Federal energy policies : a family impact statement
by Peggy Strong Anderson

A thesis submitted in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in Home Economics
Montana State University

Abstract:
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The sample encompasses the sum of 288 parents with dependent children. Questionnaires were distributed throughout public schools in Livingston, Montana. The self-designed instrument evolved from the energy package President Carter presented to Congress in September of 1977.

Results of the research indicate that various policies are more adaptable to the greater sample population than others. Those policies recognized as important by the tested group were weatherstripping practices, consumer representation in utility decisions, and a utility statement schedule which reveals present and future rates. Participants definitely resist government advice about individual conservation in the home, increased rates by State Regulated Utilities for pollution control, and a tenfold tax increase on natural gas and oil in six years.

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Signature Peggy Strong Anderson

Date August 2, 1978

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Chapter 1

Introduction

At some point in time most societies must recognize a worldwide shortage of petroleum and fossil fuels. Our national statistics indicate recoverable oil to be 40 billion barrels and recoverable gas to be 250 trillion cubic feet (TCF) with known recovery techniques. These facts prove that the United States oil supply will last seven years and gas eleven years if American energy consumption continues at the present rate (The Energy Index, 1976, p. 45). President Carter emphasized the urgency of these facts in his recent national energy policy act (H.R. 8444, 1977). Goals of the legislation include: a 2% reduction of energy growth, a 10% reduction of gas usage, 400 million tons of coal to be produced for future use, and solar energy to be placed in 2.5 million homes. The family, states Hill, is "the bottleneck through which all trouble passes" (Sussman, 1968, p. 441). Because of this, these energy facts will have impact on family life.

Theory and Supportive Research

The United States imported 30% of its petroleum in 1973. As projected, this may increase to 60% between 1980 and 1985. Including the expense of transportation and production, foreign fuel cost is yet less than domestically produced fuel. In order to stabilize prices and later increase them, the Organization of Petroleum Exporting Countries (OPEC) have organized themselves as a monopoly power. Today these

countries have potential to dictate the price they desire. This subjects the United States to interruption of foreign fossil fuel imports (Mancke, 1974, pp. 17-18). Because these uncertainties exist, energy policy guidelines must be carefully designed (Minge and Oaks, 1976). According to Hill, in order to function, families need to see how this is relevant to themselves (Sussman, 1968, p. 440). A careful analysis by families will reveal the impact of policies on family structure.

Our economy has been built upon the premise that low energy prices create more opportunity for economic and social growth. As a result, our society has become conditioned to inexpensive comforts (O'Toole, 1976). They are willing to pay the cost for luxuries. Who wants to walk several miles when they could ride? Who wants to sit shivering in homes with a temperature of 60^{o} F? Who wants to stop using a color TV, dishwasher, air-conditioner, or other luxuries? United States citizens have not faced the fact that use of convenient, energy-consuming devices places a heavy demand on resources and our resources are not infinite (Christianson and Clark, 1976). Conservation efforts are required, many of which must be practiced in family homes through the decision of family members to reduce their consumption of energy and materials.

Jerry Toner and John McBride reviewed policies in Montana relating to energy consumption for the purpose of defining conservation guidelines within the state. Other social studies in Montana include the appointment by Governor Thomas Judge of a Citizen's Advisory Committee for the

purpose of making energy decisions about coal gasification and gas shortages within the state and a design for car pools in Billings, Great Falls, and Helena, Montana. Dr. David Ambros of the University of Nebraska analyzed consumer perception of electricity rate schedules in Nebraska. He found that when consumers are given recessional bloc energy rates, the opposite of declining bloc rates which become lower in price with greater amounts of energy used, the consumers will not necessarily change the amount of electricity they use (Energy Research Information, 1977). In Montana, no study has investigated the family as a unit and Federal policies as the basis of impact. Hence, in compliance with Governor Judge's request for new university energy research, this study was developed.

Purpose

In the framework of this present historical era, this research project has investigated the impact of energy policies on family behavior. Selected policies include the following taken from Governor Tom Judge's News Conference Message of the Summer of 1976:

1. Energy must be conserved.
2. Energy plans need to consider the future.
3. University systems need to incorporate energy research into their programs.

President Carter's September 7, 1977 energy policy package makes these state goals more specific. From these federal policies the investigator designed a questionnaire. From various statistical analyses, the investigator has formulated several statements of policy impact on family life. The statements of impact assume the policies will be anacted at a later date. These impact statements were based on the following:

1. By January 1, 1980, residents must be informed of energy saving devices and instructed in energy saving activities within their households.
2. An advisory committee shall be established for consulting the Federal Power Commission. The following number represent the various groups: three utilities,

five state regulatory authorities, three consumers (industrial and residential), and one conservationist.

3. Electricity rates will be established according to the time-of-day so that costs of service reflect the determined rate. Any consumer who desires cost effectiveness, can acquire metering if he is willing to pay for it.

4. Costs which are the result of pollution control can be recovered by each State Regulated Utility through increased cost to the consumers.

5. Each Regulated State Utility will, after 90 days when the title will take effect, publish a simple statement of the present and proposed rate schedule to the consumer.

6. For solar and wind expenditures, 30% credit is given if qualified expenditures are not greater than $1,500 and 20% credit if expenditures exceed $1,500 but not $10,000.

7. A tax is imposed on natural gas and oil with the price of oil ranging from $.30 (per barrel) in 1979 to $3.00 (per barrel) in 1985 with natural gas increases of like proportion.

For each of the above selected policies, a statement of impact was developed making use of the following objectives:

I. TO IDENTIFY THE RESPONDENT'S PERCEPTION OF FAMILY BEHAVIOR IN RESPONSE TO THE FORMULATION OF THIS PARTICULAR POLICY.

II. TO ANALYZE THE FAMILY'S INTEGRATION OF CONSERVATION PRACTICES WITHIN THE HOME AS REQUIRED BY THIS PARTICULAR POLICY.

III. TO INVESTIGATE THE IMPACT OF FEDERAL ENERGY POLICIES ON THE RESPONDENT IN TERMS OF AGE, SEX, COMPLETED EDUCATION, NUMBER OF CHILDREN LIVING AT HOME, AND INCOME.

Limitations and Delimitations

Questions chosen in respect to specific policies are delimited in number. These questions include only a minute sector of an infinite set of questions. Similarly delimited are statements of impact and the given natural resource availability of the region.

Several limiting factors restrict the study. The study itself is confined to a school district area, a given population size of parents with dependent children, and to the context of a specific time. Families must assume a hypothetical conception of enacted policies which are not yet in effect. Finally, past literature fails to include impact studies of federal policies on family life, placing limits on the review of literature.

Definition of Terms

1. authority - determines control of power to protect or insure survival.

2. conservation - acting to conserve or keep from destruction or decay; to be responsible for acting; to modify or restrain the environment.

3. consumer - any person who buys goods or services for his own purposes, not resale.

4. crisis - an historical turning point when a decision must be made for better or worse.

5. energy - the capacity for available power.

6. family - a closed or semi-closed system composed of kinship ties which carries out relevant functions.

7. family home - any building that is used for residential occupancy.

8. rate - rate refers to the demanded price when electricity or natural gas is sold.

9. regulated utility - a public utility which has its rates set by a State Regulatory Authority.

10. reserves - deposits of fuels which can be identified and recovered with reasonable costs.

Chapter 2

Explanation of the Policy

Limitations of the energy supply may make Americans more conscious of their duties as citizens to the government or of their patriotic allegiance to the United States. The concluding phrase of the American Pledge of Allegiance is, "one nation, under God, indivisible, with liberty and justice and freedom for all" acquires an austere meaning to citizens as a ritual only, not a pledge by which to live. The practice of duty to one's own government for freedom, justice, and equality separates Americans as a united people from other nations. Yet, the limited supplies of national resources will give the American people a new perception of freedom in the very near future. Tilton describes freedom of the past as "a human need to capture energy at low costs" (1974, p. 86). Freedom to all was defined as the equal ability to obtain luxury and comfort through material means from an abundant energy supply. Evidence of encouraged social use of energy was the fact that those families with highest incomes consumed the most energy by using planes, taxis, and owning many cars etc. (Newman, 1975). The American people as a total energy consumptive unit use 1/3 of total world expenditures for energy annually, although America comprises only 6% of the total world population (Newman, 1975, p. 6). In the past, national policy or lack of policy prompted energy use, for in early American

history energy consumption distinctly divided the poor from the rich. Those considered richest owned labor-saving devices: irons, refrigerators, mixers, sewing machines, toasters, hair dryers etc. before their "less rich" neighbors owned them.

In the future, the external condition of limited supplies will be imposed on all social classes. Justice will be seen as either reward or punishment to participants in the energy crisis as they either waste or conserve energy. Equal opportunity will be given to all social classes to reorganize their family structure according to these external conditions. Freedom will be granted to those participants who conserve because there will be no need for the constraints of an energy policy. Higher costs of energy will then encourage conservation, thus freeing more energy to more people for more time.

The severity of resource scarcity will indicate types of reorganization social classes will need to take within their structure. The poor have always been externally limited by income. Their activities, which are learned through tradition, have become patterned ways to conserve energy. For example, instead of owning cars, the poor have had to use the energy conserving practices of walking or using public transportation. Wit the on set of limited energy resources, the government will justly help the poor through various programs of subsidy. Government aid will equalize justice and permit freedom of opportunity

for energy use by the poor. The middle class are less restricted by the external condition of income than the poor classes. Middle class activities will necessarily be restructured to conserve energy through group effort. For example, the middle class may organize car pools for work and marketing. By organizing car pools, using public transportation, and living in multi-family housing units, energy is conserved, individual costs for energy are lowered, and the entire group benefits. Another way of equalizing freedom and justice is the practice of group competition for solar-heating units as the middle class is given tax benefits by the government. Most of the upper class have not been accustomed to external constraints. Yet, as limitations on energy use increase, energy will cost more. The rich will pay luxury taxes on luxury items such as boats, planes, and heavy cars. These tax restrictions may cause the upper class to maintain goods they now own instead of purchasing newer models. The upper class may be more restricted in travel. With less gas, there will be less available means of travel. Yet, as gas limitation increases, the upper class may redirect their attention to home and community needs for energy-saving practices. Hence, in time, the three terms; equality, freedom, and justice may acquire new meaning. Equality may mean that all socio-economic classes will be externally limited. Although these limitations may cause fear and disorganization, as class groups restructure activities for the purpose of conserving resources, each class will gain some awareness of

problems confronting other groups. All three groups may receive tax benefits for constructing alternative heating systems rather than gas or electricity. All socio-economic classes, as the result of higher cost energy resources, may create enough public concern for ways the community could conserve that eventually more energy will be freed for all, thus allowing "liberty and justice for all".

Need for Energy Policy

Exchange is basic to all societies and to some degree all interpersonal contracts lead to exchange. In addition, exchange has always been transacted between people and within societies for different reasons. For example, exchange in primitive societies was usually transacted in order to receive the highly regarded social values of honor, honesty, bravery, compassion, and generosity. In advanced societies like the United States, however, exchange has usually been transacted in order to obtain profits instead of some other less practical social value (Strauss, 1974, p. 3).

In the 1960's our national leaders in the United States, representing the American people, believed in the supreme value of profit because the energy supply was abundant. In the 1970's those national leaders, representing the citizens, have had to alter their philosophy to reflect the limited supply of useable energy within the U.S. boundaries (Miller, 1976). For instance, oil purchased from the Mediterranean Countries

does not produce profit. Therefore, at meetings between leaders of those countries the values of honesty and conservation mean more than profit. Justice, integrity, and concern for scarcity of raw energy resources leads to a willingness to exchange goods and services at the expense of the profit motive. Indeed, the recent trend toward limited supplies of energy has forced a value change from profit-seeking to the more humane values of sharing and conserving natural resources.

Because exchange is basic in all interpersonal relationships, the institution of the home is where exchange is first encountered. In time, extensive family interaction will focus the meaning of exchange from the family as a microscopic social unit to society as a whole. Reasons for exchange practices within the family structure transfer to society. If exchange does not lead to profit within the family structure, then exchange will lead to the development of other social values. With the onset of limited energy supplies, the value gained from exchange will be determined by authority figures in the family. Those who have the role of decision makers are the family leaders. These leaders can exchange their past identity as energy-abusers, which has created crisis conditions, to an identity as conservers of energy and supporters of conservation policies. According to Lezzle, Heilbronner, Falk, and Ferkiss, this exchange can remove the need for crisis reactions of family members (Ritz and Trites, 1977). By conserving, family members

receive in exchange for the practice of conservation, a social value. Effort is honored by other family members. As families work together for social values, those family units will shape the needs of the future.

History of Energy Policy

Aristotle describes history as the order of facts unique to a particular era. Without a plan or law to remind people of wrong activity, historical order assumes its own direction. In the American past, historical order creates economic opportunities through low cost energy. Thus low cost energy uncontrolled by law became the historical description of order. The American people see no wrong in wasting energy at low costs. History in America reflects this waste through the following facts. In 1900 America, kerosene and candlelight provided reading light. Many Americans split wood for winter storage. Perishable goods were cooled in underground cellars. Housewives cooked by fire. Children walked to school. Motorbuses and trolleys appeared in colonial America by the 1920s-1930s. By 1925, 53% of American homes were wired for electricity. Natural gas came into American homes in the 1930s. While only 181,000 owned cars in 1910, this amount rose to two million by 1920. Now 4/5 of all homeowners own automobiles. In 1910, 10% of the population owned radios, while by 1925, 46% of all Americans owned radios. Radio advertisers in 1922 encouraged Americans to buy electrical

appliances. At that time, 8% owned clothes washers; 80% do today (Newman and Day, 1975). During American colonial history most homes were energy poor. Within sixty years, cheap, available energy cut time and effort cost of rigorous tasks. However, as Karl Marx suggests, the growth of an economy is more predictable than political events. The Arab oil embargo of 1973 was an event which offset the growth of the economy. Similarly, organization of monopoly power of the Organization of Petroleum Countries (OPEC) was an unpredicted event. Yet, because government did not control fossil fuel resources, energy at low cost was yet supplied. Tuve suggests that "when resources are plentiful, scarceness seems remote to the individual or nation" (1976, p. 134). As a result, our society did not foresee a need for energy policy design. Without policy control, Americans became accustomed to energy at low costs as a style of life. As Darmstadter states, "Policy can alter public decisions about energy, yet advice alone will not alter a style of living" (1975, p. 9). Without law and enforcement or benefits offered from the law, energy will not be controlled. On the other hand, Kornhauser suggests that "to dislodge inactivity of policy planning of the past, policy makers may become predisposed to act more and more extremely in time" (1959). As law is imposed and energy prices rise, people become aware of wasteful energy use and energy's value to a style of life.

History of Energy Policy in Government

Energy has become a nationally recognized problem in the United States. President Carter in 1977 established a new cabinet position for energy and this office is evidence of national attention given to depleting resources. Before the creation of this Office, energy offices and programs were described as "gaius petronius" or massive movement with unclear direction. For example, the Federal Energy Administration (FEA) by 1976 had 3,200 employees (Kulter, R. & Vogsly, W., 1976). Originally this organization was a Special Committee of Energy composed of three members: John Erlichman, Henry Kissinger, and George Schultz. Recently, the FEA completed a study called Project Independence by 1985 which "studied" energy independence by 1985, yet offered no clear plan of action. Later, however, some offices were delegated certain directional powers. The Federal Energy Office was given control over oil prices. A Committee on Energy was established to give information to the President. The Federal Power Commission was given power to regulate energy supply. Domestic resources were controlled by Energy Resource and Development. The Office of Conservation and Environment was given power to study the effect of government policy's impact on the environment (The Energy Fact Book, 1976). Finally, in the span of six years, energy limitations have forced the government to discover new methods of energy control which are finalized in the formation of a cabinet position through presidential appointment.

Other historical development in government is the transposition of policy design from that which the government has propagated traditionally. According to Swanson, it has been the conventional practice of government bureaucracy to "use theory to explain reality" (1976, p. 54). In the past ten years, bureaucracy has employed imprecise and presumptive terms to suggest energy shortages. United States citizens could not be definitely confident in respect to the energy supply because of the vague terms used to describe the situation. This hypothetical vagueness did not persuade Americans that the United States may face a future energy crisis because daily lives of citizens did not demand adaptation. Government theory did not activate conservation practices. However, recent federal policies construe practical guidelines which offer incentive to citizens so they can specifically alter their life style. For example, by installing an electrical ignition system in their furnaces, families act in a clear-cut direction toward energy conservation. Another variation in policy device from customary practices of government is the projection of supply impact on the future of the United States. Fisk states, "Policy is poorly conceived given only the circumstances at hand" (1974, p. 115). In the past ten years, the government did not endeavor to regulate energy supply. As a result of the 1973 Mid East conflict, the United States reacted to the specific event by establishing a 55 mile per hour (MPH) speed limit. However, no particular legislation took account of the future energy needs of

Americans so that scientists, industrialists, and citizens objectively station themselves in the very position of future generations. A confirmed number of solar homes, 2.5 million, by the determinate year, 1980, projects goals which are operational for researchers. Another diversion from customary government routine is the exodus from centralized decision making to decentralized decision making. Formerly, energy legislation was a centralized adjudication judged by Congress. As previously mentioned, Congress, acting as a centralized magisterial body, fixed the speed limit at 55 MPH. All Americans must comply with this central ruling. Recent federal policies propound several options for family conservation discretion. Because family groups are small, the determinations will presumably be more workable for that group. Hence, decisions become decentralized, not centralized. This technique of resolution supports Manke's statement: "Even though energy conditions are caused externally, family decisions about energy must be made privately among family members" (1974, p. 40). Finally, one concluding visible transition from government conventions is the transformation from standards to a tax credit system as motivation to diversify. According to Manke, standards are unyielding and actually suffocate incentive to alternate home features for energy preservation. Nevertheless, newborn federal policies inspire incentive to change from gas and electric heating-systems to solar-heating systems. Reward is adduced for conversion and not punishment, if there are not transposi-

tions. In summary, recent federal policies furnish an active base from which families make significant discriminations for themselves and for their posterity.

Present Family Conservation Practices of Energy

Literature lacks comprehensive studies about family conservation practices. Families in past United States history have been encouraged by government to use greater amounts of energy. In 1920, United States citizens consumed 19,768 trillions of British Thermal Units (Btus) for energy needs. In 1973, the amount of American energy consumption increased to 75,561 trillions of Btus. Per capita, energy consumption increased from 185.7 millions of Btus in 1920 to 359.1 millions of Btus in 1973. Before 1973 citizens were not aware of any need to conserve energy. Therefore, literature lacks research into procedures for energy conservation by families. The majority of surveys after 1973 include ways industry can save energy and scientific endeavors to discover different energy resources as means of conserving the American gas and electric supply. In general, the immensity of the problem required technical and far-reaching resolutions. Past history reveals that the institution of the family adapted to societal demands. The institution of the family has not been recognized as a potential force of resource that can significantly affect society's economy itself. In the future, efforts by families to conserve energy may determine the economic and social survival of society.

Inadequate studies about present conservation practices have limited the investigator to one study entitled, "The Energy Policy Project". The study, initiated by the Ford Foundation, includes 1,500 households. Statistical records under the major heading of this portion of literature review are taken directly from this study (Newman and Day, 1975).

The investigator will explain family practice of conserving energy using federal policies as basis of change from conservation practices currently taught in the home. The following list of questions indicate the kinds of energy problems people today must face.

1. What present characteristics of houses prevent energy conservation?
2. What alteration in house structure will families possibly make to conserve energy?
3. What are present home weatherization practices in the United States?
4. What present programs allow citizen participation in energy needs of their community?
5. How will peak hour use of electricity affect present conserving efforts?
6. What income class is immediately profited through peak hour electric rates?
7. Why does pollution require control?
8. What income class is advantaged through pollution control at the present time?

9. What are present family behaviors regarding transportation?

10. What are present appliance-use practices among families?

11. What present appliance features prevent energy conservation?

Fifty-six percent of all personal energy is employed in the home and 44% is used for transportation purposes. Of all home energy, space heating uses 34%. Appliances utilize 15% personal energy. Waterheating employs 8% personal energy. Cooking and refrigeration account for 3% personal energy each (p. 33).

American houses utilize 1/5 of all the personal energy expended in the United States. Because houses demand a significant proportion of American energy, home conservation features can have significant impact on the communities, the cities, and the states in which participants reside. However, certain housing characteristics are more arduous to alter than others and these features should be appraised before new houses are fabricated.

Antecedent families did not comprehend the importance of energy conservation in house construction. Housing trends encouraged intensive utilization of energy. These features were oftentimes burdensome to alter after the house was constructed. One laborious differential to transform is the building's foundation type. Slab foundations are the least energy-conserving because they supply less

protection from the chilled ground than crawl space and basement foundations. Although crawl spaces, especially when insulated, offer more protection than slab foundation, insulated basements offer the most preservation. In 1966, slab foundations were built into three out of ten new one-family houses. In 1971, four out of ten new one-family houses had slab foundations. Only 6% of all new single-family houses had basement foundations in 1973.

Insulated attics above the house also safeguard buildings from the weather. The Federal Energy Administration (FEA) reports this about insulation: "If attic insulation were added to the 15 million single-family homes that need it, we'd save about 8% on your heating oil each winter day" (Tips for Energy Savers, 1977, p. 12). Garages furnish protection which are less operative than insulated attics. Although the addition of attics or garages are more easily alterable by families than house foundations, minute fuel savings would presumably not allow families to erect attics as an investment. The choice to accomodate an attic in houses should be effectuated previous to house construction.

Amount of floor space also accounts for energy consumption. Researchers find that a one story house with 1,500 feet of floor space consumes more energy because more surface area is exposed to the ground than a two-story house with the same amount of floor space. A two-story house would use about 20-25% less energy because that much less surface

is exposed. The verity that reduced floor space will save fuel supply should also be premeditated before the house is fabricated.

