Perspective du consommateur sur la recherche en matière d'énergie:

une bibliographie annotée

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PERSPECTIVE DU CONSOMMATEUR SUR LA RECHERCHE EN MATIÈRE D'ÉNERGIE: UNE BIBLIOGRAPHIE ANNOTÉE

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Prise de décision des consommateurs: une bibliographie annotée. La bibliographie se divise en six parties: traitement de l'information en matière de consommation; identification des problèmes; recherche avant achat; situations favorisant l'achat, identification des problèmes et évaluation interne; processus d'achat des consommateurs; et choix et satisfaction des consommateurs.

La responsabilité du fait des produits: Réflexions sur l'aspect juridique des questions fondamentales. Louis Romero, Saul Schwartz et Jacob S. Ziegel. Edité par Jonathan Guss.

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INTRODUCTION

L'embargo décrété en 1973-1974 par l'OPEP a bouleversé l'Amérique du Nord toute entière, tant les gouvernements que les hommes d'affaires et les consommateurs. Des chercheurs de diverses disciplines se sont mis, toutes affaires cessantes, à évaluer les dimensions offre et demande du problème. Durant l'embargo et la période qui a suivi, de 1975 à 1977, la recherche sur la "demande" traitant des attitudes et comportements des consommateurs en matière d'énergie s'est rapidement accrue. En 1978, il semblerait, du moins au Canada, que la recherche se poursuive, surtout à la lumière des fonds qui y sont consacrés par plusieurs organismes de l'Etat.

Durant la planification des études de recherche, il est important d'évaluer les connaissances que l'on a déjà des attitudes et du comportement des consommateurs en matière d'énergie. C'est pourquoi la bibliographie annotée du présent rapport a été réunie. En 1974, lord Rayleigh exprimait peut-être le mieux la valeur de ces annotations lorsqu'il a déclaré que: "rendre accessibles les travaux d'autrui pourraient être tout aussi utile que l'addition de nouveaux produits au stock en magasin."

De par ses objectifs et sa portée, le présent rapport ne s'en tient pas cependant à la simple compilation d'une bibliographie annotée. On s'est efforcé de résumer, sous forme de tableaux, les résultats de l'étude des documents afin de donner une idée des connaissances précises que nous avons des attitudes et du comportement spécifiques liés à l'énergie. De plus, on tente d'identifier les principales catégories de recherche dans ce domaine, ce qui permet d'évaluer le nombre approximatif d'études pertinentes menées dans chacun des sous-domaines. En dernier lieu, certaines observations sont formulées quant à l'état de la recherche sur les attitudes et comportements des consommateurs en matière d'énergie et nous suggérons des orientations futures pour un supplément de recherche.

Méthodes d'annotation

La bibliographie annotée comporte essentiellement des études empiriques, bien que plusieurs rapports descriptifs soient inclus afin de donner une meilleure vue d'ensemble de la question.

La méthode d'annotation a été uniformisée afin de permettre une analyse rapide de l'information. Ainsi, le nom de l'auteur, la date de publication, le titre et la source de l'étude sont mis bien en évidence, au début. Suivent ensuite les annotations empiriques, réparties en trois sections explicites: Méthode, Variables et Conclusions. Les études sont discutées en bloc à la rubrique "Résumé".

Cette étude des documents comporte une restriction majeure. Les contraintes de temps découlant de la courte période entre l'approbation du projet de recherche et la date du rapport final nous ont empêché d'obtenir des exemplaires de nombreuses études pertinentes. C'est pourquoi le présent rapport repose en grande partie sur des annotations existantes. (Une ventilation plus détaillée, sous forme de tableau, aurait été possible si nous avions eu accès à plus d'exemplaires.) L'aide de M. Frederick Frankena, de l'Université du Michigan, a été particulièrement généreuse et utile; il nous a autorisé à reproduire ses annotations directement dans notre étude[1]. Malgré le peu de temps disponible, le présent rapport donne une bonne idée de l'état de la recherche sur les attitudes et comportements des consommateurs nord-américains en matière d'énergie.

Notre recherche a permis de franchir une étape importante et le travail devrait se poursuivre. Il serait relativement simple d'insérer de nouvelles études avec celles qui sont menées à l'étranger aux présentes annotations et aux résumés sous forme de tableaux.

Résumé des résultats

Bien que les annotations constituent une référence valable pour les chercheurs et les planificateurs, la présente étude a aussi pour objet d'évaluer l'état actuel de la recherche sur les attitudes et comportements des consommateurs en matière d'énergie; la présente section fournit à cette fin une description et une discussion d'une série de tableaux.

Chaque annotation possède son propre code afin de faciliter la compilation sommaire des résultats. Comme de nombreux ajouts devraient être faits par la suite, les codes des annotations sont des multiples de 10; les nombres inférieurs ont été réservés aux prénoms d'auteurs, en commençant par la lettre A.

Les tableaux 1, 2 et 3 consistent en une classification générale selon le pays et les principales catégories de variables subordonnées (tableau 1), selon l'année (Tableau 2) et selon la forme d'énergie et le contexte de choix/utilisation (Tableau 3). Les tableaux 4, 5 et 6 consistent en un résumé détaillé des liens entre attitudes et comportements spécifiques en matière d'énergie. Ils comprennent la corrélation des attitudes concernant l'énergie (Tableau 4), la corrélation des intentions de comportement concernant l'énergie (Tableau 5) et la corrélation des comportements concernant l'énergie (Tableau 6).

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1. Frederick Frankena, Frederick H. Buttle et Benton E. Morrison, Energy/Society Annotations, Université du Michigan, Ann Arbor, 1977.

Le Tableau 1, Classification de la recherche selon le pays et les principales catégories d'attitudes et de comportements suscite les observations suivantes:

1. Les études tant canadiennes qu'américaines se sont surtout consacrées à la mesure comparative des attitudes et des comportements.

2. L'intensité de la recherche sur la mesure d'une attitude ou d'un comportement donné a été cinq fois plus grande aux Etats-Unis qu'au Canada. En fonction du nombre absolu d'études effectuées, la proportion est presque de 10 pour 1.

3. La principale tentative de recherche au Canada est une étude longitudinale (tendances) (nos. 443, 444, 445).

4. Dans les deux pays, il semble y avoir équilibre de mesure des attitudes et des comportements. Cependant, on semble avoir accordé moins d'attention à la mesure des intentions de comportement qu'à celle des comportements (par les consommateurs et objectivement).

Le Tableau 2, Classification de la recherche selon l'année, souligne que

1. Bien qu'un nombre imposant d'études ait paru en 1974 et en 1977, les années de pointe ont été 1975 et 1976.

2. Des discussions avec des chercheurs et des organismes du gouvernement nous font prévoir que l'année 1978 sera tout aussi intense que 1977 au plan de la recherche.

Le Tableau 3, Classification de la recherche selon la forme d'énergie et le contexte choix/utilisation, démontre que

1. La recherche s'est en grande partie concentrée sur l'utilisation faite par les consommateurs de l'énergie à la maison pour le chauffage et la climatisation et pour les appareils électroménagers.

2. Certains chercheurs ont étudié l'utilisation faite par les consommateurs du mazout et du gaz pour le chauffage par îlots.

3. Plusieurs études ont porté sur les intentions et le comportement des consommateurs à l'égard de l'énergie solaire pour le chauffage.

4. La plupart des études sur le comportement en matière de transport portaient sur l'automobile (essence). Nous avons aussi relevé certaines études signalant l'utilisation par le consommateur du transport en commun et de la mise en commun d'automobiles (car pool), bien que ces deux derniers domaines ne constituent pas l'objet principal de la présente étude de la documentation.

5. On signale peu d'études des critères et du comportement d'achat; celles que nous avons relevées avaient tendance à se consacrer à l'achat du matériel d'isolation thermique des maisons.

Les tableaux 4, 5 et 6 sont conçus de façon à fournir une vue d'ensemble des liens entre les attitudes et le comportement en matière d'énergie. A partir de ces résumés, le chercheur devrait pouvoir formuler des hypothèses sur les particularités des groupes attitude/comportement. Cependant, il est fortement recommandé aux chercheurs éventuels de lire les annotations (et le texte même, si possible) avant d'entreprendre de la recherche sur une mesure de comparaison.

Le Tableau 4, Corrélation des attitudes en matière d'énergie, suscite les observations d'ordre général suivantes:

1. La recherche la plus fréquente sur l'attitude consiste à établir si la crise énergétique est réelle et si elle est grave. Malheureusement, un certain nombre de ces études et (ou) annotations ne semble pas signaler de lien. Les études qui le font se concentrent sur les facteurs démographiques et socio-économiques. En général, la réalité d'une crise énergétique est positivement liée à des mesures socio-économiques, bien qu'à l'occasion, ces dernières donnent lieu à des résultats curvilignes ou non significatifs. Il ne semble pas y avoir de tendance précise des rapports entre la réalité de la crise énergétique et les facteurs démographiques.

2. De nombreuses études comprennent des mesures de l'agent qui a causé la crise. Les consommateurs considèrent les sociétés pétrolières et le gouvernement comme les grands coupables. On mentionne rarement les différences d'attitude selon le groupe à cet égard.

3. Les résultats quant à l'attitude des consommateurs à l'égard du rôle de chacun en matière d'économie de l'énergie sont intéressants. Les consommateurs semblent croire que les tentatives d'économie des particuliers peuvent contribuer à alléger la crise énergétique; cependant, ils sont généralement pessimistes quant à savoir si ces mêmes particuliers prendront effectivement part à ces initiatives. On signale peu de liens pour cette catégorie de mesure de l'attitude et il n'en ressort aucune tendance précise.

4. On signale fréquemment que l'opinion des consommateurs quant au rôle de réglementation et de gestion des gouvernements peut/devrait alléger la crise énergétique. Les consommateurs américains sont généralement pour l'intervention et la régie gouvernementales au chapitre de l'énergie; cependant, la majorité s'oppose à la solution du rationnement et des taxes majorées. Les études canadiennes (nos 443, 444 et 445), par contre, révèlent une attitude négative à l'endroit d'une intervention et d'une régie du gouvernement; les Canadiens sembleraient préférer un rôle consultatif. Dans les deux pays, la réduction des limites de vitesse à 55 milles à l'heure semble acceptable. On ne mentionne pratiquement aucun lien pour cette catégorie de mesure de l'attitude.

5. Bien que cette question ait rarement été étudiée, les consommateurs semblent croire que la technologie trouvera une solution à la crise énergétique.

6. Certaines études portent sur la perception qu'a le consommateur des genres de pénurie énergétique susceptibles de se produire et sur un certain nombre d'autres attitudes diverses. Encore une fois, aucun rapport n'est établi.

Le Tableau 5, Corrélation des intentions de comportement en matière d'énergie, indique que

1. Seules quelques études ont mesuré les intentions de comportement du consommateur en matière d'économie de l'énergie. En général, une grande partie des consommateurs interrogés entendent se conformer à un mode de vie fondé sur l'économie de l'énergie. Trois études constatent que les groupes à revenu moyen en particulier sont plus susceptibles de réduire leur consommation d'énergie si les prix continuent d'augmenter.

Le Tableau 6, Corrélation du comportement en matière d'énergie

1. Si l'on se reporte à la liste de mesures comparatives dans la colonne de gauche du présent tableau, force nous est de constater que l'accent a été mis sur les rapports des consommateurs sur leur comportement plutôt que sur une mesure objective de ce comportement.

2. De nombreuses tentatives particulières d'économie à la maison sont mesurées; en général la majorité des participants déclarent avoir adopté un tel comportement. La plupart des différences constatées d'une partie de la population à une autre viennent d'une seule étude (n^{o} 510). Dans la plupart des cas, les facteurs démographiques et socio-économiques ne se sont pas révélés importants.

3. Un certain nombre de réactions face à la hausse du prix de l'énergie ont fait l'objet d'études. La plupart de ces réactions se répartissent en deux catégories: (1) comportement d'achat (achat d'une plus petite voiture, de matériel d'isolation thermique pour la maison, etc.); (2) comportement d'utilisation (réduction de la quantité d'essence consommée, chauffage réduit de la maison, etc.). Certaines différences sont signalées mais aucun modèle ne s'en dégage.

4. Lorsqu'on leur demande pourquoi, les consommateurs répondent qu'ils économisent l'énergie pour épargner.

5. La majorité des consommateurs interrogés ont semblé faire montre d'une variété de comportements d'économie de l'énergie au plan du transport, bien que la présente étude des documents ne soit pas exhaustive. La principale exception est la mise en commun d'automobiles, que seule une minorité utilise. Il est intéressant de noter que les groupes à revenu moyen sont plus enclins à adopter un comportement d'économie de l'énergie en ce qui a trait au transport.

6. Très peu d'études s'attardent à l'importance des attributs de l'énergie comme critères d'achat.

7. Des études des réactions des consommateurs en matière d'information sur l'énergie et de retour d'information sont peu nombreuses mais elles révèlent un modèle de résultats intéressants. Il semble que le retour d'information sur la consommation, seul ou de concert avec de l'information plus générale sur l'économie de l'énergie, est efficace. Cependant, les programmes plus généraux d'information en soi ne semblent pas efficaces.

8. Certaines études signalent des profils des gens qui font une forte consommation de l'énergie. Le résultat dominant est que les personnes à revenu élevé consomment beaucoup d'énergie.

9. De nombreuses études comportent un rapport des consommateurs où ils précisent s'ils croient ou non faire un effort en vue d'économiser de l'énergie. Les résultats sont contradictoires. Selon certaines études, la majorité s'efforce d'économiser tandis que d'autres révèlent le contraire. Les groupes à revenu plus élevé auraient légèrement tendance à signaler des efforts en vue d'économiser.

Dernières observations

La recherche sur les consommateurs en matière d'énergie ne manque pas. Le présent rapport comporte des annotations pour au moins 200 études, dont la plupart ont paru depuis 1974. Il semble toutefois être temps que cette recherche vienne à terme, c'est-à-dire qu'elle vise plutôt à fournir une meilleure connaissance des attitudes et comportements bien définis qui préoccupent actuellement les fournisseurs et les planificateurs de politique au chapitre de l'énergie. Continuer de mener des études à vol d'oiseau, qui fournissent une quantité limitée d'information générale sur une vaste gamme d'attitudes et de comportements, ne serait pas très utile.

On trouvera ci-dessous un certain nombre de suggestions plus précises pour un supplément de recherche. Par souci de commodité, les suggestions sont faites selon l'ordre de présentation des tableaux du présent rapport, et non pas dans l'ordre des priorités.

1. Il faudrait évaluer dans quelle mesure la recherche américaine s'applique au Canada. Si elle ne s'applique que peu ou pas du tout, il faudra orienter la recherche sur des attitudes et des comportements précis au Canada.

2. Tant au Canada qu'aux Etats-Unis, les chercheurs auraient intérêt à établir une liste de priorités selon les attitudes et les comportements spécifiques qui intéressent les fournisseurs d'énergie et les planificateurs à cet égard.

3. De la recherche longitudinale en matière d'énergie s'impose. Parmi les nombreuses études menées sur les consommateurs chaque année, certaines se servent des mêmes tranches de population, mais très peu utilisent des mesures répétées sur les mêmes consommateurs. Ce dernier genre d'étude longitudinale s'impose afin de pouvoir surveiller les liens entre les attitudes, les intentions de comportement et le comportement réel.

4. A l'heure actuelle, il est impossible de décrire (dessiner le profil) de façon pertinente des segments d'utilisation de l'énergie pour diverses formes d'énergie. Les études ultérieures devront insister davantage sur a) des mesures objectives plutôt que subjectives du comportement d'utilisation (ceci pourrait engager d'obtenir accès aux dossiers de services publics et des autres fournisseurs d'énergie) b) l'identification de la variabilité du comportement d'utilisation et des économies d'énergie possibles par des habitudes d'utilisation judicieuses et c) l'identification des liens (particularités des segments) entre chaque catégorie d'utilisation.

5. Plus de recherche devra être effectuée afin de comprendre la nature du processus de décision (choix) du consommateur pour les principaux biens durables qui consomment de l'énergie et l'efficacité des divers moyens utilisés pour influencer ces décisions. Il est possible que les économies d'énergie réalisables grâce aux choix judicieux des produits soient aussi importantes que celles qu'entraîne une utilisation judicieuse.

6. Il est essentiel d'obtenir des données valables et fiables sur les attitudes et comportements du consommateur en matière d'énergie et de les vérifier. Les tableaux à l'appendice B énumèrent une vaste gamme de mesures comparatives des attitudes et des comportements. Il ne semblerait pas y avoir de méthode normalisée pour mesurer ces variables.

7. Il faut accorder plus d'attention à la mesure et à la signalisation des différences d'attitudes et de comportements au plan de l'énergie. Une grande partie des études dépouillées souffrent de cette restriction; ne faire rapport que des résultats de fréquence est typique. Peu d'études utilisent les analyses à variables multiples.

8. On devrait accorder moins d'importance aux études générales sur la réalité d'une crise énergétique et sur le blâme. Il semblerait y avoir des preuves abondantes à cet égard.

9. Comme il semble que d'autres interventions de l'Etat seront requises afin d'alléger la crise énergétique et comme divers outils et méthodes pourraient servir à cette fin (comme par exemple les programmes d'information ou d'incitation, la législation) il est important d'étudier comment des consommateurs réagissent et réagiront à diverses formes d'intervention. (L'analyse des choix semblerait pertinente à cette fin.) A l'heure actuelle, nous avons peu de preuves à l'appui de changements réels ou probables que pourraient engendrer d'autres rôles du gouvernement.

10. Les consommateurs font-ils réellement ce qu'ils ont l'intention de faire? La recherche ultérieure devrait porter sur le lien entre l'intention et le dénouement (le vrai comportement).

11. Les consommateurs font-ils réellement ce qu'ils disent faire? Cette question est particulièrement importante, étant donné que la plupart des recherches en matière d'énergie sur les consommateurs se concentrent sur les rapports des consommateurs mêmes sur leurs habitudes de comportement - et non pas des mesures objectives du comportement. Dans la mesure du possible, il faudrait réunir les deux genres de mesures dans les études à venir dans ce domaine.

12. Un supplément de recherche s'impose quant au rapport entre l'utilisation à la maison et à l'extérieur de l'énergie par les consommateurs. Peut-être les consommateurs qui signalent une faible utilisation à la maison sont-ils de grandes usagers à l'extérieur? (Comme par exemple, faire moins de cuisine à la maison mais manger plus souvent à l'extérieur.) D'autres contextes d'utilisation directe et indirecte de l'énergie devraient être identifiés et étudiés.

13. Comme peu d'éléments démographiques et socio-économiques semblent utiles pour expliquer les attitudes et comportement d'utilisation de l'énergie, d'autres variables indépendantes, comme les éléments du mode de vie, devraient servir dans les prochaines études.

14. On devrait consacrer plus d'attention à l'étude de l'importance des attributs de l'énergie en tant que critères d'achat.

15. De la recherche additionnelle devrait être menée sur les réactions de segments donnés de la population à l'égard des programmes d'information sur l'énergie, mais l'accent devrait être mis sur l'interaction des programmes (information générale sur l'économie c. le retour d'information précis sur la consommation), les réseaux de communication (publi-postage, medias, points de vente) et d'autres éléments de situation.

16. Cette étude de la documentation devrait être mise à jour au moins une fois l'an. Le travail accompli perdra beaucoup de sa valeur si les nouvelles études qui paraissent ne sont pas intégrées aux tableaux sommaires soulignés dans le présent rapport.

TABLEAU 1

CLASSIFICATION DE LA RECHERCHE SELON LE PAYS ET
LES PRINCIPALES CATÉGORIES D'ATTITUDE/COMPORTEMENT

PRINCIPALE CATÉGORIE	PAYS	
	CANADA	ÉTATS-UNIS
ATTITUDES		
croyance dans la crise énergétique	445, 443	1870, 1560, 2490, 1520, 2280, 80, 780, 1400, 530, 550, 1470, 790, 860, 870, 1530, 760, 1390, 540, 2270, 1120, 110, 1420, 1430, 2220
agent responsable de la crise	445	1470, 2270, 80, 320, 770, 780, 790, 1450, 760, 2280, 1860, 1040, 1560, 1570
rôle de chacun durant la pénurie	443, 444, 445	1390, 1470, 760, 80, 1370, 700
rôle du gouvernement ou des organismes gouvernementaux durant la crise	443, 444, 445	330, 1390, 1530, 1570, 1900, 230, 2230, 2490, 1760, 1780, 1520, 240
rôle de la technologie dans la résorption de la crise énergétique	445	360, 1520, 80, 57
critères d'achat	445	1090, 2360, 1360
autre		1860, 550, 1560, 2230, 1840, 1110, 2520
INTENTIONS DE COMPORTEMENT		
intentions de comportement pour les décisions en matière d'énergie	445, 55	2390, 150, 870, 1690, 2100, 470
COMPORTEMENT		
à la maison	443, 444, 445	550, 1390, 510, 1770, 2010, 2360, 1060, 160, 535
décisions d'achat	445, 444, 443, 55	510, 535
réaction à la majoration des prix et à la crise énergétique	443, 444, 445	1790, 1090, 2360, 510, 1770, 530, 900, 550, 780, 1370, 1860, 2230, 880, 260, 1440, 1550, 1600, 1630, 1690, 2100, 2340, 2440
réaction à l'information et au retour d'information	55, 57	900, 180, 2160, 1150, 430, 880, 1820, 2140, 2170, 1020, 470, 870, 2010, 2460, 2470
déplacements	443, 444 445	1860, 1060, 2360, 1360, 1390, 2210, 1760, 1690, 550, 1090, 680, 2300, 2360, 2230, 30, 130, 540, 830, 940, 1160, 1670
profils des grands usagers de différentes formes d'énergie	443, 444, 445	260, 1490, 1400, 1120, 1880, 160, 220, 410, 1200, 2245, 140, 1950
général		550, 800, 1860, 2010, 1370, 1390, 1530, 310, 1120, 960

*Les grandes catégories d'attitudes/comportements sont énumérées dans la colonne de gauche. Les chiffres inscrits dans le tableau constituent le numéro de code unique assigné à chacune des annotations.

TABLEAU 2

CLASSIFICATION DE LA RECHERCHE SELON L'ANNÉE

ANNÉE	NOMBRE D'ÉTUDES	POURCENTAGE
1972	2	1,0%
1973	3	1,5%
1974	29	15,0%
1975	61	31,0%
1976	74	38,0%
1977	26	13,0%
1978	1	0,5%

TABLEAU 3

CLASSIFICATION DE LA RECHERCHE SELON LA FORME D'ÉNERGIE ET LE GENRE DE CONTEXTE CHOIX/UTILISATION

CONTEXTE GÉNÉRAL DE CHOIX/UTILISATION	CONTEXTE PRÉCIS DE CHOIX/UTILISATION	FORME D'ENERGIE
A LA MAISON	- Chauffage par ilôts	
		Électricité: 1120, 1840, 1580, 160, 1860, 530, 430, 1870, 1790, 170, 750, 510, 443, 444, 445, 2010, 410, 450, 960, 1500
		Mazout: 2140, 1120, 1500, 140, 1850, 1880, 1840, 1770, 510, 443, 444, 445, 1500
		Gaz naturel: 1120, 160, 410, 465, 1750, 1840
		Autre: 1120, 57, 1915, 2205, 360
	- Climatisation	
		Electricité: 2245, 1790, 2010, 2360, 170, 180, 430, 960, 1500, 1910, 2160, 535, 2245
		Autre: 360
	- Appareils ménagers	
		Électricité: 1500, 310, 443, 444, 445, 750, 920, 410, 510, 1320, 1330, 1390, 535, 550, 1860, 1870, 1880, 1580, 1640, 1770, 1780, 2470, 55, 580, 1500, 2245
	- Pour toute la maison	
		Électricité: 1150, 1200, 1210, 1310, 1820, 1720, 1770, 2170, 2340, 2500, 210, 220, 260, 465, 820, 880, 740, 180, 470, 1580, 2010
		Mazout: 740, 1720
		Gaz naturel: 1730
		Essence: 1720
TRANSPORT		Voiture particulière: 140, 250, 310, 330, 443, 444, 445, 465, 510, 530, 550, 680, 830, 940, 960, 1090, 1120, 1470, 1490, 1590, 1870, 1880, 1930, 1610, 2240, 1780, 2100, 2210, 2220, 2360, 110, 540, 1550, 1690, 1760
		Mise en commun d'automobiles (car pool): 443, 444, 445, 1270, 1870, 1660, 2360, 30, 130, 1560, 1760
		Transport en commun: 443, 444, 445, 1660, 830, 940, 1160, 1870, 1670, 1760, 2330
CRITERES D'ACHAT/ COMPORTEMENT		1640, 55, 2360, 443, 444, 445, 460, 1930, 1650, 2360, 2490, 535

*Les chiffres constituent le numéro de code unique des annotations à la bibliographie.

Clé des tableaux 4, 5 et 6

Les chiffres inscrits dans le tableau constituent le numéro de code unique de chacune des annotations de la bibliographie.

En général, les variables dépendantes énumérées verticalement, dans la colonne de gauche, sont formulées sous forme positive, c'est-à-dire "La crise énergétique est réelle et elle est grave", ou "Croient que le gouvernement est responsable de la crise énergétique". Dans de tels cas:

1. Si le code paraît sans préfixe entre parenthèses, il indique que la majorité des personnes interrogées dans cette étude étaient d'accord avec cette déclaration.

2. Si le code est précédé d'un (X), cela signifie que la majorité des personnes interrogées dans cette étude étaient contre cette déclaration.

3. Si le code est précédé d'un (+), l'étude révèle alors un lien positif entre les variables dépendantes (verticales) et les variables indépendantes (horizontales) liées au quadrant.

4. Si un (-) précède le code, l'étude a constaté un lien négatif entre les variables dépendantes et indépendantes du quadrant.

5. Si (0) précède le code, l'étude n'a relevé aucun lien concluant entre les variables dépendantes et indépendantes du quadrant.

6. Si (c) précède le code, l'étude a alors observé un lien curviligne entre les variables dépendantes et indépendantes du quadrant.

7. La colonne intitulée "Examiné - mais aucun lien signalé" doit être interprétée avec caution en raison du camouflage qu'entraîne l'étude d'annotations plutôt que celle du texte même.

