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Hunter Households' Attitudes to the Environment and Energy Usage

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Hunter Households' Attitudes to the Environment and Energy Usage Report

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Executive Summary

For more than a decade, Hunter Research Foundation (HRF) has periodically surveyed the attitudes of Hunter householders to various aspects of their environment. In December 2015, in collaboration with HRF sponsor Origin Energy, several environmental attitudes questions that had been asked in previous years were again asked of Hunter survey respondents, along with some new questions relating to attitudes and behaviours regarding energy usage.

The survey results suggest that respondents agree that climate change does exist and it will affect them. A total of 65 per cent agree that human activities are causing significant changes to the earth's climate. Over half (57%) of respondents agree that climate change will directly affect their community in the next 20 years. Almost half (48%) of respondents believe that local communities are prepared to deal with disasters. The main impacts of climate change in the future are believed to be extreme weather, increase in temperature and drought. The survey suggests that respondents agree that climate change is an issue and that action must be taken.

Nearly half (49%) of respondents believe that the benefits of the coal industry for the Hunter Region outweigh the negative impacts. The respondents were undecided whether nuclear energy was an acceptable alternative with 23 per cent neither agreeing nor disagreeing, 22 per cent in favour and 15 per cent opposed. Three out of four respondents did not own renewable energy systems, with six per cent intending to purchase a system in the next 12 months. Those who owned, or intended to purchase, listed cost savings as the main reason for investing in a renewable energy system.

For 62 per cent of the respondents, the cost of household energy was a negative effect of climate change in the last 12 months. However, a similar proportion (57%) believed that they had neither increased nor decreased their energy consumption. Those who have increased (18%) or decreased (18%) attributed the change to an increase/decrease in people living in the household as the main cause.

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1 Introduction

Hunter Research Foundation (HRF), supported by Origin Energy, used their Hunter Pulse Domestic Survey to assess community attitudes towards climate change and alternative energies, and gauge their changes in energy consumption over the last 12 months. This report looks into the results from the survey.

The HRF Hunter Pulse Domestic Survey is a multi-client survey conducted quarterly in March, June, September and December each year.

The questions supported by Origin Energy formed part of the December quarter Hunter Pulse Domestic survey. A total of 302 residents aged 18 and over throughout the Hunter Region completed an online survey between 16 November and 4 December 2015. The Hunter Region is defined by the HRF as the 11 Local Government Areas of Cessnock, Dungog, Gloucester, Great Lakes, Lake Macquarie, Maitland, Muswellbrook, Newcastle, Port Stephens, Singleton and the Upper Hunter Shire.

Analysis of results follows in Section 2. A copy of the questionnaire is contained in Appendix 1, a description of the survey methods and analysis is provided in Appendix 2, and the demographic characteristics of the survey sample are presented in Appendix 3.

The results shown in Section 2 have been statistically weighted to 300 interviews according to the age and gender distribution of the regional population. Significant difference means a statistically significant difference (See Appendix 2 for details). Results for proportions in tables are rounded to one decimal place.



2 Results

2.1 Climate change

All respondents were provided with the following introductory statement.

The next questions ask for your views on some issues important to the Hunter Region.

On a scale of 1 to 5 where:

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neither disagree nor agree
- 4 = Agree
- 5 = Strongly agree
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

How strongly do you agree or disagree with the following statements?

1. Climate Change will have a direct impact on my community in the next 20 years.
2. Human activities are causing significant changes to the Earth's climate

Almost six-out-of-ten (57%) respondents agreed or strongly agreed that climate change will have a direct impact on the community in the next 20 years. A total of 14 per cent disagreed or strongly disagreed with this statement. The mean agreement score was 3.7 out of 5 (where 4 is Agree).

Approximately two-out-of-three (65%) respondents agreed that human activities are causing significant changes; only one-tenth (10%) disagreed or strongly disagreed with the statement. The mean for the total respondents is 3.9 out of 5 (where 4 is Agree).

Table 1 Rating for Statements on climate change

How strongly do you agree or disagree with the following statements?	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree	Don't know/not sure	Refused	Mean
Climate change will have a direct impact on my community in the next 20 years	5.7%	8.1%	18.5%	31.9%	25.5%	9.7%	0.7%	3.7
Human activities are causing significant changes to the Earth's climate	3.0%	6.6%	18.6%	39.2%	27.2%	5.0%	0.3%	3.9

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Female respondents were more likely to agree (4.0 where 4 is Agree) with the statement *Human activities are causing significant changes to the Earth's climate*, than their male counterparts (3.7 where 4 is Agree).