Insignificant features such as apertures in the house are similarly formidable to transform after the house is constructed. Numerous windows and/or massive size of windows permit heat escape. This loss can be precluded through the addition of multiglazed windows and doors or through heat absorbing or heat-reflected, glazed and coated windows. Furthermore, metal frames around windows also allow more heat to escape than do wooden window frames.

Space heating now uses 35% of all home energy. Family discretion of the type of heating system they prefer can significantly affect the amount of energy that particular homes uses. Researchers find that electric heating systems consume twice as many Btus as other sytems. This too is untoward to modify after the house fabrication. However, scientists are discovering new ways to transform this amount of energy expenditure. Newman and Day suggest that family owners of massive homes could place several thermostats in various rooms to permit particular heating of those rooms in use.

Most unalterable energy consuming features in houses are the outcome of centralized decisions of contractors rather than the determination of individual families. During the period from 1966-1971 researchers discovered that of all new one-family houses, 42% were those houses constructed by residential builders on their land and sold to

prospective buyers. Only 3% of new one-family houses were built on land according to the owner's specification. Contracted houses on massive land tracts are built to save expenses and time. Consequently, these houses were built with slab foundations and electric heating systems. The selling feature was a central air-conditioning unit which consumes an intensive amount of energy. During this period, slab foundations and electric heating systems were placed in more than 80% of all new one-family houses.

These energy-intensive distinctions in homes are arduous to alter once the house is erected. However, families often make basic preferences which pertain to energy use which the members can alter. For example, most families choose the house type which restricts energy conservation, the single unit house, and most families are not willing to transpose their volitions. Because single detached unit family homes are less protected from the weather than the multi-family living complexes, these houses also take advantage of more energy use. Records from the Bureau of Census testify that 3/4 of all American families in 1973 inhabited single unit houses. In 1920, 2/3 of all Americans populated single unit family houses. The tenor in multi-family living complexes shows a decent from the 1920 figures. Of all Americans, 33% occupied apartment complexes in 1920. In 1973, 20% of all Americans dwelled in multi-family composites. Researchers find that a heightened number of Americans live in mobile homes. In 1973, 4% of all Americans

inhabited mobile homes. Mobile housing offers the least protection from weather because it is detached, poorly insulated, and heated with electricity.

A majority of families can also select the climate they desire to occupy, yet most families do not consider energy conservation as a decisive factor for climate choice. Researchers divide climate into four zones according to the amount of heating degree days used to warm family homes. These territories are the Northeast, the NorthCentral, the South, and the West. Areas which include more heating days may also be areas in which the majority intend to weatherize their homes. For example, residents within a city of 10,000 heating days such as Grand Forks, North Dakota, will be more decisively weatherized than New Orleans residents which report 1,500 heating days. It follows that families may not decide to dwell within warmer regions to save energy. However, families in cold regions may select devices for house transformations to preserve the fuel supply.

Families will more likely adjust home features as members view conservation exercises a practical investment against soaring fuel prices. The alterable features which relate to all households at the present time are weatherization and furnace transformations. Investigators discover that such modifications can be significant if numerous residents participate in a given area. For example, researchers calculate that the city of Boston could save 6 million Btus per established

storm window. Annually New York City could liberate a similar amount of energy and Dallas could preserve 1.7 million Btus per storm window inducted. Investigators claim, in time, the addition of storm windows in a cold region such as Boston could be a worthwhile investment. If the house contains air-conditioning, the window will pay for itself in ten years. Those most in need of storm windows, low income persons, cannot afford the investment at the attendent time. Proposed policies would extend loans to the impoverished, thus enabling them to effectuate this weatherization transition. Low cost storm window installation is also conceivable for low income groups. Researchers calculate that a house with 14 windows can install storm windows by taping plastic tightly to seal from heat departure during cold weather for $10. In addition to storm windows, house insulation may prove an invaluable investment against soaring fuel prices. Investment payoff for insulation is contingent upon analagous programs such as the one instituted by Michigan Public Service. Homes in need are insulated by natural gas compancies for 20% downpayment and a 1% interest rate after three months of no charge. Because of lessened fuel bills, insulation installment could pay for itself in one year. House size, insulation amount, and type all vary insulation requisites.

Another alterable housing feature which may pay off as investment, furnace changes, has been technologically advanced by science, yet the public is unaware of these promotions. The appliances have entered the

market within the past five years. One device, the electrical or mechanical ignition system, would permit the household head to turn off his own pilot light during the summer. Savings of natural gas could be substantial if all household heads turn off their pilot lights during tepid months. For example, researchers find that in the summer of 1972, of those 43.2 million households with gas heat, 31% turned their pilot lights off. Those household heads whose pilot light remained on in all likelihood did not wish to make the incommodious call to the gas company. Some gas companies charge to do the service, which would make the insubstantial savings of $5 totally insignificant. The cost of installing an electrical ignition system demands a long-term investment dependent upon natural gas price inflations. Nonetheless, investigators discover that 1% of all personal energy depleted in households may be preserved through joint effort of turning pilot lights off.

Another energy conserving investment, insulating household water heaters, entails some exertion. Those families who own clotheswashers and/or dishwashers may invest wisely by insulating their water systems. Researchers discover that a 1969 quick recovery electric water heater consumes 52 million Btus. This amount is considerably more than the natural gas 1971 model water heater which uses 32 million Btus. In 1973, 34% of single family homes utilized electricity to heat water and 56% of single family homes used natural gas to heat water. Owners of both varieties of systems could furnish profitable savings for their

families. Owners of electric heating systems may want to consider changing to a natural gas system of heating water for more substantial savings.

Family Participation in Community Conservation

Especially in Montana, community decisions about energy conservation at this present time are critical. National efforts to conserve our natural gas and electric reserve depends on Montana's willingness to exploit her coal resources until solar research is perfected. This insinuates that in Montana by the year 2000, coal production may inflate from 58 million tons per year to 393 million tons per year (Christianson and Clark, 1976). Major community transformations could meddle with the environmental balance. Coal development produces air pollution. Slurry-mining interferes with the supply of water. Strip mining of coal could damage habitat. New railroad transportation systems could divide the land. Future decisions will have impact on family life in Montana. Yet, families as microscopic social units usually do not have representatives or spokesmen to defend the rights of that group. Various represented interest groups do have a spokesman and families are often persuaded to polarize their opinions with one of these groups. As a result, for example, Friends of the Earth speak for the interest of that group. Yet, few heads of households speak totally for the regard of the family.

Certain community programs do provide family participation in community resolutions. In 1974, Henrietta Schilit outlined practical steps for family decision making in community crisis situations. These steps include:

1. Community needs are voiced by some outside community expert. These needs could include: a new type of transportation system within the city, and introduction of new types of solar-heating systems etc.
2. Local newspapers and radio broadcasters inform the community of the needed adaptation.
3. Local families themselves must define the problem and list alternative resolutions.
4. As representatives of the community, the selfappointed families present the problem in a way evident to their community members.
5. The problem's resolution depends on bargaining with final compromise.
6. Goals first established at the outset are evaluated upon the accomplishments at the outcome.

In summary, Schilit says, "As the crisis is acted upon as a collective body, the outcome will offer better solutions" (1976, p. 34).

Peak Hour Electricity

The United States presently uses a "declining block rate" to price electricity. This method of rating electricity establishes lower price rates for the greater amount of electricity consumed. Consequently, Americans who use the most electricity also pay the lowest prices. On the other hand, low income families who use the least electricity pay the highest prices. As energy prices rise, the injustice of this system could significantly reduce low income resistance against price rise. The system is similarly unjust because declining bloc rates do not teach the public energy conservation. Instead, the system encourages free use of electricity.

Several alternatives could replace the declining bloc system. Economists suggest the antithesis of the declining bloc system. Low rates would be paid for the first bloc for electricity and increase in price per more electricity used. Those income groups who use the most electricity would then pay the highest rates of electricity. Although this system justly removes the disadvantage from the poor, industry itself may suffer serious consequences. Another system adopted by France and proven workable in that country is called "peak hour" electrical-rating system. This type of energy rating system is advantageous to several social and income groups. These three: the low income, the metropolis area, and industry are a few among several. The system

encourages higher prices for electricity when electrical demand is greater than at other times. Those who use electricity when the electrical demand of their community is low, pay low rate energy prices. Hence, low income families have means of cutting costs by altering their activity schedules. For example, these families could heat their homes and have meals at odd hours which differ from other family schedules. This alteration in activity may benefit this group more than others because manual labor, such as factory assemblage can independently fit into an odd-hour schedule. Office work often depends on the schedule of the general public. Industry must find benefits to change its schedule to fit the needs of its workers. If industry seeks lower rates at low demand time periods, its schedule will fit the needs of its workers. Finally, the peak hour use of electricity determinately benefits the region. Residents in the expanse of Livingston would not discover the same advantages as residents in the area of New York City. Numerous residents who participate through altered activity cycles would save an ample amount of electricity for the municipality as insurance against the future.

Because of past mediocre planning, peak hour electrical use in megalopolis areas may not be as advantageous as this system can be. For example, new single unit houses constructed on large tracts of land by contractors offer similar energy intensive features. The features of electric heat and central air conditioning do not allow flexible energy

use. If some houses used natural gas in lieu of electricity, the total community could be assisted.

The system could offer other gains in addition to lowered rates for lower electrical peak use. The idea of neighborhood is extended when neighbors have some reason to establish contact (Young, 1973). Communities will discover the need to study the activity cycle patterns. Thus, United States citizens will somewhat become aware of their neighborhood's daily activity. Researchers claim that neighborhoods grow as neighbors establish contact with each other. Although community activity schedules do not insure physical contact, the awareness of one's community may be incentive to develop incremental contact until the community is appreciative of one specific need of one family member in the community.

Present Conservation Practices of Families Regarding Pollution Control

Pollution control is not always affiliated with preserving energy. For example, pollution devices for cars deflate the fuel economy 5% in most automobiles. However, both pollution control and conservation work for the common good of all people. In response to the need to save energy, automobile manufacturers may produce lighter-weight cars. Pollution control devices do not reduce mileage if the car is extremely light weight. Or, scientists may eventuate a more refined fuel to prevent pollution which does not reduce mileage. Therefore, the two

working together can offer more opportunity as a mutual bond, than they would travail as separate entities.

All programs which teach conservation of energy also teach pollution control. By using less energy, citizens pollute less. Yet, there is discrepancy (among industry especially) about what is energy conservation. Industry assumes a similar view as the government; coal resources must save the supply of gas and oil until the United States can perfect solar research.

Most American citizens are cognizant of the detrimental consequences of coal combustion on health. Researchers figure that an industrial plant which functions by burning coal with one percent sulfur content yields 38 pounds of sulfur dioxide per ton of coal. The most lethal of all pollutants, sulfur dioxide, is notably virulent when it combines with particulates. The greatest aggregate of particulate and sulfur dioxide is found near coal-burning industries. Particulate dispersion is principally ample if the coal possesses high ash content. This pollutant impairs the lungs and the heart. Potential explicit damage can result in bronchitis, emphysema, and lung cancer. Damage to the environment is equally profound. Sulfur dioxide released into the atmosphere frequently returns as sulfuric acid (Newman, p. 106).

Low income groups in metropolitan areas must dwell in the sections most polluted, the central cities. Nominal housing and employment opportunities suppress the low income group in the central city.

Because this group actually uses the slightest amount of energy, poverty families are least accountable for the pollution problem.

Pollution can be managed. In 1969, the government enforced regulations in order to diminish pollution. Studies by William Druvant verify that the District of Columbia did reduce pollution through standards for incinerators. In 1969, only 6% of the population of the District of Columbia were below the 1969 standards. By 1973 pollution had been reduced 2,444% in the District of Columbia. Low income groups relished the pollution-free atmosphere high income groups likewise found pleasurable (Newman, Chapter 16).

The penalties of pollution are costly. In 1970, $12.3 billion dollars were expended for pollution control. Of the figure, $4.6 billion were health forfeits. Property penalties accounted for $5.8 billion dollars of the quotation. Material damage accounts for $1.7 billion. Crop damage accounts for $2 billion dollars (Newman).

The Federal government would manipulate the pollution of utility industry by distributing costs upon the entirety of citizens within a given territory. In order to control pollution, utility industry could augment rates to those it serves. Because utilities are regulated monopolies, utility industry would be compelled to discuss new ways to master pollution in place of expanding its size. The policy also delegates power to industry of utilities to raise price rates for that one particular reason. Absence of the policy may prevent stock holder

investment in the self-regulated utility because dividend returns would be low.

A common misconception is that the natural world propounds cost-free service. Americans must realize that in order to have pure air, they must pay for it.

If consumers do not pay for clean air, then it is given no value measurable through monetary costs. If rates go up as a result of pollution control, consumers could take an active role in discussing low cost pollution equipment which must meet federal standards. Furthermore, citizens who conceive that the fuel bill is partially utilized for health advantages could oversee utility industry activities.

In Montana, the land has been free of pollution and exploitation of most types of industry. Most citizens are not aware of industrial costs. The costs of all types of industry in this spacious and sparsely populated land are extremely high. Montanans must substantially value their health and their environment.

Literature lacks reviews about the practice of conservation and the consequence of published rate schedules. Studies are also deficient in respect to the exercise of conservation as the product of tax credit for solar and wind heating systems.

Transportation and Family Conservation Practices

The automobile symbolizes the vehicle which brought prosperity to America. This prosperous economic innovation did transform the American

culture. In lieu of an agriculturally based economy, America became industrialized. This transition has had impact upon American families, American communities, and national unity in the United States. In fact, transportation itself has created unprecedented international dependencies which are imitated in family life. Milton Yinger states that this turning point in economies is "from subsistence to complex interdependent processes that bind several nations together" (Edwards, 1969, p. 271). According to Yinger, families of the past valued traditional practices and "the substance which could insure continuity to generations" (Edwards, 1969, p. 271). Sons of farmers considered other options beside farming as possible vocational alternatives. Fifty years after the automobile became prevalent in the United States, Goode says this about family behavior, "We are witnessing a remarkable phenomenon; the development of similar family behavior and values among much of the world's population" (Edwards, 1969, p. 380).

Conservation of gasoline had not been exercised by families to any great extent until after 1973. After that time, Federal law restricted speed to 55 miles per hour (MPH), and gasoline sale on Sundays, which forced families to conserve. Yet, various income levels rely on the automobile for status. Those most affluent use the most gasoline. Researchers estimate that the prosperous use five times as much gasoline as low income families. Because there is great discrepancy among income groups according to gasoline consumption, transportation policy will be

explained more completely according to demographic factors that influence conservation practices.

Tax on Oil and Natural Gas and Present Family Conservation Practices

Researchers estimate that 15% of all personal energy is used by appliances. Modernized designs of appliances have increased the amount of energy they consume. All other major appliances, except the stove, utilize more energy than they consumed in 1950. Regular refrigerators and automatic clothes washers consumed much more fuel than those appliances utilized in 1950. Regular refrigerators mobilize 59% more fuel and regular freezers employ 39% more fuel. Two conclusions for the enhanced fuel consumption are convenience features and massive appliances. For example, the elementary 1950 home cabinet freezer using 620 kilowatt hours per year was superceded by the 1969 freezer using 860 kilowatt hours per year. Similarly, the 1950 simple wringer washer which used 45 kilowatt hours per year was supplanted by the automatic clothes washer which used 103 kilowatt hours per year (Newman, p. 58).

Table 1 and 2 signify the trend in natural gas and electrical use by various appliances. These tables are followed by a list of annual energy requirements of small appliances.

TABLE 1

Trend in Estimated Annual Use of Natural Gas by Appliance, Selected Years, 1960-1971 (therms)

Appliance	1960	1966	1971	Percent Change 1960-71
Range				
Apartment	a	74	88	19
House	100	106	105	5
Refrigerator	120	a	a	a
Clothes dryer				
Gas pilot	85	90	75	-12
Electric pilot	45	52	60	33
Gas light	a	183	181	-1

a = Not available

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TABLE 2

Trend in Estimated Annual Electricity Use of Major Appliances, Selected Years, 1950-1969 (kwhr)

Appliance	1950	1959	1969	Percent Change 1959-69
Stove	1,250	1,225	1,175	-4
Refrigerator				
Regular	345	420	728	73
Frostless	a	a	1,217	a
Freezer				
Home freeze cabinet	620	a	a	a
Regular	a	860	1,195	39
Frostless	a	a	1,761	a
Laundry				
Clothes washers				
Nonautomatic	45	45	76	69
Automatic	a	60	103	72
Clothes dryer	520	910	993	9
Dishwasher	a	355	363	2
Television				
Black and White	290	325	362	11
Color	a	a	502	a

a = Not available

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TABLE 3

Annual Energy Requirements of Small Electric Household Appliances, 1973

Appliance	Average Wattage	Estimated kwhr consumed Annually
Food preparation		
Blender	386	15
Broiler	1,436	100
Carving knife	92	8
Coffee maker	894	106
Deep fryer	1,448	83
Dishwasher	1,201	363
Egg cooker	516	14
Frying pan	1,196	186
Hot plate	1,257	90
Mixer	127	13
Oven (microwave only)	1,450	190
Roaster	1,333	205
Sandwich grill	1,161	33
Toaster	1,146	39
Trash compactor	400	50
Waffle iron	1,116	22
Waste disposer	445	30
Comfort conditioning		
Air cleaner	50	216
Bed covering	177	147
Behumidifier	257	377
Fan (attic)	370	291
Fan (circulating)	88	43
Fan (rollaway)	171	138
Fan (window)	200	170
Heater (portable)	1,322	176
Heating pad	65	10
Humidifier	177	163

Appliance	Average Wattage	Estimated kwhr consumed Annually
(Continued from previous page).		
Health and beauty		
Germicidal lamp	20	141
Hair dryer	381	14
Heat lamp	250	13
Shaver	14	2
Sun lamp	279	16
Tooth brush	7	.5
Vibrator	40	2
Home entertainment		
Radio	71	86
Radio/record player	109	109
House wares		
Clock	2	17
Floor polisher	305	15
Sewing machine	75	11
Vacuum cleaner	603	46
Iron (hand)	1,008	144

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Most consumers are not aware of these energy requisites. For that reason, The Federal Trade Commission in 1975 demands that manufacturers must label the following appliances according to their operating costs:

(1) central air-conditioners
(2) humidifiers and dehumidifiers
(3) clothes dryers
(4) kitchen ranges and ovens
(5) dishwashers
(6) refrigerators and refrigerator-freezers
(7) freezers
(8) room air-conditioners
(9) furnaces
(10) television sets
(11) home heating equipment, not including furnaces
(12) water heaters

Yet, labeling does not always offer complete and understandable information to the consumer. The FEA states in 1978, "Extensive labeling and consumer information will be required for most appliances" (Tips for Energy Savers, 1977, p. 31).

Policy Perception In Terms of Certain Demographic Variables

Income is the preponderant factor which determines family perception of the policy. Studies initiated by the Ford Foundation compared income level difference with: (1) house types; (2) fuel consumption; (3) modes of transportation; (4) appliance utility.

Income levels fell within four major divisions. Poor incomes averaged below 2,500. Lower-middle class income averaged under $12,000. Income of the upper-middle classes ranged between $12,000 and $15,999.

Those whose income averaged above $16,000 were classified well-off.

Results of the study indicate that the lowest income group used significantly less energy than the other income levels. Because natural gas is needed for necessary daily activities such as water heating and space-heating, the poor consume only 40% less than other income levels. However, the poor save twice as much electricity as the well-off economize. The poor simply own fewer appliances and as a result, use electricity less often. In addition, the poor save five times the amount of gasoline than the well-off save. Luxury excursions and extensive vacations often denote wasteful habits practiced by the well-off.

Most impoverished habitats are energy conserving structure. As a majority apartment dwellers are low income. In general, poor single-unit houses feature no substantial windows and an inconsequential number of walls and rooms. Weatherization features are inadequate in 2/5 of all impoverished homes.

Low income families save fuel simply because many do not possess cars. In 1965, 65% of the poor did not own a car. On the other hand, only 5% of the well-off did not posses an automobile. In the recent year of 1973, 45% of the poor yet did not own a car. At that time, 78% of the well-off owned more than one car.

Older vehicles are frequently energy-conserving because they feature fewer extra accessories such as air conditioners. Furthermore,

the poor own these older cars. Investigation reveals that the poor owned and used cars five years old or older. Of these, 60% were classified standard types of cars while 15% were vans or trucks. On the other hand, over half of the well-off invest in new cars.

Almost half of the poor report gas mileage at 15-19 gallons. Of the well-off, 34% reveal gas mileage of less than 14 miles per gallon.

The poor tolerate less gasoline usage for various reasons. In metropolitan areas, the poor who inhabit the central cities commute by public transit more recurrently than other income levels. Furthermore, the poor households contain less drivers per car.

As energy prices ascend, poor households are placed in a precarious position. Many of these households cannot relinquish goods and services which family members have acquired over the years. All income contributes to fundamental household needs. In addition, gasoline prices and car maintenance restrict the poor so that occupations must be within walking distance of residency.

In 1972-73 poor households spent 15% fo their total income for electricity, natural gas, and gasoline. The well-off expend merely 4% of their total earnings for these fuels.

The poor will more likely interpret rising energy costs as a detriment to their family structure, yet the government, realizing their position, might provide means to combat the hardship. Other income

groups will begin to use activity patterns the poor have been practicing for a century.

Sex Type And Energy Policy Perception

Reuben Hill claims that the impact of inventions has impressed families in diverse ways (Edwards, p. 352-370). Actually inventions may not save time for leisure as they often propose to do. According to Hill, inventions have actually increased the quality of family and societal service because more women have joined the labor force (Edwards, 1969, p. 360). History reveals that in 1890, 18% of all women were employed outside the home. By 1973, 75% were employed outside the home. Those women must manage household around a work schedule, freeing labor and time used for cooking and cleaning. New inventions similar to the microwave oven may cut labor, time, and energy costs so that women can maintain their schedule.

