



Understanding Barriers and Incentives for Sustainability

*An Interactive Qualifying Project submitted to the faculty at
Worcester Polytechnic Institute
in partial fulfillment of the requirements for the
Degree of Bachelor of Science*

By:

Benjamin Gillette

Theresa Inzerillo

Tyler Van Nostrand

Yingzhe (Jason) Zhao

December 14th, 2015

Report Submitted To:

Jason Cox

Project Liaison

Professors Paul Davis, Dave Szkutak, Joan Szkutak,

Project Advisors

Abstract

The Moreland Energy Foundation in Melbourne, Australia, sought to broaden the acceptance of sustainable practices within the Moreland community. Using our analysis of responses to a large telephone survey of residents and through targeted interviews, we developed a community engagement strategy to more effectively deliver MEFL's message to residents in historically difficult-to-reach demographic groups and least sustainable group. Our pilot programs showed that two of our proposed communication strategies were effective among residents age 18-34 (using social media) and within culturally and linguistically diverse communities (using trusted community leaders), while the third had limited success reaching residents age 65 or older.

Acknowledgments

Our team would like to acknowledge the following individuals for their support and assistance throughout the entirety of our project.

To our ID2050 Instructor, Melissa Belz: The original goal of our project would not have been as successfully interpreted without your guidance. Thank you for preparing us for this amazing experience, and all insights on how to make the best of our time in Australia.

To our advisors, Professors Paul Davis, Dave Szkutak and Joan Szkutak: Thank you for your constant guidance through the entirety of this project, starting in Worcester. All aspects of this project were significantly impacted by your determination to ensure our success, and your constant insights always provided meaningful direction.

To all the staff at Moreland Energy Foundation Ltd. (MEFL): Thank you for all your friendliness and assistance during our time in Melbourne. From day one, your determination to positively influence our research made the experience all the more enjoyable.

To our project liaison, Jason Cox: We cannot thank you enough for your unfaltering devotion to the success of our work. Every moment you spent brainstorming with us, as well as all of your hard work with helping us to reach out to the community, made this project possible.

To Paul Murfitt, CEO at MEFL: Thank you for inviting us to MEFL and giving us the opportunity to work with MEFL on this project. We hope the ideas and information generated by this project will help to further ensure the success of all future MEFL programs.

Executive Summary

Problem

As world populations continue to grow, the increasing demand for electricity will, under current energy production standards, significantly increase the production of greenhouse gas emissions (Chu & Majumdar, 2012). Nations like Australia that rely heavily on the use of fossil fuels must take steps to reduce their electricity consumption. Based in the inner north of Melbourne, Australia, the Moreland Energy Foundation (MEFL) is a not-for-profit organization that, over the last 15 years, has worked to reduce greenhouse gas emissions by promoting increased uptake of sustainable practices and products in the community of Moreland. MEFL's programs have focused on increasing awareness of the benefits of energy efficient products. Unfortunately, its programs have not reached some segments of the Moreland community.

The goal of this project was to help address this problem by providing MEFL with a better understanding of what was keeping Moreland residents from further engaging in electricity-saving products. Additionally, we hoped to use this information to make recommendations to MEFL on how to improve both its current and future programs. We accomplished this through the following objectives:

1. Analyzed MEFL's survey data to understand the Moreland community and community members' current use of sustainable practices.
2. Conducted interviews with community members to understand which barriers to sustainable energy use exist within the community and ways to overcome those barriers.
3. Developed and delivered surveys to understand the effectiveness of utilizing community organizations to communicate information to key groups within the Moreland.

4. Using the information gathered from the surveys and interviews, we provided recommendations to help MEFL further engage the community in their current and future programs.

Methods and Findings

Prior to this project, MEFL and the Moreland City Council conducted the *Moreland Household Water and Energy Sustainability Survey 2015*. Through this survey, MEFL aimed to understand Moreland residents' attitudes towards sustainability and the use of various energy-saving products by households. We focused on two main goals in our analysis of the MEFL survey data:

1. Determining the barriers that the community faced to sustainability and what solutions the survey results suggested would be most effective for overcoming these barriers.
2. Identifying the demographic groups that were either least sustainable or underrepresented in the survey.

We developed a sustainability metric in order to compare relative sustainability between households. We assigned each household a score based on how many sustainable products they currently had installed and whether they reported being likely to install others. **We identified the 65 and over age group as the least sustainable** based on our scoring system. To determine which demographic groups were the most underrepresented in the survey data, we compared the demographic profile of the survey respondents to data from the most recent Moreland census. **We identified 18-34 year olds and Culturally and Linguistically Diverse (CALD) community members as the most underrepresented groups.**

We used several different methods to contact people from each of these key demographics.

- We conducted semi-structured interviews over the phone and in-person with community members over the age of 65 to give us more insight regarding why they were less sustainable. In addition, we visited a local retirement village and surveyed some of its residents to learn more about this group.
- To address the underrepresentation of 18-34 year olds, we created an online survey and distributed it through both Facebook and MEFL's volunteer network. Within a week, we obtained 44 responses from people age 18-34—twice as many responses as the MEFL survey had received from this age group over the course of 4 months.
- Finally, to address the underrepresentation of the CALD community members, we surveyed members from two local cultural organizations to better understand who people from these groups trusted and where they got information about community programs and events.

Recommendations

Based on our survey data analysis, interviews and community group surveys, we developed the following recommendations for MEFL to use in their creation of future community programs:

1. **We recommend that MEFL advocate for and promote financial incentive opportunities to the Moreland community.** From our analysis of MEFL's *Water and Energy Survey*, we concluded that high upfront costs were a major barrier to installing sustainable products. We found that over 45% of respondents chose not to install energy-

saving products because they believed such products were too expensive. Discount and rebate programs could help to decrease the financial impact of investing in these products. Increasing awareness of these opportunities will allow more residents to take advantage of them.

2. **We recommend that MEFL continue to work with the Victorian state government to develop updates in legislation regarding the energy efficiency standards for rented properties.** Our research showed that in 2011, over 32% of Moreland residents rented their homes and, as a result, had little or no ability to make home alterations (*Census of Population and Housing, 2011*). By increasing the energy efficiency standards for rental properties, the government could require landlords to implement more sustainable products.
3. **We recommend that MEFL utilize a variety of different mediums for delivering their surveys.** From the analysis of the data from both our surveys and MEFL's survey, we concluded that the method used to conduct MEFL's survey was the main factor that prevented it from reaching all demographic groups. Our surveys delivered online and through community groups each obtained responses from demographic groups that were underrepresented in MEFL's survey. In particular, we recommend the use of online surveys in parallel with future telephone surveys because online surveys are inexpensive to conduct and easily produced from existing phone surveys.
4. **We recommend that MEFL use social media to facilitate “word of mouth” communications to spread information among younger community members.** From our online survey, we concluded that social media was an effective way to reach 18-34

year olds for gathering data and spreading information. Ninety-three percent of the survey respondents said that they got information about community programs from social media and eighty-six percent of respondents preferred hearing information from friends.

