve 416 Ave MW by the year 2005, even if BPA provided no assistance. The consumers are not projected to achieve the remaining 446 Ave MW of conservation potential unless some form of assistance is provided.

Conservation Potential by Building Type

Table I shows the projected conservation potential for the years 1985 and 2005 by building type, for existing buildings.

Table I. Conservation potential by building type for existing buildings.

	Average Megawatts	
	1985	2005
Large Offices	67	12
Small Offices	101	85
Large Retail	85	0
Small Retail	119	55
Grocery	29	13
Restaurant	124	80
Lodging	19	0
Health	50	50
Elementary	51	31
College	31	26
Warehouse	89	20
Other	95	73

Savings potential estimates for the year 2005 represent the savings available from the buildings which were built by 1987, and are still standing in the year 2005. For some building types, however, most of the conservation potential disappears by the year 2005. Part of this is a result of projected building demolitions and of forecast fuel switching from electricity to gas. The shrinkage in savings is the most dramatic, however, in building types where the supply curve model indicates that all the measures are relatively inexpensive. This indicates that most of the change is due to consumers increasing the efficiency of their buildings in response to electricity prices. These estimates were developed under the assumption that electricity

prices would remain stable after 1985. Thus, most of the projected increase in efficiency is a delayed response to the price increases which have occurred over the past few years.

In the real world, there is considerable variation between buildings within one building type. For this reason, the differences in price response between building types shown in Table I are almost certainly exaggerated. The author believes that, in most cases, BPA's experience and the literature discussed in the next section supports the order of the building types as shown.

How much will it cost?

The supply curve model indicates that more than one half of the cost-effective conservation in existing buildings will cost the region less than 20 m/kWh. However, a significant share of the conservation is more expensive, and some conservation is not within the Regional Council's cost-effectiveness limit (52 m/kWh in 1985 dollars). There is plenty of conservation which is cheap enough for consumers to pursue independently. There is also a large quantity of conservation which is too expensive for consumers to pursue without assistance.

THE MARKET FOR COMMERCIAL CONSERVATION RETROFIT

Commercial retrofit decisions are made by a diverse group of building occupants, owners, and operators. The literature discussed in this section and BPA's experience indicate that decisionmakers can be categorized according to four criteria:

1. Corporate Form. The corporate form dictates the degree of interest and who makes decisions concerning investments in conservation.

2. Ownership or Lease Status. The level of interest in conservation depends on whether the building occupant owns or leases the property, and whether the tenant or the landlord pays the electric bills, and the terms of the lease.

3. Period of Planned Occupancy. Any uncertainty about continued occupancy or ownership of a building tends to foreshorten a firm's investment horizon.

4. Energy and Conservation Intensity. There are actually three components to this criteria. Businesses with a large proportion of their non-fixed costs coming from their electric bills are more interested in conservation. Businesses with larger energy costs per building are also likely to pay more attention to energy costs because there are more dollars involved. In addition, where there are larger opportunities to conserve in a building, businesses are likely to be more interested in conservation.

BPA has developed preliminary indices to show their approximate magnitude of these factors for the Pacific Northwest. That information is presented below, along with a more detailed discussion of the influence of each variable.

Corporate Form. Three types of distinctions are important:

1. Large vs. Small Business

2. Chain and Franchise vs. Independent Ownership

3. Private vs. Public Ownership

Large vs. Small Businesses. Survey and focus group results have indicated that small commercial consumers have limited interest in conservation programs[8] and a limited capability to pursue conservation without assistance.[9] They lack the management time and access to capital necessary to conserve.

Studies of chains, franchises, and large corporations plus BPA's experience with institutions indicates that very large businesses are extremely diverse in the degree to which management decisions are centralized.[9][10] Some large organizations are very slow to respond to conservation opportunities. BPA's experience in the Purchase of Energy Savings field tests suggests that some large private firms have difficulty working with outsiders sources of financing for conservation because several layers of management must approve such a decision.[11]

Some studies indicate that medium sized firms are likely to be most responsive to energy conservation programs.[9] Many medium sized firms have enough staff capability to consider conservation, enough corporate flexibility to respond to opportunities, and the need for outside capital and technical resources to get the whole job done. BPA's pilot program experience to date is not conclusive, but tends to support this hypothesis.