Future Energy Conservation Practices Needed by Families

The FEA published a pamphlet on "Tips for Energy Savers" in August of 1977. The following practical ways families of the future can save energy are taken directly from that literature.

Protecting the Home From Outside Heat and Cold

> Insulate--No matter how you heat or cool your home, you can reduce the load on your heating and cooling equipment by as much as 20-30% by investing a few hundred dollars in insulation. That's about as much as it would cost you to buy a color television. But the benefits in insulation--lower utility costs--continue for years.

FIND OUT IF YOUR HOME NEEDS INSULATION--Your needs will depend on the climate in which you live and the amount of insulation, if any, you already have. For guidance, consult with reputable insulation dealer in your community or with your local building inspector or county agent.

FIND OUT ABOUT R-VALUES--before you buy your insulation materials. In Montana, ceiling insulation requires 11 inches of glass fiber or 10 inches of rock wool in batts or blankets or 15 inches of glass fiber or 11-12 inches of rock wool or 9 inches of cellulosic fiber which is loose fill. Floor insulation requires 6 1/2 inches of glass fiber or six inches of rock wool which is in batts or blankets. Loose fill for floor insulation requires 10 inches of glass fiber, 7-8 inches of rock wool and six inches of cellulosic fiber.

CONSIDER INSULATING EXTERIOR WALLS--This is an expensive measure that requires the services of a contractor, but it may be worth the cost if you live in a very hot or very cold climate. There should be enough space in the walls to accomodate blown-in insulation. Costs range from 60 cents to 90 cents per square foot. Savings could amount to 16-20% of utility costs.

INSULATE FLOORS OVER UNHEATED SPACES such as crawl spaces and garages. Costs could range from $200-$400. Savings could amount to about 8% on your heating and cooling costs.

Draft-Proof Windows and Doors

TEST YOUR WINDOWS AND DOORS FOR AIRTIGHTNESS. Move a lighted candle around the frames and sashes of your windows. If the flame dances around, you need caulking and/or weatherstripping.

Try slipping a quarter under the door. If it goes through easily, you need weatherstripping.

CAULK AND WEATHERSTRIP DOORS AND WINDOWS. It's easy to do yourself. Caulking and weatherstripping materials costs about $25 for the average house (12 windows, 2 doors). Savings in annual energy costs could amount to 10% or more.

INSTALL STORM WINDOWS. Combination screen and storm windows (triple-track glass combination) are the most convenient and energy efficient because they can be opened easily when there is no need to run heating or cooling equipment. They cost about $30 each.

Alternatives range from single-pane storm windows (about $10 each), which have to be removed to admit outside air, to clear plastic film which can be taped tightly to the inside of the window frames.

Savings in reduced space heating costs for any of these types of protection can amount to as much as 15% a year. Adding storm doors in very cold or very hot climates could increase these savings.

Heating and Cooling

Heating and cooling our homes account for most of our residential energy costs. Don't waste any of that precious conditioned air, whether you pay for it yourself or pay your landloard for it.

CLOSE OFF UNOCCUPIED ROOMS and shut their heat or air-conditioning vents; or turn off room air-conditioners. (This does not apply if you have a heat pump system. Leave it alone; shutting vents could harm a heat pump.)

USE KITCHEN, BATH AND OTHER VENTILATING FANS SPARINGLY. In just one hour these fans can blow away a houseful of warmed or cooled air. Turn them off just as soon as they have done their job.

KEEP YOUR FIREPLACE DAMPER CLOSED UNLESS YOU HAVE A FIRE GOING. And open damper in a 48-inch square fireplace can let up to 8 percent of our heat out the chimney.

Heating Energy Savers

Don't turn the heat on until you have to. On cool evenings use your fireplace instead and add a blanket at night.

IF YOU USE ELECTRIC FURNACE HEATING, CONSIDER A HEAT PUMP SYSTEM. The heat pump uses thermal energy from outside air for both heating and cooling. Costs for these pumps run from about $2,000 for a whole-house unit to about

$425 for room size. But they can cut your use of electricity for heating by 30-40% and also can provide some savings in cooling costs.

IF YOU PLAN TO BUY A NEW GAS HEATING SYSTEM, ask your gas utility or public service commission about the savings potential of electronic ignition. Ask also about possibilities for retrofitting the system you may already own.

CONSIDER THE ADVANTAGES OF A CLOCK THERMOSTAT FOR YOUR HEATING SYSTEM. The clock thermostat will turn the heat down for you automatically at a regular hour before you retire and turn it up again before you wake. While you can easily turn your thermostat back at night and up again in the morning yourself, the convenience of a clock thermostat may be worth the $70 to $90 cost to you.

CONSIDER BUYING A PROPERLY SIZED FURNACE THAT INCORPORATES AN AUTOMATIC FLUE GAS DAMPER. This device reduces the loss of heat when the furnace is off. (Contact your gas utility or oil supplier for guidance.)

DON'T USE YOUR FIREPLACE FOR SUPPLEMENTAL HEATING WHEN YOUR FURNACE IS ON unless you take one of the measures suggested below to lessen the loss of heated air from the house. The warmth from a fire on the hearth generally doesn't radiate through the house; the heat gain is confined to the room with the fireplace. And when your furnace is on, too, a considerable amount of heated air from the rest of the house flows into the fireplace and goes wastefully up the chimney. Then the temperature in other rooms of the house goes down, and the furnace uses more fuel to raise it up to the level controled by the thermostat. So you use more fuel rather than less, when the furnace and fireplace are both going.

Lessen heat loss when you use your fireplace when the furnace is on:

LOWER THE THERMOSTAT SETTING TO 50-55 DEGREES. Some warmed air will still be lost, but the furnace won't have to use as much fuel to heat the rest of the house to these temperatures as it would to raise the heat to 65 degrees.

CLOSE ALL DOORS AND WARM AIR DUCTS ENTERING THE ROOM WITH THE FIREPLACE AND OPEN A WINDOW NEAR THE FIREPLACE ABOUT 1/2 TO ONE INCH. Air needed by the fire will be provided through the open window and the amount of heated air drawn from the rest of the house will be reduced.

IF YOU HAVE A SIMPLE OPEN MASONRY FIREPLACE, CONSIDER INSTALLING A GLASS FRONT OR A GLASS SCREEN. This will cut down on the loss of warmed air through the flue.

When the heat is on . . .

LOWER YOUR THERMOSTAT TO 65 DEGREES DURING THE DAY AND 55 DEGREES AT NIGHT. You can save about 3 percent on your fuel costs for energy degree you reduce the average temperature in your home. In addition, you can save about one percent on your heating bills for every degree you dial down only at night.

KEEP WINDOWS NEAR YOUR THERMOSTAT TIGHTLY CLOSED, otherwise it will keep your furnace working after the rest of the room has reached a comfortable temperature.

HAVE YOUR OIL FURNACE SERVICED AT LEAST ONCE A YEAR, preferably each summer to take advantage of off-season rates. This simple precaution could save you 10 percent in fuel consumption.

CLEAN OR REPLACE THE FILTER IN YOUR FORCED-AIR HEATING SYSTEM EACH MONTH.

CHECK THE DUCT WORK FOR AIR LEAKS ABOUT ONCE A YEAR IF YOU HAVE A FORCED-AIR HEATING SYSTEM. To do this, feel around the duct joints for escaping air when the fan is on. Relatively small leaks can be repaired simply by covering holes or cracks with duct tape. More stubborn problems may require caulking as well as taping. You could save almost 9 percent in heating fuel this way.

IF YOU HAVE OIL HEAT, CHECK TO SEE IF THE FIRING RATE IS CORRECT. Chances are it isn't. A recent survey found that 97 percent of the furnaces checked were overfired.

DON'T LET COLD AIR SEEP INTO YOUR HOME THROUGH THE ATTIC ACCESS DOOR. Check the door to make sure it is well insulated and weatherstripped, otherwise you'll be wasting fuel to heat that cool air.

DUST OR VACUUM RADIATOR SURFACES FREQUENTLY. Dust and grimeimpede the flow of heat. And if the radiator needs painting, use flat paint, preferable black. It radiates heat better than glossy.

KEEP DRAPERIES AND SHADES OPEN IN SUNNY WINDOWS; CLOSE THEM AT NIGHT.

FOR COMFORT IN COOLER INDOOR TEMPERATURES, USE THE BEST INSULATION OF ALL--WARM CLOTHING. The human body gives off heat, about 390 Btu's per hour for a man and 330 for a woman. Dressing wisely can help you retain natural heat. Wear closely woven fabrics. They add at least a half a degree in warmth.

Hot Water Energy Savers

Heating water accounts for about 20 percent of all the energy we use in our homes. Don't waste it.

REPAIR LEAKY FAUCETS PROMPTLY. One drop a second can waste as much as 60 gallons of hot or cold water in a week.

DO AS MUCH HOUSEHOLD CLEANING AS POSSIBLE WITH COLD WATER.

INSULATE YOUR HOT WATER STORAGE TANK AND PIPING.

Water Heaters

Energy-efficient water heaters may cost a little more initially, but reduced operating costs over a period of time can more than make up for the higher outlay.

BUY A WATER HEATER WITH THICK INSULATION ON THE SHELL. While the initial cost may be more than one without this conservation feature, the savings in energy costs over the years will more than repay you.

ADD INSULATION AROUND THE WATER HEATER YOU NOW HAVE IF IT'S INADEQUATELY INSULATED, but be sure not to block off needed air vents. That would create a safety hazard, especially with oil and gas water heaters. When in doubt, get professional help. When properly done, you should save about $15 a year in energy costs.

CHECK THE TEMPERATURE ON YOUR WATER HEATER. Most water heaters are set for 140° F. or higher, but you may not need water that hot unless you have a dishwasher. A setting of 120 degrees can provide adequate hot water for most families.

If you reduce the temperature from 140° to 120°, you could save over 18% of the energy you use at the higher setting. Even reducing the setting 10 degrees will save you more than 6% in water heating energy.

DON'T LET SEDIMENT BUILD UP IN THE BOTTOM OF YOUR HOT WATER HEATER, it lowers the heater's efficiency and wastes energy. About once a month, flush the sediment out by drawing several buckets of water from the tank through the water heater drain faucet.

Kitchen Energy Savers

USE COLD WATER RATHER THAN HOT TO OPERATE YOUR FOOD DISPOSER. This saves the energy needed to heat the water, is recommended for the appliance, and aids in getting rid of grease. Grease solidifies in cold water and can be ground up and washed away.

INSTALL AN AERATOR IN YOUR KITCHEN SINK FAUCET. By reducing the amount of water in the flow, you use less hot water and save the energy that would have been required to heat it. The lower flow pressure is hardly noticeable.

IF YOU NEED TO PURCHASE A GAS OVEN OR RANGE, LOOK FOR ONE WITH AN AUTOMATIC (ELECTRONIC) IGNITION SYSTEM INSTEAD OF PILOT LIGHTS. You'll save an average of up to 47% of your gas use--41% in the oven and 53% on the top burners.

IF YOU HAVE A GAS STOVE, MAKE SURE THE PILOT LIGHT IS BURNING EFFICIENTLY--with a blue flame. A yellowish flame indicates an adjustment is needed.

NEVER BOIL WATER IN AN OPEN PAN. Water will come to a boil faster and use less energy in a kettle or covered pan.

KEEP RANGE-TOP BURNERS AND REFLECTORS CLEAN. They will reflect the heat better, and you will save energy.

MATCH THE SIZE OF PAN TO THE HEATING ELEMENT. More heat will get to the pan; less will be lost to surrounding air.

IF YOU COOK WITH ELECTRICITY, GET IN THE HABIT OF TURNING OFF THE BURNERS SEVERAL MINUTES BEFORE THE ALLOTTED COOKING TIME. The heating element will stay hot long enough to finish the cooking for you without using more electricity.

WHEN USING THE OVEN, MAKE THE MOST OF THE HEAT FROM THAT SINGLE SOURCE. Cook as many foods as you can at one time. Prepare dishes that can be stored or frozed for later use or make all over-cooked meals.

WATCH THE CLOCK OR USE A TIMER; don't continually open the oven door to check food. Every time you open the door heat excapes and you cooking rakes more energy.

USE SMALL ELECTRIC PANS OR OVENS FOR SMALL MEALS rather than the kitchen range or oven. They use less evergy.

USE PRESSURE COOKERS AND MICRO-WAVE OVENS IF YOU HAVE THEM. They can save energy by reducing cooking time.

Dishwashing Energy Savers

The average dishwasher uses 14 gallons of hot water per load. Use it energy efficiently.

BE SURE YOUR DISHWASHER IS FULL, but not overloaded, when you turn it on.

WHEN BUYING A DISHWASHER, LOOK FOR A MODEL WITH AIR-POWER AND/OR OVERNIGHT DRY SETTINGS. These features automatically turn off the dishwasher after the rinse cycle. This can save you up to 1/3 of your total dishwashing energy costs.

LET YOUR DISHES AIR DRY. If you don't have an automatic air-dry switch, turn off the control knob after the final rinse. Prop the door open a little and the dishes will dry faster.

DON'T USE THE "RINSE HOLD" ON YOUR MACHINE. It uses 3 to 7 gallons of hot water each time you use it.

SCRAPE DISHES BEFORE LOADING THEM INTO THE DISHWASTER so you won't have to rinse them. If they need rinsing, use cold water.

How to Save Electricity Before it Comes to You

During late afternoon and early evening hours the load on the Nation's electrical systems usually reaches its peak. To meet the heavy demand, electric utilities often must use back-up generating equipment that is not energy efficient.

Try to use energy-intensive appliances such as dishwashers, clotheswashers, and dryers, and electric ovens in the early morning to help reduce that peakload.

Refrigerator/Freezer Energy Savers

DON'T KEEP YOUR REFRIGERATOR OR FREEZER TOO COLD. Recommended temperatures: 38-40^{o} for the fresh food compartment of the refrigerator; 5^{o} for the freezer section.

IF YOU'RE BUYING A REFRIGERATOR, IT'S ENERGY ECONOMICAL TO BUY ONE WITH A POWER-SAVER SWITCH. Most refrigerators have heating elements in their walls or doors to prevent "sweating" on the outside. In most climates, the heating element does not need to be working all the time. The power-saver switch turns off the heating element. By using it, you could save about 16% in refrigerator energy costs.

CONSIDER BUYING REFRIGERATORS AND FREEZERS THAT HAVE TO BE DEFROSTED MANUALLY. Although they take more effort to defrost, these appliances use less energy than those that defrost automatically.

REGULARLY DEFROST MANUAL-DEFROST REFRIGERATORS AND FREEZERS. Frost build-up increases the amount of energy needed to keep the engine running. Never allow frost to build up more than 1/4 inch.

MAKE SURE YOUR REFRIGERATOR DOOR SEALS ARE AIRTIGHT. Test them by closing the door over a piece of paper or a dollar bill so it is half in and half out of the refrigerator. If you can pull the paper or bill out easily, the latch may need adjustment or the seal may need replacing.

Laundry Energy Savers

You can save considerable amounts of energy in the laundry through conservation of hot water and by using your automatic washers and dryers less often and more efficiently.

WASH CLOTHES IN WARM OR COLD WATER, RINSE IN COLD. You'll save energy and money. Use hot water only if absolutely necessary.

Washing Machines

FILL WASHERS (unless they have small-load attachments or variable water levels), but do not overload them.

USE THE SUDS SAVER IF YOU HAVE ONE. It will allow you to use one tubful of hot water for several loads.

PRE-SOAK OR USE A SOAK CYCLE WHEN WASHING HEAVILY SOILED GARMENTS. You'll avoid two washings and save energy.

Lighting Energy Savers

More than 16% of the electricity we use in our homes goes into lighting. Most American overlight their homes, so lowering lighting levels is an easy conservation measure.

Indoor Lighting

LIGHT-ZONE YOUR HOME AND SAVE ELECTRICITY. Concentrate lighting in reading and working areas and where it's needed for safety. Reduce lighting in other areas, but avoid very sharp contrasts.

TO REDUCE OVERALL LIGHTING IN NON-WORKING SPACES, remove one bulb out of three in multiple light fixtures and replace it with a burned-out bulb for safety. Replace other bulbs throughout the house with bulbs of the next lower wattage.

CONSIDER INSTALLING SOLID STATE DIMMERS OR HI-LOW SWITCHES when replacing light switches. They make it easy to reduce lighting intensity in a room and thus save energy.

USE ONE LARGE BULB INSTEAD OF SEVERAL SMALL ONES IN AREAS WHERE BRIGHT LIGHT IS NEEDED.

USE LONG-LIFE INCANDESCENT LAMPS ONLY IN HARD-TO-REACH PLACES. They are less energy efficient than ordinary bulbs.

Appliance Energy Savers

Energy efficiency may vary considerably though models seem similar. In the next few years it will be easier to judge the energy efficiency of appliances with the Government's appliance labeling program. In the meantime, wise selection requires a degree of time and effort.

DON'T LEAVE YOUR APPLIANCES RUNNING WHEN THEY'RE NOT IN USE. It's a total waste of energy. Remember to turn off your radio, TV, or record player when you leave the room.

KEEP APPLIANCES IN GOOD WORKING ORDER so they will last longer, work more efficiently, and use less energy.

WHEN BUYING APPLIANCES, COMPARISON SHOP. Compare energy use information and operating costs of similar models by the same and different manufacturers. The retailer should be able to help you find the wattage of the appliance. With that information, and the list of appliances given previously, you should be able to figure out how much it will cost you to run the appliance you choose.

BEFORE BUYING NEW APPLIANCES WITH SPECIAL FEATURES, FIND OUT HOW MUCH ENERGY THEY USE COMPARED WITH OTHER, PERHAPS LESS CONVENIENT, MODELS. A frost-free refrigerator, for example, uses more energy than one you have to defrost manually. It also costs more to purchase. The energy and collars you save with a manual-defrost model may be worth giving up the convenience.

USE APPLIANCES WISELY; Use the one that takes the least amount of energy for the job. For example: toasting bread in the oven uses three times more energy than toasting it in the toaster.

DON'T USE ENERGY-CONSUMING SPECIAL FEATURES ON YOUR APPLIANCES IF YOU HAVE AN ALTERNATIVE. For example, don't use the "instant-on" feature of your TV set. "Instant-on" sets especially the tube types, use energy even when the screen is dark. Use the "vacation switch", if you have one, to eliminate this waste; plug the set into an outlet that is controlled by a wall switch; or have your TV serviceman install an additional on-off switch on the set itself or in the cord to the wall outlet.

Building or Buying a Home

CONSIDER A SQUARE FLOOR PLAN. It usually is more energy efficient than a rectangular plan.

INSULATE WALLS AND ROOF TO THE HIGHEST SPECIFICATIONS RECOMMENDED FOR YOUR AREA.

INSULATE FLOORS, TOO, ESPECIALLY THOSE OVER CRAWL SPACES, COLD BASEMENTS, AND GARAGES.

IF THE BASE OF A HOUSE IS EXPOSED AS IN THE CASE OF A MOBILE HOME, BUILD A "SKIRT" AROUND IT.

INSTALL LOUVERED PANELS OR WIND-POWERED ROOF VENTILATORS rather than motor-driven fans to ventilate the attic. Only use a motor-driven fan if it can be used for whole-house ventilating during cool periods.

CONSIDER SOLAR HEAT GAIN WHEN YOU PLAN YOUR WINDOW LOCATIONS. In cool climates, install fewer windows in the north wall because there's little solar heat gain there in winter. In warm climates, put the largest number of windows in the north and east walls to reduce heating from the sun.

INSTALL WINDOWS YOU CAN OPEN so you can use natural or fan-forced ventilation in moderate weather.

USE DOUBLE-PANE GLASS THROUGHOUT THE HOUSE. Windows with double-pane heat-reflecting ro heat-absorbing glass provide additional energy savings, especially in south and west exposures.

PLACE YOUR REFRIGERATOR IN THE COOLEST PART OF THE KITCHEN, well away from the range and oven.

INSTALL THE WATER HEATER AS CLOSE AS POSSIBLE TO AREAS OF MAJOR USE to minimize heat loss through the pipes; insulate the pipes.

IF YOU LIVE IN A WARM CLIMATE, REMEMBER THAT LIGHT-COLORED ROOFING CAN HELP KEEP HOUSES COOLER.

When Buying a Home

CONSIDER ALL THE IDEAS MENTIONED FOR BUILDING A HOUSE.

ASK FOR A DESCRIPTION OF THE INSULATION AND DATA ON THE EFFICIENCY OF SPACE HEATING, AIR-CONDITIONING, AND WATER HEATING PLANTS, or have an independent engineer advise you about the efficiency of the equipment. Ask to see the utility bills from the previous year but remember to adjust them for current utility rates. Even some new houses don't have insulation in the exterior walls. Be sure to check.

CONSIDER THE NEED FOR ADDITIONAL INSULATION OR REPLACEMENT OF EQUIPMENT. If improvements are necessary, you may want to seek an adjustment in the purchase price to cover all, or a reasonable share, of the costs.

On the road

There are more than 100 million registered automobiles in the United States. A typical car, with an average fuel economy of less than 15 miles per gallon, travels about 10,000 miles each year and uses well over 650 gallons of gasoline.

Altogether, our private automobiles consume some 70 billion gallons of gasoline each year. That's about 4.5 million barrels a day or about two-thirds of the amount of petroleum currently being imported into the United States.

The importance of individual gasoline savings cannot be overemphasized. If, for example, the fuel used by the average car were reduced just 15 percent through fewer daily trips, better driving practices, and better maintenance, the Nation's use of petroleum would fall by nearly 2/3 of a million barrels per day, or about 3.5% of demand.

USE PUBLIC TRANSPORTATION, A MOTORCYCLE, A MOPED, OR A BICYCLE, OR WALK TO WORK.

SHARE YOUR RIDE. Join a carpool or a vanpool. About 1/3 of all private automobile mileage is for commuting to and from work.