TABLEAU 4

CORRÉLATION DES ATTITUDES EN MATIÈRE D'ÉNERGIE

MESURE DE L'ATTITUDE	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge			Race		Autre
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire	
Objet: Crise énergétique		←	(0)1590 →		←	(0)1470 →			(+) 780	790		←	(0)1590 →		510	(X)510	Urbains 790
- réelle et grave	(X)443, 445, 530, 550, 750, 860, 870, 1530, 1120, (0)1400, (X)760, (X)770, (X)1390, (0)540, (X)80, 1970, (X)1470, (X)1860, 444, 130, (X)1390, (0)1400, 1530, 1650, 1520, 2490, (X)2280, 1630, 1420		(C)2370 (C)1110	(-) 790 (+)1870 (+) 780 (+) 510 (+)2280 (+)2380 (+)1880			(+) 530 (+)2270 (+) 790 (+)1430 (+)2280 (+) 510 (+)2520	(0) (0) (0)	(+)2220 443 444 445			(-)510 (X)780 2220	← (0) 443 → ← (0) 444 → ← (0) 445 → 260 (X)2280				
- connaissent bien la question			(0)1590 (C)1110				(+)2520 (+)2220 (+) 510		(+)2220			←	(0)1590 →				
Objet: Cause de la crise																	
- sociétés pétrolières	80, 770, 780, 790, 1450, 1470, 2270, 445	320	320							150				1590	150		
- épuisement des réserves	790, (X)320, (X)1790, (X)2270							320									
- gouvernement	80, 760, 770, 1450, 1470, 2280	320 150	320					150								150	
- OPEC	445, (X)80																
- machination	1470, 1860		← (0)1590 →														
- services publics	80, 760, 770																
- consommation à outrance	790																
- trop d'exportations	790											←	(0)1590 →				

TABLEAU 4 (suite)

Objet: Genre de pénurie prévue	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge			Race		Autre
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire	
- croient sérieusement à la possibilité d'une pénurie d'essence ou de mazout	443, 444, 445, (X)1630																
- croient sérieusement à la possibilité de pannes d'électricité	(X)443, (X)444, 445, 2280													(+)445 (+)444			
GÉNÉRAL																	
- préfèrent la qualité de l'environnement à des prix inférieurs de l'énergie	1840, (0)2230, 444, 445, (X)1970			(+)320 (+)1400	(-)445 (-)444		(+)1400		(X)150	(0)444→ (0)445→							
- considèrent le prix comme la principale cause d'économie de l'énergie	1860, 550																
- croient que l'isolation thermique constitue un bon placement	445																
Objet: Critères d'achat																	
- économie d'essence est un critère important d'achat d'une voiture	44																
Objet: Rôle du gouvernement et des organismes gouvernementaux au chapitre de la réglementation et de la gestion																	
- pour l'intervention et la régie de l'État	330, (X)443, (X)444, (X)445, 1390, 1530, 1570, 1900, 1550										2510						Rurals (X)230

	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge			Race		Autre
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire	
- pour le rationnement afin d'alléger le problème énergétique	(X)230, (X)1900, (X)2230, (X)2490, (X)1550, 1630																
- le gouvernement devrait s'en tenir à un rôle consultatif	443, 444, 445																
- croient que le gouvernement fédéral a une politique relative à l'énergie	(X)445													(0)1590			
- croient que cette politique est bonne	(X)445																
- le gouvernement devrait réduire la limite de vitesse à 55 milles à l'heure	445, 1760, 150, 1550																
- pour des taxes visant à réduire la consommation	(X)1570 (X)1550 (X)1630	⟵ (0)1590 ⟶										⟵ (0)1590 ⟶					
- croient que le gouvernement devrait parrainer des programmes d'information	1780, 1790																
- croient que les services publics devraient parrainer des programmes d'information	1780, 1520																

TABLEAU 4 (suite)

	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge			Race		Autre
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire	
Objet: Rôle de la technologie comme solution de la crise énergétique																	
- croient que la technologie trouvera la solution	1520, 320, 57																
- croient que l'énergie nucléaire constituera une alternative viable aux combustibles fossiles	(0)445																
- croient que l'énergie solaire représentera éventuellement une source d'énergie viable	360, 445, 57																
Objet: Rôle de chacun durant la pénurie																	
- croient que les efforts individuels d'économie peuvent aider	443, 444, 445, 1390	← (0)1470 → (+)1060 ← (0)1590 →			← (0)1470) → (+)1060							(X)700 ← (0)1590 →					
- croient que chacun s'efforcera d'économiser	(X)443, (X)444, (X)445, (X)760, (X)1740																
- disposés à se priver seulement si tous le font	80																
- pour la mise en commun d'automobiles (car pool)	(X)130, 30																

	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge			Race		Autre
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire	
- pour une certaine forme d'effet volontaire d'économie	443, 444, 445, 1370, 1390, (0)760, 2510																
- les groupements de consommateurs sont considérés comme les sources les plus fiables d'information en matière d'énergie	1560																
- croient que le grand public accepterait le transport en commun comme une mesure d'économie de l'énergie	2230																
- croient que des limites de vitesse réduites seraient acceptables	2230																
- croient que l'achat d'automobiles plus petites serait acceptable	2230, 1740																

TABLEAU 5

CORRÉLATION DES INTENTIONS DE COMPORTEMENT EN MATIERE D'ÉNERGIE

MESURE DES INTENTIONS DE COMPORTEMENT	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge		
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50
- des appels à la crainte motivent les intentions de consommation d'énergie	2390 (X)2390, 870													
- indiquent l'intention de réduire la consommation d'énergie si les prix continuent d'augmenter	150		(C)2340 (C)1110 (C)2370											
- indiquent l'intention d'améliorer l'isolation thermique ou, du moins, de faire vérifier l'isolation actuelle	445													
- indiquent l'intention de réduire la consommation en raison de la gravité accrue de la pénurie	870													
- indiquent l'intention de réduire la consommation d'essence si le prix est majoré	(X)1690, 2100													

TABLEAU 6

CORRÉLATION DES COMPORTEMENTS EN MATIÈRE D'ÉNERGIE
(RAPPORTS DES CONSOMMATEURS ET MESURES OBJECTIVES)

MESURE DE COMPORTEMENT	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge			Race	
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire
Objet: A la maison																
- signalent qu'ils éteignent les lampes plus souvent	1550, 1630, 550, 1390, 1770, 2010, 2360, 445		(U)2360 →	510	←	(0)510	→			510		←	(0)510	→	(0)510 →	
- signalent une réduction de la température de chauffage, l'hiver	445, 550, 1770, 2010, 1630, 1740			510 1950	←	(0)510	→			510		←	(0)510	→	(0)510 →	
- signalent une utilisation moindre d'eau chaude	445, (X)510, (X)1770, (X)1740															
- signalent faire nettoyer la chaudière au moins une fois l'an	445															
- signalent ne partir la machine à laver que lorsqu'elle contient une pleine brassée		(-)510									510	(-)510				510
- signalent condamner les pièces inutilisées	510, 1630															
- signalent une utilisation moindre des appareils électriques	1060, 1550, 1630															
Objet: Réaction à la hausse du prix de l'énergie																
- compte est tenu de l'information sur le prix en fonction de la durée prévue de l'acquisition projetée	1790															

TABLEAU 6 (suite)

	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge			Race	
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire
- achat d'une plus petite voiture	(X)445, (0)1090, 2360															
- amélioration de l'isolation thermique de la maison	(X)445, (X)510, 1770, 1630	(-)510	(C)800	(+)2360							510	(X)510	(X)510	510		510
- achat de produits recyclés	(X)445															
- utilisation réduite de l'énergie en conséquence directe de la pénurie	530, (X)900															
- économie d'énergie en vue d'épargne	550, 780, 1370, 1860, 2230	(-)770	(C)800									700				
- réduction de la consommation en échange de versements d'argent	880, 700, 2300, 2460															
- réduction des dépenses pour le chauffage en raison de la hausse du prix de l'énergie								(0)1120								
- consommation réduite d'essence en raison de son prix élevé	1550, (X)2440, 130, (X)290, 1630, (X)2100		(C)800 (C)510													
- consommation réduite de l'électricité en raison de son prix plus élevé	1550		(C)510													
- consommation réduite du gaz naturel en raison de son prix plus élevé			(C)510													

	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction		Classe sociale		Sexe		Âge			Race	
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire
Objet: Déplacements																
- utilisation accrue du transport en commun	445, (X)1860	(-)1590 (-)1670					(+)1670							1670		
- entretien plus fréquent de la voiture	445															
- utilisation moins fréquente de l'automobile	1630 (X)445, (X)1060, 1390, 2210	←	(C)2360 (0)1880	→												
- participation à la mise en commun d'automobiles (car pool)	(X)445, (X)1760		(C)2360													
- vitesse réduite	1860, 1550, 1740, 30															
- moins de déplacements pour magasiner	1690, 2210, 1550	(X)2210										2270		2270		
- réduction de la consommation d'essence	550, 1860, (0)1090, 1550		(C)800 (C)510 (0)1870													
- utilisation moins fréquente de l'automobile contre certains renforcements positifs	680, 2460, (X)2230, 2300															
- diminution de la quantité d'énergie consommée suite à l'information en matière d'énergie	2160															
- consommation réduite de l'énergie suite à l'information sur les prix et au retour d'information sur la consommation	180, 430, 1150															
- consommation réduite d'énergie suite au retour d'information	880, 1820, 2140, 2160, 2170, 2010, 2050															

TABLEAU 6 (suite)

	Examiné - mais aucun lien signalé	Revenu			Niveau d'instruction			Classe sociale		Sexe		Âge			Race	
		Faible	Moyen	Elevé	Faible	Moyen	Elevé	Inférieure	Supérieure	M	F	<30	30-50	>50	Blanche	Noire
- diffusion d'information sur la rareté des ressources est réputée accroître le comportement d'économie	(X)1020															
Objet: Décisions d'achat																
- disposé à acheter un appareil plus cher afin d'économiser de l'énergie	445, (X)55															
- utilisation de bouteilles consignées	445, 1670															
- remplacement des appareils par d'autres à meilleur rendement énergétique	(X)510	(-)510			(-)510						510			( )510		510
- diminution de la quantité d'énergie consommée suite à l'information en matière d'énergie	(0)900, (X)180, (X)55															
- consacrent une plus grande partie du revenu pour l'achat d'énergie		310, 1120														
- la majorité des besoins d'énergie procèdent de l'énergie et du combustible consommés à la maison		(-)960										←	(0)510	→		510
Objet: Comportement activiste																
- plainte relative au problème de l'énergie auprès des services publics ou du gouvernement	1580	←	(0)510	→	←	(0)510	→			(0)510 →						

PERSPECTIVE DU CONSOMMATEUR SUR LA RECHERCHE EN MATIÈRE D'ÉNERGIE: UNE BIBLIOGRAPHIE ANNOTÉE

Adams, Gerald H. (30)
1976 Car Pools (A Bibliography with Abstracts). National Technical Information Service, Springfield, Va.

Abstract: An annotated bibliography describing the feasibility, methodology and benefits of cooperative automobile use, or "car pooling", in urban areas.

Albrecht, Stan L. (40)
1976 Socio-Cultural Factors and Energy Resource Development in Rural Areas of the West. Unpublished manuscript, Department of Sociology, Brigham Young University.

Method: A theoretical model of the socio-cultural impacts of boom growth communities based upon social and demographic data from several such communities in Wyoming and Montana which face extensive population growth due to large scale energy resource development. Secondary data, mostly U.S. Bureau of Census for the years 1960, 1970, and 1974, are utilized.

Variables: The effect of energy resource development upon population growth and social change in adjacent communities.

Findings: Data from the impacted communities suggest that they experience interpersonal, family, and community social problems; problems in the delivery of social services; and impacts on the physical environment that have social or quality of life implications.

Anderson, C.D. (55)
1977 Consumer Behavior and Energy Information Labels for Home Appliances.
Paper presented at the CAAS 1977 Conference, The University of New Brunswick.

Method: A research study generated via personal interviews with a convenience sample of recent buyers of new refrigerators and freezers. Subjects were given a structured questionnaire to measure (1) the three most important reasons for choosing the particular appliance; (2) ratings of a close-ended list of appliance's attributes; (3) ratings of the differences among appliances of the type chosen along selected attributes; (4) various cost perceptions for the appliance chosen.

Variables: Attributes of appliance, the importance attached to that attribute, cost associated with various attributes, information labels and consumer attitude/behavior were studied.

Findings: (1) No respondents mentioned energy concerns in response to the open-ended question on reasons for choosing the particular appliance item; (2) energy related attributes are not determinant attributes for purchase of refrigerators or freezers; (3) the value of labeling is questioned; (4) purchasers appear unwilling to trade off operating cost savings for convenience of frost-free operation; (5) knowledge of cost savings alone will not ensure choice of energy efficient appliances.

Anderson, C.D. and Robert Lloyd (57)
1978 The Effects of Alternative Appeals on Consumer Attitudes and Purchase Intentions for Solar Home Heating Products.
University of Manitoba working paper.

Method: A field experiment, post-test only with a control group. The sample was approximately 300 Winnipeg people selected at random from the Winnipeg Telephone Book.

There were two test groups and a control group. The first test group received a financial appeal, i.e., a "personal financial savings" information treatment. The second test group received a nationalistic appeal, i.e., a "savings to the nation" information treatment.

Variables: Dependent variables included the importance of choice criteria in selecting a home heating system, as well as self-reports and objective measures of behavior.

Independent variables included the messages and various socio-economic dimensions.

Findings: Not yet reported.

Angell and Associates, Inc. (80)
1975 A Qualitative Study of Consumer Attitudes Toward Energy Conservation.
Chicago: Bee Angell and Associates.

Method: A marginal frequency analysis of public attitudes and conservation behavior, with respect to the energy situation, involving interviews with a series of ten focus groups of 8-10 per group from four different regions of the U.S. Participants were given a cash incentive and were selected from a heterogeneous cross-section of the population. Study is ongoing.

Variables: Attitudes and conservation behaviors.

Findings: Respondents are willing to make sacrifices in energy consumption only if the need is severe and responsibility is shared by all. They generally reacted to energy shortage with frustration and a sense of helplessness, felt the general public to be exploiting the situation, and tended to blame the oil companies, public utilities, "business," and the government--not the Arabs or the OPEC countries. Concerning the opinions based on perceived U.S. technological "know-how," respondents felt optimistic about the future. Since the energy situation was not regarded as critical, they were generally skeptical of suggestions for large environmental sacrifices.

Barnaby, David J. and Richard C. Reizenstein (110)
1977 Consumer Attitudes and Gasoline Usage: A Market Segmentation Study.
A paper presented to the Marketing Track, National AIDS Conference, October 1977.

Method: In February, 1974, at the peak of the Arab Oil Embargo, a mail questionnaire was sent to 2,500 residents of three medium-sized (100,000-350,000 population) southeastern U.S. cities; of these 922 were usable. Data were analyzed by multiple discriminant analysis. A second mail survey using the respondents of the February, 1974, study, was conducted in October, 1974; 382 of the original 922 returned the second questionnaire.

Variables: A set of 42 attitudes, interests and opinions (A.I.O.) variables was included in the survey. The dependent variable is reported gasoline consumption during October, 1974, approximately eight months after the cessation of the oil embargo.

Findings: Profits of three gasoline consumption groups were isolated:

(1) Group 1 (Less than 10 gallons/week) - n=65

- mostly male, some female;
- mostly married, some separated, divorced, or widowed;
- average of three people in household;
- average income is $12,000 per year;
- own approximately 1.5 automobiles;

- agrees most that the energy crisis will create personal hardships for our citizens;
- agrees least that stringent home energy conservation measures are necessary;
- information from friends and magazines little help as an information source.

(2) Group 2 (10-19 gallons/week) - n=211

- almost all male;
- almost all married;
- average of three people in household;
- average income is $15,000 per year;
- most own two automobiles;

- agrees that the energy crisis will create personal hardships for our citizens slightly more than Group 3, but less than Group 1;
- agrees that stringent home energy conservation measures are necessary slightly more than Group 1 but less than Group 3;
- information from friends little help as information source, but more than Group 1;
- information from magazines some help as an information source.

(3) Group 3 (More than 19 gallons/week)
- n=114

- almost all male;
- almost all married;
- average of 3.5 people in household;
- average income is $16,000 per year;
- most own two automobiles;

- agrees least that the energy crisis will cause personal hardships for our citizens;
- agrees most that stringent home energy conservation measures are necessary;
- information from friends some help as an information source;
- information from magazines some help as an information source, but more than Group 2.

Barnaby, David J. and Richard C. Reizenstein (130)
1975 Perspectives on the Energy Crisis: Gasoline Prices and the South-eastern Consumer. Survey of Business, September/October, 1975, 28-31.

Method: Same as always (i.e., I & II).

Variables: Attitudes towards various energy-related statements were studied. Reported private vehicle gasoline usage and the price of gasoline were also studied.

Findings: (1) Neither set of respondents considers carpooling a desirable means of significantly reducing gasoline consumption; (2) the attitude statements appear to indicate a substantial concern with the energy shortage, a realization of its impact on resource utilization and an improved petroleum company

image; (3) as a result of the substantial increase in gasoline prices during 1974 the number of gallons reported utilized by respondents decreased; (4) the authors conclude that gasoline pricing is one method, potentially, of promoting energy conservation.

Barnaby, David J. and Richard C. Reizenstein. (140)
1975d Profiling the energy consumer: A discriminant analysis approach. Paper presented at ORSA/TIMS Conference, Chicago, Illinois (April).

Method: Multivariate discriminant analysis of behavioral and attitudinal responsiveness to the energy crisis and consumer segments willing to reduce energy consumption. Based on a survey conducted February, 1974, and repeated October, 1974. Data were gathered from a random sample of mail questionnaires (N=2500) in Columbus, Georgia; Charlotte, North Carolina; and Chattanooga, Tennessee.

Variables: The effect of the energy crisis on consumer groups and home heat preference groups, in terms of attitudes and behaviors.

Findings: Profiles of high, medium, and low gasoline consumer groups and home heat preference groups. The major factor which seems to identify the energy conscious consumer (for both gasoline and heat) is exposure to media and sources of personal information. Income also was an effective discriminator. A negative attitude toward energy conservation and pollution abatement exists among those respondents who desire to maintain the status quo. Major changes between February and October, 1974, seem to be increased awareness that energy resources are running short; greater agreement that

rationing will become necessary; and increased agreement to controlling home temperature by law. Also, fewer respondents agreed that oil companies which advertise their efforts to develop new energy sources are more concerned with public relations than with resource development.

Bartell, Ted (150)
1974 The effects of the energy crisis on attitudes and life styles of Los Angeles residents. Paper presented at 69th Annual Meeting of the American Sociological Association, Montreal (August).

Method: A multiple regression analysis of a February-March, 1974, area probability sample (N=1069) survey of Los Angeles County adults to determine the behavioral and attitudinal effects of the energy crisis and the likely impacts on general political orientations and public policies.

Variables: The effect of the energy crisis on beliefs about its severity and duration, feelings about who is to blame, general perceptions of governmental institutions and actors, preferences among alternate energy policies, and expectations concerning future economic conditions and employment.

Findings: The only significant predictor of personal energy conservation appeared to be an anticipated effect on one's future employment. Although some changes in basic lifestyle were reported, these were generally perceived as causing minimal personal difficulties. Certain socio-demographic characteristics and energy-related expectaions were significantly related to beliefs about who was responsible for the energy

crisis. Blacks, women, and persons of lower socio-economic status tended to blame the President; men and non-blacks tended to blame the oil companies. Energy policies having a negative effect on the environment were most often supported by persons more highly integrated into the social order, and the findings of this study would predict increasing support for environmentally detrimental activities if the crisis worsens.

Barth, Michael, et al. (160)
1974 The Impact of Rising Residential Energy Prices on the Low Income Population: An Analysis of the Home-Heating Problem and Policy Alternatives. Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of the Assistant Secretary for Planning and Evaluation, Office of Income Security Policy, December. Technical Analysis Paper No. 3.

Method: A study of the effect of rapidly rising residential energy prices, specifically for home-heating fuels, on the lower income population, along with an analysis of various policy alternatives to ameliorate this impact. Home heating is discussed with respect to climate, housing characteristics, fuel type, and fuel prices. Regional variations in home-heating cost increases and the problems faced by low-income households are given special attention.

Variables: The effect of increased energy costs on the low income population in the U.S.

Findings: There are wide variations in heating cost increases as a result of regional differences in energy price levels and in price changes, coupled with variations in climate and type of fuel used. Low income households spend an

average of more than 11% of their income on natural gas and electricity. This compares with less than 2% for households with annual incomes over $16,000. Yet the poor consume only 56% as much electricity and 82% as much natural gas as the non-poor. Home-heating needs of the poor are lower than those of other income classes because low-income households are generally located in warmer climates, have smaller sized homes which are less likely to be single-unit dwellings. But the homes also have fewer energy-saving features. The net effect is that low income households pay in dollar amounts about three-fourths of what is spent by other households for home heating. However, while actual dollar increases will be somewhat smaller for the poor, the increases must be covered out of considerably smaller incomes.

Battalio, Raymond C., and John H. Kagel (170)
1976 Household Demand Responsiveness to Peak Use Pricing: Implications Drawn from Experimental Studies of Consumer Demand Behavior of Both Humans and Animals.
Paper presented at the Third Annual UMR-MEC Conference on Energy; Rolla, Missouri, October.

Method: An experimental economics approach to the study of consumer demand behavior, in particular peak pricing responsiveness. Both human and laboratory animal experiments are brought to bear on the problem. Data are presented from several sources, including a summer, 1975, experimental study of 129 College Station, Texas, residential electricity customers.

Variables: Demand responsiveness to peak use pricing.

Findings: Experiments involving respectively, laboratory animals and habitual

drinkers, demonstrate that daily behavioral patterns which are seemingly unresponsive to economic contingencies do adjust when economic variables in the environment are altered. Suggestive parallels to the study peak use of electricity are discussed. Regarding the latter, the authors believe that where demand is not transferable, e.g. for space heating and cooling, there may be substantially less smoothing of demand on response to time-of-day pricing differentials.

Battalio, Raymond C, et al. (180)
1976 Residential Electricity Demand: An Experimental Study.
Unpublished manuscript, Department of Economics, Texas A & M University, December.

Method: An investigation of (1) short-run price elasticities via direct price manipulation and (2) the impact of written, government prepared energy conservation materials and weekly feedback on electricity consumption. Both facets of the study dealt with situations where space cooling was the dominant source of electricity use. A random sample (n=496) of College Station, Texas, electricity customers was drawn and subsequently yielded 129 volunteers. Meters were read once a week in the experiment phase during June-August, 1975. Five groups were subjected to two one-week pre-treatment and two six-week experimental periods in conjunction with five treatments--high price rebates, low price rebates, feedback, information and control.

Variables: The short term price elasticities for electrical energy for space cooling, and the effects of four treatments, involving rebates, feedback, or

information, on electricity consumption for said purpose.

Feedback: Electricity use declined pursuant to price rebates accompanied by feedback and information. However, these differences were not large relative to the size of price rebates. Rebate checks seemed to spur conservation after a lull in the initial experimental period. Information alone led to increased use. No differences were found between feedback condition and control. Short-run price elasticity of demand was determined to lie in the bottom quarter of previously reported estimates--between 0 and -0.15. The authors assessed the experimental results as having no positive effect on energy conservation.

Berman, M.B.; M.J. Hammer; and D.P. Tihansky (210)
1972 The Impact of Electricity Price Increases on Income Groups: Western United States and California.
Santa Monica, California: The Rand Corporation.

Method: An analysis of the effects of increased prices of electricity on residential consumers of different income classes, with the objective of estimating how a reduction in the growth rate of consumption of electricity (through increased prices for electricity) might be distributed among the various socio-economic groups in the residential sector. Western U.S. data are from the Bureau of Labor Statistics and the Federal Power Commission for the years 1960-61. Data for California for the year 1970 were obtained from Los Angeles area utilities.

Variables: The effect of increased prices of electricity on residential consumers of different income classes in conjunction

with stock of appliances, size of household, size and volume of the housing unit and the quality of its insulation, variance in the outside temperature, price of fuels, and amount of time spent away from the home.

Findings: Consumers in the $5,000 and over income-category (60% of the population in the year studied) consumed 80% of the electricity demanded by the residential sector, whereas those earning less than $3,000 (17% of the population) consumed only 6% of the total electricity demanded. For Los Angeles, 1970, the ability of low income groups to reduce consumption of electricity was found to be lower than had been predicted by previous research which had used highly aggregated data to predict average reduction. This suggests that the ability to reduce consumption increases with income.

Berman, M.B., and M.J. Hammer (220)
1973 The Impact of Electricity Price Increases on Income Groups: A Case Study of Los Angeles. Santa Monica, California: The Rand Corporation.

Method: A study basically dealing with the likely effect of electricity price increases on income groups in the residential sector of the City of Los Angeles. A model of residential electricity consumption is utilized and fitted to data provided by the Los Angeles Department of Water and Power for the period 1970-71. Data on population are from U.S. Bureau of Census tract reports, and on climate from the U.S. Department of Commerce.

Variables: The effect of residential energy price increases on eight income level groups in Los Angeles.

Findings: Residential consumption appears to be largely dependent on household income and number of household members when the price of fuels is constant across households. Consumption of electricity was determined to be influenced most by household income, increasing exponentially with higher income levels. Relative to income, then, the burden of electricity price increases was found to fall most heavily on the lowest income groups. Low income groups (below $5,000 per annum) constituted 31% of total electricity consumption. For high income groups (over $15,000) the respective figures are 21% and 41%. The evidence is interpreted to indicate that low income groups have limited ability to reduce electricity consumption, by contrast with high income groups.

Blakely, Edward J. (230)
1976 Energy, Public Opinion, and Public Policy--A Survey of Urban, Suburban, and Rural Communities.
California Agriculture, 30,8 (August), 4-5.

Method: Urban, suburban, and rural residents of Sacramento Valley were surveyed in the spring of 1975 to determine whether place of residence affected (1) attitudes about the causes and potential consequences of the energy crisis, (2) energy-related community behavior and lifestyle and (3) preferred alternatives for public policy on energy. Questionnaires were mailed to samples of metropolitan Sacramento (N=800), the nearby small city of Winters (N=600), and rural Capay Valley (N=200). The return rate pursuant to reminders was 62.5 percent. Results were weighted for the marginal frequency analysis.

Variables: The effect of place of residence on attitudes, behaviours, and preferences

concerning the energy crisis and public policy towards it.

Findings: Respondents across residence and location classes held similar opinions on the energy crisis and its overall consequences for themselves and the nation. The real dichotomy between urban and rural respondents was with regards to the role of government in solving the problems.

Rural and suburban respondents were more opposed than urban residents to direct government intervention and controls. Rationing was disapproved by all segments of the samples with rural and suburban respondents being most antagonistic.

Blevins, Audie L., Jr. (240)
1976 Public Response to Municipally Owned Utilities in Wyoming.
Land Economics 52, 2 (May), 241-245.

Method: A 1972 survey of 215 randomly selected households in five communities with municipally owned electrical distribution systems and of two communities with privately owned electrical systems.

Variables: Attitudinal perceptions of municipally owned power systems.

Findings: Residents in the communities with municipally owned utilities favor public power, are satisfied with the cost of electricity, and believe that public power is an equitable way to raise revenue. Respondents in communities with private power generally favor municipally owned power and are equally divided over the issue of their community entering the power business.

Blevins, Audie L., Jr., et al. (250)
1974 Assessing the Social Impact of Energy Related Growth in Wyoming. Paper presented at the Annual Meeting of the Society for the Study of Social Problems, Montreal, August.

Method: A January, 1973, random sample survey of 219 persons, representing a cross section of individuals in Campbell County, Wyoming, were questioned about their attitudes toward coal development in the county.

Variables: Attitudinal perceptions of social impacts of coal development.

Findings: A large percentage of the respondents are fearful of the damage strip-mining will do to the physical environment and their lifestyles. They would like to see strict reclamation controls instituted.

Bloom, Martin, et al. (260)
1975 The Effect of Rising Energy Prices on the Low and Moderate Income Elderly.
Washington, D.C.: Federal Energy Administration, March.

Method: A study of the effects of energy cost charges on the income and expenditures of the low and moderate income elderly. Expenditure data are from the 1973 Washington Center for Metropolitan Studies Nationwide Sample (N=1455) and its subsample (N=115) of poor households where the age of the head is 65 or over. Secondary data on household consumption patterns and prices were taken from U.S. Bureau of Labor Statistics documents. The climatic data are from an atlas put out by the U.S. Department of Commerce.

Variables: The effects of increasing energy costs on the elderly in the United States, particularly as related to age, income, climate, and type of fuel, at the national, regional, and SMSA levels.

Findings: Nationally, the elderly poor consume less energy than any other age-income group. Energy expenditures increase gradually as income levels rise for all ages combined, but for the age group 65 and over the increase is dramatic from the lower middle income level to the upper middle income level. There were smaller differences in expenditures across income levels for natural gas relative to electricity and gasoline. For all U.S. regions, lower income elderly couples spent a disproportinate amount of their budget on fuel and utilities, compared to similar intermediate or higher budget households. The reverse was found regarding expenditures on transportation. Elderly households spent a much higher portion of their budget for energy in colder than in warmer regions. Energy price inflation hit hardest in the New England and Middle Atlantic States, and least in the South and Southeast. Overall, the rapid rise in energy prices was found to have imposed a severe economic strain on the elderly.

Bullard, Clark W., III, and Robert A. Herendeen (310)
1975 Energy Impact of Consumption Decisions. Institute of Electrical and Electronic Engineers Proceedings, 63, 3 (March), 484-493.

Method: An attempt to determine the energy cost of goods and services based largely upon a 360-sector input-output analysis of the U.S. economic system. The model is

applied to illustrative problems, including (1) total energy cost of an automobile and an electric mixer, (2) energy impact of urban bus and auto transportation, (3) total energy impact of a family's expenditures, (4) energy and labor impacts of government spending, (5) industrial energy dependence, (6) national import-export energy balance, and (7) an energy conservation tax. Secondary data are used and are taken from various statistical sources for the year 1963.

Variables: The direct and indirect effects of consumption decisions in selected sectors of the economy on energy consumption.

Findings: A set of tables is provided which summarize the results of the analysis of the seven problems listed above. Regarding the energy impact of a family's expenditures, for the lowest income group, energy purchases account for two-thirds of the total purchases, while for the highest income group, the fraction drops to one-third. Estimates of the impact of direct energy use only, might therefore be misleading.

Bultena, Gordon L. (320)
1976 Public Response to the Energy Crisis: A Study of Citizens' Attitudes and Adaptive Behaviors. Ames: Iowa State University.

Method: A random sample interview survey of 190 persons from different socioeconomic groups in Des Moines, Iowa. Questions focused on attitudinal and behavioral responses to the 1974 energy crisis. Differences between the three social-class groups were tested for statistical significance using Chi Square.

Variables: Attitudinal perceptions of the crisis, impact of shortages on behavioral patterns, socioeconomic effects, and sociopolitical actions of respondents, all referenced to upper (N=56), middle (N=74), and lower (N=60) class groups.