5. **We recommend further analysis on the effects of community groups for 18-34 year olds.** While we received 44 responses from our online survey, only half indicated they belonged to any community groups. Sports groups were the only groups with which more than 10% of 18-34 year olds reported being involved. The small sample of those involved with community groups prevented us from making any conclusions on the effect of community groups for this age group. Further research is needed to validate the effects of community groups for contacting 18-34 year olds.

6. **We recommend that MEFL establish strong, long-term ties with individuals within CALD cultural groups.** From our research and interactions with different community organizations, we concluded that cultural community organizations could provide effective forums for contacting people from culturally and linguistically diverse (CALD) backgrounds. While only 13% of the people surveyed through one of these organizations trusted MEFL, they were very willing to talk to us, as MEFL representatives, once we had been introduced by one of their members. MEFL can utilize the trust already established between members of a group to better engage CALD community members in its programs.

7. **We recommend that MEFL provide additional resources in languages other than English.** From our interactions with different cultural community organizations we concluded that there is a lack of resources in languages other than English. According to

census data, in 2011 over 40% of Moreland residents spoke a language other than English at home, including over 7% of residents who spoke little or no English at all (*Census of Population and Housing, 2011*). By creating future materials in various languages, MEFL would be able to reach more of its community.

8. **We recommend that MEFL conduct further research to determine the feasibility of reaching residents 65 years of age or older through community groups with active membership.** Based on the limited number of residents with whom we were able to speak during our time at the retirement village and the limited data gathered while there, we concluded that retirement villages likely were not effective channels for communicating information about sustainable programs to people in this demographic. Based on our interviews with the residents, we recommend that MEFL conduct the surveys we created to test Probus Clubs, Rotary Clubs, and church groups as possible channels for communicating with Moreland residents over 65.

At the conclusion of this project, we left MEFL with four main deliverables:

1. A **database** of the data from MEFL's *Water and Energy Survey*. This organization of the response data will allow MEFL to easily pose new queries to examine the data in different ways.
2. Our **analysis of survey results** both from MEFL's *Water and Energy Survey* and from our own Community Engagement Surveys. MEFL will be able to easily examine the results of our analyses to learn about trends in the community.

3. Our **Community Engagement Survey**, in English, Turkish, and Mandarin. This is the survey we used to gather information about different community groups. MEFL can use the surveys to examine new community groups in the future.
4. A **Community Engagement Strategy** for engaging the three key demographic groups identified through our survey analysis.

These items will help MEFL improve participation in its programs in the future.

Table of Authorship

Section	Main Author(s)	Main Editor(s)
Abstract	Theresa Inzerillo	Tyler Van Nostrand, Benjamin Gillette, Jason Zhao
Executive Summary	Theresa Inzerillo, Tyler Van Nostrand	Jason Zhao, Benjamin Gillette
1. Introduction	All	All
2.1 Overuse of Resources	Benjamin Gillette	Tyler Van Nostrand, Theresa Inzerillo
2.2 Moreland and MEFL	Theresa Inzerillo	Benjamin Gillette
2.3.1 High Cost and Return on Investment/Rebates and Discounts	Tyler Van Nostrand, Jason Zhao	Benjamin Gillette
2.3.2 Property Ownerships/Increased Sustainability Ratings	Jason Zhao, Tyler Van Nostrand	Theresa Inzerillo
2.3.3 Language Barrier/Diversity in Programs	Jason Zhao, Theresa Inzerillo	Tyler Van Nostrand
2.4 Suspicion of Credibility/Existing Community Relationships	Theresa Inzerillo	Tyler Van Nostrand
3.1 Survey Methodology	Benjamin Gillette	Tyler Van Nostrand, Theresa Inzerillo
3.2 Survey Limitations	Benjamin Gillette	Jason Zhao, Tyler Van Nostrand
3.3.1 Measuring Sustainability	Theresa Inzerillo	Tyler Van Nostrand
3.3.2 Barriers and Solutions	Jason Zhao, Tyler Van Nostrand	Theresa Inzerillo
4.1 Using Social Media to Access the 18-34 Age Group	Theresa Inzerillo	Benjamin Gillette, Tyler Van Nostrand
4.2.1 Community Group Leader Interviews	Tyler Van Nostrand	Jason Zhao
4.2.2 Community Group Surveys	Benjamin Gillette	Theresa Inzerillo
4.3.1 Community Member Interviews	Jason Zhao, Theresa Inzerillo	Tyler Van Nostrand, Benjamin Gillette
4.3.2 Community Group Survey	Jason Zhao, Theresa Inzerillo	Benjamin Gillette, Tyler Van Nostrand
5.1.1 High Upfront Costs	Tyler Van Nostrand	Benjamin Gillette, Theresa Inzerillo
5.1.2 Renter-Landlord Agreements	Tyler Van Nostrand	Benjamin Gillette
5.1.3 Underrepresented Groups	Tyler Van Nostrand	Benjamin Gillette, Jason Zhao
5.2.1 18-34 Group	Jason Zhao	Benjamin Gillette, Theresa Inzerillo
5.2.2 CALD Group	Benjamin Gillette	Theresa Inzerillo, Jason Zhao
5.2.3 65+ Group	Theresa Inzerillo	Benjamin Gillette, Tyler Van Nostrand, Jason Zhao

Table of Contents

Abstract.....	i
Acknowledgments.....	ii
Executive Summary.....	iii
Table of Authorship.....	x
Table of Contents.....	xi
List of Figures.....	xiii
List of Tables.....	xiv
1. Introduction.....	1
2. Background Chapter.....	4
2.1 Overuse of Resources.....	4
2.2 Moreland and MEFL.....	5
2.3 Barrier/Solution Relationships.....	5
2.3.1 High Costs and Return on Investment/Rebates and Discounts.....	6
2.3.2 Property Ownership/Increasing Sustainability Ratings.....	8
2.3.3 Language Barrier/Diversity in Programs.....	9
2.4 Suspicion of Credibility/Existing Community Relationships.....	10
3. Determining the Sustainability Practices of the Moreland Community.....	13
3.1 Survey Methodology.....	13
3.2 Survey Limitations.....	14
3.3 Survey Analysis.....	16
3.3.1 Measuring Sustainability.....	17
3.3.2 Barriers and Solutions.....	21
4. Developing a Community Engagement Strategy.....	24
4.1 Using Social Media to Access the 18-34 Age Group.....	24
4.2 Using cultural groups to access CALD community members.....	28
4.2.1 Community Group Leader Interviews.....	28
4.2.2 Community Group Surveys.....	30
4.3 Using trust to engage the 65+ Age Group.....	33
4.3.1 Community Member Interviews.....	33
4.3.2 Community Group Survey.....	35