There is no source of regional estimates of the floor space managed by large vs. small corporations. The large percentage of the region's floor space which is owned or operated by chains and franchises is one subsector where large organizations are prevalent (see below). A large percentage of institutional building floor space is also controlled by large organizations.

Chains and franchises. These businesses operate differently from independent businesses. Because some of these firms make decisions in a centralized fashion for many buildings, they have sufficient interest to become active in energy conservation. These businesses do a great deal of conservation on their own and need less technical and financial help to get the job done. It is possible that, where investment decisionmaking is centralized within a corporation, BPA may be able to achieve a large block of savings quickly, shortly before it is needed, by doing business with a small number of decisionmakers.

This picture is complicated by the fact that different chains and franchises appear to have very different decisionmaking structures. Dornbusch developed five archetypes of how chains and franchises make decisions about conservation investments.[10] In some cases, conservation investment decisions involving several buildings owned or operated by one chain or

franchise are made centrally. In others, a decision to invest in conservation requires participation from a combination of employees from corporate headquarters, regional offices, and individual building managers. Other chains and franchises allow the individual building manager to make most decisions. This implies that the best program marketing strategy may differ between different chains and franchises.

Public vs. Private Ownership. The decisionmaking processes differ between government agencies and private businesses. There are also dramatic differences between the decisionmaking process for different types of public agencies and nonprofit institutions. It has been argued that public agencies use longer investment horizons because they look to the public interest and don't focus on short term profits. It has also been argued that government agencies make fewer long term conservation investments because of inflexible procedures for making capital investments, public decision processes for minor investments, and accounting systems which fail to credit departments for energy savings.[12/]

Some government agencies are analogous to chains in that many buildings are managed by one organization. This provides an opportunity to market a large quantity of conservation by working with one energy manager, *if* the agency makes decisions in a centralized manner.

Table III presents some approximations of the percentage of commercial conservation potential by building type which is from institutions, from chains or franchises, and from stand-alone businesses.[13/14/] The table probably underestimates the floorspace in chains and franchises because the study which was used to develop the chain and franchise estimates did not include analysis of offices or warehouses.

Table III. Percent of conservation potential within different ownership types.

	Chains and Institutions	Individual Franchises	Businesses
Office, Large	23%	0%	77%
Office, Small	26%	0%	74%
Retail, Large	0%	99%	1%
Retail, Small	0%	66%	34%
Grocery	0%	77%	23%
Restaurant	0%	50%	50%
Lodging	0%	75%	25%
Health	77%	0%	23%
Schools	100%	0%	0%
Colleges	100%	0%	0%
Warehouses	16%	75%	9%
Average, Weighted by Potential Savings:	30%	32%	38%

Ownership and Lease Status

Persons who own and occupy the same building have a greater interest in conservation than those who are lessors or lessees of buildings. When a building is leased, the responsibility for dealing with energy efficiency issues is divided between the lessor and the lessee.

If the electricity bill is paid by the tenant, the tenant is concerned about energy costs--but only for the period of time for which he or she is certain to stay in the building. A major investment in time and effort may be required to get a landlord to agree to building improvements.

If the landlord is paying the electric bill he or she usually passes the cost to tenants as part of the rent. Many landlords consider utility costs to be so small that they don't impact the competitiveness of their buildings in the rental market.[15/]

Period of Planned Occupancy. This creates a major hindrance to conservation in buildings occupied under short-term leases.[15/] A business's investment horizon for a building is limited the period of time for which the business expects to pay energy costs for the building.