Findings: Most respondents attributed shortages to the actions of large oil companies, not to dwindling energy reserves. Middle and lower class respondents more often blamed activities of large oil companies and concomitant government favoritism. Upper class respondents tended to perceive the energy shortage in terms of dwindling energy reserves. More upper class persons than middle or lower class persons reported taking energy conservation measures. Upper class respondents also emphasized environmental quality goals, whereas lower class respondents reported a major interest in keeping energy prices down.

Burdge, Rabel J.; Paul D. Warner; and Susan D. Hoffman(330)
1976 Public opinion on energy.
Unpublished paper, University of Kentucky.

Method: Marginal frequency analysis of opinions on various energy conservation and utilization measures based on a statewide survey taken in Kentucky (N=3,438).

Variables: Energy use for transportation, home consumption, new energy sources, government regulation of energy use.

Findings: Respondents were willing to accept energy conservation measures in personal transportation and home use, and to support the development of new energy sources with government funding.

Buttel, Frederick H. (340)
1977 Social Structure and Energy Efficiency: A Preliminary Cross-National Analysis. Human Ecology, 5 (forthcoming).

Method: Data for circa 1965 are taken from UN-type data sources. The cross-national analysis includes 118 nation-states and employs multiple correlation and regression analysis. A ratio of gross national product in U.S. dollars to total inanimate energy consumption (in kg coal equivalents) is used as a measure of energy efficiency.

Variables: Effect of level of production (GNP per capita), division of labor outside of the agricultural sector (percentage of gross domestic product from the agricultural sector--an inverse indicator), urbanization, level of defense expenditures, territorial size, and population density on energy efficiency.

Findings: Level of production, division of labor outside of the agricultural sector, and population density exhibit substantial inverse relationships with energy efficiency. Territorial size bears little bivariate relationship to cross-national patterns of energy efficiency, but proves to have a discernible inverse relationship at the multivariate level. Levels of defense expenditures and urbanization have substantial bivariate relationships with energy efficiency; these variables, however, have only small multivariate relationships with the dependent measure.

Buttel, Frederick H. (350)
1977 Agricultural Structure and Energy Intensity: A Comparative Analysis of the Developed Capitalist Societies.
Paper presented at the Annual Meeting of The Rural Sociological Society, Madison, Wisconsin, September.

Method: A test of the hypothesis that energy use in the agricultural production sector is of great importance in shaping the overall energy intensity of developed capitalist nations. UN-type data are analyzed for 25 "developed market economics" (as defined by the United Nations) for the year 1965. Four indicators of agricultural organization--agricultural composition of the labor force and economy, mechanization, and average farm size--are educed and their product-moment correlations established.

Variables: The effect of percentage of the labor force in agriculture, agricultural share of GDP (Gross Domestic Product), mechanization, and average farm size on energy intensity in 25 developed capitalist societies.

Findings: The four indicators of agricultural structure are found to be highly intercorrelated. Agricultural composition of the labor force and economy proved to be inversely related to energy intensity, while mechanization and average farm size were positively related. Agricultural share of the GDP was the agricultural structure variable most closely associated with energy intensity, and had substantial direct effects on the dependent variable when per capita GNP and urbanization were held constant. The multivariate impacts of the other agricultural structure variables were less clear because of multicollinearity and parameter estimation problems. The author concludes that agricultural structure seems to have broad implications for resource/ energy use in the developed

capitalist societies, extending far beyond resource use in the agricultural production sector itself.

Cartee, Charles (360)
1976 Solar Energy Installations: Trends and Lender Attitudes.
Journal of Property Management, 41, 1 (January-February), 21-28.

Method: A marginal frequency analysis of attitudes of lending institutions toward solar heating and cooling of residences and the feasibility of advancing funds for same, based on a questionnaire survey (N=300).

Variables: Lender attitudes toward solar heating and cooling with respect to fuel savings, reliability, insurability of home, etc., as well as their feasibility for purposes of finance.

Findings: Nearly three-fourths believed solar energy would represent a feasible alternative energy source for heating and cooling of single family residences during the next ten years. Financiers indicated a preference for making loans on solar homes. Concern was expressed about the expected life of solar equipment and the associated maintenance costs.

Carter, Lewis (370)
Ongoing Interactive Monitoring System for Evaluating Energy Policy Effects on Private Nonindustrial Consumption.
Washington State University: Social Research Center.

Method: The establishment of a continuously undated interactive data retrieval system to monitor consumer energy conservation and the effects of energy shortages and policies involving a rotating panel design with six panels selected each year from a random area stratified sample (N=300) of Washington state residents. An examination is made of differences in matched time-lag changes, displacement of time series data, and perturbation within specific periods. Data are from utilities, interviews, and questionnaires.

Variables: Changes in consumer conservation attitudes and behaviors pursuant to changes in energy policy and availability.

Findings: Net yet reported.

Cohen, Reuben (410)
1976 Setting Equitable National Goals for Household Energy conservation.
Paper presented at the Annual Meeting of the American Sociological Association, New York, August.

Method: A study of two specific conservation levels or targets, for electricity and natural gas. These conservation targets are based on an analysis of the distribution of energy consumption by households in the U.S., data being obtained through personal interviews from a May-June, 1973, national

probability sample (N=1,500) of households. Low income households were oversampled and weighting procedures were used to compensate for the disproportionate sampling. Data were also obtained from utilities for one-third of the sampled households. A multiple regression analysis was employed to determine the major factors which affect energy use by households.

Variables: The effects of household and climatic characteristics on consumption of natural gas and electricity. Also, the potential for energy conservation in relation to specific targets based on the effects established.

Findings: About one-third of the variation among households was explained by factors including size of household, use of fuels for such essentials as hot water and cooking, and climatic conditions. The top income group used about 50% more natural gas and 160% more electricity, on a per household basis, than the lowest. Author relates these findings to target #1 (that U.S. households consume no more energy than the average reported in 1972-73 for households with their characteristics) and finds that 18% of electricity and 13% of natural gas consumption could be conserved. Overall, the biggest per-household share of the savings would have to come from upper income groups. Target #2 (that households occupy no more than the median number of rooms reported for households of the same numbers of persons, and consume no more energy than the average reported for households of that type) would entail a similar saving, requiring a disproportionate reduction by the upper income groups relative to lower because of the more discretionary expenditure for living space at upper income levels.

Connecticut Power and Light Co. (430)

1976 Hartford, CN, Experimental study reported by the Associated Press in the New York Times, Saturday, August 21.

Method: A federally funded experiment to determine if home users of electricity would change their lifestyle to reduce their power bills. This yearlong experiment began October 16, 1975, and entailed 239 residential customers of Connecticut Power and Light, representing a wide range in level of demand. Of these, 40 constituted the control group. Each home was outfitted with a meter to record use during 15 minute segments. Subjects were presented with a much higher price during peak demand periods and a reduced rate during power lulls. Charges were, respectively, sixteen cents and one cent a kilowatt-hour, with three cents a kilowatt-hour being levied the rest of the day, on weekends and designated holidays. These rates were applied January-March, 1976.

Variables: The effect of pricing incentives and disincentives on peak period use of electricity by residential customers.

Findings: Few customers in the experimental group significantly changed their power use during the warmer months, but nearly all used less electricity during peak periods in winter than did the control group or the average company customer.

Contemporary Research Center (443)

1975 A Study of the Canadian Public's Attitudes Toward the Energy Situation in Canada, Wave I. Conducted for the Department of Energy, Mines and Resources, Ottawa, Canada

Method: Telephone interviews were conducted in seven Canadian cities with 1821 people over the age of 15.

Variables: The study measures Canadians' attitudes, behavioral intentions and behaviors with respect to energy.

Findings: Only 8% of the sample spontaneously mentions energy as a problem facing Canadians. Only 46% of the sample judged the energy crisis as "very" or "somewhat serious." One out of four respondents feels that a gasoline shortage is imminent within the next five years. Almost nine out of ten people believe individual efforts to conserve energy can be of some importance; however, the likelihood that individuals will cut back on energy consumption is seen as remote. Respondents prefer voluntary conservation to legislated controls. The majority of the public would like to see the government act in an advisory capacity in the energy situation.

Contemporary Research Center (444)

1976 A Study of the Canadian Public's Attitudes Toward the Energy Situation in Canada, Wave II. Conducted for the Department of Energy, Mines and Resources, Ottawa, Canada.

Method: Telephone interviews were conducted in seven Canadian cities with 1840 people over the age of 15.

Variables: The study measures Canadians' attitudes, behavioral intentions and behaviors with respect to energy.

Findings: More than six out of ten Canadians judge the energy shortage as "very" or "somewhat serious." The majority of subgroups indicate increased concern over the energy situation in comparison with Wave I. The majority of Canadians surveyed believe gasoline and heating oil shortages to be likely. Fear of short term fuel shortages has decreased since Wave I. The individual is seen as able to make a significant contribution to solving the energy crisis by nine out of ten Canadians; however, the individual is not seen as likely to make this effort of his own volition. Respondents prefer voluntary conservation to legislated controls; however, if the government is to get involved, it should be in an advisory capacity.

The most frequently reported energy conserving behavior reported by consumers is turning lights off more often (81% of respondents) followed by turning thermostats down (68%).

Contemporary Research Centre (445)

1977 A Study of the Canadian Public's Attitudes Toward the Energy Situation in Canada, Wave III. Prepared for the Department of Energy Mines and Resources.

Method: Telephone interviews were conducted in seven Canadian cities with 1815 people over the age of 15. The sample was approximately 50 percent male and 50 percent female.

Variables: The study measures Canadians' attitudes, behavioral intentions and behaviors with respect to energy.

Findings: More than six out of ten Canadians judge the energy shortage as "very" or "somewhat serious." Francophones are less likely than Anglophones to rate the energy situation as serious. White collar and professional groups showed an increased awareness of the seriousness of the energy shortage.

The majority of Candians surveyed believe gasoline and heating oil shortages are likely. Fear of short-term fuel shortages has diminished but the possibility of a fuel shortage in the future is seen as a more serious threat in 1977 than it was in 1975.

More than nine out of ten people feel individual efforts to conserve energy can be of some importance. However, respondents are not strongly convinced that individuals will work to cut down their own fuel consumption.

Although there is a growing proportion of people who feel that stronger measures are needed, respondents prefer voluntary conservation to legislated control; more than three out of four people are in favour of some form of voluntary conservation. The Canadian public appears to want the government to play an advisory or educational role. More than half the public surveyed is unaware of any federal energy policy. Of those who were aware of a federal energy policy, three out of four judged it as "adequate" or "poor."

Insulation is perceived as a good investment, but the public is less certain of the monetary benefits. Despite this uncertainty, increased numbers of respondents are adding insulation to their homes and six out of ten are planning to have their insulation checked.

Two out of three people surveyed expressed concern that the energy situation would affect the quality of Canadian life, but the public is

confident that technology change combined with a changed lifestyle will ultimately solve our energy problem. Young people, the better educated and the Francophones are least pessimistic about any possible negative effects of energy conservation on living standards and employment.

The blame for oil/gas increases of recent years is primarily accredited to the Arabs and oil company profits.

The public claims to be actively involved in a variety of efforts to conserve energy. The most often reported actions taken by Canadians are: turning off lights more often (88% of the sample), keeping thermostats down (77%), using returnable bottles (76%), turning to public transportation (61%), taking better care of one's car (60%), using less hot water (54%), servicing furnaces a minimum of once a year (51%). Personal efforts to conserve energy are more likely to be initiated by Anglophones than Francophones. Rationing and taxes are unpopular conservation methods. Gasoline is seen as the most likely source of energy to be conserved.

Seven out of ten respondents claim they would be willing to increase their initial expenditure on an appliance to save energy. More than eight out of ten people claim a car's gas mileage is of some importance to them when buying a new car.

Cook, Stuart W., et al. (450)
1976-1977 Encouraging Energy Conservation in Master-Metered Buildings.
On-going study at the University of Colorado, September 1976 through June 1977.

Method: An experiment on how to encourage occupants to conserve energy when they do not directly pay their energy bills. A management method and a user method, the former involving a leader and the latter occupant participation, are to be contrasted in four pairs of University of Colorado office-classroom buildings and in three pairs of dormitories. In a second study, one of a pair of married student apartment complexes will institute a program of rewards (lottery tickets) for residents found in random checks to have their thermostats set below a specified level. The second complex will serve as the control. Actual use after implementation will be compared with predicted use through multiple regression.

Variables: The effect of management and user oriented methods on energy consumption by occupants of master-metered office and residential apartment buildings.

Findings: Not yet reported.

Cook, Stuart W., et al. (460)
1976-1977 A Comparison of Three Methods of Encouraging Homeowners to Install Insulation.
On-going study at the University of Colorado, September 1976 through February 1977.

Method: An experiment which seeks to determine what type, or combination of types, of persuasive communication is most effective in encouraging homeowners to install attic insulation. The subjects are firemen who own homes in the Denver metropolitan area. Either 2x2x2 analyses of variance or chi-square analyses are used to evaluate attitudes and behavioral intentions, acceptance of insulation inspection, and actual installation of insulation.

Variables: The effect of seven types of communications, e.g., an "energy crisis" appeal or an economic appeal, on subject's willingness to install insulation.

Findings: Not yet reported.

Corr, Michael, and Dan MacLeod (465)
1972 Getting It Together.
Environment, 14, 9 (November), 2-10.

Method: A 1972 study of energy and lifestyle, using a questionnaire on energy consumption habits, administered to twelve communes in the Minneapolis area totaling 116 members.

Variables: The effect of communal living on consumption of natural gas, electricity, and gasoline and on energy use in appliances and automobiles.

Findings: Communal lifestyle would appear to make a pronounced difference in personal energy consumption compared with the average for households nationally and in some cases for the Minneapolis area.

Craig, C. Samuel and John M. McCann (470)
1977 Communicating Energy Conservation Information to Consumers: A Field Experiment.
A.M.A. Proceedings, Series No. 41, 432-436.

Method: A field experiment involving 2000 residential consumers of electricity in the Con-Edison service territory who consumed more than 5000 kilowatt hours per year and whose July-August consumption was at least 20% higher than December-January.

Variables: Independent variables included the source of the communication, the channel used to convey the communication and the nature of the appeal. The dependent variables were the consumer's interest, intention and actual consumption.

Findings: (1) None of the experimental manipulations was successful in getting consumers to reduce their actual consumption of energy; (2) the combined communication factors frequently resulted in a significantly greater conservation intention than in the control group which received no communication; (3) in summary, this study indicates that feedback communication often results in consumer interest and intention changes, but not in actual consumption changes.

Cunningham, William H. and Sally C. Lopreato (509)
1977 Energy Use and Conservation Incentives: A Study of the Southwestern United States. New York: Praeger Publishers.

Method: Data were collected from residents of five southwestern United States communities. Conclusions were based on 2,403 codable returns of 10,000 questionnaires mailed out in 1973. The sample exhibited a slight bias toward middle-aged white males with higher than average education and income.

Variables: The attitudes, beliefs, behavior and behavioral intentions of residential consumers relevant to the energy problem and conservation were studied.

Findings: There seems to be a great deal of homogeneity among the American people on energy attitudes. The majority of subjects--regardless of how high their

income is, how much education they have, or how old they are--believe that the country has an energy problem of some lasting significance and that not enough is being done by public or private sectors to solve it.

Consumers are shown to be willing to make substantial efforts to conserve energy as long as they are not forced to spend substantial sums of money or experience a negative impact on their lifestyle.

In general, those individuals who were classified as more energy-conserving were lower-income, less educated, and more likely to be of a minority race or ethnic group than were the less energy-conserving subjects.

Cunningham, William, and Sally Cook Lopreato (510)
Ongoing Energy Consumption and Conservation: Attitudes and Beliefs in the Southwest.
Austin: The University of Texas, Center for Energy Studies.

Method: Statistical analysis of a Fall, 1975 random sample (N=10,000) of five Southwest cities. The survey was accomplished by mail questionnaire and an examination of billing records. A subsample (N=801) of all-electric users in Austin, Texas was drawn in spring, 1976. The purpose of the study was to identify attitudes and behavior across diverse groups of individuals and to relate these findings to conservation practice incentives.

Variables: Energy attitudes and behavior with respect to socioeconomic variables.

Findings: Not yet reported.

Curtin, Richard T. (530)
1976 Consumer Adaptation to Energy Shortages. Journal of Energy and Development, 2, 1 (Autumn), 38-59.

Method: A multiple classification analysis of conservation behavior, attitudes, and motivations based upon a Fall, 1974, random sample (N=1400) interview survey of family heads or spouses drawn from the 48 contiguous states of the U.S.

Variables: The effect of the energy crisis on conservation behavior with respect to the consumption of gasoline, electricity, and home heating.

Findings: Widespread conservation did occur, but there was an almost equally widespread prospect of difficulty in making future adjustments. More differences in past experience and expected difficulty were further highlighted by the substantial numbers of respondents who reported either patterns of adaptive or maladaptive adjustments in their energy consumption; while fully one-third of all respondents said they have conserved in the past and could do so again without difficulty, another one in four said they did not conserve and could not do so without great difficulty.

Denham, F.R., N. Fairhead and P.L. Fontaine (535)
1977 Major Domestic Appliances and Automobile Tires: Environmental and Economic Impacts of Product Durability.
Project prepared for Energy, Mines and Resources, Canada.

Method: The study reports on a consumer survey conducted in early 1977 of over 1,600

Canadian households. In-person interviews and questionnaires were utilized.

Variables: Information about the purchase and disposal of appliances, the type of appliance involved and various demographic variables were all studied.

Findings: The purchase decision for microwave ovens is most highly influenced by expected useful life. This relationship was most pronounced among French-speaking Quebecers, respondents from small towns or rural areas, households with five or more people, and households earning over $20,000. The next most important characteristics were reliability and features.

For automatic dishwashers the most popular purchase criteria were (in order) reliability, expected useful life, and ease and availability of service.

Reliability is the most frequently selected desired attribute of air conditioners, with little differentiation between community or household.

The prime reasons for selecting a range were ease and availability of repairs, price, and reliability.

For refrigerators, reliability, features, and expected useful life were most important. Reliability was most often stated by households living in rural areas, or with four or more persons, while households earning less than $10,000 chose it less often.

There were only two reasons preferred as the "most important" in choosing a clothes washer--reliability and expected useful life. Reliability was selected more often by English-speaking Quebec and Ontario households, and households in medium-sized cities or with four or more persons. Useful life was more frequently cited by Frenchspeaking Quebecers, households in small towns, or with high

incomes, or consisting of only one person.

Clothes dryers reversed the washers selection, with expected useful life being chosen most often as the most important reason for selecting clothes dryers. This was most noticeable in French-speaking Quebec, the Prairie Provinces and B.C.

Doering, O.C., et al. (540)
1974 Indiana's Views on the Energy Crisis. West Lafayette, Indiana: Purdue University Cooperative Extension Service. CES Paper No. 6.

Method: Marginal frequency analysis of 670 randomly selected Indiana residents responding to a questionnaire concerning public attitudes toward the 1973-74 energy crisis.

Variables: Attitudinal perceptions and behavioral patterns.

Findings: Although the results indicate substantial adjustments in the home and some changes in personal transportation habits due to the energy shortages, only 36% of the respondents indicated that the crisis had any "real effects" on their lifestyles.

Doner, W. B., Inc. and Market Opinion Research (550)
1975 Consumer Study: Energy Crisis Attitudes and Awareness.
Detroit: W.B. Doner, Inc.

Method: A marginal frequency study of awareness, attitudes, behavioral changes, and perceived future effects of the energy

naire. The survey determined respondents' attitudes toward a number of issues, including environmental concerns. A subsample involving Fayette County, in conjunction with data from utilities, was used to assess energy consumption.

Variables: The effect on energy consumption of income, education, and occupation; favourable attitudes toward a series of environmental issues; and willingness to practice energy conservation measures.

Findings: Not yet reported.

Duncan, Otis D. (565)
1976 Sociologists Should Reconsider Nuclear Energy. Revised version of the first annual Amos H. Hawley lecture at the University of Michigan, Ann Arbor, November 5.

Method: A review of work by sociologists on nuclear energy, followed by an evaluation of selective historical developments.

Variables: The performance of sociologists in research on the social aspects of nuclear power.

Findings: Sociologists' forecasts have generally been naive, and off target. Sociologists have performed badly in matching forecasts with outcomes and in diagnosing discrepancies. An illustrative analysis of one facet of public opinion on nuclear issues--public acceptability--reveals a four-way interaction: (1) response to item, (2) how controversial the item is, (3) how much confidence one has in one protagonist, and (4) how much confidence one has in the other protagonists, all in connection with an intensely argued public controversy. The author

concludes that although improved social forecasts are desirable, a higher priority should be reliable findings and cogent analyses of the social costs and benefits of alternative energy futures, couched in sociological theory and modern research practice.

Dunlap, Riley E., and Kenneth R. Tremblay, Jr. (567)
1976 Hard Times and Human Concerns: Assessing Probable Reactions to Scarcity. Paper presented at the Joint Session of the Rural Sociological Society and the Society for the Study of Social Problems at their Annual Meetings, New York, August.

Method: Panel survey (summers of 1970 and 1974) of a sample of 3,101 Washington state residents to determine any changes in their priorities for funding government programs.

Variables: Changes from 1970 to 1974 in attitudes toward the allocation of government funds for government programs in personal security, public services, social justice, and environmental quality.

Findings: There was a trend toward increased support for personal security programs, e.g., retirement benefits, health and medical care, and social security benefits, but a decline in concern for social justice, environmental quality, and the public good.

Early, John F. (570)
1974 Effect of the Energy Crisis on Employment. Monthly Labor Review, 97, 8 (August), 8-16.

Method: Marginal frequency analysis of the impact on employment of the energy shortage during November, 1973, to March, 1974, using data from the payroll survey of the Current Employment Statistic program, an analysis of its monthly employment estimates and labor turnover data for manufacturing and unemployment estimates from the current population survey of households.

Variables: The effects (direct, negative indirect, positive indirect and tertiary) of the energy crisis on employment in the U.S. economy. The four types of effects relate, respectively, to the inability of establishments to obtain the power needed for operation, to reduction of goods and services output, to increased demand for alternative fuel sources and equipment needed for extraction, and to reductions in aggregate demand due to layoffs.

Findings: The most obvious direct effect was gasoline service station closings and reduced hours. Other direct effects were well scattered, but involved an estimated 150,000 to 225,000 jobs lost from November, 1973-March, 1974. For the same period indirect effects entailed a total employment decline of 310,000, more than half of this in the manufacture of automobile parts. Increased unemployment was heaviest among adult men, especially the 20-24 age group. The employment decline was smaller than those in major employment slowdowns and was also more concentrated in a few industries.

Eastman, Clyde, et al. (575)
1974-75 A Socioeconomic Analysis of Environmental Concern: Case of the Four Corners Electric Power Complex.
Las Cruces: New Mexico State University Agricultural Experiment Station, Bulletin 626.
Also reported in "How Much to Abate Pollution," Public Opinion Quarterly, 38 (Winter), 574-584.

Method: A study to determine which socioeconomic characteristics are associated with concern for environmental quality as measured by willingness to pay for pollution abatement. Five bidding games were designed to obtain monetary estimates of willingness to pay for pollution abatement, and utilized in interviews of a target sample (N=760) of reservation and non-reservation residents, and out-of-region recreationists, conducted during the summer of 1972 and January, 1973. The sample was drawn from the four-state air-quality control region in the southwest U.S.

Variables: Willingness to pay for pollution abatement as determined by bidding games and as related to demographic and socioeconomic factors.

Findings: A clear majority of respondents was willing to pay for pollution abatement. A large majority also preferred that companies bear responsibility for financing the costs of abatement. Few consistent relationships were found between concern for environment and socioeconomic characteristics such as age, occupation, income, ethnicity, and organizational participation. Aesthetic concern had little association with membership in any particular social stratum.

Eichenberger, Mary Ann (580)

1975 A Comparison of Ownership of Selected Household Appliances and Residential Energy Use by Employed and Nonemployed Homemakers in the Lansing, Michigan Area.
Unpublished M.A. thesis, Michigan State University.

Method: A 1974 self-administered questionnaire and interview survey of families in the Lansing S.M.S.A. to assess residential energy use. Data were drawn from a random sample (N=187), and analysis of covariance was the mode of analysis.

Variables: The effects of employment status and income on direct residential energy consumption and on appliance use by function and quantity.

Findings: No significant differences were found among full-time, part-time and nonemployed homemakers in total quantity of appliances and in major appliances owned by households. The test of a hypothesis concerning total direct residential energy revealed no significant difference among these three employment status groups of homemakers. A non-significant finding but one considered interesting was that households with a fully employed homemaker used 8% less, and part-time 6% less residential energy than nonemployed homemakers.

Energy Research and Development Administration (670)
1976 Feasibility of an Energy Outreach Program: Final Report.
Washington, D.C.

Abstract: The approach to developing a feasible energy outreach program followed a conceptual approach that involved first identifying and characterizing target markets for energy conservation information and assistance and then defining products or services to meet those markets' needs.

Foxx, R.M., and D.F. Hake (680)
1977 Gasoline Conservation: A Procedure for Measuring and Reducing the Driving of College Students. Journal of Applied Behavior Analysis, 10, 1 (Spring), 61-74.

Method: This attempt to motivate college students to reduce driving, and thus save gasoline, utilized students from two psychology classes at a commuter college. The students were divided into an experimental and a control group. The experimental group was offered prizes--a tour of a mental-health facility, car servicing, and a university parking sticker--as inducements to reduce driving. The values of prizes were scaled to match appropriate reductions in driving. Data were gathered by reading odometers, and special precautions were used to detect alterations.

Variables: The effect of several inducements on college students' driving behavior.

Findings: The experimental subjects reduced their average daily mileage by 20% over the initial baseline. No change was

observed in the control group. The authors conclude that some drivers can be motivated by reinforcement contingencies to reduce their driving.

Freudenberg, William R. (685)
1976 The Social Impact of Energy Boom Development of Rural Communities: A Review of Literature and Some Predictions.
Paper presented at the Annual Meeting of the American Sociological Association, New York, August.

Method: Summary of the largely fugitive literature on the social impacts of energy boom-town development. Several hypotheses are proposed for future research on the nature of severity of impacts.

Variables: Size of host community, size of suddenness of develop ment rate, proportion of jobs going to "locals," skill requirements of new jobs, number of new (unemployed) persons entering a region, the unemployment rate outside the region, and notoriety of social disruption caused by energy development of rural communities.

Findings: No concrete findings are reported, but the following hypotheses guide the author's ongoing study of energy boom-town development: (1) Size of host community being held constant, social disruption will be directly related to both the size and the suddenness of development. (2) Given a particular development, the lower the population density of the host region, the greater the disruption. (2a) Impact will be inversely proportional to the local unemployment rate. (3) The higher the proportion of jobs going to persons already living within the area, the lower the disruption. (3a) The higher

the skill requirements, the greater the disruption. (4) Impact will be directly proportional to the number of new (unemployed) persons entering a region and will vary directly with (4a) the unemployment rate outside the region and (4b) the general notoriety of the project outside the region.

The author is conducting a questionnaire study (N=800) of energy growth/potential in Colorado, with plans to employ a panel design (re-interview) at a later time. This questionnaire is the primary methodological device to be used to test the hypotheses given above.

Gilmore, John S. (705)
1976 Boom Towns May Hinder Energy Resource Development.
Science, 191 (February 13), 535-540.

Method: A qualitative appraisal, based on the author's socioeconomic impact study of coal and oil shale boom towns, of the effects of rapid growth associated with energy resource development. A typology of the boom town is used to assess its functions and problems.

Variables: The socioeconomic effects of the rapid growth accompanying energy resource development.

Findings: The boom town is a major source of social tension in an area or a region. Both litigation and legislation result, with confrontation between state and federal governments a likely outcome. When communities are unable to furnish the services and facilities to accomodate rapid growth or to maintain the amenities of life, productivity declines, projects over-run time and cost schedules, and operating outputs fall behind.

Goen, Richard L. and Ronald K. White (740)
1976 Comparison of Energy Consumption Between West Germany and the United States. Springfield, Virginia: National Technical Information Service, June. Conservation Paper No.33A, prepared for the Federal Energy Administration by the Stanford Research Institute.

Method: Analysis of the differences in per capita energy consumption between the United States and West Germany. The sectors covered are transportation, industry, utilities, residential, commercial, exports and imports, and total of all sectors. Most comparisons are for 1972, the latest year for which sufficient data were generally available. Data are presented in the form of tables.

Variables: The per capita use of energy by the U.S. and West Germany in the above mentioned sectors.

Findings: West Germany uses only half as much energy per capita as the U.S., for transportation only one-fourth, for residential space heating (climate corrected) one-half, for other residential uses one-fourth, and for industrial uses 58 percent of that of the U.S. The U.S. uses at least 40 percent more energy for industry in relation to output than West Germany. Total energy use in the U.S. in relation to national income is about 50 percent greater than in West Germany. The authors of the study are disposed to conclude that continued economic growth and improvement in the standard of living in the U.S. should be possible without a proportionate increase in energy consumption.