5. Conclusions and Recommendations	37
5.1 MEFL Survey Analysis	37
5.1.1 High Upfront Costs	38
5.1.2 Renter-Landlord Agreements.....	38
5.1.3 Underrepresented Groups	39
5.2 Community Engagement.....	40
5.2.1 18-34 Group	41
5.2.2 CALD Group	42
5.2.3 65+ Group	44
References.....	47
Appendix A: Moreland Household Water and Energy Sustainability Survey 2015	49
Appendix B: Community Member Interview Protocol	61
Appendix C: Community Group Representative Interview Protocol	67
Appendix D: Community Engagement Survey – English	72
Appendix E: Community Engagement Survey – Mandarin	74
Appendix F: Community Engagement Survey – Turkish.....	76
Appendix G: Community Engagement Survey – Revisions.....	78
Appendix H: Invitations to Pascoe Vale Gardens Residents	80
Appendix I: Database Documentation	81
Appendix J: CALD Groups—Additional Data.....	85
Appendix K: Summative Teamwork Assessment	90

List of Figures

Figure 2-1: Solar PV Prices based on system size.....	6
Figure 3-1: Age distribution of survey respondents compared to census data	15
Figure 3-2: Sustainability Ranking Scheme	18
Figure 3-3: Lower Quartile Score Distribution.....	19
Figure 3-4: Upper Quartile Score Distribution	19
Figure 3-5 Relative uptake between top and bottom quartiles	20
Figure 4-1: Where 18-34 year olds get their information about community events.....	26
Figure 4-2: % of 18-34 online survey respondents that trust certain groups	27
Figure 4-3: Trusted groups from Alevi Council survey.....	31
Figure 4-4: Most trusted groups by Pascoe Vale Gardens residents	36
Figure B-0-1: Sustainability Ranking Scheme	62

List of Tables

Table 3-1: Top three reasons why lower quartile is unlikely to install a product..... 21

Table 4-1: % of respondents belonging to groups that would trust advice on sustainability from their group..... 27

1. Introduction

With global populations continuously rising, the current worldwide use of energy is both unsustainable and highly detrimental to the environment. The International Energy Agency predicts that electricity demand will increase by nearly 40% by 2050 (*World Energy Outlook 2014*, 2014). Under current energy production standards, the increased demand would cause carbon dioxide emissions to increase from 29 gigatonnes per year to between 36 and 43 gigatonnes per year, further exacerbating the effects of climate change (Chu & Majumdar, 2012). In order to limit the effects of climate change, people need to use energy more efficiently.

Over the coming decades, Australia will face rising temperatures due to climate change, resulting in drier weather and increased chance of drought. Such conditions can have severe impacts on communities, reducing agricultural output and causing wildfires and other environmental damage (Williams et al., 2009). Australia is heavily reliant on fossil fuels, making it difficult to mitigate the effects of climate change. Eighty-six percent of the country's energy comes from nonrenewable sources, namely coal and natural gas ("Energy in Australia," 2015). These sources are not only finite in supply, but also produce harmful greenhouse gases that directly contribute to climate change.

The Moreland Energy Foundation Ltd. (MEFL) is an independent not-for-profit organization located in Moreland, a suburb of Melbourne, Australia. MEFL aims to reduce Moreland's carbon emissions but it has struggled to reach certain demographic groups with its programs. The community of Moreland is comprised of people from a variety of socio-economic backgrounds, age groups, and over 10 ethnic backgrounds (*Census of Population and Housing*, 2011). MEFL has attempted to provide information and services through a wide array of sources,

such as community outreach programs and home recommendations, but still has had difficulty connecting with all of the diverse demographic groups within the community.

Students from Worcester Polytechnic Institute (WPI) have worked with MEFL for over five years, investigating how to promote sustainable behavior change. Despite Moreland residents' overall support of energy sustainability, some still do not participate in MEFL's programs (Bhalla, MacGrogan, Miller, & Tosi, 2013). This lack of participation may be attributed to the widespread diversity found throughout the Moreland community; MEFL has not been able to communicate its information and promote its programs comprehensively to all demographic groups. According to Jason Cox, one of MEFL's Project Coordinators, MEFL would benefit from having a systematic approach for reaching out to and communicating with the entire Moreland community.

The goal of the project was to provide MEFL with a community engagement strategy to better engage certain demographics with Moreland. We accomplished this through the following objectives:

1. Used MEFL's survey data to understand the Moreland community and community members' current use of sustainable products,
2. Conducted interviews with community members to understand which barriers to sustainable energy use are found within the community and ways to overcome them,
3. Developed and delivered surveys to understand the effectiveness of utilizing community groups to communicate information to the Moreland community,
4. Using the information gathered from the surveys and interviews, we provided recommendations to help MEFL engage the community in more of their current and future programs.

This community engagement strategy will assist MEFL in reaching the demographic groups with which they have struggled to connect.

2. Background Chapter

2.1 Overuse of Resources

Australia faces significant challenges due to climate change, including not only the issues of threatened wildlife and coastal flooding faced by many countries, but also unique problems such as increased risk of severe brushfires that stem from its status as the driest inhabited continent (Williams et al., 2009). Australia will need to reduce greenhouse gas emissions in order to counter the effects of climate change, and any program that seeks to reduce emissions will need to address residential overuse of electricity. According to the CIA World Factbook, nearly 80% of Australia's electricity comes from fossil fuels ("The World Factbook," 2015). Residential usage accounts for 26% of this electricity, and homes in Australia often do not make the most efficient use of energy; for example, up to 15% of households in the state of Victoria have no insulation and therefore require significantly more energy to heat or cool (*2010 Green Light Report*, 2011; *Household energy use and costs*, 2012).

Because household consumption accounts for such a large portion of Australia's energy use, actions taken by the general public to reduce its own electricity use can lead to significant reductions in electricity demand and therefore in greenhouse gas emissions. In fact, a report by the Australian Department of the Environment cited reduced residential electricity demand as one of the reasons behind a drop in greenhouse gas emissions from 2009-2015 (*Australia's emissions projections 2014-15*, 2015). Because efforts to address residential overuse of resources can contribute to major reductions in greenhouse emissions, they will become increasingly important as Australia's population continues to grow.