If the business owns the building, the investment horizon may be influenced by future plans to occupy or sell the building. Some analysts believe that the corporate form may be one indicator of planned occupancy for owner-occupied buildings. For example, partnerships are believed to usually own property for quick profit, not for occupancy. For this reason, partnerships tend to have more of a short term perspective on energy costs.[16/]

BPA does not have estimates of the share of the region's commercial floorspace which is owned by different types of firms. Table IV shows preliminary estimates (in the Pacific Northwest) by building type, of the percentage of floor space which is owner occupied vs. short term leased (three years or less) vs. long term leased (more than three years) based on a delphi of property managers.[17/] The table indicates that short term leases occur in a significant fraction of large offices, small offices, small retail buildings, and warehouses.

Table IV. Owned vs. leased floor space in the pacific northwest.

	Short Term Leased Space	Long Term Leased Space	Owner Occupied
Office, Large	23%	58%	20%
Office, Small	35%	35%	30%
Retail, Large	4%	67%	30%
Retail, Small	43%	47%	10%
Grocery	0.2%	5%	95%
Restaurant	1%	69%	30%
Lodging	0.4%	10%	90%
Health	0%	5%	95%
Schools	0%	5%	95%
Colleges	0%	1%	99%
Warehouses	24%	36%	40%

Between a lessor and a lessee, the party which pays the electricity bill has the greatest interest in conservation programs. Table V shows estimates by building type of the percenage of leased floor space for which the owner vs. the tenant pays the utility bill.[17/] If the tenant is paying a bill under a short term lease, neither the landlord nor the tenant may be interested in paying for conservation measures.[15/]

There is some indication that a landlord who pays the electric bill may present a difficult market for energy conservation. Landlords offering short term leases who participated in BPA-sponsored focus groups indicated that their prime investment motive is to increase or maintain occupancy by keeping tenants happy. They directly pass energy cost increases to the tenant as rent increases, and consider the increase in rent to be too small to influence their occupancy rates.[15/]

Table V. Proportions of leased commercial floor space
(Represented by who directly pays the energy bills)

	Tenant Pays	Landlord Pays	Owner Occupied
Office, Large	16%	64%	20%
Office, Small	18%	53%	30%
Retail, Large	63%	7%	30%
Retail, Small	79%	11%	10%
Grocery	5%	0.2%	95%
Restaurant	67%	4%	30%
Lodging	9%	1%	90%
Health	5%	0.3%	95%
Schools	5%	0%	95%
Colleges	1%	0%	99%
Warehouses	55%	5%	60%

Energy Intensity

There is no data currently available on the shares of non-fixed business operating costs which are from electric energy consumption in different building types. Table VI presents some estimates of the relative energy intensity of various building types. Two indices are used: (1) Thousands of BTU's of electric load per building per year;[18] and (2) average kilowatts of electric energy conservation potential per building.[19]

Table VI. Energy and conservation intensity of floor space (by building type).

	Intensity of electric load (KBTU/bldg/yr) rank	Intensity of electric conservation potential (AVE KW/bldg) rank
Office, Large	1	1
Office, Small	9	5
Retail, Large	4	2
Retail, Small	7	5
Grocery	3	5
Restaurant	6	4
Lodging	11	11
Health	2	3
Schools	5	5
Colleges	8	9
Warehouses	10	9
Other	12	11

This table shows that intensity of energy use per building is greatest in those buildings which are very large (large offices, large retail, and health), and in building types which use large amounts of energy for cooking, water heating, and refrigeration (groceries, and restaurants). There is sufficient diversity within the individual building types presented here to provide for some notable exceptions to these generalities. For example, within the health group, hospitals tend to be much more energy intensive than care facilities, due to the equipment load. Refrigerated warehouses are much more energy intensive than non-refrigerated warehouses.

SUMMARY BY BUILDING TYPE

Table VII summarizes the major market characteristics for each of the 12 building types considered in this analysis. For each building type, both the amount of total conservation potential, and the nonredundant fraction of conservation potential from the building type are listed as either high, medium, or low. Four building types are in each category. Nonredundant conservation is the conservation which, according to the supply curve analysis is, is technically achievable, but which consumers are not expected to achieve on their own by 2005. This is an indicator of the extent to which savings acquired by BPA in the short run will result in a long term reduction in loads. The key marketing characteristics for which data are available are also listed for each building type.