Gollin, Albert E., et al. (750)
1976 Energy Consumers' Awareness and Preferences in New Hampshire: A Comparative Assessment. Washington, D.C.: Bureau of Social Science Research, Inc.

Method: A marginal frequency analysis of a random sample of New Hampshire households (N=256) surveyed by telephone interview beween April 30 and May 2, 1976, to determine energy consumers' awareness and preferences with an eye toward establishing the degree of comparability to the relationship between residents and energy consumption in neighboring states.

Variables: Population, housing, climate, appliance saturation, consumer concern and awareness, household routines and time-of-day pricing, and acceptance of time-of-day pricing.

Findings: Respondents were found to be concerned about energy, especially for home heating and electrical appliance use. They were usually aware of the main aspects of the pricing system now in use in the state, and a substantial number seemed prepared to consider significant changes in their household routines in order to take advantage of a favorable alternative pricing scheme.

Gottlieb, David (760)
1974 Sociological Dimensions of the Energy Crisis. Austin, Texas: The State of Texas Governor's Advisory Council. Project E/S-5.

Method: Statistical analysis (frequencies, crosstabs, X^2) of random sample of housing units from urban (Houston, Amarillo) and rural (Colorado County, Deaf Smith County) areas of Texas to discern

perceptions, attitudes, behavior, and expectations in response to the energy crisis. The pre-embargo (April-May, 1974) sample is of South Texas and the post-embargo (June-July, 1974) sample of North Texas. The urban sample is based on year-round housing units from census block data tapes. The rural sample was derived from names and addresses on county tax rolls. Data were gathered from heads of household by hand delivered questionnaires.

Variables: The effects of the energy crisis on the communities sampled with respect to three categories of socioeconomic status, an energy knowledge scale, and a measure of energy consumption.

Findings: The only major difference found between the two regional samples was a greater concern about anticipated escalating costs of energy expressed by the post-embargo (North Texas) sample. Both samples failed to see the energy crisis as of long-term consequence, showed distrust of energy producers and distributors, and government officials connected with energy policies and programs, felt citizens are energy wasteful, and did not blame environmentalists. Lack of knowledge about energy sources and appliance energy consumption characteristics were found to be correlated with lack of belief in the crisis. Poorer people seem to be affected most because they have the fewest alternatives. Consensus about waste was not accompanied by voluntary conservation sentiments. Respondents believed that the more real the perception of the crisis or emergency, the more responsible the populace would become, and that the shortage was more of a political contrivance than the result of the world's running out of fuel.

Gottlieb, David, and Marc Matre (770)
1975 Conceptions of Energy Shortages and Energy Conserving Behavior. Paper presented at the Annual Meeting of the American Sociological Association, San Francisco, August.

Method: Marginal frequency analysis of randomly selected heads of households (N=782) in four different geographic areas of Texas, via questionnaires administered during and shortly after the Arab oil embargo of Spring, 1974.

Variables: Attitudinal conceptions toward the energy crisis and behavioral patterns concerning energy conservation.

Findings: A large percentage of the respondents expressed skepticism regarding the reality of the energy crisis and a high level of distrust of energy producing corporations and of leadership in the national government. Those of lower socioeconomic status more often reported conservation efforts, especially in response to rising utility costs, than those of higher socioeconomic status.

Gottlieb, David, and Marc Matre (780)
1976 Sociological Dimensions of the Energy Crisis--A Follow-Up Study. Houston, Texas: University of Houston Energy Institute.

Method: Statistical analysis of a follow-up questionnaire administered April-June, 1975, on the sample described above under Gottlieb, 1974, to determine the extent of change in energy conservation behavior, attitudes, and values from those in the 1974 study.

Variables: The effects of the energy crisis on the communities sample with respect to three categories of socioeconomic

status, an energy knowledge scale, and a measure of energy consumption.

Findings: The majority of respondents came to accept the proposition that the world is running out of fuel and that Americans are wasteful, but there was only a slight increase in belief in a serious, long term energy crisis. No positive relationship was found between belief and energy consuming behavior. The main motivation of those who conserved was cost. Thus, while higher socioeconomic status persons were more likely to believe in the energy crisis, lower and middle status people were more likely to reduce energy usage. As in 1974 the majority of people were not energy and conservation knowledgeable, were only willing to endure policies which would cause the least disturbance in lifestyle, and largely blamed big oil companies for the crisis.

Gottlieb, David (790)
1977 Texans' Responses to President Carter's Energy Proposals.
Paper presented at Social and Behavioral Impacts of the Energy Crisis: A Symposium, Woodlands, Texas, June.

Method: Marginal frequency analysis of a statewide random sample of Texas adults (N=493) drawn during the weekend of April 24-25, 1977, following President Carter's national energy address. Appropriate comparative data are presented from two earlier surveys conducted by the Energy Institute at the University of Houston.

Variables: Respondents' opinions with regard to President Carter's energy proposals.

Findings: A majority (62 percent) heard at least one of the President's energy-related talks during the week April 18-23, 1977. College graduates, older respondents,

and those with annual incomes in the ten to fifteen thousand dollar range more often reported hearing one of these talks.

A majority (64 percent) had become convinced that our nation is confronted by a long-term energy crisis (compared to 28 percent in the 1974 survey and 37 percent in the 1975 survey).

Urbanites, the more affluent, males, and college graduates were the respondents more likely to endorse the notion of a long term energy crisis in all three surveys. When asked about the cause of the crisis, 90 percent agreed that "the American people waste too much energy in needless consumption." A majority also expressed the beliefs that the world is running out of fuel supplies, that the U.S. has exported too much fuel overseas, and that the crisis is caused by the scheming of oil companies. Only a minority perceived environmentalists as playing a major contributory rule. Respondent reactions to specific proposals by the President are detailed, including assessments of their fairness.

The proposals were regarded as unfair to Texans and the poor, and of greatest benefit to industry and the more affluent, with an even balance as to equity for consumers.

Grier, Eunice S. (800)
1976 Changing Patterns of Energy Consumption and Costs in U.S. Households.
Paper presented at Allied Social Science Association Meeting, Atlantic City, September.

Method: A report on the findings of two consecutive national surveys conducted by the Washington Center for Metropolitan Studies, which examine the

responses of U.S. households to increasing energy costs. Each was a random sample cross-section survey, the first (N=600) having been done in the spring of 1973 and the second (N=3200) during the spring of 1975.

Variables: The effect of increased energy costs on householders' behaviors and perceptions in conjunction with energy-related practices.

Findings: An energy conservation ethic is beginning to take hold among U.S. households, but efforts to conserve are as yet meager. Although residential energy costs have risen rapidly, they remain a relatively small portion of the average U.S. household's budget. However, for certain categories of households--e.g., the poor and elderly--this rising cost is a serious and growing burden.

Hannon, Bruce M. (810)
1976 Energy and Labour Demand in the Conserver Society.
C.A.C. Document.

Method: The effect of thirty different consumer shifts on employment (increase or decrease) and energy use (increase or decrease) is studied.

Variables: Employment levels and energy use as a result of consumer shifts.

Findings: Certain shifts are recommended because they result in increased employment and decreased energy use.

Hannon, Bruce (820)
1975 &
1977 Energy Conservation and the Consumer. Science, 189, 4197 (July 11, 1975), 95-102. Also reported in Energy, Growth and Altruism. In Alternatives to Growth - I, Cambridge, Massachusetts: Ballinger Books, 1977.

Method: Data evaluation in connection with three conservation "dilemmas:" (1) the substitution of energy for labor; (2) the relation between personal income and energy use; and (3) the respending of saved dollars as a function of energy use. Secondary data from U.S. Department of Commerce, Edison Electric Institute, and other sources for various years from 1925-1975.

Variables: The effect of economic activities on the energy-intensity of dollar flows.

Findings: (1) When wages increase relative to costs, then energy use increases through the process of mechanization. (2) Energy use and income are linearly connected such that the spending of an average additional dollar of income demands nearly the same amount of energy, regardless of one's income level. (3) Saving energy usually means saving money--the respending of which reduces, if not eliminates, the energy first thought saved. Given the interactions shown for these three "dilemmas," it is argued that there are probably no popularly acceptable solutions to energy conservation.

Hannon, Bruce (830)
1975 Energy, Employment, and Transportation. Forensic Quarterly, 49, 4 (September), 497-511.

Method: An estimate of the impact of transportation systems on energy use and on employment, using an input-output model. U.S. data for 1963 and 1967 are used in this study.

Variables: Dollar flow values from 362 sectors of the U.S. economy transformed into energy flow values.

Findings: In general, the slower the mode of transportation, the less energy intensive it is. Cars and airplanes are more energy-intensive than buses, and trucks more so than trains.

Harris, Louis, and Associates (860)
1975 A Survey of Public and Leadership Attitudes Toward Nuclear Power Development in the United States. New York: Ebasco Services.

Method: A study designed to measure attitudes of the public and their leaders toward the development of nuclear energy in the United States based on a nationwide random sample (N=1537) of households conducted by in-person interviews between March 21 and April 3, 1975. In addition, 301 interviews were conducted with neighbors of three nuclear power plants: 195 in San Onogre, California; 93 in Morris, Illinois; and 103 in Indian Point, New York. Finally, between March 31 and April 12, 1975, in-person interviews were conducted with 201 leaders nationwide: 51 political, 51 business, 47 regulators, and 52 environmental.

Variables: Public and leadership attitudes toward nuclear power development in the U.S., with reference to respondents' socioeconomic background, political interests, and concerns over environmental and health issues.

Findings: The public sample believed strongly in the prospect of a serious energy shortage that will not disappear overnight. Four in five hoped the U.S. would become independent of foreign energy sources. Nuclear energy was viewed by them as a viable alternative to fossil fuels as a source of electric power. The biggest drawback (registered by 63%) in the public's mind is the disposal of radioactive waste materials, followed by escape or radioactivity into the atmosphere (49%), chance of an explosion in the case of an accident (47%), thermal pollution (47%), the threat of sabotage (39%), giving off of polluting fumes (36%), and the possibility of theft of plutonium (34%). However, 26% regarded nuclear power plants as "very safe" and 38% as "somewhat safe," with only 13% believing they are "not so safe" and 5% believing that they are "dangerous;" 18% were undecided on this issue. Neighbors of nuclear power plants indicated that they had learned to live with them. The public identified some apparent advantages of nuclear energy over coal and oil, and were prepared to live with the risks involved if proper safeguards and precautions are taken. Leaders, especially those in politics, seriously underestimated public concern about environmental quality and public support for building more nuclear plants. Both the public and leaders regarded scientists as more credible than any other group (e.g., government leaders, the media, environmentalists). Although the public expected government to regulate nuclear energy development, it harbored deep distrust of government

control of private industry or intrusion into the private sector as the agent of development.

Hass, James W., et al. (870)
1975 Coping with the Energy Crisis: Effects of Fear Appeals Upon Attitudes Toward Energy Consumption.
Journal of Applied Psychology, 60, 6, 754-756.

Method: A 2 x 2 factorial experiment conducted in 1975 which examines the persuasive effect of two communication variables--(a) the magnitude of noxiousness of a threatened event and (b) the probability of its occurrence--in connection with an energy crisis. The subjects were 60 students enrolled in undergraduate business courses. Analysis of variance was used to establish main and interaction effects.

Variables: The effect of two between-subject experimental manipulations: high versus low magnitude of noxiousness of a potential energy crisis and high versus low probability of that event's occurrence.

Findings: Although increases in the perceived likelihood of an energy shortage had no effect, increments in the perceived noxiousness or severity of an energy crisis strengthened intentions to reduce energy consumption. This suggests that informational programs should stress the severity of the problem.

Hayes, Steven C., and John D. Cone (880)
In press Reducing Residential Electrical Energy Use: Payments, Information, and Feedback. Journal of Applied Behavior Analysis.

Method: Monetary payments, energy information, and daily feedback of consumption rates were utilized in this attempt to reduce electricity consumption in four units of an 80-unit housing complex for married students at West Virginia University. The study was conducted from late January to mid-May, 1975. Because the complex has a master-meter it was necessary to install separate watt-hour meters. A combined multiple-baseline and withdrawal design was used to permit both within and between unit comparisons.

Variables: The effects of three techniques--payments, information, and feedback--on consumption of electricity by volunteer families in a master-metered apartment complex.

Findings: Payments produced immediate and substantial reductions in electricity consumption in all four units. This relationship held even when the amount of the payment was substantially decreased. Feedback also resulted in conservation. However, dollars and cents cost of using various appliances did not. In general, combinations of payments and either information or feedback were found to produce no greater effect than payments alone.

Heberlein, Thomas A. (900)
1975 Conservation Information: The Energy Crisis and Electricity Consumption in an Apartment Complex. Energy Systems and Policy, 1, 2 (105-118).

Method: A study of the effect of informational material designed to either increase or decrease the amount of electricity use in an apartment complex (N=96 apartments) near Madison, Wisconsin, March and April, 1973. During March materials were mailed to three groups but not to a fourth, the control group. A time lapse experiment was then conducted using daily meter readings over a 30-day period.

Variables: The effects of three types of information on electricity consumption by residents of an apartment complex.

Findings: Neither the attempt to "engineer" a behavior change nor the energy crisis influenced electricity consumption in these apartments. A follow-up one year later, and after the Arab oil embargo, found that no significant change in consumption had occurred.

Herendeen, Robert A. (910)
1974 Affluence and Energy Demand. Mechanical Engineering, 9, 6 (October), 18-22.

Method: Input-output analysis of 1960-61 Bureau of Labor Statistics Consumer Expenditure Survey data for 368 sectors of the U.S. economy (aggregated to 97) in order to evaluate direct and indirect energy needs of three income classes.

Variables: The effect of income (measured by three "classes") on seven consumption categories, i.e., direct energy purchase, food and water, housing and clothing, auto purchase and maintenance, medical and education,

transportation and recreation (besides auto), and investment.

Findings: There was an increasing importance of indirect energy impact with income. Two-thirds of energy use was indirect for the highest income classes, one-half for all consumers. The author concludes that a flat rate energy tax would be less regressive than one only on direct uses.

Herendeen, Robert A. (920)
1975 Appliance Energy Use.
C.A.C. Document 180.

Absract: This study looks at the relative importance of operating energy for 30 household and kitchen appliances as well as the total energy required for three example kitchens. The variables studied included energy use according to type of appliance and type of kitchen (from plush to spartan). Also the costs and benefits associated with more efficient air conditioners were analyzed.

Herendeen, Robert, and Jerry Tanaka (930)
1976 Energy Cost of Living.
Energy, 1, 2, 165-178.

Method: Evaluation of energy requirements of household expenditures for all products from the 1960-61 Consumer Expenditure Survey of the Bureau of Labor Statistics(N = 13,000), using input-output analysis.

Variables: Socioeconomic variables, e.g., income, number of members, location,

and age of family head, as related to household energy requirements and expenditures.

Findings: Within error bounds, one "universal" curve shows the dependence of energy impact of expenditures for households of two through six members. A typical poor household exerts about 65% of its energy requirements through purchases of residential energy and fuel. This fraction drops to 35% for an affluent household.

Herendeen, Robert A., and Anthony Sebald (940)
1975 Energy, Employment and Dollar Impacts of Certain Consumer Options.
In Robert H. Williams, (ed.), Ford Foundation Energy Policy Project Report: The Energy Conservation Papers, Washington, D.C.: Ford Foundation.

Method: An examination of energy conservation opportunities in switching from one transport mode to another, using input-output analysis. Energy and dollar costs are calculated, along with employment impacts for both intercity and urban transport modes. Secondary data are taken from various statistical sources for the years 1963 and 1971.

Variables: Per miles values for dollars, BTU's, and man-years.

Findings: The more labor-intensive, less energy-intensive, and more economical transportation modes were rail for intercity travel and buses for urban travel. For intercity travel the modes in order of increasing energy-intensiveness were train, car, and plane, although car and train were sometimes nearly equal. Urban bus travel costs 52% more money, used 42% less energy,

and is twice as labor-intensive as urban car travel on a per-passenger-mile basis when total actual user costs are compared.

Hirst, Eric, and John C. Moyers (960)
1973 Efficiency of Energy Use in the United States. Science, 179 (March), 1299-1304.

Method: A review of 1970 energy use in transportation, space heating, and air conditioning to ascertain possibilities for conservation. Secondary data gathered from various sources, e.g., Stanford Research Institute, Edison Electric Institute, and U.S. Bureau of the Census.

Variables: Effect of energy consumption patterns in transportation, space heating, and air conditioning on efficiency of energy utilization.

Findings: (1) To some extent the current mix of transport modes is optimal, disregarding non-internalized social costs. (2) Electrical resistance heating is more wasteful than direct combustion heating of primary energy. (3) Air conditioning units vary widely in efficiency; an improvement in average efficiency of same would result in appreciable energy savings. Various measures for potential energy savings are suggested pursuant to the data analysis.

Hogan, M. Janice (980)
1976 Energy Conservation: Family Values, Household Practices, and Contextual Variables. Unpublished Ph.D. dissertation, Michigan State University.

Method: Determination of differences in the rate of adoption of household energy conservation practices among families with varying husband-wife patterns of congruency and commitment to values. Statistical analysis of 1974 Lansing S.M.S.A. survey (N=157).

Variables: The effect of contextual variables and measured attitudes such as self-esteem, social responsiveness, familism, and eco-consciousness on energy conservation behavior.

Findings: Those conscious of environmental problems were most likely to report conserving energy. No systematic relationship was found between conservation behavior and contextual variables--education, occupation, employment status of wife, age, family size, income, and urban-rural residence. The same lack of association was true of self-esteem and familism in relation to conservation behavior.

Hohenemser, Christopher, et al. (985)
1977 The Distrust of Nuclear Power. Science, 196, 4285 (April 1), 24-34.

Method: A qualitative study of the safety of nuclear power, particularly to explore how the risk of rare events enters into energy policy decisions of our society.

Variables: Public perceptions of nuclear power safety as they pertain to concomitant policy decisions.

Findings: The issue of nuclear safety keeps cropping up no matter how many technical problems appear to be solved. This is evident in the fact that much more time per fatality is spent on accident prevention in the nuclear industry than is spent for this purpose in the fossil fuel power plants, even after the catastrophic nature of nuclear accidents is taken into account. The reasons society tends to overwhelm nuclear issues with are shown to stem from the social history of nuclear power, the genuine uncertainty and complexity of safety issues, the underestimation of the regulatory task, and the rancorous nature of the debate. "Distrust of nuclear power, which begins as a question about technology turns out to be as much a question about the social institutions designed to develop, regulate, and contain that technology."

Holmes, Cheryl Lynn (1000)
1975 A Socio-Demographic Analysis of the Energy Intensiveness of Food Consumed with Implications for National Energy Conservation. Unpublished Master's thesis, Michigan State University.

Method: An examination of the relationship between food consumption and associated energy costs, based upon a statistical analysis of a 1974 survey of a stratified random sample (N=190) of households in the Lansing S.M.S.A. Family food consumption and socioeconomic characteristics were determined via interview. Data on fossil fuel expenditure from agriculture to supermarket were obtained from a variety of sources.

Variables: The energy intensiveness of individual diets, given estimates of the energy cost per pound and per serving of specific food items. Individual diets were posited in terms of family income, occupation of the head, education and working status of the wife, and urban or rural residence.

Findings: The data did not support any hypothesized differences between groups. The author infers that there is apparently no one group toward which to direct energy conservation efforts in connection with food consumption.

Holmes, Cheryl L., and Peter M. Gladhart (1010)
1976 The Energy Cost of Food: The Family Can Now Make Informed Decisions.
Unpublished manuscript, Department of Family Ecology, Michigan State University.

Method: Food consumption data were collected from a 1974 subsample of 190 individuals from 85 families in the Lansing S.M.S.A.

Variables: Food consumption choices; consumption timeframe, and energy cost of food consumed.

Findings: Energy intensiveness of individual diets was not found to vary with family income, occupation of household head, wife's education and work status, or residence location. Energy costs in BTU's per serving of selected representative foods are discussed.

Honnold, Julie A., and L. D. Nelson (1020)
1976 Voluntary Rationing of Scarce Resources: Some Implications of an Experimental Study. Paper presented at the Annual Meeting of the American Sociological Association, New York, August, 1976.

Method: A typology of conservation orientations is developed to test commitment to conservation behavior in relation to reward probability and reward magnitude, and is utilized on a sample (N=485) of undergraduate students surveyed by questionnaire. Six relevant hypotheses were tested with partial correlation analysis.

Variables: Scales relating conservationism, necessity, and sufficiency attitudes and perceptions to conservation orientation.

Findings: Tests among the undergraduate sample supported the following predictions: conservationists regard conservation behavior as both necessary and adequate to attain collective benefit; consumerists believe such behavior to be unnecessary; cynics view conservation behavior as necessary but insufficient. The dissemination of scarcity information was not found to increase commitment to conservation behavior.

Hummel Carl F., et al. (1040)
1975 Perceptions of the Energy Crisis: Who is Blamed and How Do Citizens React to Environment-Lifestyle Tradeoffs? Fort Collins, Colorado: Colorado State University Department of Psychology, Fall 1975. Working Paper in Environmental Psychology No. 2.

Method: Survey of two representative samples (total n=238) of residents of a Colorado

community - one when gasoline was abruptly scarce and the other after the energy problem had been established. Data were analyzed by stepwise regression.

Variables: Effect of the 1973 gasoline shortage on support for (1) voluntary action, (2) mandatory actions that had benefits for energy and air pollution problems but entailed lifestyle costs, and (3) actions with energy benefits but environment costs.

Findings: Relatively inconsistent predictive power was obtained across five criteria (dependent variables) of explanatory variables dealing with demographics and perceived personal effects of the energy crisis. But in both samples blaming environmentalists was negatively related to support for mandatory actions that would attack air pollution as well as energy problems, and was a positive predictor for pro-energy actions that would damage the environment. Those blaming individual consumers supported mandatory remedies.

Hyland, Stanley E., et al. (1060)
1975 The East Urbana Energy Study, 1972-1974: Instrument Development, Methodological Assessment, and Base Data. Champaign-Urbana: University of Illinois College of Engineering.

Method: Marginal frequency analysis of two surveys (Fall, 1972, Spring, 1973; follow-up in June, 1974) of a 10 percent stratified random sample (N=228 for first, N=116 for second) of households in East Urbana, Illinois, to determine change in behavior and attitudes regarding energy and conservation. Data were gathered by a questionnaire administered in personal interviews.

Variables: Behavioral change over time with respect to 382 household and individual variables in the first survey and 182 household and individual variables in the second.

Findings: (Major findings have not yet been published.) Population appears to have responded to energy crisis and concomitant rising costs by using air conditioners, vacuum cleaners, and ovens less. There has been little change in automobile use--perhaps due to respondents' high value emphasis placed on privacy, autonomy, and mobility.

Mathematics, Inc. (1070)
1976 Impact of Energy Price Increases on Low-Income Families.
Federal Energy Administration.

Method: This report describes the development of a household energy consumption model which enables the Federal Energy Administration to explain and predict the distributional impact of energy price increases on households according to income groups. The model serves as a valuable tool in evaluating alternative energy policies and in choosing a means to alleviate the burden on low income families.

Johnson, Jean (1080)
1974 Societal and Political Implications of the Energy Crisis.
Unpublished manuscript, Forecasting International, Ltd., Arlington, Virginia.

Method: A scenario approach to forecasting alternative lifestyles with reduced energy, using baseline secondary socioeconomic data gathered from a variety of sources and empirical studies.

Variables: Effect of alternative lifestyles (referenced to income level) with reduced energy or energy intensity, level of risk, environment, social cohensiveness, and four dominant forces for changing energy use: political control, technological breakthrough, economic allocation, and social adaptation.

Findings: Twenty-four scenarios are created along with a "policy capturing" technique for inferring subject (public opinion) preferences among the scenarios.

Johnson, Warren, et al. (1085)
1977 Energy Conservation in Amish Agriculture.
Paper presented at the Annual Meeting of the American Sociological Association, Chicago, September (forthcoming, Science).

Method: Energy analysis of Amish agriculture to determine (1) how much less energy the Amish use compared to their non-Amish neighbors and (2) what penalty they pay in reduced yields because of the low energy intensity of their agricultural methods. Energy analysis is a technique which compares different production processes in terms of energy degraded to obtain the desired product.

Both Amish and non-Amish farms were sampled in central Pennsylvania, Eastern Illinois, and Southwestern Wisconsin.

Variables: The energy ratios and agricultural yields of farms in connection with the energy value of inputs and outputs (expressed in 1000 Kilocalories or Mcal.).

Findings: Although the Old Order Amish of Pennsylvania had a higher yield than their non-Amish neighbors and a net energy ratio above 1, the Amish of Illinois did not produce net energy (at 0.886) and had a yield well below nearly all non-Amish farms. The authors note that despite the lack of decisive results, Amish agriculture is clearly conservative of energy in the limited demands it makes on the available resources of this country.

Kasperson, Roger, et al. (1087)
1976 Nuclear Energy, Local Conflict, and Public Opposition.
Unpublished manuscript, Department of Geography, Clark University.

Method: A qualitative study of the emergence of public concerns over the risks of nuclear power. Appropriate articles appearing in the New York Times and Reader's Guide between 1945 and 1975 were surveyed and categorized. Local controversy, the escalation of conflict to higher societal level, and linkages to the environmental movement are discussed in turn. A review is made of various surveys, conducted in America and abroad, of public attitudes toward nuclear power. The socioeconomic correlates of public response are noted, particularly the differences between men and women. (See the Harris survey report above).

Variables: The nature of and change in public concern since 1945 with respect to nuclear power.

Findings: Prior to 1955 there was little concern over the risks entailed in the operation of what were then experimental reactors. A number of accidents were reported and media interest rose between 1955 and 1961. The context of the period 1961-68 was ripe for the growth of public concern but instead it declined precipitously. Although public interest was low in the 1960's, local controversy increased. From these isolated clashes over individual reactors, a coordinated national campaign of nuclear opposition emerged subsequent to 1968. The evidence is substantial that environmental activists have spear-headed the opposition. The prognosis of the study is that public opposition to nuclear energy at both the local and national level will not dissipate in the near future. Nevertheless, the authors expect the nuclear industry to continue to grow.

Keck, Carol A., et al. (1090)
1974 Changes in Individual Travel Behavior During the Energy Crisis, 1973-74.
Albany, New York: New York Department of Transportation, Planning and Research Bureau. Preliminary Research Report No. 67.

Method: Four articles describe and analyze changes in individual travel behavior as effected by the 1973-74 energy crisis, from the viewpoints of (1) individual responses, (2) amount of gasoline used, (3) car purchase habits, and (4) the effectiveness of car-pooling. These analyses are based on three community-wide surveys conducted by the New York State Department of Transportation during the early months

of 1974. In each of the three communities (Oneonta, Gloversville/ Johnstown, and Hudson) a random selection (N=300) was made from available telephone listings, with one person being interviewed from each household.

Variables: The effect of the energy crisis of 1973-74 on travel behavior in terms of individual responses, amount of gasoline used, car purchase habits, and car-pooling.

Findings: People did not react strongly to a prospective rationing of eight gallons per week per licensed driver, notwithstanding pre-crisis consumption of 15-20 gallons per week average per driver. Publicity about the small number of miles per gallon for new large cars did not cause people to buy small cars so much as to buy used ones. The gasoline-saving potential of car pooling was only differentially used either by those who had already shown an awareness by driving a small car or by those with whom many people shared their work destination. Overall, the energy crisis did not induce significant changes in travel habits for most people in the communities sampled.

Keyfitz, Nathan (1105)
1976 World Resources and the World Middle Class. Scientific American, 235, 1 (July), 28-35.

Method: A largely qualitative study of the feasibility of entry by the less developed countries into the resource intensive world "middle class." UN figures are the points of departure.

Variables: Economic development for less developed countries as a function of world population growth in relation to dwindling world resources.

Findings: Constraints on both production and environmental quality will limit the growth of the world middle class.

Kilkeary, Rovena (1110)
1975 The Energy Crisis and Decision-Making in the Family.
Springfield, Virginia: National Technical Information Service, January. NTIS Report No. NSF-SOS GY-11543.

Method: A statistical analysis of a random sample (N=602) of Bronx and Queens, New York, households to determine whether family characteristics and energy-related experiences affect household energy knowledge and conservation practices. Data were collected by interview during July and August, 1974.

Variables: The effect of the energy crisis on household member characteristics, energy knowledge, and actual practices in terms of exposure to extended blackouts, direct payment of utility bills, car ownership, belief that families in the U.S. pulling together can influence the energy crisis, family income, educational attainment, family composition, age, sex, and recent major appliance purchase.