GO SHOPPING WITH A NEIGHBOR OCCASIONALLY. If the average occupancy (currently 1.3 people per commuter) were increased by just one person, each commuter would reduce his costs, energy consumption, and driving stress. And the nationwide gasoline savings--which would reduce our reliance on more expensive imports--would be more than 600,000 barrels per day.

ELIMINATE UNNECESSARY TRIPS. Can you find one driving trip per week that could be handled by telephone or combined with another trip? If every automobile took just one less 10 mile trip a week, the Nation would save 32 billion gallons of gas a year, or nearly 5% of the total passenger car demand for gas.

Maintaining Your Car

HAVE YOUR CAR TUNED as recommended by the manufacturer. Regular tune-ups extend engine life and improve performance. A poorly tuned car could use as much as 3-9% more gasoline than a well-tuned one. The tune-up will pay for itself in gasoline savings and car reliability.

KEEP THE ENGINE FILTERS CLEAN. Clogged filters waste gasoline.

USE THE GASOLINE OCTANE AND OIL GRADE recommended for your car. If you change the oil yourself, take the used oil to your service station for recycling.

CHECK TIRE PRESSURES REGULARLY. Underinflated tires increase gas use. You can lose about two percent in fuel economy for energy pound of pressure under the recommended pounds per-square-inch.

CONSIDER RADIAL TIRES. They can mean from 3-5% improvement in gas mileage in the city, 7% on the highway and 10% at 55 mph after the tires are warmed up for 20 minutes. And they last longer, too. Never mix radials with conventional tires.

REMOVE UNNECESSARY WEIGHT FROM THE CAR. The lighter the car, the less gas it uses. And extra 100 pounds decreases fuel economy about 1% for the average car, 1 1/4% for small cars.

Buying a Car

STUDY THE MARKET BEFORE YOU BUY. Ask your dealer, for the latest EPA/FEA "Gas Mileage Guide." Study the fuel economy figures and tables that compare specifications. Review mileage test results publicized by Consumers Union magazine. Generally the best fuel economy is associated with low vehicle weight, small engines, manual transmissions, low axle ration, and low frontal area (the width of the car times its height.)

BUY THE MOST ENERGY-EFFICIENT CAR OF THE SIZE AND STYLE YOU WANT. Don't let the car price alone determine your choice. Make your decision on the basis of the combination of purchase price and your estimated fuel costs.

PURCHASE ONLY THE OPTIONAL EQUIPMENT AND ACCESSORIES YOU REALLY NEED. Items like air-conditioning, automatic transmission, and power steering require considerable energy, all of which is derived from burning gasoline. Other equipment, such as power brakes, electric motor-driven windows, seats and radio antennas, require less energy for their operation, but all accessories add to the vehicle weight--and this reduces fuel economy.

DON'T BUY AN AIR-CONDITIONER UNLESS YOU REALLY NEED IT. Even when you're not using it, it adds to the weight of the car.

Taking Vacations

VACATION AT HOME THIS YEAR. Discover nearby attractions.

CHOOSE A HOTEL OR CAMPGROUND CLOSE TO WHERE YOU LIVE. A nearby hotel or campground often can provide as complete and happy a change from routine as one that is hundreds of miles away.

STAY IN ONE PLACE if you vacation away from home. "Hopping around" takes transportation energy.

TAKE A TRAIN OR BUS INSTEAD OF THE FAMILY CAR. Save gasoline and relax.

REDISCOVER THE PLEASURES OF WALKING, HIKING, AND BICYCLING DURING YOUR VACATION. They're the most energy-conserving means of transportation and the healthiest for most people.

SAVE ENERGY AT HOME IF YOU'RE GOING AWAY. Remember to turn off lights, lower heating temperatures in winter.

In the Marketplace

TRY TO BUY PRODUCTS THAT WILL LAST. More durable products save the energy that would be required to make replacements more often.

BUY EQUIPMENT OF THE BASIS OF INITIAL COST PLUS OPERATING COSTS RATHER THAN ON THE BASIS OF PURCHASE PRICE ALONE. Often products that are energy efficient cost more to buy. But over the lifetime of the equipment, you will more than make up the difference in lower operating costs.

WHEN SHOPPING FOR AN UNUSUAL ITEM, TELEPHONE AHEAD TO SEE IF THE STORE HAS IT. If if doesn't, you save the energy and time of traveling there and being disappointed.

BUY THE HOUSEHOLD EQUIPMENT THAT'S RIGHT FOR YOU. Purchasing the right equipment for your home and needs, using it wisely, and taking good care of it can reduce energy costs considerably.

BIGGER ISN'T NECESSARILY BETTER. Don't buy a larger or more powerful piece of equipment than you need. Whether it's a furnace, air-conditioner, or water heater, make sure its size and power are right for your home. Ask your dealer, a trade association, or a consumer-interest group for assistance in judging this factor.

NOTE: From "Energy Use in the United States," by the Federal Energy Administration, Tips for Energy Savers, 1977, 6-46.

Attitude Studies and Energy Conservation

According to modern theorists such as Sherif and Cantril, attitudes are comprised of three components: feelings, beliefs, and actions (Chisman, 1976). Feelings are derived from the affective domain. Feelings are measurable in terms of blood pressure and galvanic skin reflexes and/or verbal expression. Beliefs are derived from the cognitive domain. Cognition requires both knowledge and belief about an object. Cognition is measurable, in one sense, in terms of what are good qualities and what are bad qualities about the object. Therefore, in order for the attitude to develop, an object must have enough significance to the person to require evaluation. The evaluation of the object (if favorable) will endure over time with consistency. In fact, because the person's feelings and beliefs continue to persist with the same degree of favorableness, the person will most likely take actions to support these consistent feelings and beliefs.

In the given investigation, the investigator has proposed to measure these components of attitudes. The domain of feelings has been presumed and therefore was not measured. Written-in comments by the respondents suggests that reading the questions elicits the reaction of blood pressure change and galvanic skin response change. Discussion about the questions before the written response was similarly inferred. Cognition was more effectively appraised. On a scale of one to four, the subjects were requested to evaluate good and bad qualities about

the object. In this investigation, the object was represented by proposed energy policies which suggest certain actions families may take to conserve energy. The degree of knowledge the respondent holds about the policy in question determines his attitude to some extent. Similarly, the beliefs the respondent holds about the policy according to the policy's good or bad qualities measures his attitude to some extent.

One cannot assume that the attitudes which are revealed by the investigation are any more than expressive attitudes at this point in time. Later actions by the subjects will reveal the degree to which attitudes expressed in this investigation were made a matter of practice.

According to Chisman, certain psychologists (Cantril and Smith, Bruner, White, Campbell) first analyzed behavior to ascertain attitudes. These psychologists propose that from a stable configuration or system, behavior becomes more organized and develops. Goals and values held by the subject motivate the subject to become more organized. These goals and values, as submitted by Allport (Chisman), are always in a state of readiness. Therefore, because the values and beliefs exist in a state of readiness, the behavior will most likely be consistent over time.

In regard to the energy investigation, these behaviorists would claim that actions families take can most effectively evaluate their family attitude. By acting upon the energy policies, behavior becomes organized as goals and values are internalized. The specific action the families designate they will choose is demonstrative of family "state of

readiness". Because the state of readiness required action, attitudes about the degree of favorableness toward the policy are clearly determined.

Other psychologists claim that the relationship of psychological entities more clearly demonstrated attitudes or example, if the subject is labeled with an attitude, such as a negative attitude about government investigation to suggest home energy savers, this indication of attitude does not mean his belief about the policy is consistent with his feelings. The respondent may not favor the policy through his feelings, but in belief may support a more knowledgeable home audit through government intervention. In the future, the subject's feelings may become more inconsistent with beliefs. For example, in his feelings the subject may now oppose relocating his home closer to his work to save energy, yet the subject may believe that such a change may be necessary if gas prices increase tenfold in six years. As prices rise, his feelings may be consistent with a favorable attitude toward moving, knowing that gas prices may continue to rise. In time, the subject's feelings may become more and more consistent with beliefs so that the attitude will, of necessity, change. The attitude is consistent with the belief. Because of the alignment of psychological force which forms the attitude, feelings and beliefs align themselves with the actions needed.

Psychologists also claim that present situations or circumstances alter evaluation, yet attitudes will not be altered by situations. For example, luxury cars at the present time symbolize status in the American culture. Therefore, restrictions on gas mileage may be viewed by the respondent as unfavorable. High gas prices may alter his evaluation of the policy, yet the respondent's attitude may yet favor luxury, comfort, and status. Chisman says this about the persistance of attitude, "We might say that the behavior of an individual who has an attitude is determined by some psychological factor which he brings to different circumstances, rather than by some characteristic of those situations" (1976, p. 32).

The tendency to support or oppose the policy proposal can occur for different reasons. First of all, the respondent may oppose the policy because of his feelings. As a result, the respondent would find beliefs to support this dislike. For example, price increases to control pollution by the utility industry may elicit negative feelings. The respondent would pin-point supportive literature to reinforce his negative feelings, and in doing so, he would influence his beliefs. Second, the respondent may act, for example, to buy a solar-heating unit as a tax credit, and then later develop beliefs and feelings to support the action.

In attitude measurement, opinions are often mistaken for attitudes. However, opinions do not often persist over time as attitudes do. An

opinion is measured as an attitude if the opinion is consistent over a short period of time. Thurstone uses the opinion as a method of assigning attitudes (Chisman, 1976). From a group of evaluative statements which Thurstone provides in a questionnaire, clustering appears about certain points of the scale. The cluster measures a consistent evaluation of the object and is therefore an attitude. The questionniare designed by the investigation, therefore, measures opinions of individuals, yet attitudes of the community.

Guttman measures attitudes through a series of evaluative statements (Chisman). Those persons who hold the most favorable attitudes indicate more positive than negative responses.

Attitude measurement does not necessarily measure attitude intensity. Attitude intensity, or the depth of feeling about the attitude, varies according to the dislike or like for the object and is not necessarily the same as the content of the attitude. In order to measure attitudes efficiently, both componets, content and intensity, must be determined. In the present investigation, content and intensity were both assessed.

Many researchers have studied how attitudes can be changed. First of all, in 1974 Hollander suggested that a precommunicative warning would change an attitude so that the attitude became favorable. His study supports the findings of McGuire and Millman who found that a person who regards the other person as an authority on a topic or policy

will change his own position to the same position the authority holds in order to protect self-esteem (Hollander, 1974). An energy expert who demonstrated solar-heating systems in Livingston may reverse the attitude of less informed residents who were definitely opposed to the exchange from gas and electricity. Second, in 1976 Sogin and Pollak suggested that bad decisions can alter attitudes. These researchers claimed that if the event were perceived by the attitude holder as caused by himself, the attitude holder would most likely assume the responsibility for the event. Sogin and Pollak say this about bad decisions and attitude change, "In short, one feels responsible for an unforseen or unpredicted negative consequence providing that in looking backward, the individual perceives that prior actions on his part brought about the negative consequences" (1976, p. 302). As citizens are required or urged to make home changes, they will more likely see the event as orginated by themselves and assume responsibility for greater home changes. In 1975, Kerr et. al. described how attitude changes in group members as a result of group attitudes. With the exception of opinion and social judgements, groups often represent the median position. As different views are presented, group members are persuaded to assume the position other members favor. Yet, the average view accepted by the group represents the popularity of the opinion itself and is a concern of the community as a whole. If all United States citizens are urged to purchase gas economy cars, those who

slightly disagree with the policy may change their attitude to the overall group attitude. Precommunicative warning, responsibility for bad decisions, and group persuasion are only three of many ways attitudes are changed.

In 1975, Haus and Bagles said, "If consumers can be persuaded to reduce energy consumption, then numerous personal and societal benefits can be realized" (p. 756). This conservation principle, the researchers suggest, is the concern of the social scientists. A plan of action must be outlined suggesting certain consequences and requiring an evaluation of these consequences. For example, as families become aware of the energy crisis through efforts of the social scientists, family attitudes about conservation may change. This attitude change could provide the means of coping with the crisis.

Chapter 3

Methodology

Education, science, and government as the major institutions of the United States are announcing the present and future energy crisis to the public. Policies enacted within these institutions will have impact on the everyday life of United States citizens. In order to study the impact of certain policies proposed by the government upon the social unit of the family, a questionnaire was designed. The questionnaire was based upon proposed policies from the federal government which might be enacted in the future. In order to study the impact of energy policies on the family unit, the methodology of this study followed three outlined objectives. One of these objectives was to study perception of family behavior in relation to certain selected policies. The second of these objectives was to analyze family conservation practices in relation to certain selected policies. Finally, certain selected policies were tested against the demographic variables of age, completed education, sex, number of children living at home, and income, to investigate policy impact against these selected variables.

Livingston, Montana was preferred as the area for investigation for several reasons. Near the city new industry will soon develop natural gas resources in the Crazy Mountains and in the Trail Creek, Hoffman, and Cokedale areas coal mining will begin. Government authorities may approve wind research projects adjacent to the city. Fifty miles from

Livingston in Yellowstone National Park, geothermal sources may be adapted for human use. Within three hours of automobile travel time from Livingston to the East, several of the largest coal strip-mining sites in the nation are multiplying the state's coal production. Surrounded by this resource development, state residents are becoming aware of the fact that the nation, at the present time, depends on Montana's resources. This dependency will make or has made the people of Montana more cognizant of the fact that the energy crisis is real. However, Livingston is not the center of mining in Montana at this moment. Therefore, survey results could relate to the larger population more appropriately than those survey results given in intense energy development areas, such as Hardin, Montana.

In addition, Livingston and its inhabitants are well known to the inquirer. At the time of thesis proposal, the city was both the investigator's place of residence and her hometown. Some of the teachers who allowed questionnaire distribution educated the investigator during her secondary school years. Two of the researcher's relatives are on Livingston's teaching staff. For these several reasons, Livingston was selected as the site for the study.

Selection of Sample

The sample of this study consisted of 288 families with dependent children who are enrolled in the schools of Livingston, Montana. The questionnaire was distributed randomly to the entire school system of Livingston from elementary kindergarten through upper-level high school. The survey was given to children to take home for their parents to complete and then returned by the child to his teacher. The following figures outline the distribution of the sample according to the title given them:

Figure One. Respondents

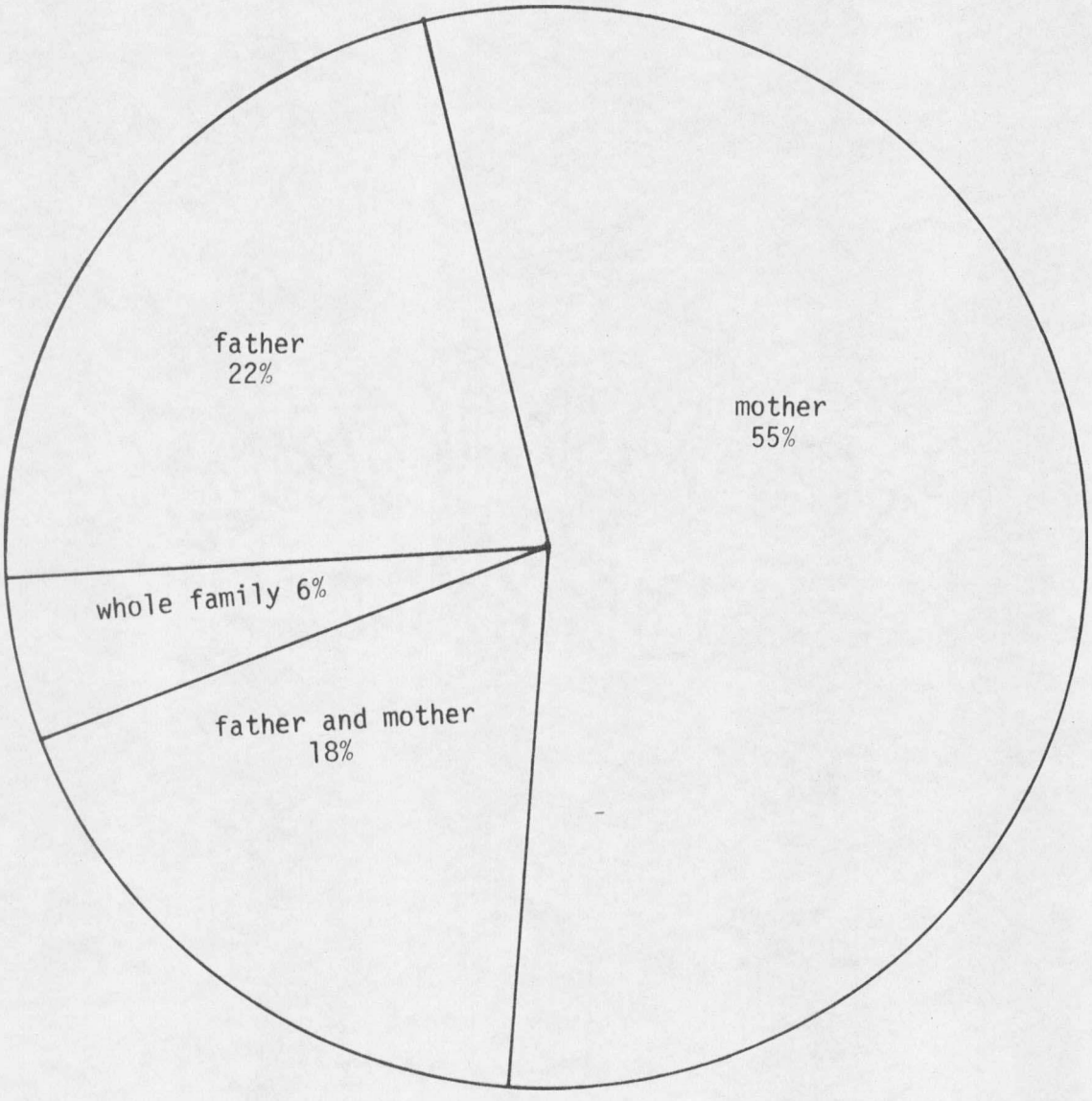
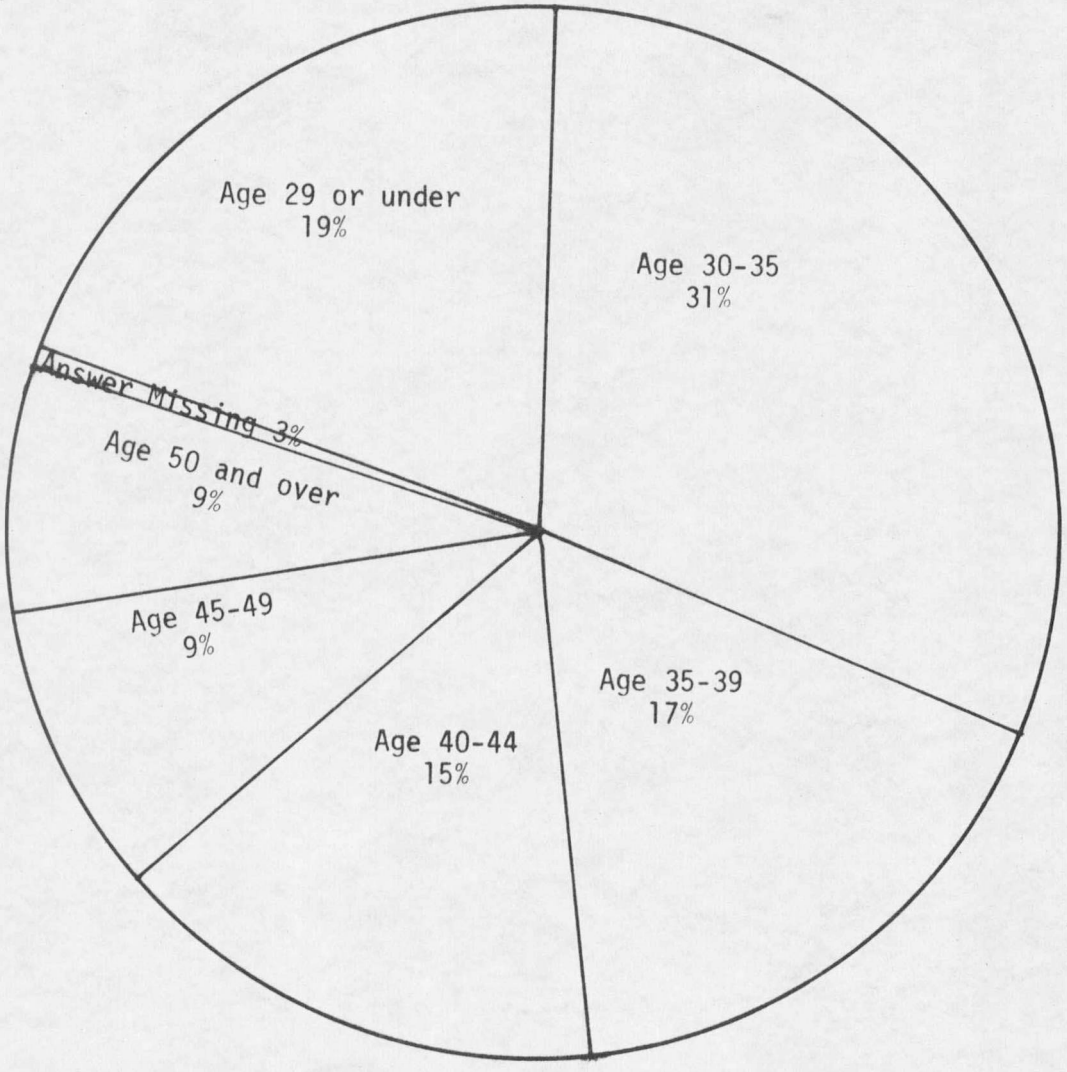
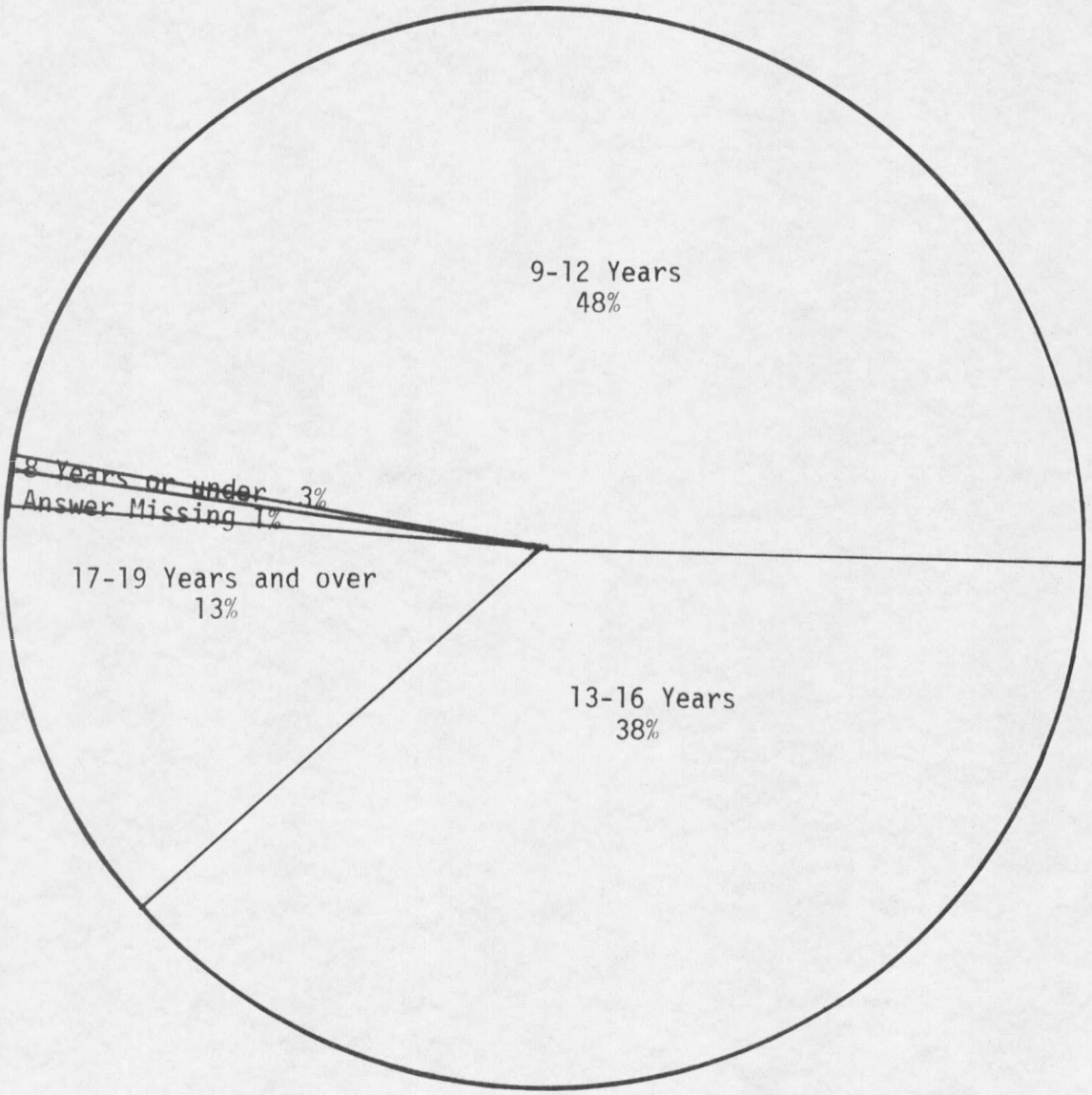