2.2 Moreland and MEFL

The community of Moreland, a suburb of Melbourne, Australia, spans about 51 square kilometers and has a population of almost 150,000. It is very ethnically diverse—close to 40% of Moreland residents speak a language other than English at home (*Census of Population and Housing*, 2011). The Moreland Energy Foundation Ltd. (MEFL), an independent non-profit organization, works in the Moreland community to promote sustainable practices. One of MEFL's current programs, Zero Carbon Evolution, aims to move the community towards carbon neutrality; the first step is reducing carbon emissions in Moreland by 22% by 2020 ("Zero Carbon Evolution," 2014).

To support Zero Carbon Evolution, MEFL runs a social enterprise called Positive Charge, the goal of which is to educate people on ways to cut carbon emissions and save money on their energy bills. Since its inception in 2013, Positive Charge has provided an energy helpline to the residents of participating councils. Callers can learn where to buy solar panels and which incentives are currently being offered for products that interest them. According to the program's 2014 annual review, more than 4,400 households have used its services; as a direct result, "54,118 tonnes of greenhouse gas [have been] abated." The program aims to cut carbon emissions by 150,000 metric tons and engage 40,000 households by 2018 (*Positive Charge Annual Review June 2015*, 2015). These ambitious goals will require additional community outreach, a central theme of this project.

2.3 Barrier/Solution Relationships

Barriers are possible reasons for a lack of change and in this report are defined as any deterrents to an individual's uptake of electricity-saving practices and products. The barriers we

will discuss in this section include high upfront costs, difficult renter-landlord agreements, and language barriers, all of which might prevent people with a desire to implement sustainable practices from taking action. Each of the following sections will outline one of these barriers and its related solutions, and provide evidence of these barriers and solutions from previously published research.

2.3.1 High Costs and Return on Investment/Rebates and Discounts

The purchase and installation of some green technologies can carry expensive startup costs. The overall cost of installing solar panels on a single home can range from \$3,000 to \$11,500 (AUD), depending on the amount of electricity production desired. Figure 2-1 below shows estimated prices for solar panels in major Australian cities, taking into account several factors including installation fees and current government rebates ("Guide to installing solar for households," 2015).

ESTIMATED GRID CONNECT SYSTEM PRICE	
SYSTEM SIZE	ESTIMATED PRICE RANGE
1.5 kW	\$3000 - \$6000
2 kW	\$3500 - \$6500
3 kW	\$4500 - \$7500
4 kW	\$5500 - \$9500
5 kW	\$7000 - \$11500

Figure 2-1: Solar PV Prices based on system size

Green technologies like solar panels represent long-term investments. A study conducted on the characteristics of consumers in Connecticut and Pennsylvania showed that people were only willing to pay a premium price for any product labeled as an energy-efficient or “green” if these products provided a return on investment within 1-2 years (Drozdenko, Jensen, & Coelho, 2011). However, energy-efficient products usually provide savings on electricity over the course

of 5-10 years, depending on the lifespan of the technology (Black, 2006). When making such a large investment, people are unwilling to wait 5-10 years to see a return. Additionally, people who may only stay in their homes for less than 5 years would not be able to see a full return on their initial investment.

Even though sustainable technologies can promise long-term savings, some people cannot afford the high initial costs of such products. The introduction of rebates and tax breaks aim to alleviate some of these costs and motivate consumers to change their behaviors towards sustainability by providing ways for them to save money (OECD, 2008).

The Photovoltaics (PV) Rebate Program in Florida offered a maximum of a \$16,000 (USD) subsidy for a PV system installation to utilities, schools, public facilities and residential areas from 1999-2002. The program was successful as it had provided partial funding for 70% of all PV systems in Florida by the program's end in 2002 (Gouchoe, Everette, & Haynes, 2002). A survey after the rebate program ended in 2002 suggested respondents had come to expect the lower price that resulted from rebates and that the seemingly increased cost of PV was "prohibitive" (Gouchoe et al., 2002). In a similar program, the Netherlands saw a 100% increase in the purchase of energy-efficient cars in 2002 after beginning to offer a subsidy of up to €1,000 (OECD, 2008).

Governments can also create financial disincentives to the use of less sustainable products through taxes. Taxing less sustainable products lets "the market play the critical role of changing purchasing patterns" (OECD, 2008). For example, a "Gas Guzzler Tax" was imposed in the United States in 1978 on manufacturers who sold cars that were below a certain efficiency level (EPA, 2012). Although the tax was paid by manufacturers, they shifted this cost to consumers, adding as much as \$7,700 extra to the buyer's final price when purchasing an

inefficient vehicle (EPA, 2012). Because the Gas Guzzler Tax created a direct disincentive to purchasing inefficient vehicles, the average fuel efficiency of light vehicles rose from 24.3 miles per gallon (MPG) in 1978 to 28.4 MPG in 1980 (Greene, Patterson, Singh, & Li, 2005).

2.3.2 Property Ownership/Increasing Sustainability Ratings

Renting is a major deterrent to the installation of green technologies because tenants often cannot make additions to their residence without first obtaining permission from the property owners. Landlords, however, decline to implement greener technologies because the overwhelming upfront costs mentioned in Section 2.3.1 would cause an increase in price to their tenants (Dillahunt, Mankoff, & Paulos). In addition, renter-landlord agreements involve “split incentives,” which refer to situations where “benefits are not properly rationed among the parties to a transaction, impairing investment decisions” (“Glossary,” 2015). In the case of rental housing, the benefits in question are lower electricity bills. Landlords are typically responsible for paying the installation costs associated with installing new appliances. Tenants, however, typically pay for utilities, minimizing the benefits that property owners receive for installing more efficient systems.

In addition to the problem presented by split-incentives, the lack of effective legislation creates additional problems. Existing legislation requires all residential buildings built after 2005 to meet a House Energy Rating (HER) of 5 stars (*Victorian Households Energy Report, 2014*). While these new regulations are helpful, 86% of homes in Victoria were built before 2005, and as a result are exempt from these standards. These homes have an average HER of 1.81 stars. MEFL is currently trying to address this issue by pushing for legislative change in the form of improved energy efficiency standards. This new legislation would mandate that any house sold or rented to a new tenant meet the same 5 star HER as houses built after 2005. Such standards

are seen as a way to promote real change in sustainability levels of rental housing (Gabriel, Watson, Ong, Wood, & Wulff, 2010). As more than 32% of the population of Moreland is currently comprised of renters, addressing the issues associated with these renter-landlord agreements by improving legislation will allow for a significant increase in the community's uptake of sustainable practices (*Census of Population and Housing*, 2011).

