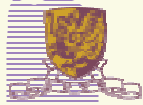




Energy Conservation Behaviour: A Consumer Survey



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Content:



- Research Objectives
- Theoretical Model
- Research Method
- Findings
- Recommendations



Research Objectives

- to identify consumers' underlying motives of energy conservation behaviour
- to examine the extent of consumer practices in energy conservation behaviour
- to investigate the relationships between energy consciousness, personal characteristics and energy conservation behaviour

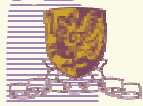
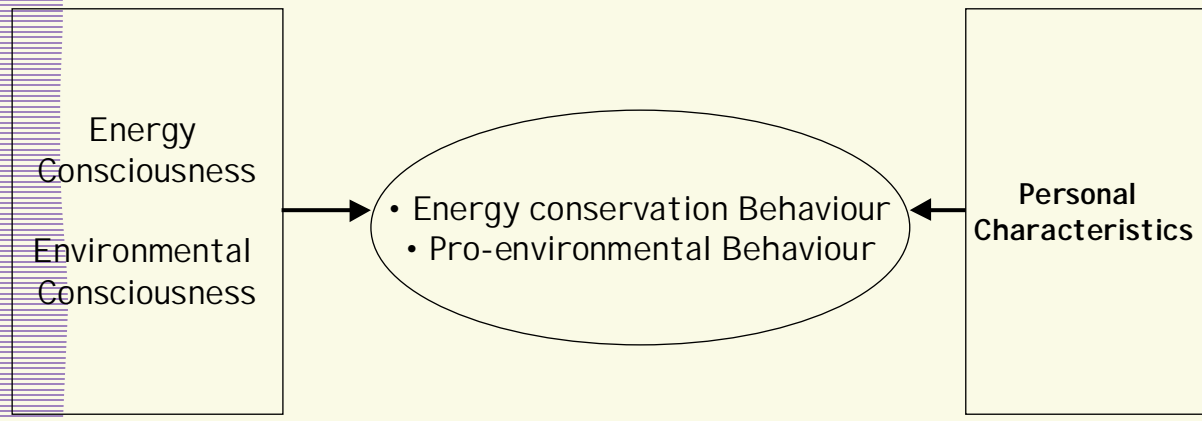


Figure 1: The Theoretical Model





Research Method

- (1) Target Population : Citizens of Kowloon and the New Territories, aged 18-59
- (2) Research Instrument : A Structured Questionnaire
- (3) Research Method : Face-to-face Personal Interview
- (4) Research Period : July 2003
- (5) Sample Size : 418 Randomly Selected Households



Findings



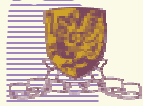


Table 1



Profile of Respondents

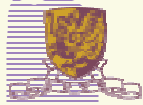


Table 1 (a) : Profile of Respondents

Sex	%
Male	40.2
Female	59.8

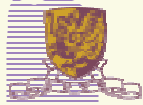


Table (b): Profile of Respondents

Age	%
18 - 29	16.0
30 - 39	29.4
40 - 49	37.6
50 - 59	17.0

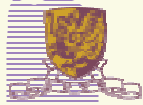


Table 1 (c): Profile of Respondents

Education	%
Primary or Below	19.9
Secondary	68.4
Post-secondary/University	11.7



Table 1 (d) : Profile of Respondents

Career	%
• Occupation	58.4
Manager/Executive	7.4
Professional (e.g. accountant, nurse, engineer)	10.5
Teacher	1.7
White-collar jobs (e.g. secretary, clerk)	14.8
Worker	20.4
Service staff	3.6
• Housewife	30.6
• Student	3.3
• Unemployed	5.5
• Retired	2.2



Table 1 (e): Profile of Respondents

Personal Monthly Income	%
None	41.6
HK\$5,000 or below	5.7
HK\$5,001 – 10,000	17.5
HK\$10,001 – 15,000	12.7
HK\$15,001 – 20,000	8.1
HK\$20,001 – 30,000	9.6
HK\$30,001 – 40,000	3.1
HK\$40,001 – 50,000	1.0
HK\$50,001 or above	0.7

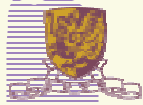


Table 1 (f): Profile of Respondents

Family Monthly Income	%
HK\$5,000 or below	6.9
HK\$5,001 – 10,000	19.4
HK\$10,001 – 15,000	17.9
HK\$15,001 – 20,000	14.6
HK\$20,001 – 30,000	15.3
HK\$30,001 – 40,000	11.7
HK\$40,001 – 50,000	5.0
HK\$50,001 or above	8.6
Refused	0.5