Findings: Car ownership, education, and family composition (number, ages, and sex) were found to be positively related to energy knowledge scores. Exposure to extended blackouts, direct payment of utility bills, car ownership, the belief U.S. families can together affect the energy crisis, and family composition were positively related to changed practice scores, i.e., a measure of the practice of energy savings. The strongest influence on knowledge and

conservation was income, with middle income having the highest scores. Families composed of couples with children also demonstrated high levels of energy knowledge and conservation practices. This study found the strongest influence on energy use to be the pocketbook. Those families who could afford to pay energy price rises did, while moderate income families tended to strive to be energy-saving.

King, Jill A. (1120)
1975 The Impact of Energy Price Increases on Low Income Families. Washington, D.C.: U.S. Federal Agency Administration, Office of Economic Impact.

Method: Economic analysis of energy price increases on low income families using an energy data file for a nationally representative sample of 50,000 households in the continental U.S. Energy expenditures for each of six energy types--electricity, piped natural gas, bottled gas, fuel oil, coal, and gasoline--were imputed for each household, depending on its usage, from this data file. The primary data source was the Public Use Sample of the 1970 Census of Population, supplemented by travel information from the Nationwide Personal Transportation Study. Energy expenditures in 1974 were estimated using figures from a micro-simulation which related energy consumption and disposable income for 1973 data.

Variables: The effect on low income families of increasing energy expenditures for electricity, piped natural gas, bottled gas, fuel oil, coal, and gasoline.

Findings: A substantial rise in expenditures for energy in the home occurred as a result of 1973-74 energy price increases.

Households in New England and the Middle Atlantic regions were hardest hit. Although low-income households spent less on energy and experienced smaller absolute increases in expenditures, these expenditures and increases represented a much larger proportion of their disposable income than for high-income households, by a factor of 10. Single-family homes, larger families, and rural locations were associated with larger impact because families with these characteristics use more energy. Impact of higher energy prices for home fuel expenditures did not vary by household characteristics, e.g., race, age, or occupation of head of household. Gasoline expenditures and their impact did not exhibit as wide a regional variation.

Klausner, Samuel Z. (1140)
1977 Energy Shortages and the Poor.
Paper presented at Social and Behavioral Implications of the Energy Crisis: A Symposium, Woodlands, Texas, June.

Method: A microsocial, microcultural analysis of energy consumption as related to social structure. A sample of households (the unit of analysis) was selected from a list of those receiving Aid to Families with Dependent Children in Camden, New Jersey, for June and July of 1969, 1970, and 1973. Respectively 438, 373, and 291 heads of welfare households were interviewed. Income and expenditure budgets, including purchases of energy lumped into a single figure, were asked of respondents for the month prior to the interview. Information was also gathered on demographic, psychological, and household interaction attributes.

Variables: The effects of household social organization on energy consumption.

Findings: Three conditions predispose to increased household energy consumption: (1) a base of familial relations supporting interaction focused around the home, (2) a tendency toward a high tempo of social activity, and (3) a tendency on the part of the head of household toward expressiveness, spontaneity, personal relatedness and relaxed discipline. It was determined that the presence of a male (or male disposition) increased order and decreased energy consumption. The author concludes that this refutes the macrosocial proposition which regards increasing social complexity as causing increased energy consumption.

Kohlenberg, Rober, et al. (1150)
1976 A Behavioral Analysis of Peaking in Residential Electrical-Energy Consumers.
Journal of Applied Behavior Analysis, 9, 1 (Spring), 13-18.

Method: Peaking--the tendency for electrical-energy users to consume at high rates for brief periods during the day--was examined through a continuous data collection system for monitoring consumption of electrical energy in the homes of three volunteer families. Information, feedback, and incentives were evaluated for their effects on peaking behavior. The experiment was conducted over a three month period from early January through March in the Seattle area on three middle class families. Data were automatically recorded on a device, and data records were not visible to the subjects. Three baselines and conditions were administered to each family.

Variables: The effects of information, feedback, and incentives on the peaking behavior of middle-class families.

Findings: A combination of feedback plus incentives proved to be most effective, reducing peaking by about 50 percent. When experimental treatments were removed, subjects returned to pretreatment patterns of consumption.

Kostyniuk, Lidia P., and Wilfred Recker (1160)
1976 Effect of a Gasoline Shortage on Acceptability of Modes for the Urban Grocery Shopping Trip. Journal of Environmental Systems, 6, 9, 1-30.

Method: A study of the differences in perceived acceptabilities, in relation to the gasoline shortage, of modes for the urban grocery shopping trip. Data were gathered using a psychological continuum scale, from a mail-out survey sent to a random sample of 1500 households in six representative subareas of Buffalo, New York, during December, 1973 - March, 1974.

Variables: The effect of the gasoline shortage on travel mode to and from and place of shopping, opinions on mode choice, and socioeconomic description of households.

Findings: A general increase in acceptability of walking in the middle of the scale and a decrease in the acceptability of the driver mode across the subsamples. Taxi, bus, and bicycle were rated near the bottom end of the scale for all subsamples. An increase in the acceptability of the bus was most pronounced among the lower income subsamples, but this was not sufficient to take this mode into the acceptable category.

Kruvant, William J. (1175)
1975 People, Energy, and Pollution.
In Dorothy K. Newman and Dawn Day Wachtel, (eds.), Ford Foundation Energy Policy Project Report: The American Energy Consumer, Washington, D.C.: Ford Foundation.

Method: A study of the most likely victims of pollution by an examination of pollution estimates for the major part of five metropolitan areas and by a detailed look at the relationship between air pollution and the socioeconomic characteristics of people in the Washington, D.C. metropolitan area. 1968-70 secondary data were mostly from U.S. Bureau of Census reports, and pollution data were from the District of Columbia Dept. of Environmental Services, data from both sources having been prepared by the Washington Center for Metropolitan Studies.

Variables: The relative income-level effect of pollution on subareas of Washington, D.C.

Findings: The Washington data show that socioeconomic characteristics associated with disadvantage--poverty, occupations below management and professional levels, low rent, and high concentrations of black residents--go hand-in-hand with poor air quality. It is noted that these groups produce little of the air pollution which affects them. The findings show that antipollution policies have already helped disadvantaged groups, proving that well-enforced policies can be effective.

Leholm, Arlen, et al. (1195)
1975 Profile of North Dakota's Coal Mine and Electric Power Plant Operating Work Force. Fargo, North Dakota: North Dakota State Department of Agricultural Economics, 1975. Report No. 100.

Method: Marginal frequency analysis of a questionnaire mailed or handed out to all (N=416) employees of the four largest coal mines and four largest electric power plants in North Dakota, to determine the socioeconomic characteristics of the operating work force in these mines and plants. Survey was taken during June, 1974.

Variables: Years lived in present community, years worked for the given company, rates of pay, job satisfaction, commuting distance, education, immigration from out-of-state to work at the plants or mines.

Findings: The work force proved to be very stable, having lived an average of 22 years in their present community and having worked an average of 8.6 years with their present employing company. The coal industry workers proved to have higher average annual incomes than coal workers average in the state as a whole (median incomes average between $12,000 to $13,000 per annum), despite their low levels of formal education (72 percent of employees had 12 years or less of education). More than half the work force resided within the county before they were hired. The workers reported generally high satisfaction with their jobs. Length of employment is negatively associated with immigration from another state.

Levy, Paul F. (1200)

1973 The Residential Demand for Electricity in New England.
Cambridge, Massachusetts: Massachusetts Institute of Technology. Report No. MIT-EL-73-017.

Method: An econometric model based on 1970 cross-section data for sixty-seven New England electric utilities and their service areas. A two-stage least squares design was used to obtain consistent coefficients in terms of estimated supply price and demand equations. Elasticities of demand were also calculated. Data are from the utilities and a number of statistical reports.

Variables: The effect of price on residential electricity demand in conjunction with various socioeconomic characteristics.

Findings: Residential demand for electricity was found to be significantly correlated with its average price, family income, family size, heating degree days, and the ownership (private or public) of the electric utility, price and income being the most important determinants. The supply price is correlated with the quantity of electricity consumed, utility operation and maintenance costs, total number of customers, degree of urbanization, and the ownership of the utility. A significant elasticity of demand with respect to price as well as income was established.

Little, Ronald L. (1205)
1976 Rural Industrialization: The Four Corners Regions.
In Lewis Carter and Louis Gray (eds.), Social Implications of Energy Scarcity: Social and Technological Priorities in Steady State and Constricting Systems, Washington, D.C.: National Science Foundation.

Method: The study team utilized a random sample survey of 407 residents of five communities (Blanding, Monticello, Kanab, and Escalante, Utah; and Page, Arizona) in the Four Corners area of the Southwest during the summer of 1974. Each of the five communities was in the proximity of and/or had experienced "energy resource development." Over 92 percent of all sampled respondents furnished completed interviews, and the interview schedules were largely composed of open-ended questions. All persons interviewed were household heads. Marginal frequency analysis of the survey results is combined with presentation of relevant U.S. Census data.

Variables: Attitudes toward energy development in the Four Corners Region.

Findings: Over 80 percent of the respondents were favorably disposed toward "extent energy developments" (e.g., the Four Corners Power Plant, Glen Canyon Dam, Black Mesa Coal Mine), and the proposed "Kaiparowits Project" (a coal strip-mining venture). Two major reasons were given by respondents for favoring extent and proposed energy development projects: (1) the societal need for energy, and (2) the expected employment and economic benefits of energy development projects for the region. Expected environmental damage and the belief that there was no overwhelming need for more energy were the two major reasons for disapproving of energy development projects. The author speculates that these attitudes which are highly supportive of energy resource development can be attributed to the

prevailing economic and religious patterns in the communities. For example, Mormon religious beliefs are dominant in the region, and the author suggests that "Mormon doctrine and practice provide both stimulus and justification for engaging in economic activities," and "stresses the active development of resources." See also Lovejoy (1976).

Little, Ronald L. (1207)
1976 Some Social Consequences of Boom Towns. Unpublished manuscript, Department of Sociology, Utah State University.

Method: Summarization of research on boom towns and an analysis of the boom town experiences of Page, Arizona. The analysis of Page employs both census-type data and the survey gathered in connection with the Little and Lovejoy paper detailed below.

Variables: The social consequences of boom and bust cycles of community development.

Findings: The primary result of boom town development is rapid population growth, and rapid population growth typically leads to a breakdown in municipal services and other institutional facets of the community. Because population growth is the major initial facet of the boom town phenomenon, boom towns are seldom manifest in urban areas (since a new industry that adds 10,000 or 20,000 persons will be only a negligible proportion of the population of a large city). Energy resource development in the Western states appears destined to foster boom town problems in a number of small rural communities, and these problems are apparent in the case study of Page (increased crime rate and high community conflict).

While the obvious solution to boom town problems is to slow down and stretch-out the construction process, industries find this solution unacceptable because construction compressed into a short time period is most economical. "The present national mania over energy self-sufficiency would also conflict with this (stretching-out the construction process) solution," in the opinion of the author. The author also argues that the boom town consequences of energy and other natural resource developments are seldom considered in the making of political decisions, and the environmental impact statement process only exacerbates these problems. Boom town phenomena are complex, and EIS's are structured so as to direct attention away from questions that need to be answered and to re-direct it toward questions that can be answered in a short period of time and with little research effort.

Little, Ronald L, and Stephen B. Lovejoy (1208)
1976 Employment Benefits from Rural Industrialization.
Unpublished manuscript, Department of Sociology, Utah State University.

Method: Data are taken from 248 household interviews obtained from residents of one northern Arizona and two southern Utah communities situated in the Four Corners area and near the proposed Kaiparowits power project. The Kaiparowits power project is a combined coal mining and electrical power generation project sponsored by a consortium of utilities. The respondents were selected by simple random sampling and were given open-ended interviews. All respondents are household heads.

Variables: The extent to which employment benefits of the Kaiparowits project

might accrue to local residents, based on respondents' characteristics.

Findings: The authors suggest that, as in other rural development-industrialization projects in the U.S., relatively few jobs deriving from the power generation project will go to local residents, and the jobs that local residents will get are largely in the non-skilled categories. These projected benefits are substantially lower than the respondents anticipate. Four factors are seen to account for the meager employment gains resulting from the Kaiparowits project: (1) there is a mismatch between project employment requirements--generally, skilled jobs--and the low level of job skills available in the local population, (2) there is an apparent unwillingness on the part of local residents to be trained or re-trained for employment, (3) there is a lack of desire on the part of local residents to apply for employment with the project, and (4) the communities are a long commuting distance from the project.

Lockeretz, William (1210)
1975 Growth of Residential Consumption of Electricity: Distribution among Households at Various Consumption Levels.
Land Economics, 51, 2 (May), 149-157.

Method: Econometric analysis of Missouri service area (about 580,000 households) of the Union Electric Company to determine how the monthly frequency distributions of residential consumption had changed from 1968 to 1973 for both base load and peak load months.

Variables: Electricity consumption of classes of consumers according to consumption level.

Findings: Only a small fraction of the overall increase in consumption went to those in the lowest consumption levels.

Lopreato, Sally C. (1230)
1977 Citizen Attitudes with Respect to Energy Exploration and Development in one Texas County. Paper presented at Social and Behavioral Implications of the Energy Crisis: A Symposium, Woodlands, Texas, June.

Method: A description and marginal frequency analysis of a mail survey of citizens in a potential geopressured-geothermal test-well locality--Brazoria County and six communities in Galveston County which lie within a 20-mile radius of the test-well site. A systematic probability sample (N=2364) was drawn from telephone books. The 612 usable returns (response rate of 26 percent) appears to be biased toward individuals at higher education and income levels.

Variables: Awareness of the resource, favorability toward the impending development, levels of community satisfaction, and perceived future problems due to community growth.

Findings: More than half of respondents were unaware of the resource. The large majority from all sections of the study area were favorable towards test drilling and leasing of the land for geothermal development. The wealthier and better educated were in general more favorable to such development. Sixty percent of respondents proved sympathetic to the precedence of the nationwide need for energy (perhaps due to altruistic wording in the question). Recommendations are made for resource development compatible with the

interests and concerns of local citizens.

Lovejoy, Stephen B. (1251)
1976 Future Energy Development in the Western United States and Immigration.
Unpublished manuscript, Department of Sociology, Utah State University.

Method: A random sample survey of four rural communities (ranging in population size from 638 to 2250) in Utah was made during the summer of 1974. An open-ended interview was conducted with 337 household heads. All four communities are in the Four Corners Region of the southwest.

Variables: The effects of the religious composition of immigration streams on local attitudes toward future energy development in Southern Utah--particularly with respect to the "Kaiparowits project" (a combined coal mining and electrical power generation project sponsored by a consortium of utilities).

Findings: Immigrants are less likely to practice the Mormom religion and less likely to favor energy resource development than "locals." Non-Mormom immigrants were less in favor of the development of energy resources than either Mormom immigrants or long-term residents, regardless of long-term residents' religious beliefs. The author concludes by suggesting that immigration may have a greater impact on local attitudes in other rural areas of the Western United States where religion is not such a primary influence on attitudes toward natural resources.

Lovejoy, Stephen B. (1252)
1976 Local Perceptions of Energy Development: The Case of Kaiparowits Plateau.
Unpublished manuscript, Department of Sociology, Utah State University.

Method: A random sample survey of 407 household heads in five communities (Blanding, Monticello, Kanab, and Escalante, Utah; and Page, Arizona) in the Four Corners area of the Southwest was conducted during the summer of 1974. Each of the five communities was in the proximity of and/or had experienced "energy resource development." The response rate was in excess of 92 percent, and the interview schedules were composed of open-ended questions.

Variables: Opinions on the "Kaiparowits project" (a combined coal mining and electrical power generation project sponsored by a consortium of utility companies) in relation to perceived effects of the project.

Findings: The solid majority of residents of the five rural communities in the Four Corners region favor the Kaiparowits project. The author argues that local residents tend to overemphasize the positive effects of the project while deemphasizing or ignoring the negative consequences. He suggests further that these attitudes reflect a high level of misinformation on the part of the respondents, primarily because local residents received most of their information about the proposed project from the utilities and the news media who in turn strongly favor the energy development project.

Lowry, D.J. and W.S. Good (1255)
1977 The Energy Conscious Consumer: Implications for Marketing.
University of Manitoba working paper.

Method: The study reports on the results of a self-administered questionnaire mailed to two consumer groups randomly selected from six major English-speaking Canadian urban centres. Each sample consisted of 1500 households. One group was to represent the average Canadian consumer and the other was to represent the "energy conscious" consumer. The latter group was obtained from a random sampling of requests by Canadians from the six cities for a booklet entitled "100 Ways to Save Energy and Money in the Home." 451 (30%) of the first group and 619 (41%) of the second group returned questionnaires in a usuable form.

Variables: Various demographic variables, exposure to and interest in print and broadcast media, lifestyle statements and attitudes towards energy were studied.

Findings: It appears the energy conscious individual is much more sensitive to price and thinks of himself as someone who manages money wisely. Moreover, the energy conscious consumer is not an avid sports' fan nor is he an outgoing, gregarious "life-of-the-party" type. It would appear that the energy conscious consumer is more concerned with maintaining strong family relationships. Also, the energy conscious consumer subscribes more to newspapers, is more concerned with the energy situation than the average consumer, is more likely to own his own dwelling, is well above average in terms of education, drives his own automobile and has a stronger drive for information than the average consumer.

Income and occupational status did not prove to be significant discriminators between the two groups.

Peat, Marwich, Mitchell and Co. (1270)
1976 A Marketing Approach to Carpool Demand Analysis. Technical Memorandum I, Survey Documentation.

Method: The memorandum details, the survey design and methodology employed in connection with a research effort which examined the role of individuals' attitudes and perceptions in deciding whether or not to carpool. The study was based on a survey of commuters in three major urban areas.

Variables: Respondents' socioeconomic and demographic characteristics, travel perceptions and travel preferences.

Mazur, Allan (1304)
1977 The Effect of the Energy Crisis of 1973 on Public Attitudes Toward Nuclear Power. Paper presented at Social and Behavioral Implications of the Energy Crisis: A Symposium, Woodlands, Texas, June.

Method: An evaluation of the author's erroneous early 1976 prediction that there would be a marked decline in public opposition to atomic power plants. The analysis is largely qualitative and exploratory. The proposition is tested which holds levels of opposition within movements, as well as fluctuations in the particular issues of concern, to be tied to the rise and fall of topics of national concern in the U.S. This pattern appears to hold for other controversies as well, e.g., fluoridation, ABM, and legalized abortion.

Variables: The continuing interaction between topics of national concern and the intensity of popular movements opposed to nuclear power plants.

Findings: Although the Mazur-Leahy "wave" model did predict the rise of anti-nuclear

sentiment pursuant to the Arab oil embargo, it failed to anticipate the recent opposition manifested in, for example, the Clamshell Alliance. The author interprets this failure to be a misapprehension of a new crest in the energy crisis wave. The new upsurge in public concern, as reported in Gallup Polls, is considered to reflect President Carter's attempt to publicize his energy program.

Mazur, Allan and Beverlie Conant (1305)
1976 Controversy Over a Local Nuclear Waste Repository.
Unpublished manuscript, Social Science Program, Syracuse University.

Method: Case study of the shortlived controversy surrounding the proposal to site a nuclear waste repository near Syracuse, New York. A random sample of local residents (selected from residential phone listings in the 1976 Syracuse directory) was interviewed near the height of the publicity (N=124) and then nearly four months later, after the publicity had died away (N=106).

Variables: The effect of exposure to the controversy on attitudes by gender toward the proposed repository.

Findings: Men were three times more likely than women to be aware of the controversy. Yet exposure to the controversy had a greater effect on women than men, shifting female attitudes against the repository. The attitude formed at the peak of publicity tended to persist over time, particularly for men. The authors speculate that observed sex differences derive from our cultural expectation that men should know politics and technology, and women need not.

Mazur, Allan and Peter J. Leahy (1307)
1977 A Comparative Analysis of Movements that Arise in Opposition to Technological Innovations. In Louis Kriesberg (ed.), Research In Social Movements, Conflicts and Change, Greenwich, Connecticut: JAI Press.

Method: A qualitative, comparative study of citizen movements against three technical innovations: fluoridation, the antiballistic missile system (ABM), and nuclear power plants. Some consideration is also given to the movement against legalized abortion inasmuch as it is a social innovation with technical overtones. Included are graphs of the number of articles appearing in the Reader's Guide indexed under various controversial topics over appropriate timespans.

Variables: The similarities and differences between three movements against technical innovations, with an eye toward finding the general principles of such movements.

Findings: There are similar patterns of leadership and growth in the four movements analyzed. Leaders appear to be knowledgeable, reputable, well-integrated members of society. They oppose technology on grounds of idealogy as well as risk. Such leaders are usually recruited by personal associates of a like political philosophy who are already in the movement. Mass media play a crucial role in a regular sequence of rise and fall of controversy. As media coverage increases so does opposition to the technology among the wider public. Coverage rises and falls with the activity of leaders. The authors suggest, based on this comparative study, that without resurgence of opposition leadership the nuclear power controversy will diminish.

Mazur, Allan, and Eugene Rosa (1310)
1974 Energy and Life-Style.
Science, 186 (November 15), 607-610.

Method: Correlation analysis of the 1971 energy consumption patterns in 55 countries in order to estimate some of the long-term effects of reduced energy consumption on lifestyle. United Nations data.

Variables: Energy consumption (total and electricity) in relation to lifestyle indicators for health, education and culture, general satisfaction and economic well-being, among all nations and developed market economies.

Findings: Nearly all the lifestyle indicators for all nations sampled correlate highly with the measures of energy consumption. Among nations with developed market economies the majority of correlations dropped to insignificance. However, economic indicators generally retain high correlations with the measures of energy consumption.

Miernyk, William H. (1340)
1975 Some Regional Impacts of the Rising Costs of Energy.
Papers of the Regional Science Association, 37, 213-227.

Method: Progress report on the early stages of a study which attempts to assess the consequences for regions of high and rising energy prices. Data are summarized for production and consumption of basic energy resources by census region, by states for the distribution of incremental value added for coal, oil, and natural gas, and for 78 sectors of the economy by rank of price effects.

Variables: The between regions economic effects of rising real energy prices.

Findings: Energy consuming regions appear to be experiencing a shift in their interregional terms of trade, a trend which portends a shift in real per capita income among regions. The author concludes that "there is no reason to believe that the differential impacts on energy producing and energy-consuming regions are less significant, or less permanent, than those that have recently altered the relationships among energy-producing and energy-consuming nations."

Miernyk, William H. (1350)
1976 Regional Economic Consequences of High Energy Prices in the United States.
Journal of Energy and Development, 1, 2, (Spring) 213-239.

Method: A largely qualitative and future-oriented study of the regional economy of coal, given that petroleum and natural gas are becoming less available, i.e., are rising in price as demand outruns supply. The historical, secondary data used are from various statistical sources.

Variables: Regional patterns of economic activity in the United States as a function of changing energy availability.

Findings: Throughout much of the nation's history, energy-producing regions have "subsidized" the growth of urban areas via an abundant supply of energy at low and stable prices. Pursuant to the energy crisis of 1973-74, the energy-producing states have gained an economic advantage relative to the energy-

consuming states. The former are growing in population and economic activity and have experienced less adversity as a result of high energy prices. Based on these assumptions and trends, the author projects that there will be a regional shift of real income from the energy consumers to the energy producers. Thus, "the coal-producing regions of Appalachia and the Far West could be transformed into relatively prosperous areas. Meanwhile, parts of some of the nation's most prosperous states--such as Michigan and Connecticut--could become chronically depressed areas."

Milstein, Jeffrey S. (1360)
1977 Energy Conservation and Travel Behavior. A.C.R., 1977, Chicago, Illinois

Abstract: Americans use one fourth of the total amount of energy consumed in the United States in automobile passenger travel. This paper cites empirical data that illustrates Americans appear to be making some progress in conserving energy in such areas as buying more efficient cars and driving slower on the highways, but little or no progress in carpooling, using public transit, and reducing vacation travel.

Milstein, Jeffrey S. (1370)
1977 Attitudes, Knowledge and Behavior of American Consumers Regarding Energy Conservation with Some Implication for Governmental Action. Paper presented at Social and Behavioral Implications of the Energy Crisis: A Symposium, Woodlands, Texas, June.

Method: Empirical data and analysis of psychological, cultural, economic, and political reasons why American consumers (who are responsible for one-third of U.S. energy consumption) favor energy conservation but generally do not practice it. Possible effective incentives and motivations for conservation are proposed, along with implications for governmental policy and action. Data are of two types: Opinion Research Corporation national probability sample surveys and focussed group discussions. The surveys entailed telephone interviews of 1,000 to 1,200 people each and were accomplished monthly from August, 1974, to April, 1976, (see Rappaport and Labaw below). A total of 18 focussed group discussions, led by trained leaders and lasting one to one and one-half hours, were held in Denver, Trenton, Hartford, Seattle, Chicago, and Nashville.

Variables: Attitudes and behavior in relation to energy conservation.

Findings: Virtually everyone seems to be for conservation in the abstract, but evidence marshalled here suggests a gap between attitudes and energy conservation behavior. Reasons for this seem to be lack of knowledge, cultural norms of comfort and convenience, and skepticism and cynicism regarding the nature of the energy problem. In speculating on prospective incentives the author notes that a conservation ethic, patriotism, or concern for one's progeny are not likely to induce energy conservation, but that the chance to save money may be the most effective incentive. Experimental

analyses reinforce the view that financial reward is most effective in this regard, followed by feedback, exhortation, and information--the least effective. All four methods are considered acceptable to the public and the author suggests that all of them be used despite the fact that they vary in effectiveness.

Milstein, Jeffrey S. (1390)
1977 How Consumers Feel About Energy: Attitudes and Behavior During the Winter and Spring of 1976-77. Unpublished manuscript, Office of Energy Conservation, Federal Energy Administration, June.

Method: A description and marginal frequency analysis of the results of several surveys of the American public done from February through May, 1977. These surveys were intended to establish the effects on American consumers of the cold winters, natural gas crisis, and the remedies to the energy crisis proposed by the Carter Administration. The analysis relies on a series of tables which summarize the surveys.

Variables: U.S. public opinions in connection with the winter 1977 shortage of natural gas and energy policy messages of the Carter Administration.

Findings: Three-fifths of respondents in the February survey thought the solution to the fuel shortage to be in their own hands, yet energy conservation behavior was minimal. A March survey also directly measured home temperatures, a tactic which yielded at least a 10 percent overall difference in fuel consumption between the temperatures people said they had and what they were directly measured to have. Turning off lights not in use and reduced driving are other frequently

reported conservation efforts. However, the conservers in all instances were in the minority. Lack of knowledge about energy appeared to be a problem--about half the people in the U.S. did not accept the shortage as real. Less informed people tended to be less receptive to calls for energy conservation and sacrifices, and conversely, two-thirds of respondents rejected the idea of a right to use as much energy as they want to or can affor to. Moreover, three-fourths felt that what individuals do counts, yet nine-tenths believe the government should help solve the crisis. With regard to the energy policy debate, people tend to prefer voluntary measures to compulsory ones, those that are fair to them to those that are not, and laws that provide incentives to those that penalize. The President's address seemed to produce significant changes in awareness of and attitudes toward the energy crisis. A dominant trend is that policy proposals which hit closest to home are the least preferred.

Morrison, Bonnie Maas, and Peter Gladhart (1400)
1976 Energy and Families: The Crisis and Response. Journal of Home Economics, (January), 15-18.

Method: Overview of a 5-year longitudinal study of the Lansing S.M.S.A. households to determine how family decisions are made about energy use. A multi-stage area probability sample survey was used for urban (N=160) and rural (N=57) areas.

Variables: Energy use as related to attitudes, food consumption, transportation, housing conditions, financial expenditures and resources, and the character and quality of the family's functioning in terms of interaction patterns within the family, with friends, relatives, and the larger community.

Findings: Family income proved to be the single best indirect predictor of residential energy consumption. In general, families in the child-rearing stages use more residential energy than families without children, or at the early or later family life-cycle stages. Larger families use more than smaller ones. Single-family homes use more energy than multifamily dwellings or mobile homes. Half of respondents believed in the reality of the 1973-74 energy crisis, but this belief did not diminish in any meaningful way the energy consumed in a household. Ecoconsciousness was associated with energy conservation, and tended to be found in higher categories of educational level and occupational attainment. Urban and rural respondents differed on energy policies.

Morrison, Bonnie M., et al. (1420)
1977 Family Energy Project Update: Response to the Increased Costs of Energy, A 1974 and 1976 Comparison.
Paper presented at the Annual Meeting of the American Home Economics Association, Boston, June.