2.3.3 Language Barrier/Diversity in Programs

Language barriers can prevent linguistically diverse groups from becoming aware of sustainable practices and behaviors. Running programs and distributing information in various languages can help increase their understanding of sustainability. An example of this effect appears in a study conducted to explore green change in multi-national companies that employ various ethnic groups (Setthasakko, 2009). The manager of a Thai company explained that the company's employees from Burma "often avoid interaction with Thai employees due to language barrier and cultural differences." Because of these language differences, information distributed to the entire company was often distorted or misinterpreted by certain ethnic groups, hindering the progress of the company. To efficiently spread information about environmental awareness, the company conducted environmental programs in Burmese (Setthasakko, 2009).

Within Moreland, MEFL conducted a program, In Common Language, which provided informative pamphlets and conducted sustainability workshops in several different languages that detailed how to make simple daily lifestyle changes that would save electricity and water, thereby saving residents money. Participants of In Common Language responded well to the program, reporting that they had never before read such ideas in their own language. This increased uptake of sustainable practices by spreading more awareness of how households could operate sustainably (Cox, 2015). In Common Language closed the gap between the knowledge

and action of sustainable behaviors for non-English speaking residents, and provided an example of an incentive that successfully dealt with language barriers (Sundareswaran, 2011).

2.4 Suspicion of Credibility/Existing Community Relationships

Sustainability programs that capitalize on existing community relationships have shown success (Bailey, 2011). Information provided to residents from sources to which they have no personal connection or relationship will not be efficiently received. For example, residents may doubt the intentions of a nonprofit organization offering to provide free home-assessments. If a neighbor or family member were to recommend these assessments, however, residents would be much more willing to accept any recommendations provided by such an organization.

In addition, people will be more likely to change their behavior when encouraged to do so by a peer rather than someone seemingly in a position of power. A study conducted on a sustainability-conscious community in Canada found that the idea of a “community champion” was a highly effective way to promote sustainable practice uptake, even among already sustainably-minded individuals. This “community champion” was the “ideal partner” to campaign for programs to encourage sustainable behavior (Seidel, 2013).

With this in mind, MEFL assisted a partner environmental organization, Environment Victoria, with the GreenTown program to engage Culturally and Linguistically Diverse (CALD) communities. GreenTown provided sustainability training to bilingual community members who would, in turn, perform free home assessments, in various languages, in their respective communities. The community responded better to people from their own community coming to their door to perform home assessments than they did to government workers. This was evident from the number of participants in the program: more than 2,500 people from CALD

communities participated in GreenTown. This was a significantly larger number of CALD individuals engaged than any previous sustainability program carried out in Victoria through 2011 (Bailey, 2011).

A researcher from California Polytechnic State University conducted a field experiment in Claremont, California to test the effectiveness of using community members to encourage others to uptake recycling. The researcher referred to it as the “block leader approach”. He recruited community members that already recycled to speak to their neighbors about recycling. The same message was delivered to the community. In contrast, one-third of the household participants were spoken to by a neighbor, one third was given an equivalent written letter from the local city government, and the remaining third acted as the control group. The experiment found that 28% of those receiving the “block leader approach” by a neighbor recycled weekly afterwards, compared with 12% of the written note group and 3% of the control group (Burn, 1991).

MEFL used an alternate approach with Positive Charge when trying to market this program to the community. MEFL sent a letter to homes in the community on Moreland City Council letterhead and saw significantly more uptake shortly after. In the six months prior to sending the letter, MEFL had facilitated the sale of only 40 solar arrays. This increased to over 300 in the six months after the letter was sent out (Sundareswaran, 2015). An endorsement by the Moreland City Council successfully established Positive Charge as a reputable source of solar panel arrays, thereby promoting uptake within the community.

Trust in an organization’s intentions not only increases engagement in their programs but can also make educational materials more effective. Since education is “one of the most powerful tools for providing individuals with the appropriate skills and competencies to become

sustainable consumers,” public trust in a nonprofit organization is crucial for providing effective educational materials (OECD, 2008). MEFL currently provides a great deal of information to the Moreland community, yet community members report not having enough information to live sustainably. According to another Worcester Polytechnic Institute (WPI) project with MEFL, once people are made aware of environmental issues and have ideas on how to deal with them, the consciousness and desire of self-sufficiency will drive people to act and live sustainably (Hunt, Kurisko, MacDowell, & Pietri, 2013). Providing energy-saving information to residents could incentivize behavior change. Furthermore, providing this information through a trusted source would make it even more powerful.

3. Determining the Sustainability Practices of the Moreland Community

3.1 Survey Methodology

The *Moreland Household Water and Energy Sustainability Survey 2015* (referred to in this report as MEFL's *Water and Energy Survey*) was conducted jointly on behalf of MEFL and the Moreland City Council. The goal of the survey was to obtain accurate, in-depth information on the current state of energy sustainability in the city of Moreland. With this information, MEFL could evaluate the effectiveness of existing sustainability programs and identify areas in need of further attention moving forward. The Moreland City Council used the information pertaining to water sustainability for the same purposes, but because MEFL is more concerned with the sustainable use of electricity, water related questions have been excluded from the analysis later in the chapter. This survey consisted of five sections:

1. Current & Intended Actions (Motivations & Barriers)
2. Attitudes to the Environment
3. Engagement & Communications Approaches
4. Demographics
5. Future Participation

The complete survey instrument is available in Appendix A. In order to obtain a representative sample of the population of Moreland, landline phone numbers were randomly selected within the Moreland area code. We examined the responses from MEFL's *Water and Energy Survey* in order to answer three questions:

1. What did the survey results report about the current state of electricity sustainability in Moreland?
2. What possible barriers or incentives could be identified from the survey results for further examination?
3. Which demographics groups were underrepresented in the survey?

This chapter describes the analysis used to answer these questions and the conclusions we reached.

3.2 Survey Limitations

Before attempting to draw conclusions about the community from the survey results, we compared the demographic profile of the survey respondents to census data for the city of Moreland to determine how well the survey represented the community. This analysis revealed that there were some significant areas in which the survey had not obtained a representative sample of respondents.

The most noticeable issue with the response pool was an age distribution different from that of the Moreland community; there was a severe underrepresentation of younger age groups. Although census data from the Australian Bureau of Statistics shows that people between the ages of 18 and 34 make up 30% of the population of Moreland, this age group accounted for only 6% of responses to the survey (Census of Population and Housing, 2011). Further analysis revealed a direct correlation between age and response rate, which can be seen in Figure 3-1 below.