Figure Two. Age of the Participant



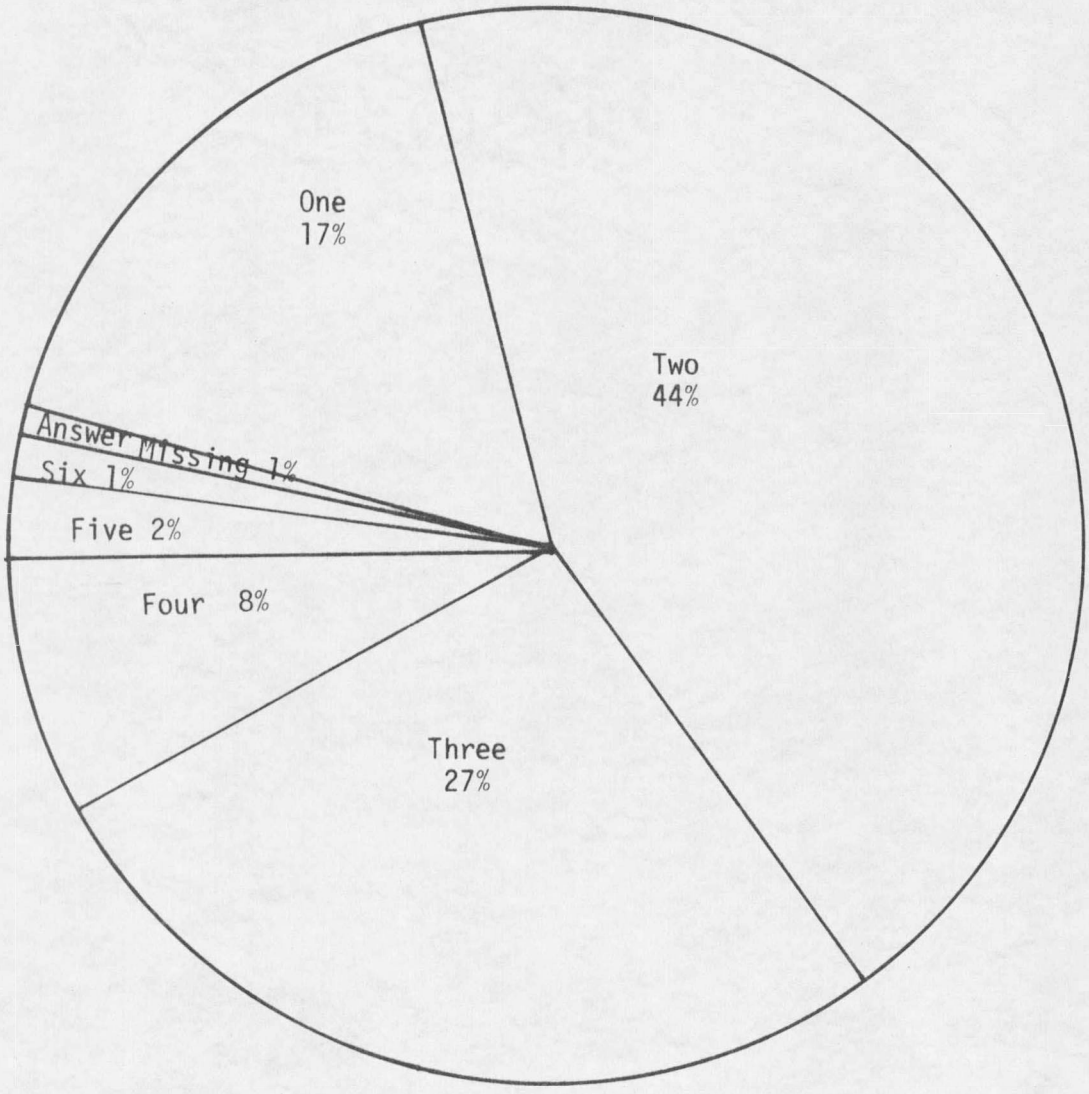
If more than one person completed the questionnaire, the age of the oldest was given.

Figure Three. Education of the Participant.



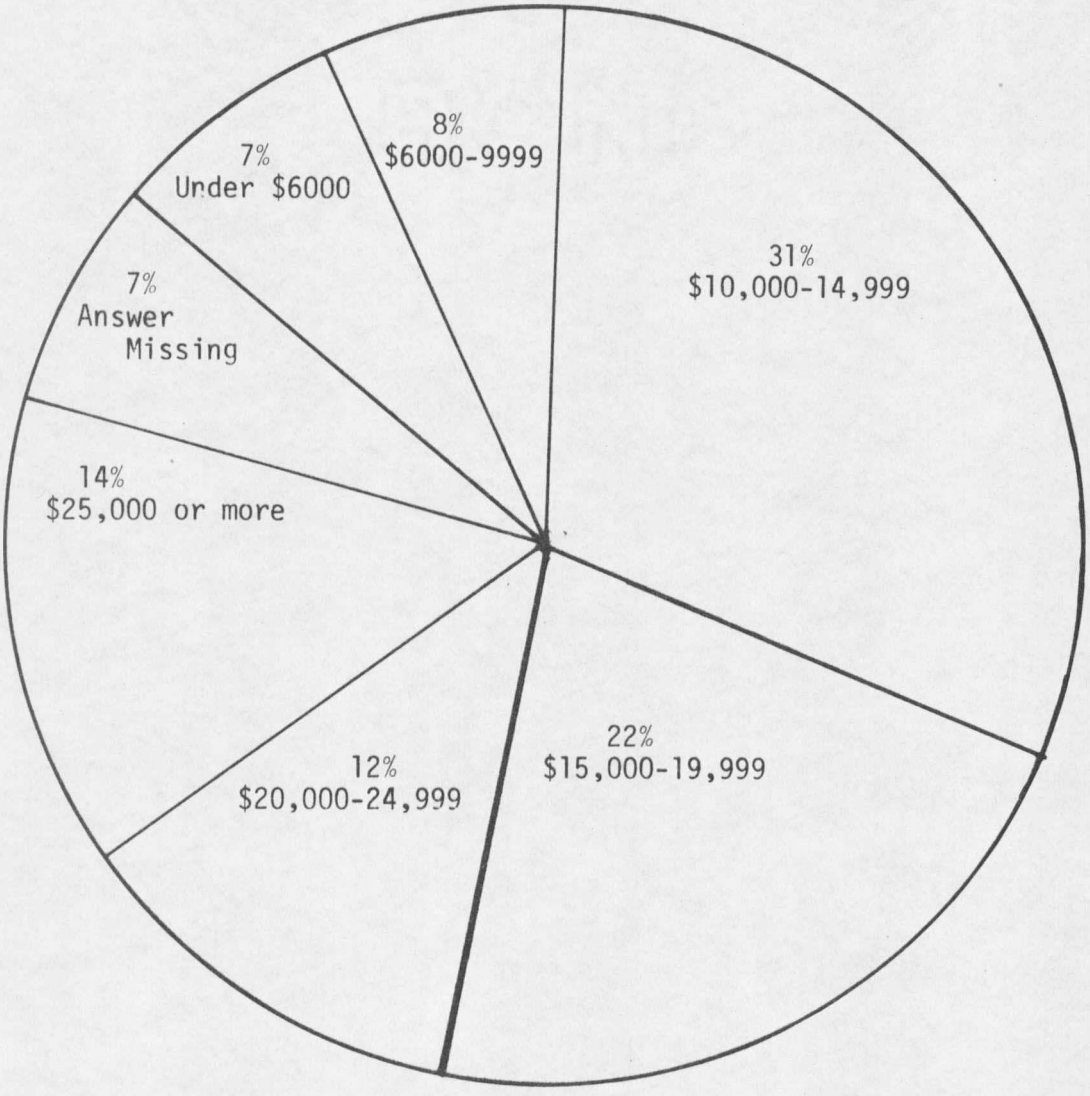
The person with the highest educational achievement was asked to respond if more than one person completed the questionnaire.

Figure Four. Children of the Respondents.



The number of children living at home was indicated.

Figure Five. Income of the Respondent.



Combined Family income for 1977 was indicated.

These several examined demographic variables describe certain characteristics of the whole sample population. Over 1/2 of the sample were mothers and about 3/4 of those who participated in the sample were either mothers or fathers. Only 1/5 of the total sample answered the survey as the combined unit of mother and father (see Figure 1). About 1/5 of the participating family household heads were 45 or older and almost 1/2 of the sampled household heads were 34 or younger (see Figure 2). The majority of household heads have either or both a high school and/or college education (see Figure 3). Over 3/4 of the surveyed families have three or fewer children (see Figure 4). Most families (75) who responded to the questionnaire earn incomes of $10,000 or more. Over 1/2 of the sampled population have an annual income of $10,000-$19,999 (see Figure 5). Hence, most mothers or fathers who responded were 34 years old or younger. The majority of families are small, including three or fewer children. Yet, most of the sampled families are middle income, although 1/4 of the sampled population earn $20,000 a year or more.

Description of the Sample Area

In Montana history, several early events support an investigation of present family perceptions of the energy crisis. Livingston's background reveals several enlightening facts. First, those who originally settled in the area derived their livelihood from natural resources. The fur trader chose to capitalize on Montana's resources in preference

to tilling the soil. Amos Benson led the onset of Livingston civilization in 1873 through the establishment of a fur-trading post. Second, after science invented the steam engine, the railroad brought national attention to the state and this consciousness of national spirit moved settlers west. This knowledge of interdependence became distinct when in 1882 Benson's Landing received 140,000 pounds of merchandise for workers on the Northern Pacific Railroad. Later, the landing acquired the name "livingston" named after a large stockholder in the railroad company. Third, Livingston became the gateway to natural wonders. Geothermal energy sources in Yellowstone Park drew visitors west. As early as 1882, General Grant and 20,000 visitors traveled through Livingston on journeys to Yellowstone Park. Livingston residents from that time onward grew more appreciative of the natural appeal of the land's resources. Fourth, early discovery of placer mining transpired in several local areas around Livingston, including Emigrant Gulch. The potential to "get rich quick" lured many transient settlers to areas near Livingston. Hence, mining was a fundamental reason for populating the region. In time, mining proved to be more arduous than productive and the most invaluable discoveries happened by accident, not through written design. For example, after 28 years of prospecting in Bear Gulch, a landslide fissured deposits of ore. Similarly, one gold nugget found by Jim Ponstord priced at $58 provoked aimless gold-panning by money-hungry miners. Eventually, toilsome gold panning imposed cease-

less hardships and the expense of hydraulic mining or dredging limited and finally prevented mining prospects. Fifth, the resources at that time "treasured", decreased in market value. For this reason, copper mines near the Belt and Crazy Mountains; platinum mines near Emigrant; tin mines in Cinnabar Basin closed soon after they opened. Sixth, early inhabitants of Livingston depended upon coal production. This type of mining demanded elaborate engineering, thus drawing investment from Eastern capitalists. This first system constituted a bunker car, tramway, and railroad. It was later replaced by a flume. The flume utilized water to transport coal into coke oven vats. Both strategies proved more expensive than profitable. To this day, Trail Creek Area is embedded with 70 feet thick coal deposits, which are regarded as unprofitable to mine.

From these hints at the historical impetus for settling in Montana, several implications about the impact of reduced energy consumption on family life can be drawn. First, the majority of early visitors who came to Montana were prospectors, not homesteaders. Today many residents understand the problems of thost settlers. Second, the development of the railroad linked state interests with the nation. The residents also began to recognize the dependence of the nation on Montana resources. Third, the discovery of mining at one particular point in time proved that resources did exist but the potential of those mines may not be realized today. However, modern homeowners may be more

conscious of the need for laws to prevent exploitation. Energy decisions demand serious concern when projecting their consequences. The "get rich quick" tactics of the past proved valueless. Inadequate planning led to fruitless production through trial and error. Hardships prevented economic advances.

Abandoned mines dot the Montana landscape, giving testimony to the attempts and failures of the past.

Instrument

Because of the type of data researched and the need to develop an instrument which would produce reliable and valid results, the investigator designed the questionnaire herself.

The questions were based on some of many policies which may or may not be enacted. Several items relating to the eight major policies were suggested actions families could choose to take if the policy were enacted. Because the questions were based on laws which may become effective, they possess inherent content validity. The activities families could take if the policy became law might also be inherently reliable and valid because these conservation practices relate to the law. The eight policies were selected as those which seemed to have the greatest impact on families. These eight policies also presented varied interests which involve families themselves, families and their communities, and families in relation to the future.

Method of Data Collection

In January of 1978, 1200 instruments were distributed among all of the public schools in Livingston, Montana. The elementary grade students first received the questionnaires, given to them by their teachers. Students were told not to take a questionnaire if they had a younger brother or sister. (The school administrator encouraged this method of distribution, knowing that younger children will more likely return the questionnaire.) The following week the returned instruments were collected. Questionnaires were then given to the principals of the Junior High and High School. The teachers at the Junior High distributed the instruments through homerooms. However, the upper-level high school classes were given the questionnaire through history and government classes. All students were asked to return the completed questionnaires to their school that same week.

Analysis of Data

The total sum of responses to various questions were tested with the chi square test for independence. The purpose of this statistical test is to determine if a relationship exists between certain variables. In this particular study, the first question of each of the main eight policies was tested against other questions of each section. Then, each of the main policies was tested against various demographic factors. The variables have an established relationship if the distribution of scores does not deviate from the calculated model of expected distri-

bution. The criterion for acceptance of rejection or the hypothetical relationship was selected at the .05 level of significance. In this study, several of the relationships were beyond .0000; the results therefore were highly signiticant.

Also, in this investigation, the tested demographic variables did restrict sample size. The analysis of the variable terms may indicate that a relationship does not exist, yet a small sample size and a set level of significance inhibit a more precise examination of the variables.

Chapter 4

Results and Discussion

Various Responses to Questions Based on 1977 Energy Proposals

The following tables represent consequences of the designed questionnaire. Each of the items transcribed from the questionnaire is followed by tables which give the number and percentage of respondents for that particular question. The policy chosed to compare items in its section is presented as the first question. Discussion of the tabled results antecedes the charts. The discussion is based primarily on the objectives of this thesis comprising family perception of the policies and family conservation practices. A separate testing of selected demographic variables is incorporated with the final analysis of this report.

How Families Perceive A Policy Involving Conservation Advice From A Federal Official.

Of all the represented families, 3/4 tend to oppose government intervention even though the families themselves invite an official, for a fee, into their homes for energy conservation advice. Only 5% definitely support this intervention. These results seem to indicate that families perceive official government mediation as an unnecessary step for the families to acquire knowledge about energy exigencies within their homes (see Table 1-1).

Table 1-1

Family Attitude of a Policy Promoting Official

Energy Advise in the Home

Number	Percentage	
15	5	Agree
54	19	Somewhat agree
42	15	Somewhat disagree
170	61	Disagree

How Families Perceive the Importance of Home Energy-Saving Devices

On the other hand, most of the participating community will uphold certain conservation activities which these families perceive are important. Those energy-saving apparatus which families consider to be the greatest value in their homes are weatherstripping of exterior doors; ceiling, attic, and floor insulation; and storm window weatherstripping. Almost all respondents rate these energy preservation efforts as substantial home needs (see Tables 1-2, 1-3, and 1-5). Other energy-saving methods listed in the questionnaire tend to be acceptable ways to save energy, yet these conservation suggestions are less popular with the total sample than the three weatherization practices previously mentioned. For example, 3/4 of the responding sample population definitely do support hot water heater insulation, yet 9/10 of those responding only tend to advocate this energy saving exertion (see Table 1-4).

All furnace changes were rated as similarly notable. Each alternation was somewhat acceptable to over 75% of the sampled populace.

The two somewhat equivalent furnace changes are replacement burners which will slow furnace firing rate and electrical or ignition systems that replace gas pilot lights. Over half of the participants favorably support these devices and about 1/4 of the sample tend to conform the need (see Table 1-6 and 1-8). Mechanisms which will modify flue openings seem to be admissible with 85% of the sampled population and more popular than the other two formerly specified devices (see Table 1-7). Although the above measures of energy moderation apparently are regarded as valueable, only 1/2 of the sample decidely will alter their homes through installation of energy-saving appliances. Nevertheless, over 4/5 of the group investigated seem to favor home changes for energy conservation in the future. These results seem to indicate that respondents are more willing to initiate their own home changes if they themselves recognize their own home through advice from an outside source, especially a governmental official.

Table 1-2

Weatherstripping Doors and Windows;

An Important Energy Device in the Home

Number	Percentage	
271	96	Agree
9	3	Somewhat agree
0	0	Somewhat disagree
1	.4	Disagree

Table 1-3

Ceiling, Attic, Floor Insulation; Important Energy Saving Device in the Home

Number	Percentage	
271	96	Agree
9	3	Somewhat agree
0	0	Somewhat disagree
1	.4	Disagree

Table 1-4

Hot Water Heater Insulation; Important Energy Saving Devices in the Home

Number	Percentage	
206	75	Agree
46	17	Somewhat agree
13	5	Somewhat disagree
9	3	Disagree

Table 1-5

Storm Windows; Important Energy Saving Devices in the Home

Number	Percentage	
270	96	Agree
9	3	Somewhat agree
1	.4	Somewhat disagree
1	.4	Disagree

Table 1-6

Replacement Burners; Important Home Energy Saving Devices in the Home

Number	Percentage	
147	54	Agree
70	25	Somewhat agree
31	11	Somewhat disagree
27	10	Disagree

Table 1-7

Devices to Modify Flue Openings; Important Home Energy Saving Devices in the Home

Number	Percentage	
178	64	Agree
60	22	Somewhat agree
14	5	Somewhat disagree
25	9	Disagree

Table 1-8

Electrical or Mechanical Ignition Systems; Important Home Energy Saving Devices in the Home

Number	Percentage	
148	53	Agree
76	27	Somewhat agree
19	7	Somewhat disagree
36	13	Disagree

Table 1-9

Family Evaluation of Installation of Energy Saving Devices in Their Homes

Number	Percentages	
135	48	Agree
108	39	Somewhat agree
14	5	Somewhat disagree
22	8	Disagree

How Families Perceive Consumer Representation as an Advisor to the Federal Power Commission and Family Support of this Representative Through Community Conservation Practices

More than 4/5 of all the responding sample tend to uphold consumer representation in government decisions. This representation (as a fixed number of consumer committee members) may be given authority to consult with the Federal Power Commission. The attitude adopted by the entire community regarding this policy tends to be admissible (see Table 2-1).