Table 2 Ratings for statement on climate change by Gender-Mean scores

Human activities are causing significant changes to the Earth's climate	Mean
Male	3.7
Female	4.0

There was a significant difference between age groups for the statement *Human activities are causing significant changes to the Earth's climate*. Respondents in the 65 plus years age group (3.6 where 4 is Agree) were less likely to agree with the statement than the 18-24 (4.0 out of 5) and 35-49 year old age groups (4.0 out of 5).

Table 3 Ratings for statements on climate change by Age group-Mean scores

Mean	18-24 n=36	25-34 n=45	35-49 n=78	50-64 n=75	65 plus n=66
Human activities are causing significant changes to the Earth's climate	4.0	3.8	4.0	3.8	3.6

A total of 179 respondents agreed or strongly agreed with the statement *Climate change will have a direct impact on my community in the next 20 years* and were then asked what they believed the main impact would be. The most frequently indicated main impact was changes in weather/extreme climate events (21%), followed by an increase in temperature/warmer weather (12%) and drought/higher temperatures and lower rainfall (7%).

Table 4: Main impacts of climate change

	Total n= 179
Changes in weather / extreme weather events	21.2%
Increased temperatures / warmer weather	12.3%
Drought / higher temps + lower rainfall	6.7%
Don't know	8.9%
Negative impacts on natural environment	6.7%
Other	6.1%
Negative impacts on the economy	5.6%
Forced changes to lifestyle / behaviours	6.7%
Rising sea levels	3.9%
Increased air pollution	3.4%
Bush fires	3.4%
Less water available	2.8%
Refused	2.8%
Increased cost of living	2.2%
Changes in energy / water use	2.2%
Decreased food production / higher food prices	1.1%
Increased pollution - general	1.1%
Increasing Population	1.1%
Increased energy / fuel costs	0.6%
Increased health problems	0.6%
Negative impacts on future generations	0.6%
Total	100.0%

2.2 Energy production

The next questions ask for your views on some issues important to the Hunter Region.

On a scale of 1 to 5 where:

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neither disagree nor agree
- 4 = Agree
- 5 = Strongly agree
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

How strongly do you agree or disagree with the following statements?

3. The benefits of the coal industry for our Region outweigh the negative impacts
4. Nuclear energy is an acceptable alternative to coal based energy for Australia

Approximately half (49%) of the respondents agreed or strongly agreed with the statement that *the benefits of the coal industry for our Region outweigh the negative impacts*. Approximately one-fifth (22%) disagreed or strongly disagreed with this statement. The overall mean was 3.4 (where 3.0 is *neither agree nor disagree*).

A total of 37 per cent of respondents agreed or strongly agreed with the statement *nuclear energy is an acceptable alternative to coal based energy for Australia*, approximately one-quarter (23%) neither agreed nor disagreed and 27 per cent disagreed or strongly disagreed. The mean of agreement is 3.2 (where 3 is *neither agree nor disagree*)

Table 5 Rating for statements on energy production

How strongly do you agree or disagree with the following statements?	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree	Don't know/not sure	Refused	Mean
The benefits of the coal industry for our Region outweigh the negative impacts	8.0%	14.3%	23.0%	30.7%	17.7%	6.0%	0.3%	3.4
Nuclear energy is an acceptable alternative to coal based energy for Australia	12.0%	14.6%	22.9%	22.6%	14.6%	13.0%	0.3%	3.2

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Males were significantly more likely to agree or strongly agree (mean of agreement 3.6 where 4 is agree) with the statement *the benefits of the coal industry for our Region outweigh the negative impacts*, than females, (mean of agreement 3.2 where 3 is *neither agree nor disagree*).

Similarly, males were more likely to agree or strongly agree (3.6 where 4 is agree) with the statement *nuclear energy is an acceptable alternative to coal based energy for Australia* than females (2.7 where 3 is *neither agree nor disagree*).