Table VII. Market characteristics summary (by building type).

Characteristic	Large Office	Small Office	Large Retail
Regional Savings Available	Moderate	High	Moderate
Nonredundant proportion of savings	Low	High	Low
Dominant Corporate Type(s)(Occupant)	Independent	Independent	Chain
Dominant Own/Lease	Long term	Mixed	Long Term
Characteristics	Owner Occupied		
If leased, who pays utility bills	Landlord	Landlord	Tenant
Load Intensity	High	Low	High
Conservation Intensity	High	Moderate	High

Characteristic	Small Retail	Grocery	Restaurant
Regional Savings Available	High	Low	High
Nonredundant proportion of savings	Moderate	Moderate	Moderate
Dominant Corporate Types (Occupant)	Chain and Independent	Chain and Independent	Chain and Independent
Dominant Own/Lease	Long term and short term lease	Owner Occupied	Long Term Lease and Owner Occupied
If leased, who pays utility bills	Tenant	Tenant	Tenant
Load Intensity	Moderate	High	Moderate
Conservation Intensity	Moderate	Moderate	High

Characteristics	Lodging	Health	Elementary/ Secondary School
Regional Savings Available	Low	Low	Moderate
Nonredundant proportion of savings	Low	High	Moderate
Dominant corporate types (occupant)	Chain and Independent	Institution	Institution
Dominant Own/Lease	Owner Occupied	Owner Occupied	Owner Occupied
If leased, who pays utility bills	Tenant	Tenant	Tenant
Load Intensity	Low	High	Moderate
Conservation Intensity	Low	High	Moderate

Characteristics	College	Warehouse	Other
Regional Savings Available	Low	Moderate	High
Nonredundant proportion of savings	High	Low	High
Dominant corporate type(s) occupant	Institution	Independent	???
Dominant Own/Lease Occupied	Owner	Mixed	???
If leased, who pays utility bills	Tenant	Tenant	???
Load Intensity	Low	Low	???
Conservation Intensity	Low	Low	???

There are some important distinctions within a building type which are not captured in Table VII.

1. The health building category is divided into clinics, care facilities, and hospitals. Since the hospitals are much more energy intensive, they are likely see more conservation activity with or without programs.

2. There is a wide range of building sizes in the lodging, hospital, school, and college building types. There is also great diversity in the number of school and college buildings managed by one institution. These factors tend to create two very different markets within one building type. The larger buildings and institutions tend to show a much greater interest in conservation.

Overall Implications

To achieve all the conservation which is cost-effective to the region, BPA must eventually acquire conservation from most business and building types. This is because BPA is willing to pay a higher price for conservation than many businesses. In the long run, BPA will be willing to pay for all electric energy conservation which is cheaper than the marginal cost of new generation facilities. Because BPA is responsible for long term planning for energy resources, BPA considers the stream of benefits from conservation over a 20 year planning horizon. Most businesses look at the savings on their retail rates, which are often lower than BPA's marginal cost for power (if they look at the financial benefits of conservation at all). Their investment criteria are of a shorter duration than BPA's. Thus, even when businesses conserve independently, they will not buy all the measures which they would buy with BPA's help.

However, for the next several years BPA will be acquiring conservation from the commercial retrofit sector at only a moderate rate [20]. It would be beneficial for BPA to focus on those market segments where a long lead time is needed to penetrate the market, where programs have a reasonable chance of success, and where the greatest proportion of savings are likely to be nonredundant. The following discussion breaks the market into 4 major segments, chosen according to these criteria.

High Savings, Low Redundancy Markets: (Non-chain Restaurants, non-chain Small Retail, and Small Office). This segment shows significant conservation potential, but limited ability to act without BPA help. Non-chain restaurants appear to be an accessible market but few restaurants are projected to take major conservation actions on their own. Small offices and small retail stores are markets where the nonredundant savings may be high, but the marketing of conservation is likely to be moderately difficult.