Method: An analysis of how families/households have responded to increased energy cost and its concomitant effects in the period between 1974 and 1976. An area probability sample of Lansing, Michigan S.M.S.A. households was used at each date (respectively, N=216 and N=264). Fifty-nine percent of the households interviewed in 1974 were repeated in 1976. Questionnaires were both self and interviewer administered. Data on direct energy consumption for each household was collected from utility and fuel oil companies.

Variables: Changes in attitudes and behaviors of families (households) at two points in time pursuant to the energy crisis.

Findings: Percent of respondents believing in the energy problem declined slightly from 1974 to 1976, with about half in each case so reporting. The declines were substantial for less educated, older, and rural resident respondents. Behaviors reflecting energy awareness and conservation were reported to have increased since 1974. Almost all reported some effort to conserve. Specific measures are discussed within the rubric of a hierarchy of household practices. A 6.3 percent overall reduction in energy consumption was observed between 1974 and 1976, likely a low figure since an adjustment was not made for the heating season differences. The reduction came in heating fuels, whereas electricity use increased slightly.

Morrison, 1975 Bonnie Maas (1430)
Socio-Physical Factors Affecting Energy Consumption in Single Family Dwellings: An Empirical Test of a Human Ecosystems Model. Unpublished Ph.D. dissertation, Michigan State University.

Method: Multiple step-wise regression and recursive path analysis were used to test hypotheses relating selected socio-physical determinants with (1) belief in the reality of the energy problem and (2) total direct energy consumption in single family detached dwellings. Data were gathered by interview, based upon a cross-sectional field survey, and drawn from a May-June, 1974, multi-stage probability sample (N=97) of the Lansing S.M.S.A.

Variables: The effect of the energy crisis of 1973-1974 in terms of energy consumption

characteristics and the beliefs of household members residing in single-family dwellings.

Findings: Belief in the reality of the energy problem is positively related to mean (husband-wife) educational attainment, agreement (husband-wife) on the availability of electrical energy, and reported total costs of all energy forms used in the dwelling unit (June, 1974 - May, 1974). The number of persons, the number of major appliances, and the number of rooms in a dwelling unit contributed most to the variance explained with respect to energy consumption as a function of lifestyle and behavior. Belief in the reality of the energy problem was not found to effect a change in energy consumption patterns.

Morrison, Denton E. (1440)
1977 Equity Impacts of Some Major Energy Alternatives. Paper presented at the Annual Meeting of the American Sociological Association, Chicago, September.

Method: An assessment of the probable distributional impacts of increases in the relative real price of energy (both direct,--i.e., coal, oil, gasoline, electricity, and natural gas--and indirect, as a factor in the provision of other goods and services). Data are arrayed for ten income classes by flows (monetary and energy) in 26 consumption categories. These data were recalculated from an input-output analysis of the 1960-61 U.S. Bureau of Labor Statistics "Survey of Consumer Expenditures." The input-output analysis (see Herendeen, 1974, above) is unique in showing the energy impact of consumer expenditures, thus opening the way for a determination of the relative distribution of energy by

class. The analysis is brought to bear on social equity considerations related to price increases, energy conservation, coal development, and nuclear development on persons and to a lesser extent on firms and communities, but especially on the poor.

Variables: The effect of some major energy alternatives on the distribution of energy flows, both direct and indirect, to social classes, firms, and communities.

Findings: Higher energy prices are regressive, particularly because the poor derive a larger proportion of their energy from direct forms. Energy conservation would entail transfer payments if high first-cost conserving technologies are to be made available to the poor. Moreover, the affluent would have to reduce their consumption disproportionately, especially in connection with indirect and basic energy inputs. Nuclear and coal development could carry the seeds of inequitable risks and benefits. Inequity claims are briefly sketched in terms of quality of life. It is shown that the causal relationship of energy to quality of life is more essential for the absolute levels of the poor than for those of the affluent. A section is appended treating the equity impacts of six specific conservation strategies.

Muchinsky, P. M. (1450)
1976 Attitudes of Petroleum Company Executives and College Students Toward Various Aspects of the Energy Crisis.
Journal of Social Psychology, 98, 2, 293-294.

Method: Spring, 1974, survey and statistical analysis of the attitudes of 26 members of the Independent Connecticut Petroleum Association and 328 undergraduates at

Iowa State University toward various aspects of the energy crisis.

Variables: Responses on causes, solutions, personal involvement, and present and future status--all regarding the energy crisis.

Findings: Students generally found companies responsible while companies faulted government for the 1974 energy crisis.

Murray, James R., et al. (1470)
1974 Evolution of Public Response to the Energy Crisis.
Science, 184, 4134 (April 19, 1974), 257-263.
Also reported in The Impact of The 1973-74 Oil Embargo on the American Household, Chicago: University of Chicago, National Opinion Research Center, Report 126.

Method: An assessment and evaluation of changes in behavior and attitudes of the public as they encountered energy shortages in 1973, based on the continuous national panel survey conducted by National Opinion Research Center for fuel oil (N=331) and electricity and gasoline (N=1946). The sampling was done from November, 1973, to February, 1974.

Variables: Attitudinal and behavioral responses related to fuel oil, electricity, and gasoline consumption.

Findings: The importance of the energy problem was perceived to be stable. Respondents generally regarded the government to be responsible for the energy crisis. Two-thirds of a sample taken during the gasoline shortage believed it could be solved if individual consumers cut down on gasoline consumption. Opinions were not found to be significantly related to region, education, income, or area of residence.

Nelkin, Dorothy (1475)
1974 The Role of Experts in a Nuclear Siting Controversy.
Bulletin of the Atomic Scientists, 30, 9 (November), 29-36.

Method: A qualitative study of the role of academic experts in the 1973 case of organized community opposition to the construction of a nuclear power plant on the shore of Cayuga Lake, N.Y.

Variables: The influence of academic experts on the controversy over construction of a nuclear power plant.

Findings: (1) In a controversial situation political values can permeate technical material itself, whether or not the experts intended it. (2) Public sentiment tended to reflect nontechnical considerations. (3) Technical advocacy is likely to encourage participation in technical decisions and to increase the probability of controversy.

Newman, Dorothy K., and Dawn Day Wachtel, (eds.) (1490)
1975 The Energy Gap: Poor to Well Off.
In Ford Foundation Energy Policy Project Report: The American Energy Consumer, Washington, D.C.: Ford Foundation.

Method: A description of how poor, middle income, and well off families use energy, based on data from the Washington Center for Metropolitan Studies Lifestyles and Energy Surveys, conducted May-June, 1973, (household interviews) and June-September, 1973, (acquisition of billing data from utilities) on a nationwide multi-stage area probability sample (N=1455) of heads of households.

Variables: Energy consumption characteristics relative to income class characteristics.

Findings: The poor use less energy, pay relatively more for the energy they must have, and, more than any other American group, suffer from exposure to the residuals of energy production/ consumption. The energy gaps were found to be greatest in gasoline.

Newman, Dorothy K., and Dawn Day Wachtel, (eds.) (1500)
1975 Energy in the Home.
In Ford Foundation Energy Policy Project Report: The American Energy Consumer, Washington, D.C.: Ford Foundation.

Method: A marginal frequency study of the role of consumer choice in home energy use (the domain for over half of all personal energy consumption) based on secondary data from a variety of sources and on the Washington Center for Metropolitan Studies Lifestyles and Energy Surveys, conducted May-June, 1973, (household interviews) and June-September, 1973, (acquisition of billing data from utilities) on a nationwide multi-stage area probability sample (N=1455) of heads of households.

Variables: Consumer choice in relation to: personal energy use distribution; type of structure and heating fuel; mean annual total cooling degree days; size of home, presence of insulation, and other physical housing characteristics; energy use characteristics and changes in these for regions and specific characteristics, e.g., heating fuel use and square feet of floor space; appliances, water heating, and air conditioning.

Findings: On the average, space heating is the most important energy use in the home, accounting for almost a third of all personal energy use. Water heating uses

about one-tenth. Cooking and refrigeration each use about 3%, with other appliances and lighting composing the remaining 9%. With regard to consumer choice this study is more oriented toward the prescriptive than descriptive, although numerous data are reported on actual consumer and housing market behavior.

Newman, Dorothy K., and Dawn Day Wachtel (1510)
1974 Energy, the Environment, and the Poor. Paper presented at the Annual Meeting of the Society for the Study of Social Problems, August.

Method: A study of the interrelationships between energy, environmental quality, and poverty, using 1972-73 figures from the Washington Center for Metropolitan Studies Lifestyles and Energy Surveys. The survey used is based on a stratified national sample (N=1455) of households. A second survey (N=142) asked utility companies serving the sample households how much electricity and natural gas the households used and how much they paid for it in the most recent 12 months.

Variables: The effect of changing patterns of energy consumption on the poor and their environment.

Findings: At the time of the study, currently accepted fuel pricing bore heavily on respondents who were least able to afford it. The price of fuel was found to be higher for those who use it as a necessity, and cheaper for those whose demand is more a matter of lifestyle. Authors conclude from their data analysis that the question of which households use energy and for what purposes is intimately related to the question of how our rapid growth in household energy consumption can be

slowed. Further, slowing of the growth of energy consumption is extremely important for slowing the spread of pollution.

O'Brien, T. V. and Debra Campbell (1520)
1976 Arizona Energy Policies - A Statewide Citizen Survey.
Arizona Business, Vol. 1, 23, No. 4, 9-13.

Method: A random sample survey was conducted throughout the state of Arizona.

Variables: Attitudes that Arizonans have towards the energy sources currently used as well as those under development.

Findings: Arizonans agree that the U.S. should achieve energy independence in the near future. They see the energy problem as genuine but their views on specific energy sources are a mixture of confidence and doubt. Solar power was strongly supported in all areas of Arizona. People were opposed to tax incentives to oil companies. Arizonans are in favour of more information and education with regard to energy and believe that public utilities should take the initiative in this area.

Odum, Howard T., et al. (1525)
1976 Net Energy Analysis of Alternatives for the United States. In Hearings Before the Subcommittee on Energy and Power of the Committee on Interstate and Foreign Commerce, House of Representatives, Ninety-fourth Congress, Middle- and Long-Term Policies and Alternatives: Part I. Washington, D.C.: U.S. Government Printing Office.

Method: Given that energy flows are the basis for organization of matter, information, money, and value, this study uses systems level models to analyze the U.S. economic system in terms of flows of energy from domestic sources, from the environment, and from international exchanges. Termed "energy analysis," this technique produces estimates of net energy, i.e., energy yield minus that needed to collect and process the original energy. Part and parcel of energy analysis is a system of symbols for describing energy flows and storages. The secondary data used were transformed into fossil fuel equivalents and are derived from a variety of statistical sources.

Variables: The net energy values of present and proposed types of energy sources and their current and likely future effects on the U.S. economy.

Findings: In view of the net energy constraints pursuant to declining stocks of fossil energy resources, it was determined that the present leveling trends in the U.S. economic system will not be reversed. Moreover, energy analysis diagrams suggest that when energy sources decline, the very high quality sectors of the economy on the end of the energy chain decrease most. Steady state regimes (leveled economies) are projected for the U.S. and suggest sharp changes in public viewpoint and public policy if a smooth transition is to take place. Net energy analyses are discussed for the following cases: cooling towers, tertiary

treatment, interface eco-systems, environmental technology generally, the harvest of environmental products, industrialized agriculture, and housing density. Public policy predictions based upon net energy analysis are provided for domestic energy sources, imported petroleum and project independence, deficit financing, unemployment, military defense, environmental protection, and energy pricing.

Olsen, Marvin E. (1530)
1977 Public Acceptance of Energy Conservation. Paper presented at Social and Behavioral Effects of the Energy Crisis: A Symposium, Woodlands, Texas, June.

Method: A review and synthesis of survey research studies conducted since the 1973-74 oil embargo. This provides the basis for evaluating the relative effectiveness of persuasion, pricing, and pressuring as strategies for increasing public acceptance of energy conservation.

Variables: The state of knowledge about public acceptance of energy conservation.

Findings: A rather rapid and extensive shift has recently occurred in American public opinion toward awareness and acceptance of the energy problem. But the practice of serious energy conservation is not yet a significant feature of American life. Should they become necessary the public appears to be ready to accept energy conservation policies that are rigorous by present standards.

O'Neill, Harry W. (1550)
1974 The Effects of Energy Availability and Costs on Consumer Attitudes and Behavior. 1974 Proceedings of Association of Consumer Research, 5th Annual Proceedings, Volume 2, 863-878.

Method: A report on some of the findings from a longitudinal survey research program conducted by Opinion Research Corporation in the period January-October, 1974. The research was nationwide and conducted by telephone interview. Initially 400 interviews were conducted in each 2 week "WAVE"; this was increased to 600 per "WAVE"; in mid-August, 1974.

Variables: Independent variables included price and other factors related to energy shortages. The major dependent variables were self-reports of purchase intentions and usage rates.

Findings: (1) In March, 1974, only 33% of the sample shopped for the best gasoline price; by July, 1974, 51% were looking for the best price; (2) 60% of the sample found the price of gas unreasonable in comparison with most other things; (3) also, 60% of the sample reported using their car less because of the price of gasoline; (4) actions that relate to providing increased information enabling the consumer to conserve energy usage are favored by a very large proportion of the public; (5) over three-quarters of the population favored reduced speed limits; approximately half the sample favored regulation of energy use; but only 16% of the population favored gasoline rationing; (6) opposition is great to actions that use price increases as a means of controlling energy usage; (7) two-thirds report using fewer lights; (8) about half report using appliances less often; (9) over 80% say they are driving slower in order to conserve energy; (10) also as a result of energy shortage: 72% report that they are shopping at stores closer to home; almost 70% are shopping at fewer stores; six of ten are shopping

less often and over half are cutting down on "window shopping;" (11) over half of the public report that they are using less electricity today because of the cost.

Pallak, Michael S. and William Cummings (1810)
1976 Commitment and Voluntary Energy Conservation. Personality and Social Psychology Bulletin, 2 (Winter), 27-30.

Method: Two experiments, one focusing on use of natural gas (N=65) and the other on electricity (N=142), were conducted respectively in October, 1973, just prior to the Arab oil embargo, and June, 1974, in Iowa City, Iowa. Above figures represent total participants including control groups. Subjects were interviewed to establish personal identification (public commitment) or no identification (private commitment) in agreeing to attempt energy conservation. The response measure of energy usage was provided by utility-meter readings for the month after the interview.

Variables: The effect of commitment, public or private, on energy conserving behavior.

Findings: Homeowners under public commitment showed a lower rate of increase in the use of levels for both experiments than under private commitment or in the control (no interview) group. Results from a set of self-monitoring conditions suggest increased attention to energy use levels as a possible cause of conservation behavior.

Palmer, Michael H. et al. (1820)
Ongoing An Experimental Analysis of Electricity Conservation Procedures. Journal of Applied Behavior Analysis.

Method: Two feedback conditions--daily knowledge of electricity cost and daily knowledge of electricity consumption--and two prompt conditions--daily requests for conservation and a letter from a government official requesting a decrease in consumption--were examined in connection with the consumption behavior of four Des Moines, Iowa, families. The daily electricity consumption of the families was recorded from meter checks over a 160 day period (February 2-May 19, 1974). A baseline was established and all four conditions were administered to each of the families.

Variables: The effects of two feedback and two prompt conditions on family electricity consumption.

Findings: Electricity consumption was reduced in three of the four families. Despite the evaluation of both prompting and feedback procedures, no clear differences emerged in their effectiveness. The savings in both electrical power and money was considerable for the subject families. The authors suggest consequence control over stimulus control in government programs to encourage energy conservation.

Patterson, Arthur H. (1840)
The Effect of the Winter 1973-74 Energy Shortage Upon Attitudes About Preserving the Environment. Unpublished manuscript in the Philadelphia and Centre County areas of Pennsylvania.

Method: A two-wave telephone questionnaire (December, 1973, and February, 1974) of

a random sample of 60 homeowners in the Philadelphia and Centre County areas of Pennsylvania.

Variables: The effect of the energy crisis on attitudes about preservation of the environment, based on a ten-item attitude scale containing nine-point Likert-type items on, e.g., importance to the person of clean air and pure water. Data also collected on self-reported energy consumption patterns.

Findings: A significant difference of post-crisis attitudes between those who heated their homes with fuel oil and those who used natural gas or electricity, the former rating environmental quality less important than the latter. This suggests that attitudes toward preserving the environment will become more negative as the costs of those holding the attitudes increase.

Peck, A. E., and O. C. Doering, III. (1850)
1976 Voluntarism and Price Response: Consumer Reaction to the Energy Shortage. Bell Journal of Economics, 7, 1 (Spring), 287-292.

Method: An econometric study of changes in efficiency of household use of two heating fuels, natural gas (N=174) and liquified petroleum (LP) gas (N=279) over the period 1971 to 1974, to test the effectiveness of the national conservation policy in creating voluntary alterations in consumption habits. Price data were from two private gas companies (converted to an index with April, 1971, as the base period) for the towns of Romney and Battle Ground, Indiana. A correction

was made for temperature differences between winters.

Variables: The effect of national conservation policy (and the energy crisis) on fuel-use efficiency of LP gas and natural gas.

Findings: For LP gas customers, fuel-use efficiency increased some 14.4%, while natural gas customers increased only 5.8%. The latter increase was not significant at the .05 level. Authors suggest that among rural users of the types sampled, voluntarism evidently cannot be relied upon to reduce consumption substantially. They interpret the results as reinforcing the need for higher prices to induce fuel-use efficiency.

Perlman, Robert, and Roland Warren (1860)
1975 Effects of the Energy Crisis on Households of Different Income Groups.
Paper presented at the Annual Meeting of the Society for the Study of Social Problems, San Francisco.

Method: Analysis of a November, 1974, multi-stage probability sample (N=1440 households) of Hartford, Connecticut; Mobile, Alabama; and Salem, Oregon; to determine the differential income effects of the energy crisis.

Variables: The effect of the energy crisis on income groups in terms of energy conservation behavioral patterns and impact of the energy crisis on attitudes and opinions.

Findings: In some activities, especially home heating, the well-to-do conserved relatively more energy but did so from a much higher energy consumption level and still used more after their adjustments

than the poor. This greater absolute usage applies in all other categories as well, e.g., automobiles, appliances, and electricity. Well-to-do's appeared to have relatively more options for making energy-related adjustments.

Perlman, Robert, and Roland L. Warren (1870)
1975 Energy-Saving by Households in Three Metropolitan Areas.
Waltham Massachusetts: Brandeis University, Florence Heller Graduate School for Advanced Studies in Social Welfare. Report No. 1 of the Energy Impact Study.

Method: A study of the impact of energy problems on households of different income levels and social characteristics, and how these adjustments vary in areas where the energy situation and the climate differ. This report is devoted to an analysis of aggregate energy-saving behaviors in three metropolitan areas--Hartford, Connecticut; Mobile, Alabama; and Salem, Oregon. Interviews were conducted in November, 1974, on households selected from a multi-stage area probability sample (N's respectively of 658, 483, and 243).

Variables: The effects of energy costs on respondents, particularly in terms of energy-saving behaviors.

Findings: A high proportion took steps to conserve all forms of energy during the winter of 1973-74, even though 62% thought the shortage was contrived to boost oil and gas company profits. Hartford is in an area most dependent on imported oil and reported the greatest efforts to save energy. Heating proved less critical in Mobile. Salem, with very low electric power rates, made less of an attempt to curtail electricity consumption. Households reported a

reduction of 1.7 degrees in home heating and a drop in the speed of highway driving from 63 to 55 m.p.h., both compared to the previous winter. Some activities were cut back less than others; e.g., shopping, visiting, and recreation were curtailed more than driving children to school and after-school activities; and the use of dishwashers and clothes dryers was reduced far more than the use of TV's and freezers. Car pools and walking, rather than public transportation, tended to substitute for driving. Price, instead of a sense of civic duty, was the most frequent explanation for energy conservation in driving and home heating.

Perlman, Robert, and Roland L. Warren (1880)
1975 Energy-Saving by Households of Different Incomes in Three Metropolitan Areas.
Waltham, Massachusetts: Brandeis University, Florence Heller Graduate School for Advanced Studies in Social Welfare.

Method: Sample survey of 1440 respondents during November, 1974, in Hartford, Connecticut; Mobile, Alabama; and Salem, Oregon.

Variables: Family income in relation to energy-conserving behavior, behavioral changes in the aftermath of the energy crisis, and preceptions of the causes of the energy crisis.

Findings: Income is positively related to belief in the reality of the energy crisis, although only moderately, and income differences in these beliefs were less pronounced than regional variations. Upper-income families reported cutting down on heating fuel use more than lower-income families, but there were only small differences among income groups in reported conservation of

gasoline and electricity. There were no clear income-related patterns in the reduction of driving. Even though high income families made the greatest reductions in home heating use, their average room temperatures remained higher than those of low income families. Reductions in energy use were most pronounced where rates/costs were highest.

Phillips, 1976 Nicolas and Elizabeth Elson (1890)
Energy Savings in Private Households - An Integrated Research Programme.
Journal of Market Research Society, Vol. 18, No. 4, October, 180-197.

Method: A research program carried out to study the United Kingdom's energy conservation from 1974-1976.

Variables: Perceived price-increases in energy in relation to other goods and services, plans to install energy saving devices.

Findings: Statements of intention may be more predictive of behavior in household markets than is the case with other durable markets. Some general statements are made about the marketing of energy saving.

Phillips, 1976 Peter (1900)
Household Energy Consumption.
Auckland, New Zealand Energy Research And Development Committee, University of Auckland, May. Report No. 10.

Method: A summary of the results of a study of household attitudes toward energy use. During 1975 seven batches of a mail

questionnaire were sent out to a random sample (N=17,500) of New Zealanders drawn from the 1974 Local Body Electoral Rolls. The response rate was just under 60 percent.

Variables: Attitudes of New Zealanders to the energy situation and to the need for conservation.

Findings: Considerable sympathy existed among respondents for the idea of energy conservation. The need for it was perceived to be high. The behavioral intention to conserve appeared to be well developed. Respondents particularly favored legislation to require insulation of new homes, restrict car access to central cities in order to encourage public transport use, and a progressive electricity tariff. Rationing was rejected by a 60-40 margin. The majority chose coal from the alternatives of coal, nuclear, and oil as power generation sources in a situation in which the potential environmental impacts of each represented the major decision criterion. Respondents felt first priority on oil, if the supply should become restricted, ought to be farm vehicles--not a surprising outcome in a nation heavily dependent on foreign earnings from agricultural exports. Railways and buses were ranked ahead of airlines in this regard, with private cars being ranked last of the six users. No relationship was found between individuals' knowledge of the energy sector and their attitude toward energy conservation. Respondents demonstrated a reluctance to cut down on high consuming uses in the home and failed to consider that a very small reduction in high energy-consuming uses would at least equal the conservation rate of a major reduction in low energy-consuming uses. Suggestions for policy implementation are included which emphasize turning behavioral intentions into behavior.

Pilati, David A. (1910)
1976 Energy Savings via Behavioral Changes. Industrialization Forum, 7, 2-3, 103-106.

Method: Computer simulation to determine potential energy savings from several behavioral changes, based on data for a home typical of early 1960's construction.

Variables: The effect of behavior change on energy savings with respect to temperature control settings. Hourly weather for cities also was a variable.

Findings: Theoretically, behavioral changes in the use of home space conditioning systems could reduce U.S. energy consumption by about 4.5% with little discomfort.

Pogany, D. Z. and J. E. Dunwoody (1915)
1976 The Potential Economic Impact of Solar Heated Residences in Illinois, 1976-2000.

Abstract: This study examines the economic viability of solar heating systems for new residential construction in Illinois and looks at the economic and conserving impacts over the time frame 1976-2000.

Putnam, Daniel E. (1930)
1975 Energy Benefits and Costs: Housing Insulation and the Use of Smaller Cars. C.A.C. Document 173.

Method: Two types of energy conservation programs are studied from the point of view that for a given monetary expenditure, energy costs as well as energy benefits will result.

Variables: The costs and benefits associated with a program of installing insulation in a single-family house and a program to replace the production of large cars by small cars.

Findings: Both programs "pay off" their energy costs promptly and yield an appreciable net benefit stream. The study also compares the potential of these conservation programs to the current level of oil imports in order to appraise the importance of conservation in the drive for energy independence.

Rappaport, Michael, and Patricia Labaw
1974 Opinion Research Corporation Energy Polls, 1974-76.
(Available from National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22151).

Method: Public opinion polls on energy were taken to determine ongoing public attitudes and behaviors toward the costs and availability of energy. Surveys were conducted monthly for 20 months, beginning September, 1974, using telephone interviews. The samples (usually N=600-1200 interviews/month) were randomly drawn on a nationwide basis from selected adults in households having telephones. Analysis techniques used include frequencies and cross tabs (multiple regression in the study of reasons for using mass transit).

Variables: See individual listings below.

Findings: Mostly detailed tables without discussion; see individual listings below.

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1974

Based on 1,213 telephone interviews conducted over a four-week period ending September 6, 1974. Question areas and results include: (1) respondents had come to believe that energy shortages are both a serious and a long-term problem; (2) the degree to which respondents think the energy shortage is serious correlated strongly with whom they hold responsible; (3) consumer groups were seen as the most trustworthy source of information. Additional results are presented on energy-related knowledge, solutions to the energy crisis, car pools, and packaging.

Volume II. Opinion Research Corporation 1570
1974

Based on 1,210 interviews conducted September 15 - October 15, 1974. The survey involved the following areas and results: (1) there was a small decline in trust in the Federal Government as an information source between the end of August and the beginning of October; (2) perceptions of reasons for the energy shortage are reported; (3) the majority of respondents thought Congress should legislate a minimum miles per gallon for autos; (4) the majority indicated that public transportation for shopping is available. Five areas having policy implications were also investigated: (1) gasoline tax policy; (2) foreign trade policy; (3) natural resource availability; (4) home lighting; (5) home heating. For (1) and (3) respectively, results show that most respondents are strongly opposed to any rise in taxes in order to cut down usage, and they appear to hold themselves responsible for doing a poor job of conserving natural resources.

Volume III. Opinion Research Corporation 1580
1974

Concentrates on residents of all-electric homes and is based upon 100

personal interviews conducted among residents in two all-electric communities in West Chester, New York. The purpose of the study is to determine in what way higher electric rates have affected behavior and whether residents are responding to higher rates through organized political action. Results are reported for the following variables: construction of the home; cost of heating; amount of yearly heating bill; total electric cost during the past 12 months; incidence of TV sets; political action of residents outraged over increased electrical rates.

Volume IV. Opinion Research Corporation 1590
1974

Deals with energy consumption and attitudes of families with income under $7,000 and those people 50 years of age and older. Results are reported for the following variables: seriousness of the energy shortage; length and severity of the energy shortage; the energy shortage as real vs. contrived; personal conservation efforts and their impact on total consumption of energy; attitudes toward specific government policies; changes in shopping habits as a result of inflation; cash payment vs. charging; means of transportation; personal effects of the energy shortage.

Volume V. Opinion Research Corporation 1600
1974

Concentrates on energy consumption and attitudes toward the energy shortage. Issues that are considered and on which results are reported include: seriousness of the energy shortage; duration of the energy shortage; perceived severity of the shortage; the energy shortage as real vs. contrived; effect of shortages on the public; satisfaction with President Ford's energy measures; effort made to save energy; results of the price increases on people's behavior, including use of cars influenced by shortages, use of cars influenced by price, leisure activities, and hobbies at home.

Volume VI. Opinion Research Corporation 1610
1975

Focuses on consumer attitudes toward gasoline prices, shortages, and the relationship between the latter two and inflation.

Respondents were categorized according to whether their cars averaged under 15 miles per gallon, 15-19 miles per gallon, or 20 miles per gallon or more, and they were categorized by their average miles driven per week as follows: under 30 miles, 30-99 miles, 100 miles or more. Data are reported on the following variables: reasonableness of gasoline prices; efforts made to save energy; concern for gas mileage; attitudes towards rationing vs. higher prices; higher prices for low mileage cars; higher taxes on gas vs. taxes on cars; the environmental costs of producing more energy; environmental threats of energy self-sufficiency; power plants and pollution; water and air pollution; the impact of lowered car usage on rate of inflation; and sponsoring of ads on gasoline mileage.

Volume VII. Opinion Research Corporation 1620
1975

Deals with consumer attitudes and behavior resulting from issues surrounding the energy shortage and is divided into (1) highlights from Opinion Research Corporation's energy impact program (Waves 20-21), (2) analysis of the role of education on attitudes and behavior; (3) data on type of fuel used for home heating and its effects on consumer behavior attitudes; (4) synthesis of available data dealing with the public's willingness to pay for pollution controls and environmental cleanup.

In addition, the report includes data on the rising cost of electricity,

rationing, the role of education in attitudes toward strip mining, energy self-sufficiency, power plants and oil refineries as a cause of air pollution, and oil heat users.