Table 6 Ratings for statements on energy production by Gender-Mean scores

The benefits of the coal industry for our Region outweigh the negative impacts	Mean
Male	3.6
Female	3.2
Nuclear energy is an acceptable alternative to coal based energy for Australia	Mean
Male	3.6
Female	2.7

There was a significant difference in the agreement mean score between age groups. Respondents in the 25-34 years age group (3.9 where 4.9 is agree) were more likely to agree with the statement *the benefits of the coal industry for our Region outweigh the negative impacts* compared to 35-49 year olds (3.1 where 3.0 is *neither agree nor disagree*).

There was a significant difference between age groups for the statement *nuclear energy is an acceptable alternative to coal based energy for Australia*. Respondents in the 50-64 year age group (3.0 where 3.0 is *neither agree nor disagree*) were significantly less likely to agree with nuclear energy than the 65 plus (3.5 where 3.0 is *neither agree nor disagree*).

Table 7 Ratings for statements on energy production by Age group-Mean scores

Mean	18-24 n=36	25-34 n=45	35-49 n=78	50-64 n=75	65 plus n=66
The benefits of the coal industry for our Region outweigh the negative impacts	3.6	3.9	3.1	3.3	3.5
Nuclear energy is an acceptable alternative to coal based energy for Australia	3.2	3.2	3.0	3.0	3.5

2.3 Local preparedness

The next questions ask for your views on some issues important to the Hunter Region.

On a scale of 1 to 5 where:

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neither disagree nor agree
- 4 = Agree
- 5 = Strongly agree
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

How strongly do you agree or disagree with the following statements?

5. My local area is well prepared to deal with natural disasters such as bushfires, severe storms, floods and drought

A total of 48 per cent agreed or strongly agreed with the statement *my local area is well prepared to deal with natural disasters such as bushfires, severe storms, floods and drought*. Approximately one-quarter (26%) neither agreed nor disagreed and almost one-fifth (17%) disagreed or strongly disagreed to the statement. The overall mean for the responses was 3.4 where 3.0 is *neither agree nor disagree*.

Table 8 Ratings for statements on local preparedness

How strongly do you agree or disagree with the following statements?	Strongly disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree	Don't know/not sure	Refused	Mean
My local area is well prepared to deal with natural disasters such as bushfires, severe storms, floods and drought	4.0%	13.4%	26.2%	39.9%	7.4%	8.7%	0.3%	3.4

2.4 How should we respond to climate change?

Respondents were asked to choose from the following choices about how to respond to climate change

Which ONE of the following FIVE statements do you MOST agree with?

1. Climate change is not a problem, so we don't need to do anything
2. Until we are sure climate change is a problem, we shouldn't do anything
3. Climate change is a problem, but anything we do would not make a difference
4. Climate change is a problem, but the effects will be gradual so we can take time to deal with them
5. Climate change is a problem, and we need to take action now
6. Don't know/ Not sure
7. Refused

A total of 71 per cent of respondents agree that climate change is a problem; 44 per cent believe we should take action now, 13 per cent believe that changes will be gradual and another 13 per cent believed that nothing we do would make a difference. A total of 10 per cent were unsure whether climate change was a problem and only 5 per cent did not believe that climate change was a problem.

There was a significant difference in the way each gender responded with a greater proportion of males (19%) believing that climate change was a problem but that anything we do would not make a difference than females (8%). The responses by gender are shown in table 9.

Table 9 Attitude towards climate change and how we should respond

	Male n=146	Female n=154	Total n=300
Climate change is <u>not</u> a problem, so we don't need to do anything	6.2%	3.2%	4.7%
Until we are sure climate change is a problem, we <u>shouldn't</u> do anything	11.6%	8.4%	10.0%
Climate change is a problem, but anything we do would <u>not</u> make a difference	19.2%	7.8%	13.3%
Climate change <u>is</u> a problem, but the effects will be gradual so we can take time to deal with them	11.6%	14.9%	13.3%
Climate change is a problem, and we need to take action <u>now</u>	39.7%	48.7%	44.3%
Don't know/not sure	11.6%	15.6%	13.7%
Refused	0%	1%	1%
Total	100%	100%	100%

There was a significant difference in how age groups responded; those in the 65 or older group (17%) were more likely to indicate that *until we are sure climate change is a problem, we shouldn't do anything* than 35-39 year olds (5%). Eighteen to 24 year olds (51%) were significantly more likely than the 65 year olds or older (31%) to indicate that *climate change is a problem and we need to take action now*.