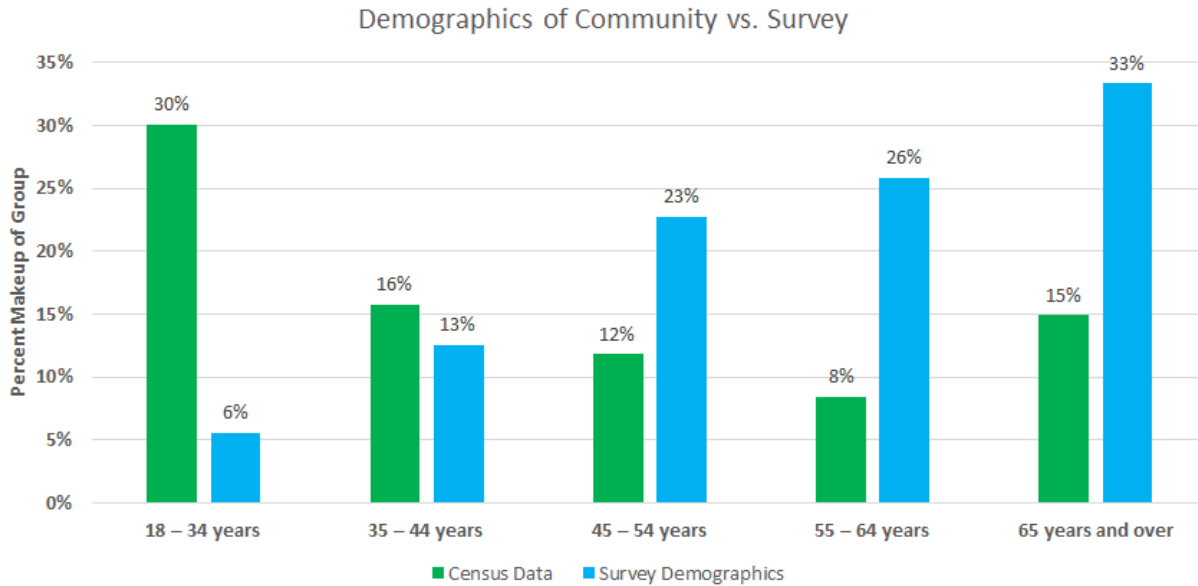


Figure 3-1: Age distribution of survey respondents compared to census data

A likely explanation for this discrepancy is the survey’s use of landline telephone numbers to contact respondents. Less than half of Australians between the ages of 18 and 34 have access to landlines, compared to over 90% of Australians age 65 or older (*ACMA Communications report 2013–14*, 2014). This led to a disproportionately lower number of respondents under the age of 35, as this age range is much less likely to have a landline. In addition, people between the ages of 18 and 24 may live at home with their parents and would not have been the one to answer the survey for their household (Statistics, 2000). Regardless of the specific reason for the discrepancy, the low response rate from the 18-34 groups meant that survey provided little data about sustainability within this group.

The survey also failed to reach many residents from culturally and linguistically diverse (CALD) backgrounds. Only 26% of the survey respondents reported speaking a language other than English at home, compared with the 40% reported by census data (*Census of Population and Housing*, 2011). This may be due to a language barrier because the survey was administered in English. While the survey was available in other languages, the initial contact over the phone

was always in English, which might have caused residents who were uncomfortable speaking English to hang up before they were offered the option to speak with a translator. No surveys were conducted in any language other than English, and 257 people called could not complete the survey due to what the research company described as “communication difficulties.” We interpreted these difficulties as the survey administrators’ inability to communicate with the respondent due to a language barrier. Because census data from the Australian Bureau indicates that at least seven percent of people in Moreland speak little or no English, the fact that no translated surveys were given shows a serious gap in the survey data. As with the 18-34 age group, the low response rate from people with CALD backgrounds limited the conclusions that we could draw about sustainability in these communities from the survey.

Twenty-six percent of respondents to the MEFL’s *Water and Energy Survey* reported that they had solar panels on their houses; this is over twice the rate of uptake found through previous studies (*2010 Green Light Report*, 2011). While it is possible that this represents a genuine increase in uptake, such a large discrepancy is more likely an indication of sampling bias. Response to the phone survey was completely voluntary, but residents were likely more willing to complete the 15-20-minute survey if they already felt strongly about environmental issues. Such potential bias meant that the survey results could have significantly overestimated the actual level of sustainability within the community.

3.3 Survey Analysis

Despite the limitations discussed above, the survey still provided sufficient data to allow us to draw conclusions about sustainability in the community.

3.3.1 Measuring Sustainability

To aid in our analysis of the data gathered from MEFL's survey, we developed a ranking scheme to quantify the idea of sustainability. This allowed us to compare levels of sustainability to age, income, and other information collected in the survey. We used the results of the two following questions from the survey:

1. Can you please state whether your property currently has [INSERT ITEM] installed?
(Appendix A, Question 1)
2. How likely are you to consider installing [INSERT ITEM] in the next 12 months?
(Appendix A, Question 5)

We focused on the four following energy-efficient products:

1. Energy-efficient lighting
2. Energy-efficient appliances
3. Solar panels
4. GreenPower, through which consumers can purchase renewable energy credits from energy retailers.

We chose not to include results from any questions relating to solar hot water mentioned in the survey in our analysis, because it is an older technology that is being replaced with more efficient methods. We gave each respondent a sustainability ranking based on their answers to this question by assigning point values to each answer (Figure 3-2).

Answer	Points
Is already installed	8
Very Likely	4
Likely	2
Neutral/Don't know	0
Unlikely	-2
Very unlikely	-4

Figure 3-2: Sustainability Ranking Scheme

The scores could range from a low of -16, for respondents who answered as very unlikely to install all four products, to a maximum of 32, for respondents who have all of these products already installed.

This ranking scheme allowed us to compare the relative sustainability of different respondents or groups of respondents. The group with scores in the highest quartile was our **most sustainable** group and the group with scores in the lowest quartile was the **least sustainable**. We first focused on the individuals with scores in the bottom quartile and looked for trends in their reasoning behind adopting or not adopting certain sustainable practices. One of the questions in MEFL's survey asked the respondent to give their main reason for wanting or not wanting to install a particular item (Appendix A, Question 8). We compiled the data from this question and looked at the most frequently reported reasons to understand which incentives have worked for the **least sustainable** group or what barriers they believed they faced.

The distribution of scores in the lower quartile, seen in Figure 3-3, was primarily between -4 and 6.