Volume VIII. Opinion Research Corporation 1630
1975

Concerned with such national problems and issues as: unemployment; inflation; energy shortage; rationing vs. increased prices; increased oil import taxes; pollution control requirements and nuclear power plants; sensitivity to rising gasoline prices; public awareness of FEA and specific FEA advertisements; certain energy-saving efforts among the general public and lack of public motivation and belief in the existence of an energy crisis; public attitudes toward nuclear power plants including thermal pollution, radiating discharge, nuclear accident, or disposal of radioactive wastes.

Volume IX. Opinion Research Corporation 1640
1975

Focuses on: seriousness of the energy shortage; methods for solving the energy problem; inflation and increased prices, unemployment, and the rebate plan; the role of rebates to encourage installation of storm windows and insulation; attitudes toward gasoline use and gas taxes, including concern with automobile gas mileage; appliance purchases, including the price of appliances and the electricity they consume; public attitudes toward returnable bottles and cans.

Volume X. Opinion Research Corporation 1650
1975

A study of energy saving divided in five parts: (1) responsibility for conservation of natural resources; (2) public awareness of the Federal Energy Administration; (3) attitudes and behavior related to daylight savings time; (4) automobile use and attitudes toward alternatives; (5) insulation of homes among the general public.

Volume XI. Opinion Research Corporation 1660
1975

Concentrates on public attitudes with respect to energy-related issues, including: attitudes toward nuclear power plants; the impact of school programs on home energy consumption; factors affecting the public's use of mass transit; company efforts at energy conservation.

In connection with these categories the following variables are considered: role of the school in emphasizing energy conservation; efforts of children to conserve at home; efforts of children to recycle; car pooling in relationship to long distance mass transit; availability of public transportation; interest in public transit for shopping; drawbacks to using public transportation; likelihood of using buses if special lanes were provided for them; impact of increased travel time; type of mass transit most needed; money for mass transit vs. highways.

Volume XII. Opinion Research Corporation 1670
1975

A study concerned with vacation and business travel, including vacation; weekend and business travel; attitudes regarding beverage containers; and a regression analysis of the reasons for using mass transit.

The following variables were involved: travel miles anticipated; kind of trip taken; duration of trips; types of transportation; places visited; number of miles traveled; effect of energy situation on trips; regional differences in availability of containers; type of container preferred and type purchased; reasons for container selection; public reaction to deposit containers; attitudes towards mass transit; mass transit available as a means of going to work.

Volume XIII. Opinion Research Corporation 1680
1975

A study of the energy-related attitudes and behavior of the poor and elderly, divided into three parts: (1) major problems in the U.S. and how they affect the poor and the elderly; (2) plans for 1974 income tax rebates; (3) tradeoffs in pollution vs. price. Respondents had family incomes of under $10,000 or were 50 years of age and older. Interview items for which results are reported include: problems facing the U.S. today, such as rising unemployment, inflation, energy shortage; looking ahead at the problem of unemployment; impact of inflation; potential of income to keep pace with prices; fuels used in households; perceived and projected increases in prices of fuels; attitudes toward selling food to other nations; ways to spend tax rebates.

Volume XIV. Opinion Research Corporation 1690
1975

Concentrates on patterns of automobile usage and is based on 1,007 telephone interviews. Variables include: car usage as affected by lifestyle; car usage patterns; planned trips as compared with routine or spontaneous trips; times per week trip is usually made; analysis of trips; the extent to which shopping trips are done by phone instead of by car; willingness to cut out trips; and factors deterring car use. Findings suggest that the primary way that people could cut down automobile use without eliminating leisure time use would be in more careful planning of trips for shopping and errands. Another important finding is a lack of sensitivity to gasoline price increases.

Volume XV. Opinion Research Corporation 1700
1975

A study of opinions on three issues. One general result is that respondents recognized the era of cheap energy to be

over, but also believed consumption of foreign oil ought to be reduced and domestic resources developed. Variables involved perceptions and attitudes related to opposition to increased dependence on foreign oil; the fear of a natural gas shortage this winter; the concern over the need to save energy.

Volume XVI. Opinion Research Corporation 1710
1976

Summarizes findings of questions to the public on air pollution controls. It contains two parts: an executive summary and detailed tabulations of the questions. (1) Sixty-two percent of the people do not regard air pollution as a serious problem where they live. (2) Motor vehicle exhausts (55%) and factories and plants (52%) are seen as the most important causes of air pollution. (3) Many people are willing to back up their commitment to less air pollution with money. (4) In some cases, people are willing to change to more energy-conserving behavior rather than pay additional money to lower air pollution. (5) People show a desire to prevent the significant deterioration of air quality. (6) Ninety-four percent think areas that now have clean air should be kept as clean as they are now.

Volume XVII. Opinion Research Corporation 1720
1975

Surveys public behavior and attitudes toward conserving home heating fuel, gasoline, electricity, and hot water.

Note: The following, although not attributed to Rappaport and Labaw, are listed here in continuation of Opinion Research Corporation's energy survey series.

Volume XVIII. Opinion Research Corporation 1730
1975

Gives the results of a survey of attitudes towards natural gas.

Volume XIX. Opinion Research Corporation 1740
1976

This report addresses: (1) individual predispositions toward energy saving behavior, (2) the importance of energy saving, (3) likelihood of other people's conserving energy. It was found that past behavior is generally regarded as the most accurate predictor of future behavior patterns.

Volume XX. Opinion Research Corporation 1750
1976

A nationwide probability sample survey of 1,004 respondents was conducted by telephone from October 24 through November 9, 1975. Most respondents believed that a serious need to save natural gas exists in the United States, and they expressed a willingness to personally make efforts to conserve it. They understood that heating homes consumes a great deal of natural gas, and had taken steps to conserve home heat. Many respondents did not realize that it takes a great deal of energy to heat water, nor did they understand how natural gas supplies are allocated. They believed that natural gas should be conserved in order to save natural resources for the future. Because of this, respondents seemed receptive to reliable, credible information on how to conserve effectively.

Volume XXI. Opinion Research Corporation 1760
1976

A nationwide probability sample survey of 1,207 respondents was conducted by telephone during the period November 26 through December 21, 1975. These data indicate that most drivers drive in ways that save gasoline. Ninety-six percent stop pressing the gas pedal when they see a red light; 84 percent plan several errands for one trip; 84 percent have their car engine tuned at least once a year; and 84 percent drive 55 m.p.h. on major highways. The major exception is that 69 percent drive themselves to work, whereas only 10 percent carpool or take passengers, eight percent take

public transit, and five percent walk to work.

Volume XXII. 1976 Opinion Research Corporation 1770

A nationwide probability sample survey of 1,016 respondents was conducted by telephone during the period December 30, 1975, through January 15, 1976. The survey showed most people's home use of energy to be tied to their beliefs regarding what constitutes energy saving, especially with respect to home heating, insulation, electric lights, water heaters, and washers, dryers, and dishwashers. Forty-nine percent reported setting their thermostats below 69 degrees F during the day and 15 percent at or below 60 degrees F at night; 79 percent said their homes are insulated; 55 percent turned lights off when leaving the room for a short time; 42 percent did not know to what temperature their water is being heated. Results show that beliefs about energy consumption affect the way people behave; therefore, the report concludes, people should be informed through public education efforts of the more energy-efficiency ways to behave.

Volume XXIII. 1976 Opinion Research Corporation 1780

A nationwide probability sample survey of 1,002 respondents (606 of whom were living in households with children under 18 years who were attending school) was conducted by telephone during the period January 27 through February 25, 1976. The results indicate that a substantial amount of energy information had been transmitted to American homes by children who obtained such information in school. Information about energy conservation was welcomed. Parents seemed particularly interested in home heating and lighting information. They expressed the desire for more information on saving gasoline. Parental behavior and attitudes were reflected in children's behavior and attitudes, and vice versa. Most

respondents felt sponsorship of energy-saving school programs by utility companies and government to be appropriate. Children's TV programs, publications, and organizations were perceived as good means of communicating energy information to children.

Volume XXIV. Opinion Research Corporation 1790
1976

A nationwide probability sample survey of 1,203 respondents was conducted by telephone during the period March 22 through April 19, 1976. Despite two years of energy shortage, nearly one respondent in eight (13%) did not believe it to be a real problem and only 5% saw the energy problem as U.S. dependence on foreign oil supplies. They preferred saving energy around the home in ways that would not entail physical discomfort, e.g., weather-proofing the home rather than raising the setting of air conditioners or lowering thermostats. Respondents appeared responsive to 'life-cycle' pricing information in terms of purchasing choice. Income tax credits were regarded as more potent incentives than guaranteed bank loans for getting homeowners to make energy conservation home improvements. Respondents wanted the government to provide them with information on how to save energy.

Reizenstein, Richard C., and David J. Burnaby (1950)
1976 An Analysis of Selected Consumer Energy-Environment Trade-Off Segments. 1976 Educators Proceedings (Series #39) of the American Marketing Association, 522-526.

Method: In February, 1974, at the peak of the Arab Oil Embargo, a mail questionnaire was sent to 2,500 residents of three medium-sized (100,000-350,000 population) southeastern American cities; of these, 922 were usable. Data were analyzed by multiple discriminant analysis.

Variables: The main independent variables studied were 15 demographic variables, 11 media and interpersonal information sources, and two measures of willingness to pay to reduce air pollution. The dependent variables were three categories of gasoline/air pollution trade-off preferences and two categories of heat/air pollution trade-off preferences.

Findings: (1) The major factor that seems to indentify the energy conscious consumer (for both gasoline and heat) is exposure to media and personal information sources. Other variables such as income are also effective discriminators but cannot be manipulated as can exposure to media.

(2) The following charts help to identify the energy conscious consumer:

A Descriptive Profile of Home Heat Preference Groups

GROUP 1 Prefer Less Heat	GROUP 2 Prefer Same Amount of Heat
- smaller group	- larger group
- less than one family member 15-19	- less than one family member 15-19
- more than two paid family members	- less than two paid family members
- 1-3 years of college	- high school graduates and some 1-3 years college
- higher income, approximately $15,000 per year	- income not as high, $10,000 to $15,000 per year
- greater use of media and personal information sources	- lesser use of media and personal information sources
- greater willingness to pay to reduce air pollution	- lesser willingness to pay to reduce air pollution

A Descriptive Profile of Three Gasoline Consumer Preference Groups

GROUP 1 Prefer More Gasoline	GROUP 2 Prefer Less Gasoline	GROUP 3 Prefer Same Amount of Gasoline
- smallest group	- intermediate sized group	- largest group
- highest income, in excess of $15,000 per year	- middle income, $10,000-$15,000 per year	- middle income, $10,000-$15,000 per year
- use newspapers, radio, magazines, least as information sources	- use newspapers, radio, magazines, most as information sources	- moderate use of newspapers, radio, magazines, as information sources
- use civic clubs and spouse least as information sources	- use civic clubs and spouse most as information sources	- moderate use of civic clubs and spouce as information sources
- least willing to pay to reduce air pollution	- most willing to pay to reduce air pollution	- somewhat willing to pay to reduce air pollution

Reizenstein, Richard C. and David J. Burnaby (1970) 1976 The Consumer and the Energy Shortage: A Post-Embargo Assessment. 1976 Proceedings of the Association for Consumer Research, Volume 4, 308-314.

Method: In February, 1974, at the peak of the Arab Oil Embargo, a mail questionnaire was sent to 2,500 residents of three medium-sized (100,000 to 350,000 population) southeastern U.S. cities; of these, 922 were usable. Data were analyzed by multiple discriminant analysis. A second mail survey, using the respondents of the February, 1974, study, was conducted in October, 1974;

382 of the original 922 returned the second questionnaire.

Variables: Dependent variables measured were perceived importance of national issues, attitudes towards selected dimensions of energy and air pollution, as well as reported and projected behavior in the form of home thermostat setting and weekly gasoline consumption.

Findings: (1) Pollution problems were seen as less important than the energy issue in both studies; (2) both studies indicate that consumers believe business in general to be more responsive than government to the energy situation; (3) an increased percentage of people recognized the energy situation as a real problem in the second study as compared with the first; (4) the respondents reported an overall slight downward shift in gasoline consumption between February and October, 1974; (5) however, respondents indicated a slight increase in home heat thermostat settings for the same period.

Riegel, K. W., and S. E. Salomon (2010)
1974 Getting Individual Customers Involved in Energy Consumption. Public Utilities Fortnightly, 94, 10, 29-32.

Method: Atlantic City Electric Company of New Jersey innovated a statement (March 8, 1974) on each residential monthly bill, telling how much more or less electricity was used in the current month as compared to the same month last year. (For this, Atlantic City Electric received the first FEA energy conservation award in August, 1974). The new billing was sent to 180,000 residential customers without direct prior notification. 800 inquiries, mostly by telephone, were received

during the first billing cycle (about five percent of the bills sent out and more than double the normal number of inquiries). Any design in this crude experiment is probably accidental.

Variables: The reduction of residential electricity consumption pursuant to information feedback via billing, and in conjunction with other company conservation measures.

Findings: Atlantic City experienced a 2.6 percent gain in April, less than the national average of 3.4 percent, but in May, with the program fully implemented, residential sales dropped 4.6 percent below the previous year's level (the national figure rising over 3 percent). The reduction is in part attributed to price increases. About two-thirds of the customers were surveyed in March, 1974, by the company's Marketing Research Department. Respondents stated they were either conserving as much as possible (by reducing heating, cooling, or use of lights), or were concerned and intended to conserve energy.

Russo, J. Edward (2050)
1977 A Proposal to Increase Energy Conservation Through Provision of Consumption and Cost Information to Consumers.
A.M.A. Proceedings, Series No. 41, 437-442.

Method: A field experiment analyzing the residential energy users of five American utility companies.

Variables: Independent variables included feedback about the success of the individual's own attempts to conserve energy printed on the monthly energy bills. The dependent variable was consumption of energy.

Findings: (1) A 2-3% reduction in energy use was obtained as a result of the feedback of information; (b) customers were angered by increased rates because the feedback information showed them that they were using less energy but paying higher energy bills; (3) when the energy message was terminated some of its beneficial effects were lost fairly quickly.

Schipper, Lee, and A. J. Lichtenberg (2080)
1976 Efficient Energy Use and Well-Being: The Swedish Example.
Berkeley: University of California, Lawrence Berkeley Laboratory, Report 4430. Reported under the same title in Science, 194, 4269 (December 3), 1001-1013.

Method: A detailed comparison of per capita energy consumption in the U.S. and Sweden, based largely on 1970-72 data from statistical abstracts and various other sources.

Variables: U.S. versus Sweden in connection with: basic economic and social indicators; energy use related to transportation, residences and commerce, industry, and imports and exports.

Findings: Sweden used 55-65% of the per capita energy (with the counting of hydroelectricity being problematic) at essentially the same per-capita income as the U.S. The difference was shown to arise both from differences in the mix of economic activities and in the energy consumption per unit output in these activities. In this regard Sweden had higher efficiencies in transportation, materials processing, and space heating. Heavy use of automobiles in the U.S. was a major factor here. The study suggests that institutional and social factors determine how close individual

consumers, firms, and society as a whole come to the most economic use of energy; e.g., in the U.S. mortgage policies and market considerations constrain developers to minimize first costs, rather than life cycle costs, in contrast to Sweden.

Schnaiberg, Allan (2090)
1975 Social Syntheses of the Societal-Environmental Dialectic: The Role of Distributional Impacts. Social Science Quarterly, 56, 1 (June), 5-20.

Method: Summarizes existing empirical research on the distributional consequences of the energy crisis.

Variables: Effects of the energy crisis on consumption, employment, income, and profits.

Findings: Energy crisis (as a simulation of "planned scarcity") had net regressive distributional impacts; e.g., the poor suffered more than the well-to-do in terms of income loss, unemployment, impacts on lifestyles; small businesses were hurt more than large corporations; the Nixon administration was able to use the energy crisis to justify curtailing "non-essential" federal governmental expenditures such as health, education and welfare.

Schneider, Alan M. (2100)
1975 Elasticity of Demand for Gasoline. Energy Systems and Policy, 1, 3, 277-286.

Method: A study of gasoline sales in California in order to measure elasticity of demand. A time-series analysis was used

in conjunction with data from thirteen-plus years (1960-1972). Data for sales were taken from the State Board of Equalization and from reported sales for regular grade from 4,000 major brand retail stations in Los Angeles. An average figure for price was arrived at using the latter.

Variables: Price per gallon and monthly sales of gasoline in the Los Angeles area.

Findings: A 17% increase in the price of gasoline in the Los Angeles area produced no observable change in gasoline consumption for the time period analyzed. Gasoline prices were thus found to be inelastic to demand.

Schnidman, Frank (2105)
1977 Awareness and Perception of the States to Local and Regional Needs Created by Energy Production or Extraction Facilities. Prepared for the U.S. Department of Housing and Urban Development by the Urban Land Institute, Washington, D.C., March.

Method: A survey of state and territorial planning and of energy agencies and departments of community affairs to determine their awareness and perception of the problems created by boom developments of energy production or extraction facilities. Forty-three states and the Virgin Islands responded to the survey. Three important energy producing states--Kentucky, New Jersey and Ohio--did not.

Variables: State awareness and perception of boom energy developments.

Findings: Responses revealed a variety of both existing and planned facilities. Community impact presently in or forecast for a region appeared to be

greatest for the Atlanta, Dallas, and Denver Federal regions. The most commonly cited problems were inadequate capacity to plan, water pollution, and local government management ability. The most commonly cited severe problems were housing, local government management ability, and sewers. Items reported to be of little problem most often included insufficient warning of boom, parking areas, and adequacy of local government legal authority. Siting legislation, mine location, mineral/severance tax, and an energy policy were the most often cited as relevant existing, pending, or proposed government actions. The study finds a lack of adequate support for programs already existing, rather than a dearth of state and/or Federal programs which could be used to respond to certain impact created needs.

Schuller, C. Richard, et al. (2107)
1975 Citizens' Views About the Proposed Hartsville Nuclear Power Plant: A Preliminary Report of Potential Social Impacts.
Oak Ridge, Tennessee: Oak Ridge National Laboratory.

Method: A marginal frequency analysis of a random sample (N=350) of Trousdale County, Tennessee, surveyed by interview during February, 1975, to determine the potential impact of a large nuclear power plant complex on a rural community.

Variables: Socioeconomic background, demographic characteristics, attitudinal perceptions of the community, the changes respondents anticipate would accompany construction and operation of the plant, and how they evaluate the changes which may be brought about.

Findings: People were apparently residing in the community because they liked it. 65% of respondents favored the plant, 29% opposed, and 10% were undecided. The strongest supporters tended to be involved in business and labor occupations. A small majority of farmers opposed the facility. The most adamant opponents were generally women. No differences between supporters or opponents emerged from other background indicators such as formal education, age, and length of residence in the area. Support was most closely associated with the expectation of positive economic benefits. Opposition stemmed from concern over radiation and the potential for accidents at the facility, even though opponents tended to regard economic growth and development as desirable for the community.

Schwartz, Timothy P. (2110)
1975 Societal Energy Consumption: An Evolutionary Theory and a Preliminary Empirical Analysis. Unpublished Ph.D. dissertation, Department of Sociology, University of North Carolina (Chapel Hill).

Method: A correlation and regression/path analysis of cross-national time-series data (largely collected from UN sources) on 120 societies, in order to test an evolutionary theory of energy consumption. The data are for the years 1929 and 1969.

Variables: The author provides 34 operationalizations of nine theoretical constructs, e.g., urbanization, division of labor, and energy consumption--all of which are macro-social structural characteristics of nations. The research views societal energy consumption as both a major cause and effect in a

complex matrix of socio-demographic-economic forces.

Findings: Societal energy consumption is found to be a major causal element in determining aspects of social structure, e.g., intrasocietal contact and economic productivity. These variables appear to have important causal ramifications for urbanization, division of labor, and intersocietal contact, which in turn influence energy consumption. The results, while suggestive, are tempered by the limitations of the data-base.

Schwartz, T. P. and Donna Schwartz (2120)
1974 The Short End of the Shortage: On the Self-Reported Impact of the Energy Shortage on the Socially Disadvantaged.
Paper presented at the 1974 meeting of the Society for the Study of Social Problems, Montreal.

Method: A study of the self-reported effects of energy shortage, based on a panel survey conducted in July and November, 1973, and March, 1974. A systematic sample (N=200), proportionate to city size, of heads of households was drawn from the city directories of Chapel Hill, Durham, and Raleigh, North Carolina. Data were cross-tabulated using a significance level of .06.

Variables: The differential impact of energy shortage as self-reported by heads of households.

Findings: The energy shortage did not discriminate against socially disadvantaged groups; it did not discriminate more against groups that have multiple social disadvantages; such discrimination did not merge and increase as the shortage endured and worsened.

Sears, David O., et al. (2130)
1976 Political System Support and Public Response to the 1974 Energy Crisis.
Paper presented at the Conference on Political Alienation and Political Support, Stanford, California, May.

Method: An examination of the role of support for the political system in determining compliance to attitudes and actions that government defines as in the public interest, specifically in connection with the case of responses by Los Angeles County residents to the energy crisis of 1974. A multi-stage probability sample (N=1069) of Los Angeles residents aged 18 and over was used and interviews were conducted February-March of 1974. Data on household electricity and natural gas usage were obtained from utility companies. Four major hypotheses were tested.

Variables: Support for the political system as indicated by diffuse system support, partisanship, the individual's longstanding symbolic loyalties, and personal impact, all as related to the 1974 energy crisis in Los Angeles.

Findings: Diffuse system support was found to be significantly related to the official government energy line. So, also was partisanship which was strongly correlated with system support. The personal impact of the crisis had virtually no effects at all in terms of citizens' attitudinal response; i.e., it did not inspire general conformity to or rebellion against the official government interpretation of and response to the energy crisis. Neither system support not partisanship contributed significantly to behavioral reductions in energy consumption; however, the personal impact of the crisis did. Overall, attitudinal predictors (system support, partisanship, and perceptions of the

crisis) are the most important predictors of attitudinal response (policy support). Personal impact rather than longstanding political attitudes was the major factor in behavioral compliance.

Seaver, W. Burleigh, and Arthur H. Patterson (2140)
1976 Decreasing Fuel Oil Consumption Through Feedback and Social Commendation.
Journal of Applied Behavior Analysis, 9, 2 (Spring), 147-152.

Method: A sample of 180 households was drawn randomly from the list of continuing accounts in the area of a university community in central Pennsylvania and divided into two test groups and a control group to assess two methods of facilitating fuel-oil conservation--informational feedback and informational feedback plus commendation. The study was conducted from February through May 1974, during an acute oil shortage.

Variables: The effect of two manipulations on consumer behavioral patterns of fuel oil consumption.

Findings: The consumption rate of the feedback plus commendation group was significantly lower than that of either the group receiving only information on rate of oil use or the nontreatment control group.

Seligman, Clive, and John M. Darley (2160)
1976 Feedback as a Means of Decreasing Energy Consumption.
Paper presented at the Annual Meeting of the American Sociological Association, August.

Method: July-September, 1975, experimental study of 40 homeowners in a planned urban development of identical dwellings in Central New Jersey, to determine the effect of consumption feedback on energy consumption in residential housing. Participants were randomly divided into control and feedback groups. A baseline relationship between daily average temperature and daily consumption was established, using regression analysis, from readings of electric meters for five weeks. Both groups were told air conditioning is the biggest energy user and should be reduced. The feedback group was given daily (Tuesday-Friday) percentage scores indicating the degree to which participants' actual consumption corresponded to predicted consumption. Experimental data were subjected to analysis of variance.

Variables: The effect of information feedback on the energy conservation behavior of families in connection with the use of home air conditioning.

Findings: Both groups used significantly less electricity during the treatment period compared to the baseline, partly due to cooler weather in the treatment phase. During the treatment, the feedback group consumed 10.3 percent less than the control group. Within the feedback group, the lower the initial level of consumption, the greater the amount of conservation during treatment. This suggests that feedback is more successful with moderate users than with high users of electricity.

Seligman, Clive, et al. (2170)
1976 Psychological Strategies to Reduce Energy Consumption: First Annual Progress Report. Princeton, New Jersey: Princeton University

Center for Environmental Studies, November. Report No. 41.

Method: Review of ongoing research designed to produce and test psychological strategies for helping people achieve significant reductions in their residential energy consumption. Work to date was done on a recently completed planned urban development (PUD) of 3,000 homes at Twin Rivers, New Jersey. Each home had identical dimensions and appliance packages, thus facilitating comparisons. Descriptions and results are given for four feedback experiments, involving summer electricity usage, setting specific goals, and alternative types of feedback under summer and winter conditions. Also detailed are progress on thermostat research to achieve automatic dial-down, and results of an attitudinal survey in the Twin River project. The four experiments were conducted respectively on 40 three-bedroom townhouses, 100 three-bedroom townhouses, 325 residents who had not participated in earlier studies (148 responded favorably to the request), and 125 subjects from experiment 3 who were asked to continue (54 declined).

Variables: The effects of four feedback techniques on energy consumption by residents in a PUD.

Findings: Experiments 1 and 2 yielded significant reductions in consumption of electricity, particularly when a difficult goal was adopted by subjects. The results of experiments 3 and 4 were equivocal but encouraging. All groups in experiment 3 exhibited reduced gas consumption while the two feedback groups in experiment 4 achieved moderate reduction, compared with the control group in each experiment. The researcher concluded that taken together, the studies indicate feedback can be an effective strategy for energy conservation.

Smith, B. W., and G. R. Frey (2190)
1975 Factors Influencing Spatial Consumption of Energy in the United States.
Tijdschrift Voor Economische en Sociale Geographie, 66, 4, 246-250.

Method: Correlation and regression of 1971 aggregate U.S. energy consumption by state, using secondary data from the U.S. Departments of Census and Interior, the Federal Highway Administration, and the National Oceanic and Atmospheric Administration.

Variables: The effect of per capita scores for value added by manufacturing, value added by minerals production, and value of agricultural output, income, total miles traveled and climate, on the spatial consumption of energy in the U.S.

Findings: The major factors influencing the spatial pattern of energy use of states are the localization of manufacturing and minerals production. Income, climatic conditions, and volume of traffic appear to bear little, if any, relationship to the pattern of aggregate energy use.

Sparrow, Tom (2205)
1977 Socio-Economic Factors Affecting the Adoption of Household Solar Technology: Preliminary Findings.
Paper presented at Social and Behavioral Implications of the Energy Crisis: A Symposium, Woodlands, Texas, June.

Method: A study of the diffusion of household solar heating technologies, based upon household telephone interviews (N=45) conducted throughout the United States. Respondents were all owner-users of solar custom homes.

Variables: The factors contributing to the diffusion of household solar heating technologies.

Findings: The average income of respondents was high but appeared to be beginning to drop. Solar purchasers with incomes below the sample median reported difficulty with financing, but felt fixed-costs to be less of a problem than did higher income respondents. Developer-contractors seem to be replacing financiers for advice about solar homes. When local utilities were consulted they proved less likely to encourage or facilitate the decision to go solar, undoubtedly a significant barrier to future public acceptance of this technology.

Stearns, Mary D. (2210)
1975 The Behavioral Impacts of the Energy Shortage: Shifts in Trip-Making Characteristics. Cambridge, Massachusetts: U.S. Department of Transportation, Transportation Systems Center, December.

Method: National random sample surveys (N=700), December, 1973, and February, 1974, gathered by home interview and statistically analyzed to contrast aggregate and disaggregate shifts in trip-making characteristics. Data are from National Opinion Research Center's Continuous National Survey.

Variables: The effect of the 1973-74 energy shortage on trip-making frequency, modes and purpose, for households of different income levels.

Findings: In the aggregate, the energy shortage seems to have mildly decreased trip frequency, not changed model use, and decreased shopping trip incidence.

Disaggregation by income level revealed that sub-poverty level respondents apparently did not decrease trip frequency, significantly reduced their use of the auto-driver mode, and reported no significant shifts in their incidence of trip purposes, all by contrast with above-poverty level respondents.

Stearns, Mary D. (2220)
1975 The Social Impacts of the Energy Shortage: Behavioral and Attitude Shifts. Washington, D.C.: U.S. Department of Transportation.

Method: A study of selected household responses to the energy shortage, specifically with respect to shifts in behavior or trip-making and conservation alternatives. Data were drawn from National Opinion Research Center national random sample survey (N=700) collected at the onset and peak of the national energy shortage of winter, 1973-74.

Variables: The effect of the 1973-74 energy shortage on trip-making frequency, mode, and purpose for households of different income level, and on household attitudes towards the energy shortage and conservation alternatives.

Findings: Sub-poverty level household members report significant modal shifts away from auto-driver trips, compared with no change for same for the former but decreased for the latter. Analyses of attitudes showed that social status is positively correlated with shortage perception, household evaluation of its financial status is negatively correlated with expected duration of the energy shortage, and negative evaluations of household energy shortage

impacts are positively correlated with dissatisfaction with regard to enacted energy conservation policies. It was also found that households became less tolerant of conservation policies as they experienced the energy shortage.