Table 10 Attitude towards climate change and how we should act by Age groups

	18-24 n=36	25-34 n=45	35-49 n=78	50-64 n=75	65 plus n=66	Total n=300
Climate change is not a problem, so we don't need to do anything	0.0%	6.4%	3.9%	7.8%	4.6%	5.0%
Until we are sure climate change is a problem, we shouldn't do anything	8.6%	6.4%	5.2%	13.0%	16.9%	10.3%
Climate change is a problem, but anything we do would not make a difference	14.3%	12.8%	14.3%	9.1%	16.9%	13.3%
Climate change is a problem, but the effects will be gradual so we can take time to deal with them	11.4%	21.3%	11.7%	11.7%	12.3%	13.3%
Climate change is a problem, and we need to take action now	51.4%	42.6%	49.4%	48.1%	30.8%	44.2%
Don't know/not sure	14.3%	10.6%	15.6%	9.1%	18.5%	13.6%
Refused	0.0%	0.0%	0.0%	1.3%	0.0%	0.3%
Total	100%	100%	100%	100%	100%	100%

2.5 Negative effects in the last 12 months

All respondents were asked the question, **in the past 12 months, have any of the following things in your local area negatively affected you?**

The choices were:

- Proposed development
- Poor air quality
- Poor drinking water quality
- High noise levels
- Poor soil quality
- Clearing of native vegetation
- Traffic congestion

Respondents were able to pick more than one response, a total of 713 answers were received giving an average response of 2.4 affects per person. A total of 62 per cent of respondents indicated that they have been negatively affected in the past 12 months by the cost of household electricity. Just under half (44 %) of the respondents indicated that traffic congestion has been a problem. Approximately one-third (32%) of respondents were affected by high levels of noise in the last 12 months.

Table 11 Negative affects

	Yes	No	Don't know/not sure	Refused
Proposed development	28.9%	61.1%	9.6%	0.3%
Poor air quality	20.7%	70.0%	9.0%	0.3%
Poor drinking water quality	14.6%	77.7%	7.3%	0.3%
High noise levels	31.9%	62.5%	5.3%	0.3%
Poor soil quality	13.9%	73.8%	11.9%	0.3%
Clearing of native vegetation	21.7%	66.3%	11.7%	0.3%
Traffic congestion	43.7%	51.3%	4.7%	0.3%
The cost of household electricity	61.2%	32.8%	5.6%	0.3%

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There was a significant difference in how age groups responded to the factors which may have negatively impacted them in the previous 12 months. This includes:

- The oldest respondents (those aged 65 year olds and older) were less likely than younger respondents to indicate that the cost of household electricity was an issue.
- The youngest respondents (18-24 year olds) were less affected by traffic congestion (23%) and clearing of native vegetation (11%) compared to older age groups.
- Respondents in the 35-49 age category felt that they were less affected by poor drinking water in the last 12 month, compared to the other age groups.
- Respondents aged between 25-34 years were significantly more likely than those in other age groups to believe that poor soil quality has been a negative effect within the previous 12 month.

Table 12 Negative effects by Age groups

	18-24 n=36	25-34 n=45	35-49 n=78	50-64 n=75	65 plus n=66	Total n=300
The cost of household electricity	52.8%	66.0%	67.9%	68.0%	47.0%	61.3%
Traffic congestion	22.9%	56.5%	42.9%	51.3%	37.9%	43.7%
High noise levels	25.7%	34.8%	28.6%	35.5%	32.8%	31.9%
Proposed development	22.9%	28.3%	32.5%	35.5%	20.9%	28.9%
Clearing of native vegetation	11.4%	15.2%	20.8%	21.3%	32.8%	21.7%
Poor air quality	25.7%	24.4%	18.2%	21.3%	16.4%	20.4%
Poor drinking water quality	17.1%	24.4%	9.0%	15.8%	11.9%	14.6%
Poor soil quality	8.3%	26.1%	16.9%	7.9%	11.9%	13.9%

2.6 Ownership of renewable energy systems

All respondents were asked **do you have your own renewable energy system (such as solar power or a wind turbine)?**

The respondents could reply with the following responses;

- Yes
- No
- Don't know/unsure
- Refuse

Approximately three-quarters of respondents (76%) indicated that they did not own a renewable energy system. Males (29%) were significantly more likely than females (16%) to own a renewable energy system.