In response to this particular policy, the majority of the community will backup a member of the community who is on the advisory committee in chosen activities. Most (85%) community members would endeavor to arrange or attend workshops in Livingston for the purpose of advancing coal furnaces or solar water heaters. The majority of the respondents (3/4) also advocate activities that might evoke the city of Livingston to shut off out-door lights not needed at night. This conservation exercise is not readily approved by 1/4 of those in the community who participated in the study. Therefore, several basic

conclusions can be drawn from these findings. One conclusion is that families do believe that consumers require a voice in government decision-making, particularly if these determinations effectuate the life style of all people in measureable ways. The investigation also suggests that community support of a local advisory committee member, through the suggested activities may not necessarily give more voice to the person representing the community. Although families are less definite in their support of community actions relating to conservation, the majority will involve themselves in future conservation practices. The sample's responses are shown on Tables 2-1 to 2-4.

Table 2-1

Family Attitude of Consumer Representation to the Federal Power Commission

Number	Percentage	
163	60	Agree
72	27	Somewhat agree
14	5	Somewhat disagree
22	8	Disagree

Table 2-2

Coal or Solar Workshops; Family Support Given to a Community Member on the Advisory Council

Number	Percentage	
126	46	Agree
111	41	Somewhat agree
22	8	Somewhat disagree
12	4	Disagree

Table 2-3

City Lights Shut Off; Family Support Given to a Community Member on the Advisory Council

Number	Percentage	
155	57	Agree
55	20	Somewhat agree
30	11	Somewhat disagree
34	12	Disagree

Table 2-4

Family Involvement in Community Energy Conservation Efforts

Number	Percentage	
90	33	Agree
128	47	Somewhat agree
27	10	Somewhat disagree
25	9	Disagree

How Families Perceive A Policy Involving Peak Hour Electrical Costs and Conservation.

Families sampled in the community of Livingston tend to uphold, in the same porportion as other families in the community disagree, with the peak hour electrical costs. Yet, a larger amount of about 1/3 of the sample definitely cannot endorse the peak hour system of electrical-rating contrasted with 1/5 who definitely will defend this system. Of the total community, 1/2 seem to perceive the rating system as advantageous and 1/2 of the respondents seem to dislike the system. This distribution shifts as sampled families perceive examples of actions family members may assume as a consequence of the policy. The majority of families will not adopt these energy-saving endeavors even though electrical rates are lessened. For example, approximately 3/4 of the sample seem to contest altered work schedules that enable families to profit through lower electrical rates by leaving for their pursuits earlier or later. Although 2/5 of the contributing families may utilize these low rate hours through preparing evening meals in the afternoon, this same amount decidedly will not employ afternoons to provide for evening meals. Analygous tendencies true of afternoon provision are likewise true of specific television hours. Over 1/2 of all participants indicated they would not alter T.V. time to reduce electrical rates. Evidently, the sampled families perceive their organized work and entertainment times as schedules the clans wish to maintain. The outcome

of the terminal question pertaining to a changeable family schedule to exercise these lower rates, supports the above conclusions. Most respondents desire to sustain the precise routine their families have followed in the past (see Tables 3-1 to 3-5).

Table 3-1

Family Attitude of a Policy Supporting Peak Hour Electrical Costs

Number	Percentage	
54	19	Agree
77	28	Somewhat Agree
46	17	Somewhat Disagree
98	36	Disagree

Table 3-2

Earlier or Later Work Schedule; Family Support of Peak Hour Electrical Rates

Number	Percentage	
27	10	Agree
49	18	Somewhat Agree
50	18	Somewhat Disagree
149	54	Disagree

Table 3-3

Afternoon Meal Preparation; Family Support of Peak Hour Rates

Number	Percentage	
48	17	Agree
63	23	Somewhat Agree
52	19	Somewhat Disagree
122	14	Disagree

Table 3-4

Specific Use of T.V. Hours; Family Support of Peak Hour Rates

Number	Percentage	
46	17	Agree
64	23	Somewhat Agree
55	20	Somewhat Disagree
109	40	Disagree

Table 3-5

Family Alteration of Work Schedule to Use Energy at Low Rate Electrical Hours

Number	Percentage	
49	18	Agree
76	27	Somewhat Agree
48	17	Somewhat Disagree
105	38	Disagree

How Families Perceive Increased Utility Rates Set by State Regulated Utilities for Pollution Control

Evidently families perceive that they themselves are not responsible for pollution control. In fact, the results of the survey imply that 4/5 or more of the sample tend to oppose increased utility rates for pollution subordination. Although 2/5 of the represented sample might comply with these increased utility rates, most participants might not be willing to comply with the higher estimates. In almost the same proportions that responding families would comply with these higher assessments, the families similarly oppose paying higher costs for a clean environment. Those families who oppose paying higher rates for pollution-free surroundings include 3/5 of the sample. On the other hand, 4/5 of the sample do not favor increased utility rates to regulate the contaminations. From the given sequences, the participating families might pay for regulation of impurities if another way of controlling pollution could distribute the costs, not higher utility rates (see Tables 4-1 to 4-3).

Table 4-1

Family Attitude of Increased Utility Rates for Pollution Control

Number	Percentage	
15	5	Agree
36	13	Somewhat Agree
60	21	Somewhat Disagree
174	61	Disagree

Table 4-2

Families Who Would Comply to the Pollution Control Policy

Number	Percentage	
43	15	Agree
74	26	Somewhat Agree
77	27	Somewhat Disagree
91	32	Disagree

Table 4-3

Families Who Will Pay Higher Costs for Pollution Control

Number	Percentage	
27	10	Agree
88	31	Somewhat Agree
71	25	Somewhat Disagree
98	35	Disagree

How Families Perceive a Published Rate Schedule of Present and Future Rates and Family Conservation Efforts in Support of the Policy

About 4/5 of the sampled population tend to advocate a published statement of present utility rates and those proposed to increase. Evidently, respondents perceive this as beneficial to their family structure. Similarly, this favorable perception is supported by the participants through certain conservation practices. For example, over

90% of the represented families will try to plan ahead for ways to use energy to compensate for the additional costs. In addition, nearly the total tested society, in union, support youth being taught conservation activities. In conclusion, most sampled families (90%) will reduce their energy consumption. From these results, the investigator concludes that the majority of sampled families are willing to begin within their own family structure to teach younger family members how to conserve energy and the household heads seem willing to begin managing the energy their families use. Evidently, these families perceive that a rate schedule comparing present and future rates could provide incentive for family management of energy. However, families may reduce their energy consumption regardless of the rate publication (see Tables 5-1 to 5-4).

Table 5-1

Family Attitude of A Published Rate Schedule Stating Present and Future Utility Rates

Number	Percentage	
155	56	Agree
68	24	Somewhat Agree
25	9	Somewhat Disagree
30	11	Disagree

Table 5-2

Planning Ahead for Ways to Use Less Energy to Compensate For the Additional Costs; A Family Effort to Utilize a Rate Increase Index

Number	Percentage	
163	59	Agree
91	33	Somewhat Agree
10	4	Somewhat Disagree
14	5	Disagree

Table 5-3

Instructing Younger Family Members in Conservation Practices; A Family Effort to Utilize a Rate Increase Index

Number	Percentage	
213	77	Agree
54	20	Somewhat Agree
4	1	Somewhat Disagree
6	2	Disagree

Table 5-4

Families Who Will Reduce Energy Consumption

Number	Percentage	
147	53	Agree
104	38	Somewhat Agree
14	5	Somewhat Disagree
12	4	Disagree

How Families Perceive a Policy Allowing Tax Credits for Solar Devices and Family Conservation Efforts in Support of the Policy

Almost 85% of all participating families favor tax credits for those families or businesses who purchase solar or wind devices for their homes or businesses. The majority of the families perceive these tax credits as an advantage given from the government to try new energy sources. This positive attitude is reflected in ways the community members say they might practice energy conservation. First, over 1/2 of the sampled families may purchase a solar water-heating unit as an effort to conserve. Second, 3/4 of all the participating families may be willing to uphold conservation exploration within the community or from outside sources to develop solar and wind energy. Third, about 4/5 of the represented families will conserve by inquiring about new ideas in construction. Finally, 3/4 of all the sampled families uphold this favorable perception of the benefits new sources can offer by supporting the exchange from gas and electrical sources to solar and wind energy sources. The investigator concludes from the various results that the studied families perceive new solar sources as necessary for the future and beneficial to the present, especially if tax credits are offered to reward those who change from gas and electrical sources to solar sources (see Tables 6-1 to 6-5).

Table 6-1

Family Attitude of Tax Credits for Solar Devices

Number	Percentage	
152	55	Agree
80	29	Somewhat Agree
18	7	Somewhat Disagree
27	10	Disagree

Table 6-2

Purchasing a Solar Water Heating Unit; Family Support of the Tax Credit Policy

Number	Percentage	
52	19	Agree
97	35	Somewhat Agree
51	18	Somewhat Disagree
77	28	Disagree

Table 6-3

Community Research to Develop Solar and Wind Energy; Family Support of the Tax Credit Policy

Number	Percentage	
97	35	Agree
105	38	Somewhat Agree
39	14	Somewhat Disagree
34	12	Disagree

Table 6-4

Investigating Solar Homes and Educational Efforts to Advance These Ideas; Family Support of the Tax Credit Policy

Number	Percentage	
128	46	Agree
98	35	Somewhat Agree
24	9	Somewhat Disagree
27	10	Disagree

Table 6-5

Families Who Will Use Solar and Wind Energy

Number	Percentage	
85	31	Agree
128	46	Somewhat Agree
31	11	Somewhat Disagree
35	13	Disagree

How Families Perceive a Policy Supporting The Gas Guzzler Automobile Tax and Family Conservation Practices which Uphold the Policy

The sample tended to be equally divided over the issue of a tax on automobiles according to their fuel economy. Those participants who tend to disagree are 50% of the sample and those families who consent are 50% of the sample. Yet, more participants (1/3) definitely do not concur with this tax, than those respondents who definitely do agree (1/4). Evidently, the sampled families perceive the fuel economy requirement as either beneficial or harmful to their own family's

specific needs. Even though this tax is not accepted by the plurality, about 65% of the families might exercise conservation by purchasing an economy car, not a "gas guzzler" car. From these various tendencies, the investigator concludes that most participating families are willing to buy fuel economy cars in the future, yet these families may or may not support tax that requires automobile manufacturers to build economy cars (see Tables 7-1 to 7-2).

Table 7-1

Family Attitude of Tax on Autos Based on Gas Guzzler Tables

Number	Percentage	
65	23	Agree
76	27	Somewhat Agree
48	17	Somewhat Disagree
93	33	Disagree

Table 7-2

Families Who Will Buy an Economy Car

Number	Percentage	
113	40	Agree
67	24	Somewhat Agree
34	12	Somewhat Disagree
66	23	Disagree

Family Perception of a Policy to Tax Natural Gas and Oil With A Ten Fold Increase in Six Years and Family Conservation Practices To Support the Policy

Data results seem to suggest that 94% of those participating in the survey tend to oppose a tax on oil and natural gas which would increase tenfold in six years. Only 1% strongly support the tax. The negative attitude reflected through the policy is similarly reflected in activities families may choose. Those who somewhat refuse to live closer to work, schools, and downtown area include 69% of the sampled population. Participating in community bus trips seems unfavorable to a greater number of respondents or 78% of the population sampled. Walking, bicycling, and utilizing hand work instead of machines as efforts campaigned by the entire community tend to be acceptable by 3/4 of the sample. Almost 1/3 of the sampled community desire the use of machine power and are not even somewhat willing to use manual labor. From the evidence indicated by these responses, several overall conclusions can be drawn. The policy itself hurts the pocketbook of family members. Substantial tax increases in a small expanse of time demands immediate adjustments. Of the few suggested, change of residence and community bus vacation do not offer favorable alternatives. Less than 1/4 of the respondents desire community multi-family vacations. Evidently, altered residential locations and private vacations deprive families of those choices highly valued. The majority want to select their own home

location and to dwell there. In addition, many sampled city residents plan vacations as family time to escape from the eye of public life. Nonetheless, most respondents tend to uphold disciplines enacted by the total community. The disciplines of walking, biking, and using hand labor are teachable community efforts, profitable to the good of the community, and helpful to the families themselves (see Tables 8-1 to 8-5).

Table 8-1

Family Attitude of a Policy to Increase Tax on Oil and Natural Gas Tenfold in Six Years

Number	Percentage	
4	1	Agree
12	4	Somewhat Agree
49	17	Somewhat Disagree
217	77	Disagree

Table 8-2

Living Closer to Jobs, Schools, Downtown Area; Family Support Of the Natural Gas and Oil Tax

Number	Percentage	
42	15	Agree
48	17	Somewhat Agree
44	16	Somewhat Disagree
148	53	Disagree

Table 8-3

Participating in Community Vacation Bus Trips; Family Support of the Natural Gas and Oil Tax

Number	Percentage	
23	8	Agree
39	14	Somewhat Agree
45	16	Somewhat Disagree
175	62	Disagree

Table 8-4

Supporting Community Efforts to Walk, Bicycle, Use Hand Work; Family Support of the Natural Gas and Oil Tax

Number	Percentage	
121	43	Agree
94	33	Somewhat Agree
32	11	Somewhat Disagree
36	13	Disagree

Table 8-5

Family Use of Man Power for Home Tasks

Number	Percentage	
68	24	Agree
128	45	Somewhat Agree
42	15	Somewhat Disagree
46	16	Disagree

Analysis of Demographic Variables

The first question of each of the major eight policies was tested against the demographic information given at the outset of the instrument. These terms included the following variables: age, sex, education, income, and number of children living at home. In this particular study, only those terms found to be significant in relation to the main policies are discussed. The constant fact remains that these policies are proposals, not enactments, at the present time.

Age

The age of the respondent was a significant factor in the type of response given in the case of two policies, "energy advice" and "consumer representation". Analysis of data suggests that those most contrary (85% of the group) to the "energy advice" policy include two age brackets, those 40-44 years old and age 50 and over. In like manner, the two age categories of age 30-34 and age 45-49 tend to defy this intervention with 3/4 group disapproval. Less participants, or 2/3 of those 29 years or less and 35-39 years old tend to disfavor the policy. Of the few who endorse the policy, about 1/3 of the two categories, age 29 or under and age 35-39 might defend this government intervention. These results seem to testify that the older half of respondents most resist this act, although ages 45-49 were less opposed than those including ages 40-44. (However, the group 40-44 was twice as large as the group including ages 45-49.) The largest group, ages 30-34,

include more respondents who tend to oppose this manner of aide. However, the younger groups tend to advocate this intervention with less overall dissention than the older groups. Yet, all age categories reflect a negative attitude concerning the "energy advice policy". See Table 9-1.

Table 9-1

Age as a Factor in Evaluating Energy Advice From Government Sources

	Disagree	Somewhat Disagree	Somewhat Agree	Agree
Age 29 or under	43	24	24	9
Age 30-34	66	12	21	2
Age 35-39	56	10	29	4
Age 40-44	78	7	10	5
Age 45-49	64	12	12	12
Age 50 and over	56	32	8	4

NOTE: Columns are given in percentages.

This negative attitude is counterbalanced against the attitude given to consumer representation. In regard to the factor of age categories, all tested groups (except age 50 and over) tend to encourage consumer representation as advisors to the Federal Power Commission with 80% or greater consensus. Those most in harmony with the policy (94% of the group) comprise ages 30-34 (which is also the largest age category). Exactly 1/4 of the age range 50 and over tend to withstand the proposal. These results seem to signify that all age groups approximate duplicate positive attitudes for consumer support. The slight deviation in

favoritism is reflected through age. Those younger of most categories more definately support the policy as a combined group. Those oldest least support the measure as a unified group (see Table 9-2).

Table 9-2

Age as a Factor in Evaluating Consumer Representation To the Federal Power Commission

	Disagree	Somewhat Disagree	Somewhat Agree	Agree
Age 29 or under	7	6	33	54
Age 30-34	1	5	26	68
Age 35-39	6	13	15	66
Age 40-44	14	0	40	47
Age 45-49	13	4	25	58
Age 50 and over	21	4	21	54

NOTE: Columns are given in percentages.

Sex

The sex of the respondent was a significant factor in the type of response given in the case of energy advice from government sources. Of the sampled male respondents, 17% might adhere to agency energy suggestions for the home. (However, over 1/3 of the sampled female population may endorse this intervention). A corresponding amount (90%) of the terms male and female or whole family combinations might resist agency intervention. These results indicate that possible family home alterations can be resolved by team effort of home members better than female intervention by herself alone (see Table 9-3).

Table 9-3

Sex as a Factor for Evaluating Energy Advice From Government Sources

	Disagree	Somewhat Disagree	Somewhat Agree	Agree
Male	69	14	12	5
Female	49	18	27	7
Male and female	77	12	10	2
Whole family	82	6	6	6

NOTE: Columns are given in percentages.

Education

The education of the respondent was a significant factor in the type of response given in the case of: increased federal rates in order to control pollution, a statement of present and future utility rates, and a natural gas and oil tax increasing tenfold in six years.

From 3/4 to all respondents at all education levels tend to contest inflated utility rates for pollution control. As a 100% united group, the .4% responding with eight years of education of less might dispute this proposal. The two median categories (9-12 years of school and 13-16 school years) include 83% of these two groups who both might not support these rate increases. However, over 1/4 of those educated 17-19 years tend to acknowledge the increase as beneficial. Obviously, those least educated are most antagonized with the proposal. The two middle categories equally conflict with these rate hikes and those more highly educated are less in opposition and more in agreement with the suggested

enactment than the other education categories (see Table 9-4).

Table 9-4

Education as a Factor in Evaluating Increased Federal Rates in Order to Control Pollution

	Disagree	Somewhat Disagree	Somewhat Agree	Agree
8 Years or under	0	100	0	0
9-12 Years	62	21	14	3
13-16 Years	68	16	13	4
17-19 Years	36	36	8	19

NOTE: Columns are given in percentages.

The analysis of data suggests that education does reflect a favorable attitude concerning the publication of a present and future rate schedule. The trend, as reflected by other policies also, is from that of dissention of those least educated toward approval by those educated at the graduate level. The study found that those educated with eight years of school or less, as a 100% unified group, might not uphold the proposal of such a statement. Contrary to this attitude, over 3/4 of those educated 13-19 years tend to advocate the worthiness of such a statement (see Table 9-5).

Table 9-5

Education as a Factor in Evaluating a Statement

Present and Future Utility Rates

	Disagree	Somewhat Disagree	Somewhat Agree	Agree
8 Years and under	0	100	0	0
9-12 Years	12	10	24	53
13-16 Years	13	5	18	64
17-19 Years	3	14	39	44

NOTE: Columns are given in percentages.

Education separates acceptance of the tax proposed to increase an natural gas and oil tenfold in six years. The attitude is almost congruent with the tendencies of acceptance or rejection of the other proposals. Data results indicate that almost all respondents (or over 90% of the sample) tend to resist this tax surge. Those with eight or less school years definitely oppose the proposal. On the other hand, variation appears in popularity of the tax within the group most educated. Only 1/2 definitely disagree; 1/3 tend to oppose the tax, and almost 1/5 might support this cumulation (see Table 9-6).

Education as a Factor for Evaluating Natural Gas and Oil Tax Increases Tenfold in Six Years

	Disagree	Somewhat Disagree	Somewhat Agree	Agree
8 Years or under	100	0	0	0
9-12 Years	79	15	4	1
13-16 Years	82	15	2	1
17-19 Years	51	35	11	3

NOTE: Columns are given in percentages.

Income

The income of the respondent was a significant factor in the type of response given in the case of a small auto tax on gas guzzler cars. Results indicate that 3/5 of the three income groups (under $6,000, 10,000-14,999, and 15,000 to 19,999) tend to uphold an auto tax for gas guzzler cars. Those who lean toward disfavoring the policy with 50% to 75% opposition are also comprised of three income categories (earning $6,000-$9,999; $20,000-$25,000; and earning $25,000 or more). The lowest wage earners of these three groups might not uphold the policy to a greater degree (75%) than the 50% disapproval of those earning $25,000 or more. Evidently, the sampled middle income classes (which are the largest participating groups) earning from $10,000 to $19,999 might back the proposal. The low wage earners and those highest in the income bracket somewhat oppose the gas guzzler auto tax (see Table 9-7).

Table 9-7

Income as a Factor for Evaluating Auto Tax on Gas Guzzler Cars

	Disagree	Somewhat Disagree	Somewhat Agree	Agree
Under $6,000	26	16	32	26
$6,000-9,999	63	13	4	21
$10,000-14,999	24	15	34	27
$15,000-19,999	26	15	31	28
$20,000-24,999	36	30	21	12
$25,000 or more	39	16	24	21

NOTE: Columns are given in percentages.

Chapter 5

Summary

The purpose of this study was to analyze three objectives. First, perception of family behavior was studied in relation to selected policies. Second, family conservation practices were analyzed in relation to these policies. Third, the chosen topic policies were tested against the demographic variables of age, completed education, sex, number of children living at home, and income in order to analyze the impact of the policies against each of these terms.

The data were collected in the winter of 1978 through distribution of questionnaires to school age children who gave them to their parents for completion. The instrument used to collect the data was a questionnaire designed by the researcher using questions adopted from President Carter's 1977 Energy Package. The questions reflect impact the policies might have on family life if the proposals are adopted.

The results of the study showed that certain policies were more acceptable than others. The policies acceptable were concentrated in the areas of (1) consumer representation on an advisory committee to the Federal Power Commission; (2) a statement of present utility rates and those proposed to rise, (3) and tax credits for expenditures relating to the installment of solar and wind devices in one's home or business. Less approved policies by the majority sampled include (1) peak hour electrical costs (2) and an auto tax on gas guzzler cars. Those resisted

by the sample were (1) official home entry for energy advice; (2) utility rate increases for pollution control; (3) and a tax imposed on natural gas and oil which would increase tenfold in six years.