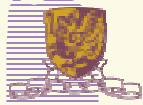


Table 1 (g) : Profile of Respondents

Household Size (including any domestic helper and yourself)	%
1 person	3.6
2 persons	13.2
3 persons	21.8
4 persons	38.0
5 persons	15.3
6 persons	5.3
7 persons	2.2
8 persons	0.7

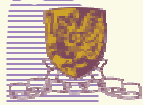
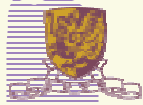


Table 1 (h): Profile of Respondents

Are you the payer of the electricity bill of your household?	%
Yes	62.4
No	37.6



Summary:

The sample represents a good cross section of respondents of different demographic characteristics comprising of sex, age, education, occupation, income and household size.

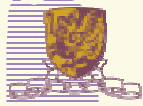


Table 2



Consumers' Underlying Motives of Energy Conservation Behaviour



Table 2 (a): Consumers' Underlying Motives of Energy Conservation Behaviour

	Strongly Disagree (%)	Somewhat Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
• Energy Consciousness				
I am willing to pay more for energy conservation.	6.9	28.5	55.8	8.9
I am willing to change my habits for energy conservation.	0.5	14.1	64.4	21.1
To save energy, I am willing to spend time learning more about conservation.	1.2	7.2	57.8	33.7
We are not doing enough to save scarce energy from being used up.	5.3	21.1	55.8	17.9
We need to save energy for our future generation.	0.5	2.6	31.6	65.3
If we don't save energy now, mankind will suffer the consequence in the future.	2.6	5.9	36.8	54.8



Table 2 (b): Consumers' Underlying Motives of Energy Conservation Behaviour

	Strongly Disagree (%)	Somewhat Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
(I) Energy Optimism				
The earth's resources are infinite and should be used to the fullest to increase the human standard of living.	45.6	38.7	11.2	4.5
We have so much natural resources that we do not have to worry about electricity /energy conservation.	55.0	34.9	11.5	3.6



Table 2 (c): Consumers' Underlying Motives of Energy Conservation Behaviour

	Strongly Disagree (%)	Somewhat Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
• Diffusion of Responsibility				
• Most HK people do not put effort to save energy, so it will be futile even if I put effort to do so.	12.2	45.0	30.3	12.4
• It is no use worrying about energy shortage. We can't do anything about them anyway.	24.9	40.0	24.7	10.5



Table 2 (d): Consumers' Underlying Motives of Energy Conservation Behaviour

	Strongly Disagree (%)	Somewhat Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
• Environmental Consciousness				
Economic growth should take precedence over environmental considerations.	13.2	45.7	32.5	8.6
The amount of energy we use do not affect the environment to any significant degree.	13.9	50.0	31.8	4.3

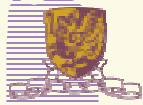
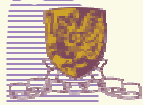


Table 2 (e): Consumers' Underlying Motives of Energy Conservation Behaviour

	Strongly Disagree (%)	Somewhat Disagree (%)	Somewhat Agree (%)	Strongly Agree (%)
• Price Consciousness				
I would never shop at more than one store to find lower prices.	22.5	48.8	24.0	4.8
I am not willing to put extra effort to find lower prices.	15.8	48.8	27.1	8.4
I am willing to shop at more than one store to take advantage of low prices.	4.3	25.9	51.2	18.7
The time it takes to compare prices is usually not worth the effort.	7.2	38.8	42.8	11.2



Summary:

On the whole, respondents are:

- (1) highly conscious of energy conservation;
- (2) moderately conscious of environmental protection issues.

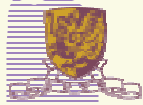


Table 3



Consumers' Energy Conservation and Proenvironmental Behaviour



Table 3 (a) : Consumers' Energy Conservation and Proenvironmental Behaviour

Q: How often did you perform the following behaviors/activities?