Table 13: Ownership of renewable energy systems by Gender

	Male n=146	Female n=154	Total n=300
Yes	28.8%	16.2%	22.3%
No	69.2%	82.5%	76.0%
Don't know/not sure	2.1%	0.6%	1.3%
Refused	0.0%	0.6%	0.3%

2.6.1 Main reason for purchasing a renewable energy system

The 22 per cent (n=67) of respondents who indicated that they do own a renewable energy system were asked **what was the main reason you purchased a renewable energy system?**

As shown in Table 14, almost six-out-of-ten (58%) stated that they purchased the system to cut living costs. Just over one-in-nine (12%) listed benefits to the environment as the cause of purchasing a renewable energy system. About one-in-eleven (9%) said they purchased the system for some other reason related purely to financial considerations.

Table 14: Main reasons for purchasing renewable energy system

	Total n=67
Cost savings	58.2%
Benefits to the environment	11.9%
Some other reason related purely to financial considerations	9.0%
Government incentives	7.5%
None of the above	6.0%
The recommendation of family and/or friends	4.5%
Don't know/not sure	3.0%

2.6.2 Do you intend to purchase a renewable energy system in the next 12 months?

The 76 per cent (n=230) of respondents who indicated that they did not own a renewable energy system were then asked **do you intend to purchase a renewable energy system in the next 12 months?**

Approximately two-thirds (65%) were not intending to purchase a system, fewer than one-in-ten (8%) indicated that they are intending to purchase and approximately one-quarter (27%) were unsure.

A greater proportion of 18- 24 years olds (80%) indicated that they did not intend to purchase a renewable energy system than other age groups, which had high proportions of unsure respondents.

Table 15 Intentions to purchase renewable system within 12 months by Age groups

	18-24 n=36	25-34 n=45	35-49 n=78	50-64 n=75	65 plus n=66	Total n=300
Yes	12.0%	13.9%	8.9%	8.9%	0.0%	8.0%
No	80.0%	61.1%	53.6%	66.1%	69.8%	64.6%
Don't know/not sure	8.0%	25.0%	37.5%	25.0%	30.2%	27.4%

2.6.3 Main reason for purchasing a renewable energy system

Only 20 respondents indicated that they intend to purchase a renewable energy system in the next 12 months. These respondents were asked *what would be the main reason you would purchase a renewable energy system.* Just under three-quarters (70%) indicated that cost saving would be their main reason and only one in seven (15%) said they intended to purchase a system due to benefits to the environment.

Table 16 Main reasons for intending to purchase a renewable energy system

	Total n=20
Cost savings	70.0%
Benefits to the environment	15.0%
The recommendation of family and/or friends	10.0%
Some other reason related purely to financial considerations	5.0%

2.6.4 Main reason for not purchasing a renewable energy system

A total of 147 people indicated that they were not intending to purchase a renewable energy system in the next 12 months. They were then asked **what would be the main reason you would not purchase a renewable energy system?** Their responses are listed in Table 17.

One-third (33%) indicated that financial considerations was the main reason that they would not purchase, 20 per cent indicated that energy savings do not outweigh the cost, and approximately one-in-nine (11%) listed a lack of Government incentives as their reasons for not purchasing a renewable energy system.

Males (29%) were significantly more likely than females (13%) to state that energy savings do not outweigh the cost of purchasing a renewable energy system. Females (11%) were significantly more likely than males (2%) to be unsure of why they did not intend to purchase a renewable energy system.

Table 17 Main reasons for not intending to purchase a renewable energy system by Gender

	Male n=63	Female n=84	Total n=147
Some other reason related purely to financial considerations	30.2%	35.7%	33.3%
None of the above	22.2%	29.8%	26.5%
Energy savings do not outweigh the cost	28.6%	13.1%	19.7%
Lack of Government Incentives	11.1%	10.7%	10.9%
Don't know/not sure	1.6%	10.7%	6.8%
Insufficient or no environmental benefits	6.3%	0.0%	2.7%

2.7 Changes in energy consumptions

All respondents were asked **how has your household's energy consumption (electricity and/or gas) changed over the past 12 months?**

The respondents could reply with the following responses;

- **Increased**
- **Stayed about the same**
- **Fallen**
- **Don't know/unsure**

Over half (57%) indicated that their energy consumption had not changed. Fewer than one-in-five (18%) dropped consumption, while a similar proportion (18%) had increased their consumption.