The categories of age, sex, education, and income, were found to have significant relationships when tested with the variable topic policies. Age was a significant factor in the type of response given in the cast of energy advice from government sources and consumer representation. Education proved to be a significant factor for the response given in (1) increased utility rates for pollution control; (2) a statement of present and future utility price rises; (3) and a tenfold tax increase for natural gas and oil in six years.

Of the 1,200 distributed questionnaires, only 288 were returned. The investigator attributes this low rate of return to several reasons. Primarily, the private question pertaining to income level may alienate families, especially when instruments were returned to teachers. (The school administrator suggested the inclusion of the income question.) In addition, the process of distributing the questionnaires through the schools to the parent may have been a difficult task for youth and a humiliating task for adolescents and high school youth. Finally, families might be exhausted by the media's push to conserve energy and therefore would not support the study.

Final summary and conclusions of this investigation are documented through the following impact statements. The statements themselves have examined family life in relation to the given objectives. It is hoped that the summary remarks may become impetus for the development of new studies, thus enlightening understanding between families, institutions within society, and the interactions within family structure.

Federal Energy Proposals of 1977; Family Impact Statements

Impact of federal intervention in the home compared to family chosen energy efforts

The investigator pursues the following questions as parameters for comparing the impact of the policy to the importance of energy conservation devices in the home. (From analysis of the study, the examiner believes the succeeding questions most pertain to families in relation to the policy).

1. What human rights does the policy promote or hinder?
2. How will the policy assist posterity?
3. How do certain words connote rejection of the policy?
4. Why are weatherization alterations valued by families?
5. How can the community stimulate approval of unique energy devices?

In 1963 Lidz said, "The family forms a shelter for its members within the society and from the remainder of society" (p. 53). Goode supports this statement through the following remark, "The small family

deals with a problem which the industrial system cannot handle" (Edwards, 1969 p. 21). Both would agree that many families innately aspire to confirm their authority as exclusive institutions within society. The security families furnish for their own members can be viewed a base from which members operate in the external world of society. A portion of this home base is the individual's human right to privacy. Based on the results of the survey, the majority of sampled participants will not willingly relinquish this human right. Perhaps a majority of the sampled population presuppose that official who at the present time are invited in at the homeowner's request might later gain the privilege of home entry without invitation. Another reason for policy repulsion might be the fear of added expense mandatory changes would entail. Or, families may believe that upon conceding to official decisions, the household head may lose incentive to decide from family council itself what are possible alterations. Loss of freedom is implied in every motive. The security of privacy diminishes.

The survey's outcome suggests that participants who are informed of obvious energy-saving modifications in their household will not seek more abundant conservation practices until the evident needs are executed. For example, if attics or hot water heaters remain uninsulated, homeowners might be less apt to desire advice from an outside source about electrical pilot lighters. Therefore, a policy that authorizes agency advice to homeowners will have little immediate benefit. However,

certain external pressures such as higher fuel prices or inflated costs for consumer items may force clans to discover unforeseen ways to save the supply of energy. Government advice could then help a homeowner if these suggestions inform the family of less obvious home transformations. For example, a given home may utilize solar energy by reorienting windows and adding reflectors. Apparently, at the present time sampled heads of households view official energy advice as a hindrance, not a fringe benefit, to the future.

Restrictive terms given in the policy's description pertain to policy acceptance. According to Lidz, a word is defined as a "recall of experiences or an entrance point" (1962, p. 89). For several reasons the three terms advice, official, and fee denote adversity to the recaller most always. First, few persons relish advice unless the advice is requested. Second, bureaucratic principles underlie the meaning most citizens give the word, official. Third, most United States citizens presume that the government should furnish certain free services to the people. These cost-free services have been viewed (in past history) as natural human rights of all citizens. Evidently, these three expressive words antagonize the sampled population. Government advice is unwarranted. The title "official" doesn't guarantee knowledge and direction. A government's duty is to serve the people, not burden them with higher cost of living.

Furthermore, the sampled community is somewhat willing to advance their households with energy conservation devices. Government agencies

are not required for motivation.

One energy saver, weatherstripping, is important to almost all respondents for several reasons. The majority of homes in all likelihood even now feature weatherstripping. If not, materials frequently are convenient at low cost. In addition, homeowners themselves can weatherstrip without professional assistance. Furthermore, the technique itself represents traditional household practices. Contradictory to this tradition, hot water heater insulation (classified as weatherization) seemed less popular to the sampled community. Even if families can insulate water heaters by themselves, the procedure and materials may not be easily accessible. The process itself requires time.

New technologies are slowly absorbed into the consumer market. The community itself can speed up this process. For example, novel furnace changes offer technological advances to citizens who are often unfamiliar with the advancement. For this reason, consumers may not purchase replacement burners to reduce firing-rate or combustion. Sampled families might be reluctant to try new mechanisms, which are additional family expenses, that all members (especially mothers) are not informed about. A simple label stating that this is a device for household energy saving does not motivate purchasers. In time, higher fuel prices could boost this incentive. However, the community can be shown, through demonstration in local workshops, the benefits of the novel mechanisms. As a household addition, replacement burners do not require

shifts in family activity patterns. Two other furnace changes, which modify flue openings and replace gas pilot lights, might be unfamiliar and therefore less accepted by the sampled community also. The time donated through workshops and consideration given to the family unit could clarify the concepts of the devices.

In conclusion, most families volunteer to initiate home alteration themselves. Some are more willing than others, limited by the additional expense and the present set of fuel prices. A time factor separates the decision and the actual home change. As a whole, the responding community definitely desire to resolve the exact nature of these home transformations themselves, without authoritative direction from outside agencies.

Impact of Consumer Representation as an Advisor to the Federal Power Commission on Family Life

The subsequent questions encompass consumer representation as advisors to the Federal Power Commission. Discussion following the list answers each question in its progressive order.

1. What changes in political rule do the tested respondents favor?
2. What delegated authority specifically gives the consumer power?
3. What symbolic tie to the phrase "consumer representation" recurs in American history?

4. If represented, will families support community conservation efforts?
5. What fears could exist to inhibit less city night lights?
6. How accepted as a requirement is the activity?
7. Will families complicate themselves more in local energy affairs if they are delegated consumer representation at the federal level?

After an interim of about twenty years, the Federal Power Commission could dominate the national economy. This authority can conceivably be blocked at the present time. As consumer representatives advise the Federal Power Commission, the grass-root level of interests may acquire a sounding board to voice needs. Topical requirements might inspire the decisions of the Federal Power Commission. Comparative to these circumstances, representatives of consumer groups would voluntarily advise the government. Furthermore, consumer groups must examine functions within the Commission and vice-versa. The two may only periodically harmonize with each other. As a conservative factor dissonance could arrest transitions. Processing by the Federal Power Commission may be delayed until detailed analysis is transacted.

This delegation of grass-roots power may isolate the consumer against numerous Federal Power Commission members. The representative can choose to stand alone. Nevertheless, the entire advisory committee will be about twelve members. All members are representatives by title of ecologists, consumers, and industrialists. These groups at this

moment hold contravariant views in respect to energy issues. In order to profit, these three groups must combine their conception. Hence, given the authority to guide the federal government, these three factors may collaborate.

The majority of Americans are also linked to the phrase "consumer representation" from the events in past history. Representation is the basis of United States heritage. The idiom "taxation without representation" led rebellious Americans to war against their mother country. Local voice recognized at the national level naturally inspires citizens.

Many of the sampled populace agree with the local control given through consumer representation, yet participants are not as willing to arrange community functions in order to back up this representation. Respondents may believe that coal furnace or solar water heater workshops given in the area will not give support to the advising consumer representative. Or, the participants may arrange workshops regardless of the support given to particular committee members. Most of the sample disagree with protesting useless outdoor city lights. These people may fear vandals; or the participants may believe that a protest directed at the city could not help a consumer representative. Another possibility exists that the majority may not agree as readily that this is a needed city conservation effort.

Impact of Peak Hour Electrical Rates on Family Life

In order to describe the impact of peak hour electrical costs, the proceeding questions outline the extent of the investigation.

1. Why do most families oppose peak hour electrical costs?
2. Are participants willing to alter their activity patterns?
3. Why are afternoon meal preparation and specific TV time preferred to a later or earlier work schedule?
4. Why are families willing to change their work schedule to use low cost energy, yet unwilling to leave earlier or later to work?

For many reasons, those sampled in the community incline to both support and reject the peak hour electrical cost policy. Change may not be warranted. Such an alteration may require adjustment that could be more difficult than paying higher prices. As a unit within itself, a family tends to look after its own interests, not the needs of others. A majority may be ignorant of the present electrical-pricing system. Because the majority sampled tend to reject the policy, these families also reject activities in support of the policy. Although suggestion of afternoon meal preparation and specific TV hours were favored over earlier or later work schedules, most participants oppose these efforts. However, if lower costs are involved, families might modify their daily activities. These modifications are not family efforts to same the energy supply, but rather opportunities to utilize benefits of lowered

costs. The policy's justification will not direct energy saving concerns. Lowered costs provide opportunities which speak to the majority of consumers.

Impact of Increased Utility Rates in Order to Control Pollution on Family Life

Previous statements throughout the paper state that some Montanans, who enjoy a pollution-free atmosphere do not often see themselves as responsible to keep the environment clean. However, citizens may possibly support other measures besides higher utility rates to prohibit pollution locally.

Impact of Utility Rate Schedule (of Present and Future Utility Rates) On Family Life

The statement of present utility rates and those rises which are proposed as a requirement of State Regulated Utilities has a favorable impact on the sampled family structure. Represented families favor both the policy and designated conservation practices based on the policy. Given the circumstances at hand and a preview of those to come, the necessity for planning seems to be a primary concern for all of society. The statement itself does not involve money directly. It serves as an impetus for families to manage their activities for the purpose of conserving energy or costs. Then, the statement speaks to those most responsible for governing the activities of the household. These heads of households can then form an individual plan from that submitted to

them, which is also individual in attention given to the family. This plan provides a transitional basis for projecting oneself into the future. Activating ways to save energy or money relieves fears imposed by the circumstances. Children who are taught how to alleviate the immediate problems can better face the future with hope that problems faced will also be solvable. The plan itself offers one further benefit for families. The time value given through it makes families aware of what are present energy activity patterns within their own family. The awareness of future prices allows families to specifically define future practices their own family will take to save energy. Few families can analyze the schedule and confess that their family will not try to conserve more energy in the future. The families are drawn toward conservation practices, not liberal energy use. In conclusion, individual recognition given through a published statement through government utility sources will enable families to view the future through structured analysis. Reaction to the unknown, eliciting fear, is replaced by a plan requiring the cooperation of those it represents.

Impact of Tax Credits for Solar Devices on Family Life

Of those families sampled, the majority may support a tax credit for expenditures on solar and wind devices. Reasons for this approval seem numerous. The majority of citizens desire that government serve their needs, or offer service. This service provides opportunities. The tax credit serves as a family opportunity to advance in society.

Those who choose the advancement of changing energy sources are rewarded. Most of these families are upper class. They are the greatest energy consumers. They can afford to change systems. On the other hand, the poor (who use significantly less energy) are kept from the advantage. Because the lower class use less energy, this class does not require this particular opportunity.

Solar devices signify hope. Technological advances of the past have increased the reliance of United States citizens on the latest inventions. Machines opened new frontiers against the futility of earlier generations. These devices require change from other sources to a solar source. When families act upon the installment of these mechanisms, they themselves recognize the change imposed upon them through limited supplies.

Solar water heaters may be purchased by about one-half of the families sampled. These units represent additional expense. They are not a luxury. Many families are not convinced that they are a necessity. Because the water heaters have not been on the market long, the units are not commonly accepted. Yet, the systems represent a way out of the tax burden.

More participants favor construction of new solar homes than those who agree to purchase a solar water heater. Most Americans desire homes that reflect the current trend in fashion. The ultimate, as an overall estimation, would be a completely restructured home designed for solar

utilization. This home (as viewed by the community) would portray latest developments combining scientific discovery and aesthetics. This type of home construction, the sampled community claims, should be an educational concern. Evidently, the studied families believe that schools need to incorporate learning tools to deal with the circumstances before them.

Impact of the Gas Guzzler Policy on Family Life

The ensuing questions and remarks are based upon the gas guzzler policy.

1. What is family perception of taxation?
2. Why do 1/3 of the tested families definately oppose this tax?
3. Why do the majority sampled tend to support family purchase of an economy car?
4. What income group is disadvantaged by the tax?
5. Why will the upper class disapprove an economy car purchase?
6. What greater dilemma is implied through the proposal?

Taxes pinch. Families themselves suffer from these inflexible restrictions more than businesses, which can manipulate the disadvantage somewhat. In this study, families may fear that tax imposition is a direct prohibition, when the restriction actually limits car manufacturers. The tax would force lighter weight, fuel efficient construction. In fact, this proposal may become the impetus for competition, thus restricting speed and luxury accessories. In addition, a set of

gas guzzler tables enacted by Congress may reflect regulations to families. Standardization inhibits individualism. By 1980, the majority of American cars will travel 18 miles or more per gallon of gasoline, which is greater fuel efficiency than that of the present autos. Goals and limits are set.

The 65% of this sample who tend to prefer fuel economy above the luxurious gas guzzler may regard this family decision, as wise. Fuel savings offer rewards. Thus freed from the fear of forced tax restrictions, families may choose economy cars as worthy investments. Several arguments support this theory. Perhaps asthetics and luxurious comfort are recognized by fewer persons as true quality. Apparently, the essential concern to economize fuel may pertain to numerous families as a long-term value while luxury and comfort are temporarily removed as fundamentals. Automobile markets nowadays present sporty models of recent designs. This additional deviation attracts the populace to innovative design, sound and economical mechanization, and hence upgrades the quality of cars. Presently, families discover new reasons to purchase new cars. Furthermore, competition to economize actually opens marketing possibilities for manufacturers as well as families. Furthermore, fewer family members claim that massive, luxurious automobiles are a fundamental family concern. Most upper class households also contain two or more drivers. Often large cars are occupied by one driver in these households. Smaller high quality automobiles may preserve both

fuel and status. In addition, the region encompassed by Livingston's school district does not demand the intercity driving that massive metropolitan cities demand. Traffic is slow moving, sparse, and includes few restricting stop lights. In Montana, the automobile is very often used for long-distance travel because the state is large and population sparse. To the participants, the advantages of economy cars far outweigh those of luxury and status, which is often the typical lifestyle of the big city.

Those definitely opposed to economy car purchase, 1/3 of the sample, may represent the low income sector of the sample. The impoverished utilize all income in immediate fundamental home concerns. Thus restricted, this group cannot conceivably purchase new economy cars even though the investment may pay-off in time. In the event that this type of automobile becomes fundamental to family needs, the poor are likewise limited by few accumulated goods which can be relinquished to allow the necessary purchase. The choice to purchase an economy car is therefore not a family decision. The external factor of money management has predetermined the outcome for most low income families. "Gas guzzler" cars to these families symbolize their way of life. These families may fear that the taxation of these cars may fall on themselves, not on manufacturers. The automobile, stripped of luxury accessaries, features greater passenger capacity per car. Lower income households may typically be composed of many members, yet few drivers. Massive cars (vans and

trucks) are fundamental to distance and intercity driving, especially when these homes do not have the choice of two cars. In addition, low income households may not realize that the wealthy own the gas guzzlers. Because their own cars are not as economical as they conceivably can be, the poor may label their cars "gas guzzlers".

Others who oppose an economy car purchase may favor luxury and comfort. Large cars offer status and prestigue in small and large towns. The rumors of energy shortages may not alter the preconceived notions until manufacturers capitalize on these facets in small cars.

Upon the conclusion of these arguments, one central dilemma is evident. Value of money as status is juxtaposed against the value of money management as investment. Evidently, the majority of those responding believe that money and energy management walk hand-in-hand. One cannot be measured without the standard of the other. Given opportunity to manage these, the sampled families will make wise decisions for the good of their household, community, and country.

Impact of Natural Gas and Oil Tax Increasing Tenfold in Six Years on Family Life

The natural consequence of a tax increasing tenfold in six years on natural gas and oil draws almost complete opposition from those participants in the study. Increasing taxes by that gradient within that amount of time seems to be more intense than the limited supplies demand. Perhaps sampled residents believe gas prices would reflect the

tax through the same about of increase. This substantial gain forces Americans to realize that the crisis actually is real. Few families want to face the fact.

If residents refuse to uphold the policy, they will not transfer residence. The policy itself implies that the public has been kept unaware of the supply limitations. If prices do not reflect the crisis abroad, why is change required? Those who live outside city limits are privileged with stores located toward the outside limits of town. For many families, marketing at these stores usually occurs at the same time each week, thus allowing community members common reasons to meet with each other. If families include high school members transfer of residence is unreasonable, for these students often demand their own car. Grade school students attend the school closest to their residence, often within walking distance. Shopping, to many community members, implies commuting to a city 25 miles from Livingston where prices are lower, variety greater, and shopping itself becomes fun, not a chore. These privileges will not be relinquished by family choice.

To a greater degree community bus vacations meet opposition from the sampled population. Evidently the reward offered through vacations is destroyed. Vacations represent one time of the year when families are free of restrictions. Group bused vacations would restrict places to go, time of meeting, etc. Family togetherness is often found through leisure time. This time of sharing individualizes families, so that

many refuse to relinquish the pleasure family vacations provide.

Walking, bicycling, and using hand labor for chores meet the approval of the majority tested. Walking itself relaxes appointment deadlines. Like other tasks, the pleasure of walking could become habit as more and more community members practice walking. Commonly, bicycling is practiced by younger family members, but it can be more extensive. All family members could satisfy the need for exercise by bicycling, especially if other community members also exercised this way. The activity itself is possible within Livingston's slow-moving traffic and vacant streets.

Hand labor chosen above machine power does not require an extraordinary decision. Tasks themselves are teachable to young family members. The added effort this hand work requires could break long established habits. Yet, backed by community support, this could become fun.

Fewer families support man power chosen before machine power when the community does not back these efforts. However, in the previously mentioned question, one specific activity, hanging clothes on the clothesline was named as an example. Perhaps those tested would accomplish some tasks, but not others. Few mothers desire hand scrubbing laundry, or sewing garments by hand. Opening cans by hand, mixing ingredients by hand, and purchasing wrinkle-free clothes to aleviate ironing may become possibilities. Some fathers may saw by hand, thus

eliminating the electrical saw. In all of these events, families do control the machine. They do control the situation. They themselves receive the rewards the machines have accumulated in the past.

Suggestions for Future Studies

The design of the study itself creates new ideas for future investigations. Any segment of the study may offer direct aide. For example, the proposal for solar tax credits could be studied for any community. The study could suggest: ideal locations for solar homes, savings on fuel bills for homes with solar heaters, aesthetic solar designs for new home builders in that region and etc.

The investigator recommends the following for those who desire to duplicate the study:

1. For those whose complete family responds to the instrument, include a means whereby young family members may respond differently from their parents. Analyze the comparison of the youth with the individual response of one parent.
2. Select a chosen number of schools where young children may more likely return the instrument, thus limiting the sample.
3. Include a reward for those children who do return the questionnaire, although the instrument does not necessarily need to be completed.
4. Sending questionnaires through elementary schools limits the study to parents who have young children. A more exact study

could be obtained by canvassing an area and the return rate should be higher.

Epilogue

As families face the future energy crisis, they must realize that in order to function each family needs solidarity of its members. The general attitude necessary to cope with the circumstances at hand, is summarized through this statement by Talcott Parsons, "The family is not only a setting into which individuals escape from the pressures of the outside society; it also has profoundly important functions in that society" (1955, p. 40).

Bibliography Selected

I. Selected Books and Reports.

1. Carter, President, An act to establish a comprehensive energy policy; H.R. 8444. Presented to the 95th Congress, First session, September 7, 1977.

2. Chisman, Forrest. Attitude Psychology and the Study of Public Opinion. Philadelphia: Penn. State University Press, 1976.

3. Darmstadter, Joel. Conserving Energy: Prospects and Opportunities in the New York Region. New York: John Hopkins University Press, 1975.

4. Edwards, John Ed., Goode W.; Greehfield, S.; Parsons, T.; Moore, W.; Yinger, M.; Wincent, C.; Moore B.; and Hill, R. The Family and Change. New York: Alfred Knopf Press, 1969.

5. Eppen, Gary. Energy, The Policy Issues. Virginia: University of Chicago Press, 1976.

6. The Energy Fact Book. Virginia: Tetra Technologies Inc., (1975).

7. Energy Index. Energy Information Center Inc.; Energy Reference Department. New York, New York, December 1976, Vol. 4.

8. Givens, Beth, and Cathy Boyd, Energy Research Information System; Projects Report; Old West Regional Commission (Project Nos. 540-716). Billings, Montana: Cooperation with Bureau of Land Management, January, 1977.

9. Judge, Governor Thomas. A proposed Montana energy policy; Montana's energy and growth policies. Presented to the Montana Advisory Council, January, 1977.

10. Kornhauser, William. The Politics of Mass Society. New York: Free Press, 1959.

11. Kulter, Robert and William Vogsley. Energy Supply and Government Policy. London: Cornell University Press, 1976.

12. Lapedes, Daniel N. Ed. Encyclopedia of Energy. New York: McGraw Hill, 1976.

13. Levy, Marion. Aspects of Analysis of Family Structure. Boston: Princeton, 1965.

14. Lidz, Theodore. The Family and Human Adaptation. New York: International University Press, 1963.

15. Maddox, John. Beyond the Energy Crisis. New York: McGraw Hill, 1976.

16. Mancke, Richard, The Failure of U.S. Energy Policy. New York: Columbia University Press, 1963.

17. Newman, Dorothy and Dawn Day. The American Energy Consumer. Cambridge: Ballinger Publishing Company, 1975.

18. O'Toole, James. Energy and Social Change. Cambridge: MIT Press, 1976.

19. Strauss, Claude. The Family, Its Structures and Functions. New York: Martin's Press, 1974.

20. Sussman, Marvin Ed. Sourcebook in Marriage and the Family. New York: Houghtin Mifflin, 1968.

21. Swanson, E.B. A Century of Oil and Gas. New York: Appleton-Century-Drafts Inc., 1960.

22. Tilton, John. Report on the Role of Economics and Resources of The Future. U.S. Energy and R & D Policy: Washington, D.C. (1974).