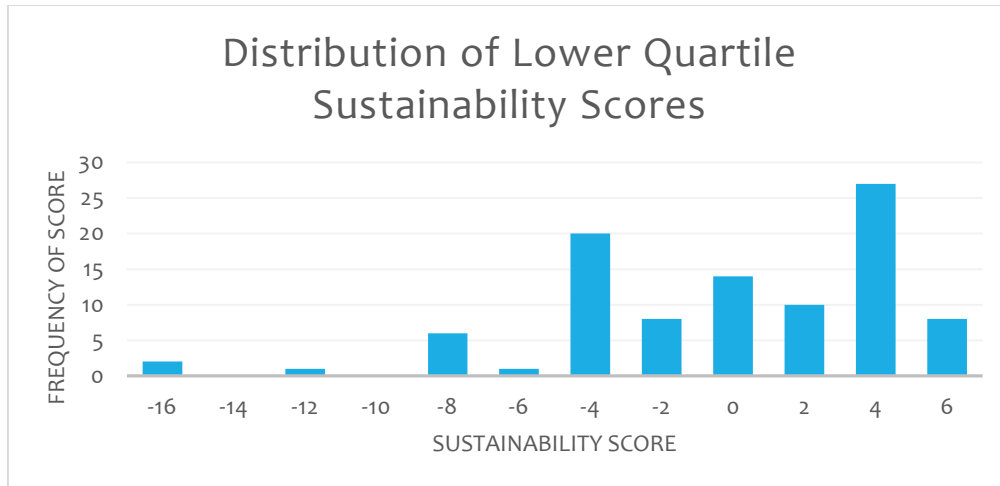


Figure 3-3: Lower Quartile Score Distribution

Most people were already using one of the specified energy-saving practices or were at least open to taking up one or more of them in the next year. Only two respondents stated that they were unlikely to take up all four of the energy-saving practices. These results might be biased since people sometimes just answer in a manner they believe to be more socially acceptable instead of what they actually think (Grimm, 2010).

The upper quartile saw the bulk of its scores between 18 and 24, as shown in Figure 3-4.

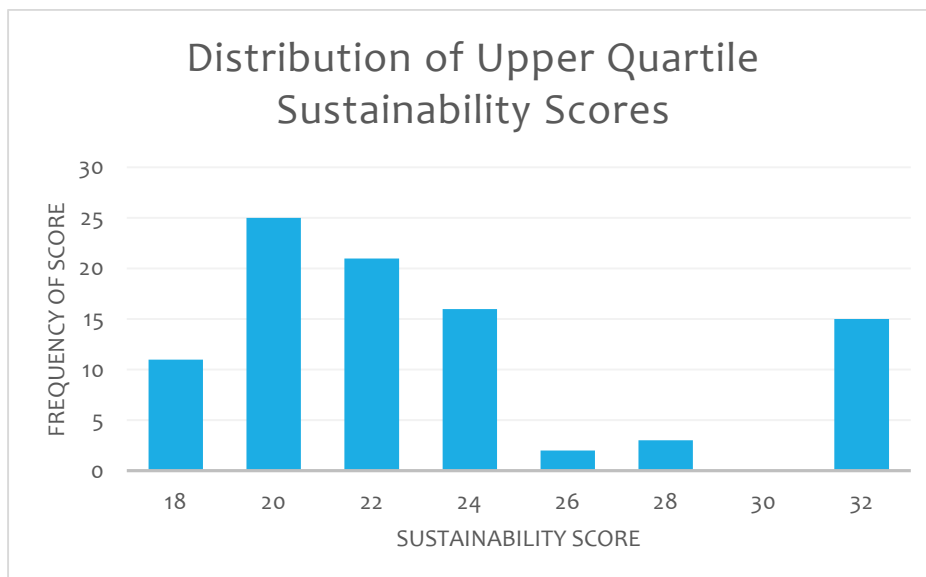


Figure 3-4: Upper Quartile Score Distribution

These respondents were all using two or more of the energy-saving products mentioned in the survey and were likely to install the rest in the next year. About 15% of the respondents in this group earned a perfect score of 32, already having installed all four energy-saving practices.

We compared the practices used by the upper quartile to those of the lower quartile to gain a better understanding of the community's use of energy-saving practices. Energy-efficient lighting was the most widely adopted product in this community among survey respondents: with 100% of the upper quartile as well as over half of the lower quartile reported using efficient lighting. The differences in uptake from the lower and upper quartiles are shown in Figure 3-5.

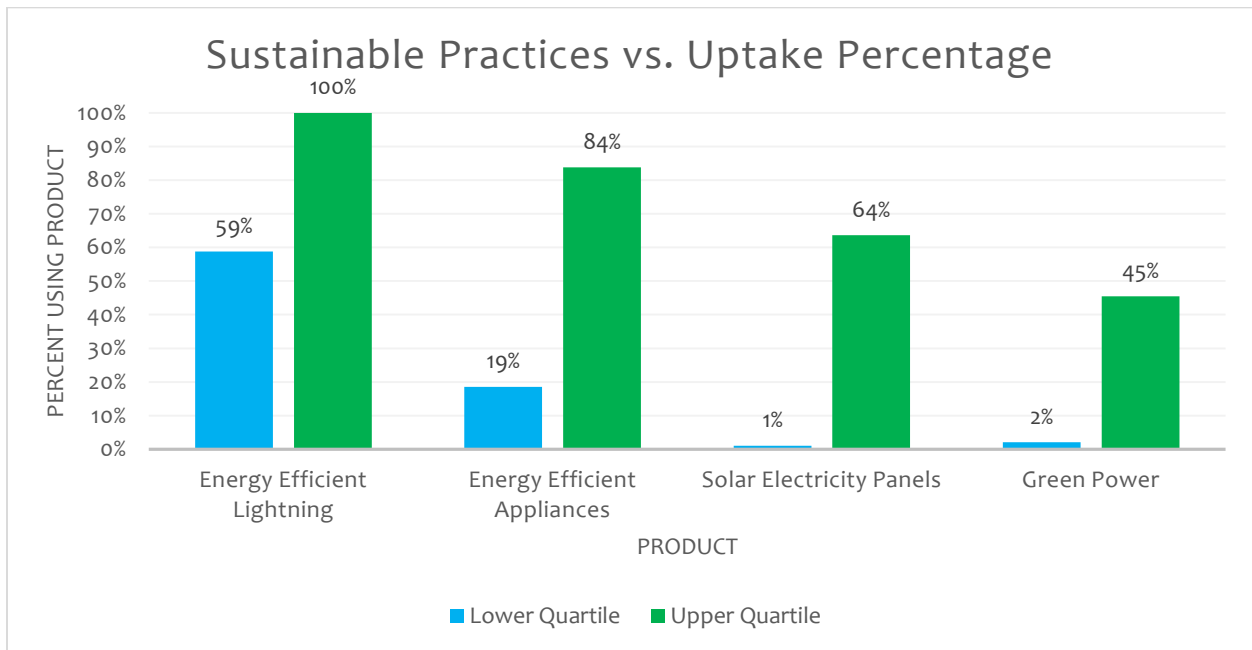


Figure 3-5 Relative uptake between top and bottom quartiles

The product with the biggest difference in use by between the two groups is was energy-efficient appliances. Based on this, energy-efficient appliances are widely used and available to Moreland community. However, there is a barrier that is preventing this lower quartile group from using these products.