Stern, Paul C. (2230)
1976 Effect of Incentives and Education on Resource Conservation Decisions in a Simulated Commons Dilemma.
Journal of Personality and Social Psychology, 34, 6 (November), 1285-1292.

Method: An experimental study of two strategies for escaping the double dilemma of conflicts between individual and collective good due to uncontrolled growth in a finite world and between short-term and long-term good. The strategies are: (1) making group-oriented behavior pay off for individuals through incentives or strengthened group ties and (2) inducing people to act from long-term perspective by educating them about the probable consequences of their acts. The subjects were 48 undergraduate students drawn from classes in Freshman Arts and Sciences and Introductory Psychology. Each was informed he would be paid for participating. A 2 x 3 x 2 design was used in a four person commons game modeled on a carpool in which forms of incentive and education were manipulated.

Variables: The effect of rationing, pricing, and influence attempts on resource conservation decisions.

Findings: Price increase incentives produced a conservation effect which increased with their magnitude. Direct payoffs and a rationing system proved ineffective. Education by spot messages was not effective; however, de-

tailed information about long-term consequences substantially extended the life of resources. The latter effect appeared early, even before that of incentives. The author cites reasons why the laboratory results are less likely to work in the world-at-large.

Stewart, Charles T., Jr., and James T. Bennett (2240)
1975 Urban Size and Structure and Private Expenditures for Gasoline. Land Economics, 51, 4 (November), 365-373.

Method: Correlation and regression analysis of 134 SMSA's with 1970 populations of 200,000 or greater. Data for retail sales of gasoline and lubricants were obtained from the 1967 Census of Business; population data are from the U.S. Bureau of Census.

Variables: Effect of urban size, proportion of the population in central cities, population per square mile in the central city and outside the central city, rate of growth etc., on per capita retail gasoline sales.

Findings: The predictive power of the regression was generally low. SMSA size and rate of growth were found to be negatively related to per capita gasoline consumption, proportion of nonwhite population to be positively related. Per capita gasoline consumption was much higher in the West and Northcentral regions and much lower in the Northeast and South.

Sundstrom, Eric, et al. (2265)
1975 Community Attitudes Toward a Proposed Nuclear Power Generating Facility as a Function of Expected Outcomes.
Unpublished manuscript, University of Tennessee.

Method: A January, 1975, sample survey of 350 residents of a rural Tennesse county. A factor analysis and simple multiple regression equation using factors as predictors were used to analyze variation in attitudes.

Variables: Attitudes about hazards, economic growth, power costs, social disruption, and community visibility etc., as related to a proposed nuclear power plant.

Findings: Approximately two-thirds of the respondents expressed favorable attitudes toward the proposed nuclear plant. The five main variables listed above accounted for 54% of the variation in attitudes toward the plant. The strongest predictor--perceived likelihood of hazards-- was inversely related to favoring the proposed nuclear power plant.

Sundstrom, E. P., et al. (2267)
1977 Citizens' Views About the Proposed Hartsville Nuclear Power Plant: A Survey of Residents' Perceptions in August, 1975.
Oak Ridge, Tennessee: Oak Ridge National Laboratory, May. Report ORNL/TM-5801.

Method: A panel (N=288) of residents of Hartsville and Trousdale County, Tennessee, was interviewed January, 1975, and reinterviewed in August, 1975, to determine their views about the nuclear power plant being constructed nearby by the TVA. Trained local residents conducted the interviews, and

respondents received $5.00 for participating. Two questions are addressed: (1) What factors are related to favorable attitudes toward the nuclear plant? (2) How do residents of Hartsville perceive their quality of life, and how have their perceptions changed since the earlier survey?

Variables: Correlates of attitudes toward the Hartsville nuclear power plant, residents' perceptions of quality of life, and changes in those perceptions during the process of facility planning and pre-licensing.

Findings: Sixty-nine percent of the panel (the "supporters") said that if they could decide they would permit the facility to be built. The remainder were "opponents". Attitudes toward the plant were consistent from January to August, even when measured through different questions. Most supporters would favor a coal burning plant, while most opponents would also oppose a coal-burning facility. Perceived effects on the community are detailed. Supporters were much more likely than opponents to rely on TVA for information about the facility. Only among farmers and farm workers were opponents a majority. Opposition was also relatively prevalent among women and unemployed persons. Quality was also relatively prevalent among women and unemployed persons. Quality of life received high ratings which showed no appreciable decline from January to August, and no substantial differences between supporters and opponents.

Svalastoga, Kaare (2268)

1976 Space, Population, Energy, and Information in Seven Nations: 1820-1970. International Journal of Comparative Sociology, 17, 1-2 (March/ June), 30-47.

Method: An examination of four factors related to the survival chances of a nation--the space controlled by the nation, its home population, and the amounts of energy and information it produces. The nations studied are: United Kingdom, France, Germany, U.S.S.R., U.S.A., China, and Japan. The historical data used came from a variety of sources. Data are plotted and analyzed by correlation and regression.

Variables: The effect of space, homeland population, energy sources in coal equivalents per year, and information revealed by science and technology, on the historical power relationships among the nations selected.

Findings: A potential power index is educed which shows for 1960 that the U.S.A. is most powerful and United Kingdom least powerful of the nations analyzed. For 1820 China was found to have the highest potential power, followed by Russia and U.K. By 1840 U.K. was on top, a position it maintained through the century. U.S.S.R. has arrived in third place by 1880, with Germany in fourth place. By 1900 the order is U.K. (by a wide margin), U.S.A., and Germany. The U.K. remains ahead for 1920, the U.S.A. holds second, and the U.S.S.R. moves to third.

Talarzyk, W. Wayne, and Glenn S. Omura (2270)
1975 Consumer Attitudes Toward and Perceptions of the Energy Crisis. In Ronald C. Curhan (ed.), Combined Proceedings of the American Marketing Association, 1974 Conference, Chicago: American Marketing Association.

Method: Initial findings from a national survey on consumer attitudes toward the energy crisis (N=1000 households), administered a few days after the oil embargo officially lifted (March 1, 1974). Factor analysis was performed on the survey data.

Variables: The effect of the energy crisis on consumers' activities, interests, and opinions (AIO). Also a varimax rotated factor analysis of the effect of differences in age, income, geographic area, and other socioeconomic variables on consumer AIO statements.

Findings: Greatest accord among respondents was found in the areas of attitudinal response to the energy shortage, energy shortage effect on activities, blame and responsibility for the energy shortage, rationing of energy resources, and the economic repercussions of energy resources. Cross-classifications between socio-economic variables and the AIO statements, as related to the above six issues, revealed associations primarily between age versus attitudinal response (older people reported less resistance to energy conservation) and between age and income versus the energy shortage effect on activities ($15,000-plus income classes were more likely to report a change in activities; middle-range age groups had less tendency to report a change in miles expended for shopping).

Thompson, Phyllis T., and John MacTavish (2280)
1976 Energy Problems: Public Beliefs, Attitudes and Behaviors.
Unpublished manuscript, Urban and Environmental Studies Institute, Grand Valley State College, Allendale, Michigan.

Method: A February, 1976, random sample (N=600) survey of the Grand Rapids metropolitan area drawn to determine the perceptions and beliefs that might underlie energy related behaviors. The data were collected by interview and subjected to marginal frequency analysis.

Variables: Beliefs, attitudes, and behaviors in relation to energy use.

Findings: The respondents were distinctly divided on energy questions. The larger group (over 50%) was cynical and did not trust the information they had received, did not believe oil and gas resources could be exhausted, and regarded gasoline shortages of 1974 as manipulation by industry and government. This group adopted few or no conservation measures. They tended to be at lower occupational levels, less educated, and older than the smaller distinct group (approximately 20%) which believed we have a real and persistent energy problem. The latter believed in future exhaustion of oil and gas, and expected energy shortages with higher development costs and large price increases. They adopted a variety of conservation measures. This group tended to be skilled, college educated, and under 45.

Tuso, Margaret A., and E. Scott Geller (2300)
1976 Behavior Analysis Applied to Environmental/Ecological Problems: A Review. Unpublished manuscript (available from Virginia Polytechnic Institute and State University). Summarized in the Journal of Applied Behavior Analysis, 9, 4 (Fall), 526.

Method: A topical set of summaries of the research designs, procedures, results, and conclusions of recent behavioral interventions for ecological rebalance. The topic most germane to the present purpose is "Energy Consumption" (pp. 42-49) where a number of studies dealing with behavioral manipulations to achieve energy conservation are described.

Variables: Effectiveness of behavioral measures, as reported by various studies, to achieve energy and materials conservation.

Findings: Reinforcement procedures for litter control, recycling, and energy conservation show that cash payments or incentives of monetary value have proven effective, as have contingencies administered in the form of large-scale programs of lotteries, group contests, token economies, and individual rewards based on specific levels of performance. Difficulties enumerated include transiency of effects and the number of personnel and amount of time necessary to conduct the projects.

U.S. Community Services Administration (2310)
Ongoing Small Farm Energy Project.
Three-year experimental study initiated October, 1976 (Center for Rural Affairs, P.O. Box 405, Walthill, Nebraska, 68067).

Method: An experiment being conducted in Cedar and Knox Counties, Nebraska, to determine if owners of family farms will respond to information and technical assistance designed to sharply reduce

non-renewable energy consumption on the farm. The stated goal is to achieve energy self-sufficiency. Fifty family farms that volunteered were divided into an experimental group of 25 and a control group of 25.

Variables: The effect of information and assistance on family farmers' willingness to adopt energy saving practices and technologies.

Findings: Major findings are not yet reported. The preliminary result is that farmers in the experimental group readily commit themselves to energy conservation practices.

Viladas, J. M. Company (2330)
1974 Impact of the Fuel Shortage on Public Attitudes Toward Environmental Protection. Washington, D.C.: U.S. Environmental Protection Agency (2 volumes).

Method: A study of the impact of the energy crisis on attitudes toward environmental protection and how these attitudes were related to the effect of the fuel shortage on the respondents. Telephone interviews were conducted with 500 of 3,012 respondents from national sample studies in 1973. The follow-up telephone interviewing was accomplished during May, 1974.

Variables: The effect of the energy crisis on attitudes toward environmental protection.

Findings: The energy crisis appeared to have little impact on attitudes toward fighting pollution. The most popular prospective methods of reducing fuel consumption were improving public transportation, lowering speed limits on highways, and driving smaller cars.

Rationing and fuel price increases were among the most unpopular steps of reducing fuel consumption. In addition, five steps which represent various ways of relaxing environmental control standards so as to reduce energy shortages were generally unpopular. One of these anti-environmental strategies--letting air pollution increase in areas that now have clear air--was the least acceptable of the entire battery of 18 potential public policy options. Strategies related to increasing the supplies of energy --e.g., increasing coal production through strip mining, building more atomic power plants, and building the Alaska pipeline--were generally intermediate in public acceptability between the popular conservation measures and the unpopular anti-environmental measures. In general, people who report being affected in their lifestyles and consumption patterns by the energy crisis/ fuel shortage (compared to those indicating they were not affected by the crisis) were most likely to: (1) favor policies to conserve energy, (2) favor policies to expand energy supplies, and (3) believe that these conservation and expansion of energy supply policies would be effective in alleviating the fuel shortage.

Walker, Nolan E., and E. Linn Draper (2340)
1975 The Effects of Electricity Price Increases on Residential Usage of Three Economic Groups: A Case Study.
In Texas Nuclear Power Policies, Volume V: Social-Demographic and Economic Effects, Austin, Texas: University of Texas Center for Energy Studies. Policy Study No. 1.

Method: Marginal frequency analysis based on a July, 1974, survey of a random sample

(N=60) of households in Austin, Texas, to determine the impact of price increases on income groups, behavior and attitudes, and electricity consumption changes. Data were gathered by personal interview and electricity consumption records (from a utility company) for the previous two years.

Variables: The effect of electricity price increases on three economic groups (lower, middle, and upper income) over a two year period.

Findings: The number of lower income households increasing their energy use equalled the number decreasing their energy use. For middle income households, the number decreasing was greater than the number increasing their energy use. For upper income households, the number increasing ran well ahead of the number decreasing electricity consumption--suggesting that upper income groups are the least influenced by price rises. Middle income groups seem to show the greatest price elasticity.

Warkov, Seymour (2360)
1976 Energy Conservation in the Houston-Galveston Area Complex: 1976. Houston, Texas: University of Houston Energy Institute, October.

Method: A marginal frequency analysis of Houston-area residents' energy conservation and usage practices as related to income level and home ownership, based on a spring/summer 1976 random sample telephone survey (N=3019) of Houston and Galveston metropolitan residents. The survey had the larger purpose of monitoring changes in lifestyles, attitudes, and other behaviors of the population.

Variables: Energy conservation related attitudes and behaviors by household income level.

Findings: During the 12 months preceeding the interviews: (1) 75% of the respondents reported curtailment in the use of electric lights in their homes, with 65% also reporting curtailment in the use of air conditioners; (2) 54% said they or other household members had reduced family or personal driving; (3) 29% reported that they "bought a car that consumes less gas;" (4) 26% indicated that they and/or other household members reduced the amount of driving to and from work by carpooling; (5) 14% had insulated their home or apartment. Virtually no difference was found between the twelve income groups selected with respect to the use of electric lights, but the higher income levels curtailed air conditioning less. Regarding family or personal driving, both the highest and the lowest income level households were least likely to report this mode of energy conservation. This was also true for carpooling. The likelihood of insulating proved to be directly related to income level as did the greater likelihood of reporting purchase of a more energy-efficient car.

Warren, Donald I. (2370)
1974 Individual and Community Effects on Response to the Energy Crisis of Winter 1974: An Analysis of Survey Findings from Eight Detroit Area Communities.
Ann Arbor: University of Michigan, Institute of Labor and Industrial Relations, Program in Community Effectiveness.

Method: An April-June, 1974, random sample survey of 766 households in eight Detroit area communities, using

interviews to determine responses to and attitudes toward the "energy crisis" in the previous months. Data were statistically analyzed for individual and socioeconomic correlates.

Variables: Effects of income level, individual conservation behavior, employment status, household characteristics and community setting on attitudes toward the winter 1973-74 energy crisis.

Findings: The energy crisis of 1973-74 was perceived by respondents as a failure of U.S. institutions rather than resulting from the actions of foreign countries. It was experienced most prominently by the middle class ($10,000+ incomes). Those with incomes below $10,000 were less likely to report that they had experienced shortages or had cut back in the use of energy. The vast majority of respondents indicated some energy conserving behavior. The individual's social setting was determined to play a major role in respondents' perceptions and attitudes.

Warren, Donald I, and David L. Clifford (2380)
1974 Local Neighborhood Social Structure and Response to the Energy Crisis of 1973-74.
Ann Arbor: University of Michigan, Institute of Labor and Industrial Relations, Program in Community Effectiveness.

Method: Statistical analysis of an April-June, 1974, random sample interview survey (N=766) of households in eight Detroit area communities to determine the role of local neighborhood social structure in the energy crisis of 1973-74.

Variables: The effect of neighborhood typology (six varieties of local contexts) on individual attitudes and responses to the energy crisis.

Findings: The typology provided an important source of explained variance in perceptions, reported behaviors, and helpful sources of information. These differential patterns tended to follow closely those theoretically predicted by the concepts describing each neighborhood type. "Integral" and "Stepping-Stone" type neighborhoods were highest in perceiving the energy crisis as real, while the "Anomic" type was lowest.

Wascoe, Nancy E., et al. (2390)
1976 The Effects of Fear Appeals Upon Behavioral Intentions Toward Energy Consumption: A Replication.
(See Hass, et al., above), Institute of Behavioral Science, University of Colorado.

Method: During February through May, 1976, students in the University of Colorado School of Business read one of eight communications, then completed an attitude and behavioral questionnaire. The communications were the orthogonal combinations of three two-level factors--probability, severity, and efficacy (to responding individual) in connection with energy shortage. A behavioral measure was also included, that being whether or not students responded to an invitation to join an energy conservation project. Data were evaluated via a 2 x 2 x 2 analysis of variance.

Variables: The effect of fear appeals upon behavioral intentions toward energy consumption.

Findings: Students who read the "severe negative effects" communication expressed stronger intentions to conserve energy,

as did those who read the high efficacy communication (but only with regard to group conservation activities). The probability factor had no effect. None of the three factors was found to affect actual behavior.

Willenborg, John F. and Robert E. Pitts (2440)
1977 Gasoline Prices: Their Effect on Consumer Behavior and Attitudes.
Journal of Marketing, January, 24-31.

Method: Survey research of consumer panel randomly recruited from urban South Carolina in the period January, 1973, to July, 1975. During this period the panel increased from 300 to nearly 900 households.

Variables: The main independent variable was the price of gasoline. The dependent variables studied were: (1) miles driven annually with each car owned by the household, (2) number of automobiles and engine size of each, (3) intentions to increase or curtail driving, (4) intentions to purchase large vs. small automobilies within six or twelve month time periods.

Findings: (1) The price mechanism was relatively ineffective in reducing consumption of gasoline when prices increased gradually over time. (2) The phenomenon of consumer attitudinal and behavioral adjustment was evident as consumers adopted to changing levels of gasoline prices.

Authors note the following implications: (1) consumers are unlikely to decrease the number of miles which they drive in any short-term period, except in reaction to a crisis situation; (2) gasoline consumption may be decreased in the short-term through imposition of

laws; (3) policy-makers are not likely to be successful in reducing consumption by using the price mechanism--unless a dramatic increase of perhaps 100% were utilized.

Williams, Robin M., Jr. (2245)
1976 Testimony Before the Public Service Commission of New York, Case No. 26806: Report on Recent Developments in the Design of Rates for Low-Volume Residential Electric Utility Customers, June.

Method: A reporting of selected data and findings from the 1975 national household energy use survey carried out for the Washington Center for Metropolitan Studies by the Response Analysis Corporation. The survey is basically an update and expansion of one carried out in 1973 as part of the Ford Foundation Energy Policy Project. (See Newman and Day papers from The American Energy Consumer above.) The 1975 random sample (N=2952) survey involved personal interviews of households nationwide, with a subsample (N=221) of New York households and a subsample (N=569) of Northwestern U.S. households. Meter data were collected for the households surveyed.

Variables: The relationship between income and other socioeconomic characteristics, and the consumption of electricity.

Findings: The correlation between income and electricity usage was determined to be generally the same for all U.S. households, for those in the Northeast and for New York State, i.e., that the poor use much smaller amounts of electricity than the average household, and about half or less of the amount

used by the well-off. For New York State the range in average monthly kilowatt hours consumed is 335 for the poor to 761 for the well-off. According to the survey, in contrast to the well-off, the poor tend to live in smaller quarters, to use electricity less for air conditioning, and to have a smaller number of electric appliances. The poor also spend proportionately more of their income for the electricity they use. The results of the 1975 survey corroborate those of the 1973 survey.

Winett, Richard A., and Michael T. Nietzel (2460)
1975 Behavioral Ecology: Contingency Management of Consumer Energy Use.
American Journal of Community Psychology, 3, 2, 123-133.

Method: January 31-March 28, 1974, study of two volunteer groups in Lexington, Kentucky, to determine their relative reductions in the use of natural gas and electricity (monitored by meter). One group (N=16) received monetary incentives and the other (N=15) just information on how to conserve electricity. A one-way analysis of variance techniques was used to analyze the data.

Variables: The relative effects of monetary incentives and of information alone on energy conservation behavior.

Findings: The Incentive Group averaged approximately 15 percent more electricity reduction than the Information Group. This statistically significant difference was maintained in follow-ups.

Woodson, Herbert H., et al. (2465)
1976 Direct and Indirect Economic, Social, and Environmental Impacts of the Passage of the California Nuclear Power Plants Initiative. Austin: The University of Texas, Austin Center for Energy Studies.

Method: A set of scenarios projecting low, medium, and high electric energy demand growth rates, in conjunction with different electric energy supply alternatives, is used to evaluate the likely impacts of the California nuclear power plants initiative. Analytical models were used to study the interaction of the following components: conservation assessment, electrical energy demand/supply/projection/cost analysis, long-run economic growth assessment, socio-cultural assessment, and environmental and health impacts assessments. Results are reported for years 1977, 1985, and 1995.

Variables: Projections of the direct and indirect economic, social, and environmental impacts of enactment of the California nuclear power plants initiative.

Findings: California apparently will need additional electricity. Large-scale supplies may be required in addition to hydro, geothermal, and solar energy resources. Elimination of nuclear energy as an alternative would force increased reliance on other energy sources which possess their own impacts, risks, and uncertainties. Nuclear energy is assumed to provide the lowest cost electricity compared to coal and oil, leading the authors to conclude that elimination of nuclear energy will cause the price of electricity to rise in California. The scenarios show that there may be few overall economic or sociocultural effects should nuclear power be phased out, provided that alternatives are available. Increased use of coal could have significant

sociocultural and environmental effects in nearby states, especially in terms of air and water quality. Increased use of oil could have adverse impacts on California's air quality and would be contrary to the goals of Project Independence. The uncertainties related to nuclear waste and the fuel cycle are noted.

Worrall, Jay W. (2470)
1976 Labeling and Consumer Information Programs for Refrigerator - Freezers: A Study of the Effectiveness of Energy Use Labeling as a Device to Increase the Efficiency of the Nation's Appliances.

Abstract: Specific objectives of the study were to (1) review, summarize and criticize other past or ongoing energy related labeling programs and infer the characteristics of the most successful approaches; (2) design and execute an experiment to assess the effectiveness of energy use and cost of operation labeling for modifying consumer purchasing decisions; (3) investigate the attributes of effective public information and educational activities that would be conducted in parallel with the national labeling effort.

Wright, Susan (2480)
1975 Public Responses to the Energy Shortage: An Examination of Social Class Variables. Unpublished Ph.D. dissertation, Iowa State University.

Method: Interviews from a random sample (N=190) of Des Moines, Iowa, residents, stratified by social class criteria, were used to investigate relationships

between social class and perceptions of energy shortages.

Variables: Social status measures in relation to energy shortage response variables.

Findings: Correlational analysis revealed significant relationships between each of the energy shortage response variables--e.g., attribution of responsibility for the energy crisis--and at least one of the social status indices (education, income, occupation, and so forth). The strengths of these relationships, however, were not sufficiently large to indicate a general social class polarization of interests over the energy crisis issue.

Young, Jeffery W., et al. (2485)
1975 Land Use and Energy Flow at the National Level. Simulation, 24, 1 (January), 113-116.

Method: Simulation model of the interaction of the agricultural and energy sectors at the national level. The model, SPECULATOR, simulates certain hypothetical interactions between national-level-import versus agricultural-export policies and the urban population density versus transportation characteristics of U.S. urbanized areas. Runs are reported for 1970, 1975, 1985, and 2000. The secondary data used are from various sources.

Variables: Per-capita gasoline demand, population size and age structure, price of agricultural land, acreage harvested, wheat exports, etc.

Findings: Preliminary simulations demonstrate inherent homeostatic mechanisms. Results of three runs with differing assumptions are given. Although the

quadrupling of petroleum prices by OPEC has had a major impact on the U.S. economy, it can be inferred from the model that the overall impact may have certain positive effects, e.g., the boosting of U.S. agricultural production and exports.

Zucchetto, James (2487)
1975 Energy-Economic Theory and Mathematical Models for Combining the Systems of Man and Nature. Case Study: The Urban Region of Miami, Florida. Ecological Modeling 1, 241-268.

Method: A study of the Miami, Florida, urban region with respect to energy flow and the relationship between energy theory and economics. Economic, natural system, and energy data were compiled for this region for the period 1950-1972. These data were analyzed by cross-correlation, i.e., a technique for determining how well two functions track each other in time, and used for a simulation model on an analog computer.

Variables: The systematic interactions of socioeconomic (e.g., retail sales, food, population, building structure, and taxes) and natural (e.g., rainfall, wind, and pollution assimilated by the environment) energy flows and shortages.

Findings: Cross-correlations showed significant levels of correlation between the rate of change of fossil fuel use and the rates of change of population, budget, sales tax, income, building structure, and number of telephones. It was determined from the simulation that the ratio of natural to fossil fuel energy changed from 1.77 in 1950 to 0.25 in 1972.

Zuiches, James J. (2490)
1976 Acceptability of Energy Policies to Mid-Michigan Families.
East Lansing, Michigan: Michigan State University, Agricultural Experiment Station. 1976.

Method: Marginal frequency analysis of the attitudes of a 1974 survey of Lansing S.M.S.A. (N=217) families toward the energy crisis.

Variables: Respondent attitudes with respect to energy policies.

Findings: A bare majority of respondents believed the crisis to be real. There was wide divergence in the acceptability of specific energy-saving policies. In general, urban females were most favorable to each policy. Policies that would restrict electrical use, ration meat, increase taxes for large families, and manipulate school seasons, were in the category of limited acceptability (less than 20%). Most respondents were supportive of policies for re-establishing local grocery stores, tax deductions for home insulation and home improvements, increased home gardening, and more food preparation at home.

Zuiches, James, et al. (2500)
Ongoing Changing Family Energy Behavior Through Infra-Red Heat Loss Evaluation: An Experimental Approach.
Ongoing study at Michigan State University, April, 1977 through November, 1977.

Method: Experimental extension of an ongoing five-year longitudinal survey of Lansing S.M.S.A. households, which seeks to assess changes in energy conservation attitudes, behaviors, and

actual consumption from utility company records, pursuant to feedback (an array of alternative actions with which families are presented). Hypotheses tested derive from the pre-treatment survey findings. Thermographic photography and a computer analysis of individual residential energy efficiency together are used to determine heat loss situation and recommended changes. This information is then conveyed to the experimental subject. The experimental design entails three kinds of feedback treatments, two types of delivery treatments and a control group. Households were stratified by income level and residential location, then randomly assigned to control and treatment groups (N=40 for each) from the different strata. Analysis of variance is to be used to evaluate the data.

Variables: The effects of three kinds of feedback through two types of delivery on family attitudes and behaviors toward household heat loss.

Findings: Not yet reported.

Zuiches, James J. (2510)
1976 Coercion and Public Acceptance: The Case of Energy Policies. Paper presented at the Annual Meeting of the Society for the Study of Social Problems, New York, August.

Method: An evaluation model based on Theodore J. Lowi's typology of public policies is used to determine the acceptability of various energy policies that would directly or indirectly affect energy conservation by consumers. Data are from two surveys of the Lansing SMSA, taken during Spring, 1974, (N=216) and Spring, 1976, (N=259). The model of policy acceptance employs path analysis.

Results are compared with a partial regression model of energy policy as affected by sex, urban/rural residence, energy awareness, belief in the energy crisis, and education.

Variables: The effect of socioeconomic characteristics (e.g., urban/rural residence and male/female gender) on attitudes toward four policy types: (1) distributive--policies without negative sanction; (2) constituent-voluntaristic--policies affecting the individual's environment, but entailing no coercion, (3) regulative--policies with explicit negative sanctions; and (4) redistributive--policies which affect individuals through their environment in an involuntary way.

Findings: Regulative and redistributive policies had the lowest levels of support, on the average being acceptable to about one-fourth of the respondents in 1974 and one-third in 1976. Voluntaristic policies with no value-laden implication scored highest (75 percent in 1974). Distributive policies were acceptable to 43 percent of the respondents in 1974 and 54 percent in 1976. In general, urban women were most favorable to each policy. Urban males, rural females, and rural males, in descending order, found policies less acceptable. The partial regression model was found to do a better job than the model of coercion in explaining levels of acceptance of energy policies.

Zuiches, James J. (2520)
1975 Energy and the Family.
East Lansing, Michigan: Michigan State University, Department of Agricultural Economics. Cooperative Extension Service Report No. 390.

Method: Overview of and initial findings from a five-year longitudinal study of energy

and the family. Bench mark cross-section was established May-June, 1974, when a multi-stage area probability sample (N=217, 160 urban and 57 rural) of Lansing, S.M.S.A. families was surveyed by self-administered questionnaires and personal interviews.

Variables: Energy use as related to attitudes, food consumption, transportation, housing conditions, financial expenditures and resources, and the character and quality of the family's functioning in terms of interaction patterns within the family, with friends, relatives, and the larger community.

Findings: Respondents were evenly divided about the reality of the 1973-74 energy crisis, 30% believing energy shortage will be crucial within five to ten years. Acceptability of specific energy policies varied by sex and location, from most to least: urban females, urban males, rural females, and rural males. Least acceptable policies involved severe restrictions, regulation, or rationing. A positive association was found between education, energy awareness, and policy acceptance. Preliminary results are also reported for changes in family nutritional status, household energy use, and the effect of homemaker employment on household energy consumption.

Perspective du consommateur sur la recherche en matière d'énergie une bibliographie annotée