23. Tuve, Georgy. Energy, Environment, Population and Food. New York: John Wiley and Sons, 1976.

24. Young, Leontine. The Fractured Family. New York: McGraw Hill, 1968.

25. Winter, William and Farreira, A., Research in Family Interaction. Palo Alto: Science and Behavior Books Inc., 1969.

II. Selected Journals

A. Family Life and Community Journals

1. Anderson, Douglas. The family growth group: guidelines for emerging means of strenthening families, Family Life Coordinator, January 1974, 23 (1), 7-14.

2. Axinn, June and Hormin Lerin, Optimizing social policy for families, Family Life Coordinator, April 1972, 21(2), 163-170.

3. Chrisholm, Brock. Social change is everybody's business. Family Life Coordinator, October 1962, 11(4), 75-81.

4. Churamen, Charlotte. Home management in the context of family studies: appraisal and clarification. Family Life Coordinator, April 1974, 23(2), 133-138.

5. Collins, John and Bryan Downes. Community development and local problem solving. Journal of Community Development in Society, Fall 1976, 7(2), 28-40.

6. Cromwell, Ronald and Vicky Thomas. Developing resources for family potential: family action model, Family Life Coordinator, January 1976, 25(1), 13-20.

7. Dunn, Patrict. Modernization and the family. Journal of Psychohistory. Fall 1976, 4(2), 32-35.

8. Harms, Ernest. Adolescent's identification of personal and national problems. Adolescence, Fall 1966, 193, 240-250.

9. Hollander, Skrin, The effects of forewarding factors on pre and post communication attitude. Journal of Personality and Social Psychology, August 1974, 30(2), 273-278.

10. Kerr, Norber; Paris, J., Meek P.; Riss Nan K.; Group position as a function of member attitudes: choice shift effects on the perspective of social decision scheme theory. Journal of Personal and Social Psychology, March 1975, 31(3), 574-598.

11. Kissel Stanley. Stress reducing properties of social stimuli. Journal of Personality and Social Psychology, July-December 1965, 2(3), 373-384.

12. Newcobm, Theodore. Community roles in attitude formation. American Sociological Review, October 1942, 5, 624.

13. Odita, Florence and M.A. Janessers. Family stability in the context of economic deprivation. Family Life Coordinator, July 1977, 26(3), 252-258.

14. Popenoe, Paul. The conservation of the family. Family Life Coordinator, September 1949, 9(9), 1-5.

15. Schilit, Henrietta. Coping with community crisis. Journal of Community Development in Society, Fall 1974, 5(2), 22-34.

16. Tipton, Clyde. Attitudes of society. Science Policy, 1972, 5(2), 30-33.

17. Voelker, Alan. Elementary school children as view on solving selected environmental problems. Science Education, July-September 1976, 60(3), 353.

18. Wasby, Stephan. The impact of the family on politics. Family Life Coordinator, January 1966, 15(1), 3-24.

B. Science and Social Journals Cited

1. Batisse, Michael. Global prospects for natural resources. Nature and Resources, January-March 1974, 10(1), 1-18.

2. Barron, David and Robert Kadtle, Research on war and peace between and within the nations. Journal of Conflict Resolution, March 1976), 20(1), 1-3.

3. Christianson, Bill and Theodore Clark. Perspective on energy plan for rational energy planning. Science, November 5, 1976, 194 (4265), 578-584.

4. Ciriacy, S.V. and Wentrup, State and federal relations in conservation policy. State Government, April 1974, 20(4), 122-126.

5. Dawes, John. A dip in the energy store. New Scientist, September 1977, 75(1067), 520-523.

6. Dillmen, Don. Reference surveys and policy decisions. Journal of Community Development in Society, Spring 1977, 8(1), 30-34.

7. Fisk, Donald and Richard Lehne. The impact of urban policy analysis. Urban Affairs, December 1974, 10(2), 115.

8. Gilliland, Martha. Energy analysis and public policy. Science, September 26, 1975, 189(4208), 1051-1058.

9. Key, William. Urbanization and neighboring. Sociological Quarterly, Spring 1964, 5(2), 133-143.

10. Finder, Alen. State responses to energy problems. Journal of State Affairs, State Government, Summer 1976, 49(3), 18-24.

11. Greg, Golin. Hawkes and doves: values and policy. Journal of Political and Military Society, Spring 1975, 1, 45.

12. Kesteren, G.L. Policy for conservationists. Science, May 24, 1968, 160(3830), 856.

13. Kolbe, Robert. Britian outplans the U.S.: energy policies here and there. Nation, September 18, 1976, 223(8), 239-241.

14. Lundstrom, Meg. Western governors get together: energy and state rights. Nation, September 11, 1976, 223(7), 208-210.

15. Miller, S.M. The political economy of social problems: from the sixties to the seventies. Social Problems, October 1976, 24(1), 131-140.

16. Neyman, Jerry. Assessing the chain: energy crisis, pollution and health. International Statistical Review, December 1975, 43(3), 25%.

17. Noll, Robert. Information, decision making procedures and energy policy. American Behavioral Scientist, October 1975, 19(1), 267.

18. Palmer, John; Todd, J.; Luckman, H.; The distributional impact of rising energy prices. How should the federal government respond? Public Policy, Fall 1976, 24(4), 545.

19. Rienow, Robert and Leona. Conservation for survival. Nation, August 26, 1968, 207(5), 138-142.

20. Ritz, William and Don Trites. The environment and the human future. Environmental Review, September 1, 1977, 32-42.

21. Salkelerp, Stephan. Freedom, participation and happiness. Public Choice, September 1977, 30, 391-396.

22. Schofield, Norman. Dynamic hames for collective action. Public Choice, September 1977, 30, 71-76.

23. Strow, Gerald. Congressional policy making: a test of theory. Journal of Politics, August 1975 37(3), 711-713.

24. Swanson, Gerald. Politics, policy, and public administration: breakfast of champions? Polity, Spring 1976, 9(3), 54-57.

25. Tipton, Clyde. Attitudes of society. Science Policy Reviews, 1972, 5(2), 3-5.

26. Useen, Michael. Government influences on social science paradigm. Sociological Quarterly, Spring 1976, 17(2), 146-148.

27. VanEs, J.C. and Daniel Koenig. Social participation, social status, extremist attitudes. Sociological Quarterly, Winter 1976, 17(1), 16-26.

28. Wilford, John. Nation's energy crisis. Science Policy Reviews. 1971, 4(3), 16-17.

Appendix A. Tables

Table 48

Demographic Variables and Related Data

Name of Policy	X^2	df	Significance
Energy Advice			
Respondent	21.13	9	.01
Age	29.30	15	.02
Education	12.0	9	NS
Children	12.88	15	NS
Income	15.89	15	NS
Consumer Representation			
Respondent	7.95	9	NS
Age	28.91	15	.02
Education	12.59	9	NS
Children	15.0	15	NS
Income	21.69	15	NS
Federal Government Policy			
Respondent	9.79	9	NS
Age	19.02	15	NS
Education	10.61	9	NS
Children	5.53	15	NS
Income	10.69	15	NS
Increase Rates by Feds			
Respondent	15.04	9	NS
Age	20.20	15	NS
Education	29.77	9	.001
Children	7.84	15	NS
Income	13.46	15	NS
State Regulated Utility			
Respondent	8.41	9	NS
Age	18.84	15	NS
Education	22.65	9	.01
Children	21.27	15	NS
Income	13.48	15	NS

Name of Policy	X^2	df	Significance
Tax Credit			
Respondent	12.0	9	NS
Age	9.43	15	NS
Education	5.26	9	NS
Children	14.69	15	NS
Income	10.59	15	NS
Auto Tax			
Respondent	16.57	9	NS
Age	20.68	15	NS
Education	7.8	9	NS
Children	21.42	15	NS
Income	25.03	15	.05
10 Fold Increase in Taxes			
Respondent	8.47	9	NS
Age	22.43	15	NS
Education	17.49	9	.04
Children	17.34	15	NS
Income	14.50	15	NS

Table 49

Content of Policy and Related Data

Name of Policy	X^2	df	Significance
Energy Advice			
Doors & Windows	10.49	6	NS
Ceiling, Floor, Attic	12.46	6	.05
Hot Water Heater	7.79	9	NS
Storm Windows	24.38	9	.003
Replace Burners	9.28	9	NS
Flue Openings	10.98	9	NS
Ignition System	10.47	9	NS
Attitude Toward Change	24.55	9	.003
Consumer Representation	82.17	9	Beyond .0001
Workshops	33.09	9	Beyond .0001
City Shut Off Lights	5		
Community Actions	54.07	9	Beyond .0001
Federal Goverment Policy			
Rearranging Work Schedule	78.24	9	Beyond .0001
Evening	100.65	9	Beyond .0001
TV	101.64	9	Beyond .0001
Alter Work Schedules	126.83	9	Beyond .0001
Increase Rates Feds			
Pollution Control Policy	126.01	9	Beyond .0001
Willing to Pay	117.95	9	Beyond .0001
State Regulated Utility			
Planning	33.08	9	.001
Young Family Instruction	42.17	9	Beyond .0001
Reduction of Consumption	28.81	9	.001
Tax Credit			
Solar Water Heater	91.35	9	Beyond .0001
Research	142.06	9	Beyond .0001

Name of Policy	X^2	df	Significance
Tax Credit (Continued)			
Construction Solar	205.72	9	Beyond .0001
Use of New Sources	132.06	9	Beyond .000
Auto Tax			
No Gas Guzzler	186.53	9	Beyond .000
10 Fold Increase in Taxes			
Live by Work	18.97	9	.025
Bus	40.81	9	Beyond .000
Walk	12.46	9	.188
Man Versus Machine Power	19.42	9	.022

Table 50

ABSOLUTE & RELATIVE FREQUENCIES FOR THE QUESTIONS

	Disagree	Rel. Freq.	Somewhat Disagree	Rel. Freq.	Somewhat Agree	Rel. Freq.	Agree	Rel. Freq.
Energy Advice	170	60.5	42	14.9	54	19.2	15	5.3
Doors & Windows	1	.3	0	0	9	3.1	278	96.5
Ceiling Attic	1	.3	0	0	10	3.5	277	96.2
Hot Water Heater	9	3.2	14	5.0	48	17.1	210	74.7
Storm Windows	1	.3	1	.3	9	3.1	277	96.2
Replace Burner	27	9.6	31	11.0	73	25.9	151	53.5
Flue Openings	25	8.8	15	5.3	63	22.2	181	63.7
Ign. System	36	12.6	20	7.0	79	27.6	151	52.8
Attitude to Change	23	8.0	15	5.2	110	38.5	138	48.3
Consumer Represented	22	7.9	15	5.4	75	13.4	165	40.4
Workshop	12	4.3	23	8.2	113	40.4	132	47.1
City Shut Off Lights	37	13.0	31	10.9	57	20.1	159	56.0
Community Actions	25	9.0	28	10.1	132	47.5	93	33.5
Fed. Gov't Policy	101	35.9	47	16.7	78	27.8	55	19.6
Rearranging Work Schedule	152	54.7	50	18.0	49	17.6	27	9.7
Evening	114	41.0	52	18.7	63	22.7	49	17.6
TV	110	39.7	56	20.2	65	23.5	46	16.6
Alter Work Schedule	105	37.4	50	17.8	77	27.4	49	17.4
Inc. Rates Feds.	175	61.2	60	21.0	36	12.6	15	5.2
Pol. Control	91	31.9	77	27.0	74	26.0	43	15.1
Will to Pay	98	34.4	72	26.3	88	30.9	27	9.5
State Reg. Utility	30	10.8	25	9.0	68	24.5	155	55.8
Planning	15	5.3	11	3.9	94	33.0	165	57.9
Young Family Instru.	7	2.5	4	1.4	55	19.3	219	76.8
Reduce Consump	13	4.6	15	5.3	109	38.2	148	51.9
Tax Credit	27	9.6	18	16.4	81	28.9	154	55.
Solar Water Heater	77	27.6	53	19.0	91	34.8	52	18.6
Research	34	12.3	40	14.4	106	38.3	97	35.0
Construction Solar	27	9.7	25	9.0	99	35.5	128	45.9
New Sources	35	12.5	32	11.4	129	45.9	85	30.2
Auto Tax	94	33.2	48	17.0	76	26.9	65	23.0
No Gas Guzzler	66	23.9	34	12.1	69	24.5	113	40.1
10 Fold Inc. in Taxes	217	77	49	17.4	12	4.3	4	1.4
Live by Work	148	52.5	44	15.6	48	17.	42	14.9
Bus	175	62.1	45	15	39	13.8	23	8.2
Work	36	12.7	32	11.3	94	33.2	121	42.7
Machine Vs Man Power	46	16.2	42	14.8	128	4.5	68	23.9

Table 51

STATISTICAL ANALYSIS OF THE QUESTIONS

Policy Question	Mean	Mode	Kartosis	Standard Error	Standard Deviation	Skewness	Median	Variance
Energy Advice	1.69	1.00	-.39	.57	.96	1.00	1.33	.92
Ceiling, Attic, Floor	3.96	4.00	75.62	.15	.25	-7.79	3.98	.61
Hot Water Heater	3.63	4.00	4.01	.43	.79	-2.12	3.83	.53
Storm Window Insul.	3.95	4.00	58.51	.16	.21	-7.01	3.98	.74
Replacement Burners	3.23	4.00	-.41	.59	.99	-1.07	3.51	.98
Flue Openings	3.41	4.00	1.22	.56	.93	-1.53	3.72	.88
Ignition System	3.21	4.00	-.41	.61	1.03	-1.11	3.55	1.06
Attitude Toward Change	3.27	4.00	.89	.52	.89	-1.24	3.45	.79
Consumer Represented	3.38	4.00	1.20	.55	.91	-1.46	3.66	.82
Community Workshops	3.30	4.00	.86	.48	.80	-1.10	3.43	.64
City Lights Shut Off	3.19	4.00	-.42	.64	1.07	-1.01	3.61	1.76
Community Actions	3.05	3.00	.15	.53	.89	-.86	3.15	.79
Peak Hour Rates	2.31	1.00	-1.46	.68	1.15	1.47	2.34	1.33
Changed Work Schedule	1.82	1.00	-.65	.62	1.04	.87	1.41	1.08
Changed Meal Prep.	2.16	1.00	-1.36	.69	1.05	.37	1.98	1.32
Changed TV Time	2.17	1.00	-1.32	.67	1.13	.36	2.0	1.27
Altered Work Schedule	2.25	1.00	-1.41	.67	1.14	.22	2.21	1.29
Increased Rates	1.62	1.00	.45	.53	.89	1.25	1.31	.80
Comply with Rates	2.24	1.00	-1.20	.63	1.06	.26	2.17	1.28
Will Pay for Pollution	2.15	1.00	-1.17	.59	1.01	.25	2.12	1.01
Electrical Rate Plan	3.25	4.00	.515	.61	1.01	-1.14	3.60	1.02
Planning Conservation	3.44	4.00	2.07	.47	.81	-1.56	3.67	.64
Young Family Instruction	3.71	4.00	7.05	.37	.62	-2.53	3.85	.38
Reduced Consumption	3.38	4.00	1.56	.46	.78	-1.33	3.54	.62
Tax Credits-Changes	3.29	4.00	.54	.57	.96	-1.27	3.59	.91
Solar Water Heater	2.44	3.00	1.31	.65	1.08	-.68	2.59	1.76
Solar Research	2.96	3.00	-.59	.59	.99	-.67	3.11	.99
Solar Homes Built	3.18	4.00	.96	.51	.95	-1.03	3.38	.91
Use of New Sources	2.73	3.00	-.33	-.57	.95	-.75	3.07	.91
Auto Tax	2.39	1.00	-1.49	.70	1.17	.59	2.49	1.38
Economy Car	2.81	4.00	-1.34	.71	1.19	-.46	3.09	1.43
10 Fold Tax Increase	1.30	1.00	4.99	.36	.62	2.24	1.15	.38
Live by Work	1.94	1.00	-1.03	.68	1.14	.72	1.45	1.29
Bus vacations	1.68	1.00	-.81	.59	.99	1.67	1.31	.98
Community Exercise	3.06	4.00	-.49	.61	1.03	-.83	3.28	1.05
Man via Machine Power	2.76	3.00	-.73	.58	.99	-.52	2.92	.98

Appendix B. Letters

June 13, 1978

Ballinger Publishing Company
717 Dunster
Cambridge, Massachusetts 02138

Dear Concerning Parties:

I have recently completed a thesis manuscript on "Energy Policies; a Family Impact Statement". If possible, I would like to include three tables taken from Dorothy Newman and Dawn Day's book, The American Energy Consumer. The titles of the tables are "Trend in Estimated Use of Natural Gas by Appliances in Selected Years 1960-71", "Trend in Use of Electricity by Major Appliances in Selected Years 1950-1961 (kilowatt hours)", and "Annual Energy Requirements of Small Electric Household Appliances in 1973".

Thank you for your time. Please send the reply as soon as possible. The request is urgent.

Sincerely,

Peggy Anderson

Montana State University Student
412 Dearborn #5
Helena, Montana 59601

BALLINGER PUBLISHING COMPANY | *a subsidiary of J. B. Lippincott Company*

17 Dunster Street
Harvard Square
Cambridge, Massachusetts 02138
617 492-0670

June 21, 1978

Ms. Peggy Anderson
412 Dearborn - #5
Helena, Montana 59601

Dear Ms. Anderson:

Herewith permission to reprint Tables 3-23, 3-24, and 3-25 from THE AMERICAN ENERGY CONSUMER in your thesis manuscript on Energy Policies: A Family Impact Statement. There will be no charge.

Please use the following credit line:

> From THE AMERICAN ENERGY CONSUMER, Copyright 1975, The Ford Foundation. Reprinted with permission of Ballinger Publishing Company.

Sincerely,

Geoffrey S. Gunn
Vice President

GSG/mew

Appendix C. Questionnaire

This survey is a research project I am conducting through the School of Home Economics at Montana State University to fulfill thesis requirements on the topic: "Energy Policies and the Family: an Impact Statement:. The purpose of the study is to investigate what impact energy policies will have on family life here in Montana if the policies become law. The study will cover only the area of Livingston, Montana, so I do appreciate your efforts in contributing to my study. In most cases, the survey has been distributed through the school, so please give the completed survey back to your child to return to his/her teacher by the end of this week. Thank you for your cooperation.

Peggy Anderson (Strong)

BACKGROUND INFORMATION

It is necessary to ask you some general questions that relate to yourself. Please use an X to indicate your response.

1. Who is responding to this questionnaire?

father _____ mother _____

father & mother _____ whole family _____

2. Please indicate the age of the person completing this questionnaire using the following age range. If more than one person is completing the questionnaire, give the age of the oldest.

age 29 or under _____ age 30-34 _____

age 35-39 _____ age 40-44 _____

age 45-49 _____ age 50 or older _____

3. Please indicate the number of years of completed education of the person completing this questionnaire. If more than one person is completing this questionnaire, use the person with the highest educational attainment.

8 years or under _____ 19-12 years _____

13-16 years _____ 17-19 years and over _____

4. Please indicate the number of children living at home.

one _____ two _____ three _____

four _____ five _____ six or more _____

5. Please indicate your combined family income for 1977.

Under $6000 _____

$6000-$9999 _____

$10,000-$14,999 _____

$15,000-$19,999 _____

$20,000-$24,999 _____

$25,000 or more _____

The following questions relate to the 1977 Energy Policies submitted by President Carter to Congress. Several general questions were chosen relating to eight policies which may or may not go into effect.

Please respond to each question according to what your family's attitude would be in each case, using the following scale: (Circle:)

D = Disagree SD = Somewhat Disagree

SA = Somewhat Agree A = Agree

Thank you for your kind cooperation.

POLICY #1

1. What would be your family's attitude about the idea of an official coming into your home, for a fee, to advise your family about home energy saving devices?

D SD SA A

2. Our family considers the following energy saving devices important in our home:

A. Weatherstripping

1. Exterior doors and windows.	D	SD	SA	A
2. Ceiling, attic, floor, insulation.	D	SD	SA	A
3. Hot water heater insulation.	D	SD	SA	A
4. Storm windows.	D	SD	SA	A

B. Furnace Changes

1. Replacement burners which will reduce firing rate or combustion.	D	SD	SA	A
2. Devices to modify flue openings such as those which can be placed on chimney tops to prevent heat escape.	D	SD	SA	A
3. Electrical or mechanical ignition system instead of gas pilot lights.	D	SD	SA	A

3. I will make changes in our home which require the use or installation of energy saving devices, rather than leaving our home the way it is. Our home is already energy wise.

D SD SA A

POLICY #2

1. What would be your family's attitude about having consumer representation on an advisory committee to the Federal Power Commission?

D SD SA A

2. If there is a member of our community on the advisory committee, our family would support policies the advisory committee proposes in activities such as:

A. Arranging workshops in the community demonstrating coal furnaces or solar water heating. D SD SA A

B. Persuading the city to shut off unneeded city outdoor lights. D SD SA A

3. Our family would be involved in community actions related to conservation.

D SD SA A

POLICY #3

1. What would be your family's attitude if the federal government would enact a policy whereby electrical costs would reflect "peak hour" use? Peak hours would be defined as certain blocks of time during which costs would be greater for power used. At low use hours, rates would be lower.

D SD SA A