Females were significantly more likely than males to indicate that their energy consumption had increased, while males were significantly more likely to state that it had fallen.

Table 18 Changes in energy consumption in the last 12 months by Gender

	Male n=146	Female n=154	Total n=300
Increased	13.0%	22.1%	17.7%
Stayed about the same	56.2%	58.4%	57.3%
Fallen	23.3%	13.0%	18.0%
Don't know/not sure	7.5%	6.5%	7.0%

There was also a significant difference in the proportion of respondents from each age group indicating how their energy consumption had changed. The youngest respondents (18-24 year olds) were significantly more likely to indicate their consumption had decreased. Respondents aged 50-64 were significantly more likely than other age groups to indicate that their energy consumption had stayed the same.

Table 19 Changes in energy consumption in the last 12 months by Age groups

	18-24 n=36	25-34 n=45	35-49 n=78	50-64 n=75	65 plus n=66	Total n=300
Increased	11.4%	24.4%	18.2%	11.7%	22.7%	17.7%
Stayed about the same	45.7%	53.3%	58.4%	66.2%	54.5%	57.3%
Fallen	28.6%	11.1%	16.9%	16.9%	19.7%	18.0%
Don't know/not sure	14.3%	11.1%	6.5%	5.2%	3.0%	7.0%

2.7.1 Increased energy consumption.

The 53 respondents who indicated that their energy consumption had increased were asked **what is the main reason your energy (electricity and/or gas) consumption has increased?**

Almost three-in-ten (28%) didn't know why their consumption has increased, while 26 per cent attributed more people in their household to the increase and 23 per cent said they had more appliances, which increased their energy consumption.

Table 20 Main reasons for consumption increase

	Total n=53
Don't know/not sure	28.3%
More people in the household consuming electricity	26.4%
More appliances (e.g. new TV or new pool)	22.6%
Other (PLEASE SPECIFY)	17.0%
Energy has become more affordable	5.7%

Table 21 Other specified reasons for consumption increase

Other reasons for Increase in consumption
air conditioner running more often
electricity has gone up
kids are older and use more
more expensive
others using air con 24/7
price increase
Prices of Electricity & gas has become dear
rising costs

2.7.2 Decrease in energy consumption

The 54 respondents who indicated that their energy consumption had decreased were asked **what is the main reason your energy (electricity and/or gas) consumption has decreased?**

Table 22 shows the main reasons. One-third (33%) of respondents attributed the reduction in consumption to less people in the household, approximately one-fifth (20%) indicated that less affordable energy prices had made their consumption drop and just under one-fifth (19%) stated that replacing less efficient appliances reduced their consumption.

Table 22 Main reasons for consumption decreased

	Total n=54
Less people in the household consuming electricity	33.3%
Energy has become less affordable	20.4%
Replacement of less efficient appliances with more efficient ones	18.5%
Greater energy efficiency (without any changes in appliances owned)	11.1%
Other (PLEASE SPECIFY)	11.1%
Don't know/not sure	5.6%

Table 23 Other specified reasons for consumption decrease

Other reasons for decrease in consumption
general energy saving awareness
Occupants more mindful of usage
solar
using less appliances to save usage



Appendices

Appendix 1 – Survey Questionnaire

HUNTER PULSE QUESTIONS

QENV1. The next questions ask for your views on some issues important to the Hunter Region. On a scale of 1 to 5 where:

- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neither disagree nor agree
- 4 = Agree
- 5 = Strongly agree
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

How strongly do you agree or disagree with the following statements?

QENV1p1 Climate change will have a direct impact on my community in the next 20 years

QENV1p2 The benefits of the coal industry for our Region outweigh the negative impacts

QENV1p3 Nuclear energy is an acceptable alternative to coal based energy for Australia

QENV1p5 Human activities are causing significant changes to the Earth's climate

QENV1p6 My local area is well prepared to deal with natural disasters such as bushfires, severe storms, floods and drought

IF qenv1p1=4.or.qenv1p1=5

QENV1a. You answered before that you feel climate change WILL have an impact on your community.
What do you think the MAIN impact will be?