	Never (%)	Sometimes (%)	Always (%)
• Energy Conservation Behaviour			
I switch off air-conditioner earlier to use up the residual energy.	4.1	59.8	36.4
I always keep electrical appliances (e.g., fan, air-conditioner, exhaust hood) clean and in good condition to achieve better efficiency.	1.2	62.0	36.8
I switch off any electrical appliances (e.g. electric lights, TV, fans, air-conditioner) when not in use.	0.2	32.6	67.2
After using the refrigerator, I will check its door to make sure that it is completely closed.	3.1	34.0	62.9
I wait until I have a full load before using the washing machine or dryer.	1.9	35.9	62.2
I choose energy efficient products when I purchase electrical household appliances (e.g., energy saving light bulb, a refrigerator with "Grade 1" energy level).	0.2	54.3	45.5

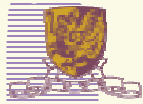
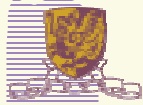


Table 3 (b) : Consumers' Energy Conservation and Proenvironmental Behaviour

Q: How often did you perform the following behaviors/activities?

	Never (%)	Sometimes (%)	Always (%)
• Proenvironmental Behaviour			
I make donations to support environmental protection organizations.	20.1	74.2	5.7
I do not purchase products causing pollution.	5.3	80.8	13.9
I take bags for reuse when going shopping.	21.3	71.3	7.4
I participate in re-cycling activities (e.g., classify garbage into their respective categories).	7.7	72.0	20.3



Summary:

Overall speaking, most respondents are quite willing to take active steps to conserve energy. However, they do not take on proenvironmental behaviour to the same extent.

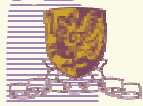


Table 4



**Relationships Between Personal
Characteristics and Energy
Conservation/Proenvironmental
Behaviour**



Figure 2 : Relationships Between Personal characteristics and Energy Conservation/Proenvironmental Behaviour

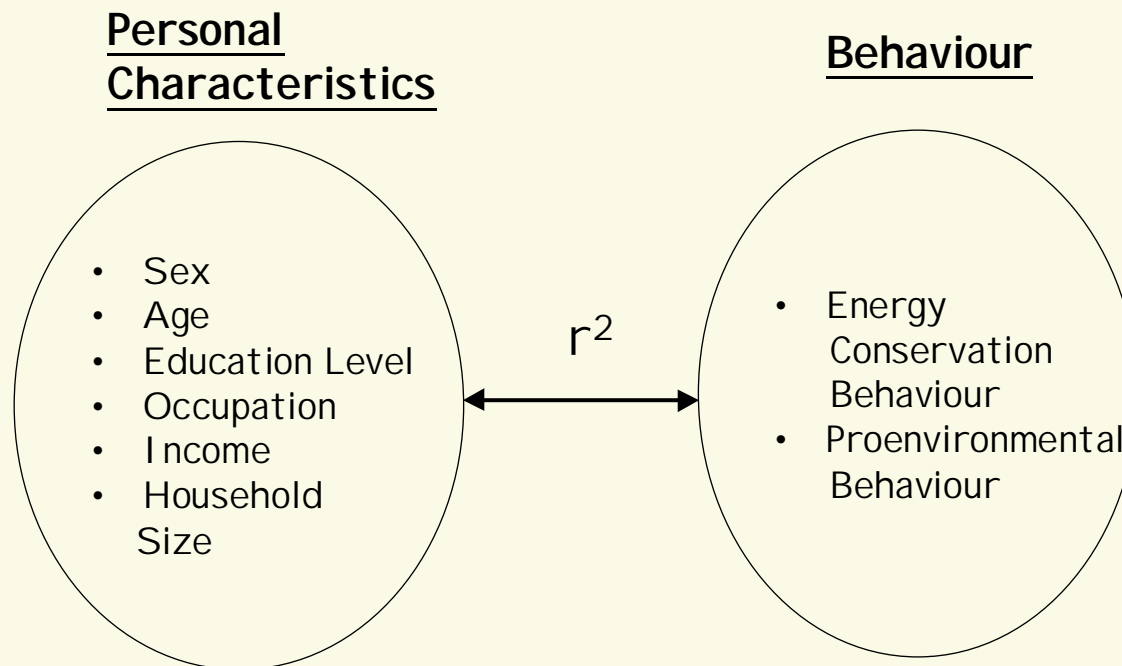




Table 4(a) : Energy Conservation/Proenvironmental Behaviour: Sex

	Male	Female	Result
Energy Conservation Behaviour*	5.03	5.27	Female>Male
Proenvironmental Behaviour*	3.37	3.77	Female>Male