An effort to acquire all cost-effective measures from these buildings would involve marketing, technical assistance, and, incentives, targeted at the building occupants in small retail buildings and restaurants (where tenants usually pay the bill) and at the owner in small office buildings

(where the landlord usually pays the bill). Such comprehensive programs are likely to achieve wider success in owner-occupied buildings than in leased buildings. The more difficult portions of the leased market may benefit from a program designed to increase the pressure on landlords to conserve by educating tenants and prospective tenants, such as a building efficiency rating program.

Moderate to Low Potential, Moderate to Low Redundancy Markets: Schools, Colleges, and Health Buildings. These predominantly institutional building types provide a market with moderate potential for savings and a moderate ability to conserve without BPA assistance. Of the institutional building types, schools appear to have the largest conservation resource. The larger school districts, hospitals, and colleges are most capable of conserving without assistance, and are probably most likely to participate in programs. The clinics, care facilities, and smaller schools and colleges will be more difficult to reach because they are less energy intensive.

It is important to develop program features to reach these more difficult institutions over the next several years. It will take many years to penetrate a large fraction of this market. A combination of technical help, marketing, moderate incentives and program features adapted to the intricacies of government procurement processes will be required to achieve the installation of most measures in these buildings. Marketing for these programs should be targeted toward the administrations of the various institutions.

High Redundancy Markets: Large Offices, Large Retail Buildings, Groceries, Chain and Franchise Restaurants and Larger Hotels and Motels. This market segment presents BPA with a dilemma. Collectively, they represent a major fraction of the commercial conservation potential. Yet, over the next twenty years, BPA might expect these consumers to achieve a substantial share of the conservation without BPA help. This applies only to the chains and franchises which have centralized processes for making energy investment decisions (This issue is currently under investigation).

The evaluation of BPA's commercial pilot programs will help indicate the best strategy for this segment. A marketing and technical assistance program may spur the firms to perform most of the less expensive conservation measures. While it is likely that BPA incentives will be needed to secure the acquisition of more expensive measures, BPA may be able to acquire those savings quickly at a later time, particularly from chains. These building types provide the best markets for advanced technologies (e.g.: advanced refrigeration systems for groceries), since the managers have the sophistication and interest to deal with new technologies. Programs should targeted to the owners of the buildings, and, for chains, to the level of management which oversees energy and building management (often a regional energy manager).

Low Potential, High Redundancy Markets: Non-chain Lodging, Warehouses, and Other. These building types represent a moderate to small fraction of the commercial conservation potential. The managers are likely to achieve a substantial amount of conservation without BPA help. There may be some reward

in working with subsectors which have particular market problems, such as independent groceries and small hotels. However, the small amount of regional savings and the high potential for redundancy makes these buildings less important than other building types. Warehouses provide particular marketing problems because they have low intensities, and have a large proportion of short term leases where the tenant pays the utility bill.

The "other" building type has not yet been studied in detail. This group of auto repair shops, laundries, bakeries, churches, sewage and water treatment plants, and other buildings probably contains subgroups which are similar to those discussed above. Sorting these markets out would be an almost endless effort.

BPA should look for subareas within this market segment, where programs can be successful. It may be that specialized programs with limited goals would be the best options. For example, BPA is currently experimenting with a simplified warehouse lighting conservation program.

Conclusion

This paper presents a way to segment the commercial market for purposes of prioritizing interim conservation efforts. The evaluation of the current round of pilot programs may confirm or correct some of the inferences drawn in this analysis. As BPA designs commercial retrofit programs to operate through the surplus period of the late 1980's and early 1990's, this framework can be used to target programs toward those parts of the market which need the longest lead time, which have the largest potential savings and the least redundancy, and to direct the types of help needed to each portion of the market. This will maximize BPA's yield from limited financial resources for conservation.

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