QENV1b. Thinking now about the issue of climate change and how we should respond to it.

Which ONE of the following FIVE statements do you MOST agree with?

- 1. Climate change is not a problem, so we don't need to do anything
- 2. Until we are sure climate change is a problem, we shouldn't do anything
- 3. Climate change is a problem, but anything we do would not make a difference
- 4. Climate change is a problem, but the effects will be gradual so we can take time to deal with them
- 5. Climate change is a problem, and we need to take action now
- 8. DON'T KNOW/NOT SURE
- 9. REFUSED

QENV2. In the past 12 months, have any of the following things in your local area NEGATIVELY affected you?

- # Proposed development
- # Poor air quality
- # Poor drinking water quality
- # High noise levels
- # Poor soil quality
- # Clearing of native vegetation
- # Traffic congestion

Hunter Households' Attitudes to the Environment and Energy Usage

QENV3. Do you have your own renewable energy system (such as solar power or a wind turbine)?:

- 1 = YES
- 2 = NO
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

IF qenv3=1

QENV3a. What was the MAIN reason you purchased a renewable energy system?

- 1 = Cost savings
- 2 = Government incentives
- 3 = Some other reason related purely to financial considerations
- 4 = Benefits to the environment
- 5 = The recommendation of family and/or friends
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

IF qenv3=2

QENV3b. Do you intend to purchase a renewable energy system in the next 12 months?

- 1 = YES
- 2 = NO
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

IF qenv3b=1

QENV3b1. What would be the MAIN reason you would purchase a renewable energy system?

- 1 = Cost savings
- 2 = Government incentives
- 3 = Some other reason related purely to financial considerations
- 4 = Benefits to the environment
- 5 = The recommendation of family and/or friends
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

IF qenv3b=2

QENV3b1. What would be the MAIN reason you would not purchase a renewable energy system?

- 1 = Energy savings do not outweigh the cost
- 2 = Lack of Government Incentives
- 3 = Some other reason related purely to financial considerations
- 4 = Insufficient or no environmental benefits
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

QENV4. How has your household's energy consumption (electricity and/or gas) changed over the past 12 months?

- 1 = INCREASED
- 2 = STAYED ABOUT THE SAME
- 3 = FALLEN
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

IF qenv4=1

Hunter Households' Attitudes to the Environment and Energy Usage

QENV4a. What is the MAIN reason your energy (electricity and/or gas) consumption increased?

- 1 = More people in the household consuming electricity
- 2 = More appliances (e.g. new TV or new pool)
- 3 = Energy has become more affordable
- 4 = Other
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

IF qenv4=3

QENV4b. What is the MAIN reason your energy (electricity and/or gas) consumption decreased?

- 1 = Less people in the household consuming electricity
- 2 = Replacement of less efficient appliances with more efficient ones
- 3 = Greater energy efficiency (without any changes in appliances owned)
- 4 = Energy has become less affordable
- 5 = Other
- 8 = DON'T KNOW/NOT SURE
- 9 = REFUSED

Appendix 2 – Survey Design

Data collection: The survey questions, developed in conjunction with Origin Energy, were included in the September quarter Hunter Pulse Domestic Survey program. This survey was administered online between 16 November and 4 December 2015.

Survey area: Hunter Region comprising postcodes for the 11 Local Government Areas of Cessnock, Dungog, Gloucester, Great Lakes, Lake Macquarie, Maitland, Muswellbrook, Newcastle, Port Stephens, Singleton and the Upper Hunter Shire.

Sample selection: 302 persons throughout the survey area randomly selected from a panel of participants invited to complete an online survey.

Participants: Individuals in the household aged 18 years or older.

Data handling and analysis:

Carried out by the HRF using SPSS statistical analysis software.

Surveying attempts to make inferences for the whole of an area's population by talking to a small sub-group (sample) within that population. As the sample only approximates the whole population, it is necessary to take this approximate nature into account when comparing the scores and measures generated by the survey.

While the absolute value of scores and measures can change, it is necessary to test these changes statistically to find out whether they simply reflect the approximate nature of the sample or if they indicate a real difference in opinion. Statistically significant changes indicate that, at the 95 per cent level of confidence, there has been a real difference in opinion, as opposed to a difference attributable to chance.