1: Never

6: Always



Table 4(b) : Energy Conservation/Proenvironmental Behaviour: Age

	18 – 29	30 – 39	40 – 49	50 – 59	Result
Energy Conservation Behaviour*	4.83	5.15	5.26	5.35	(18-29) < (30-39), (40-49), (50-59)
Proenvironmental Behaviour	3.35	3.66	3.66	3.66	No significant difference

1: Never

6: Always



Table 4(c) : Energy Conservation/Proenvironmental Behaviour: Education Level

	Primary or below	Secondary	Post-secondary/ university	Result
Energy Conservation Behaviour*	5.38	5.18	4.79	primary = secondary >university
Proenvironmental Behaviour	3.49	3.68	3.43	No significant difference

1: Never

6: Always



Table 4(d) : Energy Conservation/Proenvironmental Behaviour: Occupation

	Employed	House-wife	Student	Un-employed	Retired	Result
Energy Conservation Behaviour*	5.09	5.40	4.65	5.23	5.00	Housewife = Unemployed > Employed = Student=Retired
Proenvironmental Behaviour*	3.51	3.92	3.19	3.21	3.66	Housewife >Employed =Retired >Student = Unemployed

1: Never

6: Always

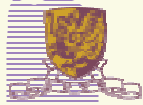


Table 4(e): Energy Conservation/Proenvironmental Behaviour: Personal Monthly Income

	None	HK\$ 5,000 or below	HK\$ 5,001 - 10,000	HK\$ 10,001 - 15,000	HK\$ 15,001 - 20,000	HK\$ 20,001 - 30,000	HK\$ 30,001 - 40,000	HK\$ 40,001 - 50,000	HK\$ 50,001 or above	Result
Energy Conservation Behaviour	4.75	4.75	4.83	5.06	5.10	5.11	5.15	5.15	5.30	No Significant difference
Pro-Environment Behaviour	3.33	3.35	3.42	3.48	3.50	3.71	3.75	3.76	3.91	No Significant difference

1: Never

6: Always

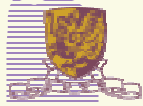


Table 4(f): Energy Conservation/Proenvironmental Behaviour: Family Monthly Income

	HK\$ 5,000 or below	HK\$ 5,001 - 10,000	HK\$ 10,001 - 15,000	HK\$ 15,001 - 20,000	HK\$ 20,001 - 30,000	HK\$ 30,001 -40,000 0	HK\$ 40,001 - 50,000	HK\$ 50,001 or above	Result
Energy Conservation Behaviour	5.28	5.26	5.19	5.21	5.19	5.06	5.12	4.96	No Significant difference
Pro-Environment Behaviour	3.68	3.54	3.52	3.52	3.58	3.87	3.69	3.81	No Significant difference

1: Never

6: Always

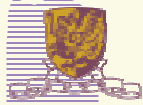


Table 4(g): Energy Conservation/Proenvironmental Behaviour: Household Size

	1	2	3	4	5	6	7	8	Result
Energy Conservation Behaviour	4.93	4.96	5.24	5.21	5.19	5.31	5.12	5.33	No Significant difference
Pro-Environment Behaviour	3.45	3.49	3.63	3.63	3.69	3.85	3.41	2.58	No Significant difference

1: Never

6: Always

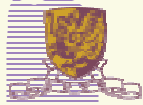
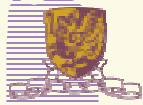


Table 4(h): Energy Conservation/Proenvironmental Behaviour: Are you the payer of the electricity bill of your household?

	Yes	No	Result
Energy Conservation Behaviour	5.16	5.19	No significant difference
Pro-environment Behaviour *	3.57	3.75	No > Yes

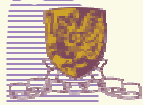
1: Never

6: Always



Summary:

- (1) Characteristics of consumers who tend to exhibit energy conservation behaviour:
 - Female
 - Age \geq 30
 - Secondary education or below
 - Housewife or unemployed



Summary:

(2) Characteristics of consumers who tend to exhibit proenvironmental behaviour:

- Female
- Housewife



Table 5



**Relationships between Values and
Energy Conservation/Proenvironmental
Behaviour**

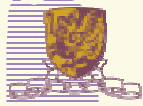


Figure 3 : Relationships Between Values and Behaviour

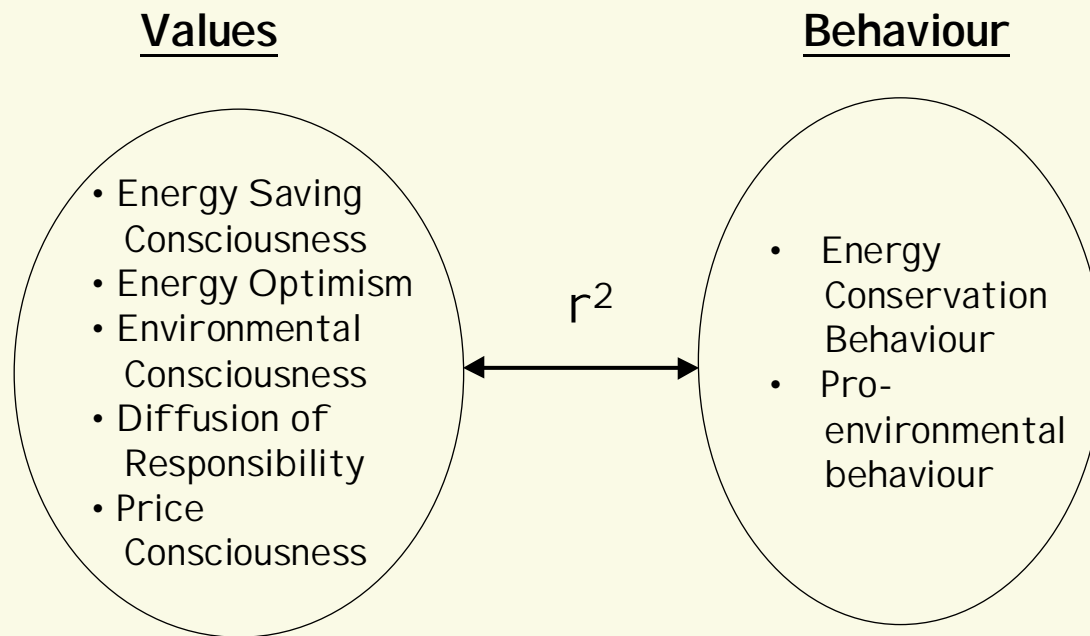




Table 5(a) : Relationships between Values and Energy Conservation/Proenvironmental Behaviour

	Energy Saving Consciousness	Energy Optimism	Environmental Consciousness	Diffusion of Responsibility	Price Consciousness
Energy Conservation Behaviour	.266*	n.s.	.112*	n.s.	.112*
Proenvironment Behaviour	.358*	n.s.	n.s.	n.s.	n.s.

n.s.: not statistically significant



Summary:

(1) Relationships Between Values and Energy Conservation Behaviour

Energy saving consciousness	↑	Energy Conservation Behaviour	↑
Environmental consciousness	↑	Energy Conservation Behaviour	↑
Price consciousness	↑	Energy Conservation Behaviour	↑

(2) Relationships Between Values and Proenvironmental Behaviour

Energy saving consciousness	↑	Proenvironmental Behaviour	↑
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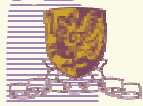


Table 6



Consumers' Attitudes Towards Energy Conservation Responsibilities

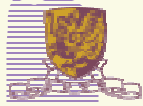


Table 6 (a)

Q: Overall I feel that I have done enough in energy conservation ?
(n = 418)

	%
Enough	65.1
Not Enough	34.9

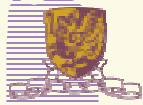


Table 6(b)

Q: If not, the reason is...
(n = 146)

	%
Not willing to make an effort	15.7
Can't save much	9.0
My family don't have such habit	26.7
Too much trouble	8.2
Lack of knowledge	19.9
Others	23.5

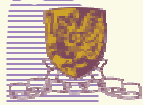


Table 6(c)

Q: Who should play a major role in promoting the habit of energy conservation? (n = 416)

	%
Government	69.4
Power company	50.0
Me and my family	35.8
School	22.3
Green groups	20.0
Others	1.4



Table 7



**The Relative Importance of Factors
Determining Energy
Conservation/Proenvironmental Behaviour**

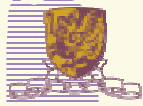


Figure 4

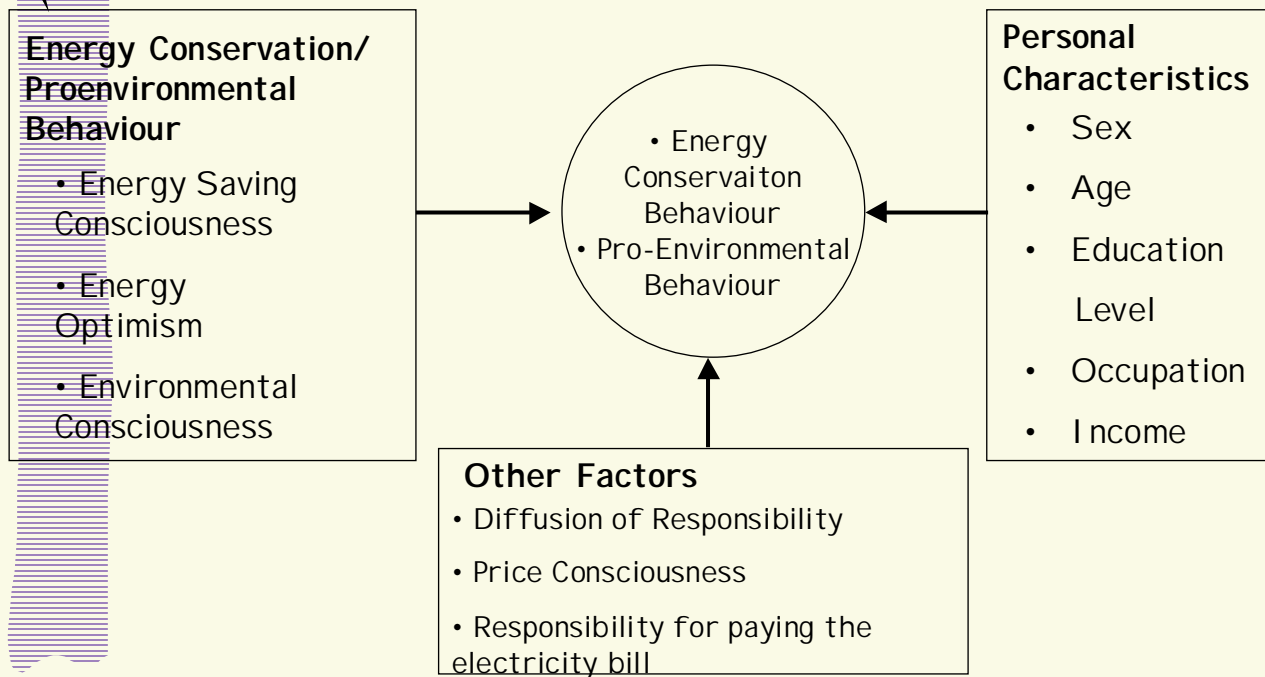




Table 7(a) : The Relative Importance of Factors Determining Energy Conservation / Proenvironmental Behaviour

<u>Determining Factors</u>	<u>Energy Conservation Behaviour</u>	<u>Pro-environmental Behaviour</u>
Energy Saving Consciousness	.275	.364
Age	.187	
Occupation (Housewife)	.172	.265
Education Level (University)	-.153	
Price Consciousness	.124	
Personal Monthly Income		.192
Sex (Female)		.124
Occupation (Retired)		.105
R ²	.208	.201



Summary:

(1) Factors affecting energy conservation behaviour in order of decreasing importance:

- Energy Saving Consciousness
- Age
- Occupation (Housewife)
- Education Level (University) (-)
- Price Consciousness



Summary:

(2) Factors affecting proenvironmental behaviour in order of decreasing importance:

- Energy Saving Consciousness
- Occupation (Housewife)
- Personal Monthly Income
- Sex (Female)
- Occupation (Retired)

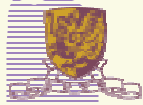


Table 8



**Segmentation of Customers
based on Energy Conservation
and Proenvironmental Behaviour
(n = 418)**

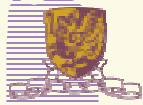


Figure 5 : Segmentation of Customers

Energy Conservation Behaviour

		High	Low
Proenvironmental Behaviour	High	Smarties (47.4%)	
	Low	Egoists (32.7%)	Laggards (19.9%)