Where applicable, the numeric values from the scales are converted to an overall average (mean) score. This score is calculated only for those who responded using the designated scale and does not include the non-scale responses: *don't know* or *refused*.

When interpreting the results, the distribution of ratings and the score need to be considered together, not individually. For example, ratings which are evenly spread over a 1 to 5 scale may yield the same mean score as those which are relatively polarised at either end of the scale. The policy implications for these contrasting distributions are very different, despite receiving the same score.

Recorded responses were weighted by the age and sex of the population aged 18 and over living in the Hunter Region, determined by the 2011 *Census of Population and Housing*. This weighting procedure ensures that the sample is representative of the age and gender distribution of the survey population.

Statistical accuracy: ± 5.8% for a prevalence of 50% at a confidence level of 95% for a sample size of 300.

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Example: If 50% of respondents said 'yes' to a question that required a yes/no response, the true proportion of people aged 18 or over in the Hunter who would give the same answer (if all were interviewed) would be between 44.2% and 55.8%, 95 times out of 100 (see right hand column of Table 17 for 50%-50%).

If 30% of respondents said 'yes', the true proportion of people aged 18 or over in the Hunter who would give the same answer would be between 24.7% and 35.3%, 95 times out of 100 (see 7th column of Table 17 for 30%-70%, $\pm 5.3\%$ for a sample size of 300).

Table 24: Precision of estimates for various sample sizes and prevalence levels

PREVALENCE FOR A 95% CONFIDENCE LEVEL										
Sample size	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%
	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%
100	4.4	6.0	7.1	8.0	8.7	9.2	9.5	9.8	9.9	10.0
200	3.1	4.2	5.0	5.7	6.1	6.5	6.7	6.9	7.0	7.1
300	2.5	3.5	4.1	4.6	5.0	5.3	5.5	5.7	5.7	5.8
400	2.2	3.0	3.6	4.0	4.3	4.6	4.8	4.9	5.0	5.0
500	1.9	2.7	3.2	3.6	3.9	4.1	4.3	4.4	4.4	4.5
600	1.8	2.4	2.9	3.3	3.5	3.7	3.9	4.0	4.1	4.1
800	1.5	2.1	2.5	2.8	3.1	3.2	3.4	3.5	3.5	3.5
1,000	1.4	1.9	2.3	2.5	2.7	2.9	3.0	3.1	3.1	3.2
1,500	1.1	1.5	1.8	2.1	2.2	2.4	2.5	2.5	2.6	2.6
2,000	1.0	1.3	1.6	1.8	1.9	2.0	2.1	2.2	2.2	2.2
3,000	0.8	1.1	1.3	1.5	1.6	1.7	1.7	1.8	1.8	1.8

Appendix 3 – Survey Demographics

Proportions shown in Table 18 are based on the weighted sample and reflect the gender and age of the population as determined by the 2011 *Census of Population and Housing*.

Table 25: Survey demographics

LGA	Male		Female		Total	
	Count	%	Count	%	Count	%
Cessnock	10	7%	17	11%	27	9%
Dungog	0	0%	4	3%	4	1%
Gloucester	0	0%	1	1%	1	0%
Great Lakes	5	3%	14	9%	19	6%
Lake Macquarie	33	23%	25	16%	58	19%
Maitland	24	16%	25	16%	49	16%
Muswellbrook	1	1%	3	2%	4	1%
Newcastle	50	34%	35	23%	85	28%
Port Stephens	20	14%	18	12%	38	13%
Singleton	1	1%	8	5%	9	3%
Upper Hunter	2	1%	3	2%	5	2%
Total	146	100%	153	100%	299	100%

Employment status	Male		Female		Total	
	Count	%	Count	%	Count	%
Employed	81	55%	59	38%	140	47%
Not employed	65	45%	95	62%	160	53%
Total	146	100%	154	100%	300	100%

Age	Male		Female	
	Count	%	Count	%
18-24	18	12%	17	11%
25-34	23	16%	23	15%
35-49	38	26%	39	25%
50-64	37	25%	39	25%
65 plus	30	21%	36	23%
Total	146	100%	154	100%

Age	Male	Female	Total
Mean	47.1	48.3	47.7
Lower Bound	44.4	45.5	45.8
Upper Bound	49.8	51.1	49.7