Table 8 (a): Segmentation of Customers

	Smarties (47.4%)	Egoists (32.7%)	Laggards (19.9%)
Personal Characteristics			
• Sex	Predominantly Female (65.7%)	Largely Female (60.6%)	Largely Male (55.4%)
• Age	Tend to be older, Age 40-59 (58.1%)	Tend to be older Age 40-59 (59.2%)	Tend to be younger Age 40-59 (38.5%)
• Education Level	Generally less well educated, Post-secondary (7.1%) , Primary (19.2%)	Medium education level, Post-secondary (13.1%), Primary (27.0%)	Generally more well educated, Post-secondary (20.5%), Primary (9.6%)
• Occupation	<ul style="list-style-type: none"> •Housewife (37.9%) •Student (2.0%) •Unemployed (4.5%) •Retired (1.5%) 	<ul style="list-style-type: none"> •Housewife (29.9%) •Student (2.2%) •Unemployed (7.3%) •Retired (2.2%) 	<ul style="list-style-type: none"> •Housewife (14.5%) •Student (8.4%) •Unemployed (4.8%) •Retired (3.6%)

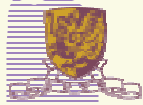
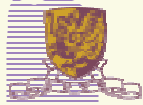


Table 8 (b): Segmentation of Customers

	Smarties (47.4%)	Egoists (32.7%)	Laggards (19.9%)
Views on Energy Conservation and Environmental Issues <ul style="list-style-type: none">• Energy saving consciousness	High	Medium	Medium

1 : Low

6: High



Summary:

- (1) Based on their energy conservation and proenvironmental behaviour, the respondents may be categorized into the following groups: smarties, egoists and laggards.

- (2) Significant differences exist among the three groups in terms of personal characteristics and energy consciousness.

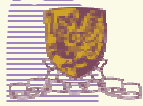
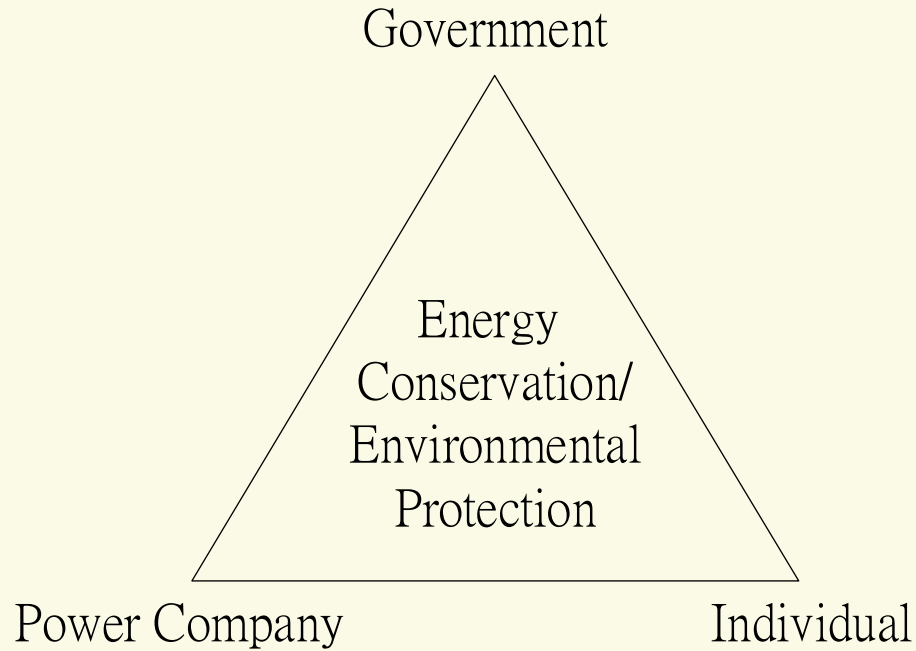


Figure 6





Recommendations:

Government:

- (1) Energy consciousness has a positive correlation with energy conservation and pro-environmental behaviour. As such, the government should continue to strengthen its promotion of energy saving consciousness.
- (2) Compared with other segments of the population, male youngsters seem to be unwilling to make an effort to save energy. Hence, the government should target young people in its future energy conservation promotional and educational programmes.

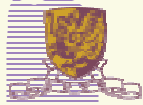


Recommendations:

Power Company:

Most respondents believe that in order to promote energy conservation behaviour, power companies should play a more proactive role. Thus, power companies should:

- Strengthen its advertising and educational activities to promote energy conservation
- Encourage customers to incorporate energy conservation behaviour as part of their everyday life
- Co-operate with electrical appliance manufacturers in promoting energy-saving products



Recommendations:

General Public:

Every individual has the responsibility to learn and practise energy conservation and environmental protection.