Beyond comparing the uptake of sustainable practices, we looked at the demographic differences between the upper and lower quartiles. No conclusions could be made about the 18-34-year-old age groups due to the low number of respondents. However, we identified a definite trend within the 65 and over age group with double the number of respondents of this age in the bottom quartile compared with the upper quartile.

3.3.2 Barriers and Solutions

We first analyzed the barriers that faced the least sustainable group in limiting their uptake of sustainable products. We looked at their reasons for being unlikely to install any of the four energy-saving products in the survey. Table 3-1 shows the top three reported barriers of this group to installing a particular product.

Product	Barrier #1	Barrier #2	Barrier #3
Energy-Efficient Lighting	I see no benefit (32%)	I rent (23%)	Too expensive (14%)
Energy-Efficient Appliances	I see no benefit (30%)	Too expensive (29%)	I rent (17%)
Solar Panels	Too expensive (42%)	I rent (24%)	Not feasible for my home (9%)
Green Power	Too expensive (39%)	I rent (15%)	I see no benefit (15%)

Table 3-1: Top three reasons why lower quartile is unlikely to install a product

The survey gave 19 choices for barriers, one of which was "Other" (Appendix A, Question 8). We coded the responses from the "Other" category to put them either into a predefined category with which we thought that they fit best or created additional categories such as "not feasible for my home". Cost, renting, and "I see no benefit" showed up consistently as main barriers in our analysis.

Two of the barriers identified through our survey analysis—rental issues and the high cost of energy-saving technologies—would have required significant time, resources, and possibly legislative action to address and, as a result, could not be fully addressed within the scope of this project. During our background research, we identified financial incentives, including tax breaks, subsidies, and discounts, that can motivate consumers to change their attitudes and behaviors towards sustainability. Government regulations, such as new building efficiency standards, are productive ways to deal with rental issues. These incentives will be expanded upon later in the report in the Conclusions and Recommendations chapter.

The survey also explored solutions to address any barriers respondents felt that they themselves or their community faced. Question 11 on the survey asked if the respondents had any suggestions to encourage the community to improve water and energy usage at home. Thirty-one percent of respondents indicated that they needed more information on sustainability. However, MEFL is continuously putting out information about sustainability to the Moreland community. The issue is that some people are not getting information from MEFL in the form they desire. Similar to the limitations of the MEFL's *Water and Energy Survey*, information provided through a single medium, like newsletters written in English, may not be easily received by non-English speaking residents. The lack of established contact with MEFL prevents people within the community from utilizing information and programs currently provided.

In addition, individuals in the community may experience a sense of distrust of MEFL's intentions, causing them to doubt the validity of their programs. One such program, Positive Charge, provides a list of reliable and trusted solar panel providers. A conversation with one of the managers of Positive Charge, Chandra Sundaeswaran, identified the possible issue of distrust. When the program first launched, community uptake of solar panels was practically

unchanged. Mr. Sundareswaran explained that months after the program launched, however, the Moreland City Council mailed a letter that validated the credibility of MEFL and Positive Charge, to the community of Moreland. Six months after this letter was mailed, Positive Charge had sold 310 solar panel arrays, compared to the 40 sold six months before the letter was sent. The Positive Charge managers interpreted this as mainly due to the community's increased level of trust in the credibility of Positive Charge (Sundareswaran, 2015). The community of Moreland was much more willing to trust and utilize information provided by MEFL once it had been verified as credible by a trusted source, the local government in this case.

Analysis of the MEFL's *Water and Energy Survey*, along with other research and information gathered, suggested that Moreland residents would prefer to obtain information on sustainability through community groups. More than 80% of survey respondents supported using community groups, and renters, residents in the highest income bracket, and residents over the age of 65 even preferred the use of community groups to financial incentives. From this, we can extrapolate that these groups are either financially stable or do not view cost as an issue to sustainability. Instead, they are lacking the information necessary to make these sustainable changes. Using community groups would allow MEFL to distribute information in a more targeted way to demographic groups that they have struggled to reach in the past. In addition, there is a level of trust between members of community groups so an endorsement from one of these groups could motivate behavior change, similar to the letter endorsed by the Moreland City Council.

4. Developing a Community Engagement Strategy

Analysis of the MEFL's *Water and Energy Survey* revealed a major barrier (lack of established contact/credibility) and a possible way to overcome that barrier (communication through community groups). We conducted further research to learn about how to most effectively implement this strategy to promote electricity sustainability within three groups: people between the ages of 18 and 34, people over the age of 65, and people from CALD backgrounds. We decided to focus on these three groups because our analysis of the MEFL's *Water and Energy Survey* suggested that these were groups with which MEFL could significantly increase their communication with and generate behavior change within. This chapter describes the different methods we used to reach each group and what we learned.

4.1 Using Social Media to Access the 18-34 Age Group

Based on our analysis of the MEFL's *Water and Energy Survey*, we determined that MEFL did not have an effective way of communicating with the 18-34 year olds in Moreland. MEFL needed an effective channel to promote its programs within this group, as this age group makes up nearly 30% of Moreland's population. We decided to pilot an online survey that served two purposes. First, it acted as a small-scale pilot to evaluate the potential value of using online surveys to replace phone surveys when contacting this age group. While only about half of 18-34 year olds have landlines, over 90% have internet access (*ACMA Communications report 2013–14*, 2014). Second, it was a method for gathering data to identify effective channels for MEFL to utilize in promoting its programs.

The data gathered from this survey allowed us to identify the channels that were most effective for contacting people within this age group, including which, if any, types of community groups would be effective for reaching this segment of the population.

We created and administered this survey through Qualtrics, a software company that provides an online survey platform. The full survey is included in Appendix A. Before distributing this survey, we had a MEFL volunteer in this age group test it out to ensure all of the questions made sense and were appropriate for the target demographic. In order to reach as many respondents as possible, we distributed it through several different channels:

1. Posted on MEFL's Facebook page
2. Sent to MEFL volunteer email alias (158 volunteers)
3. Various student group Facebook pages by two Royal Melbourne Institute of Technology (RMIT) students who volunteer at MEFL

Based on the responses from this survey, we determined that online surveys are an effective method for gathering information from people 18-34 years old. With minimal attention and effort after our survey was developed, it received 44 responses from people 18-34 years old. In comparison, MEFL's phone survey, which only generated 20 responses from this group, required the survey administrators to make individual phone calls to reach each potential respondent, representing an inefficient use of resources.

One of the major findings from this survey was that the three main ways 18-34 year olds reported getting information about community events was through social media, neighbors/friends and local newspapers. About 93% of respondents reported to learn about community programs or events through social media. The complete results from this question are shown in Figure 4-1.

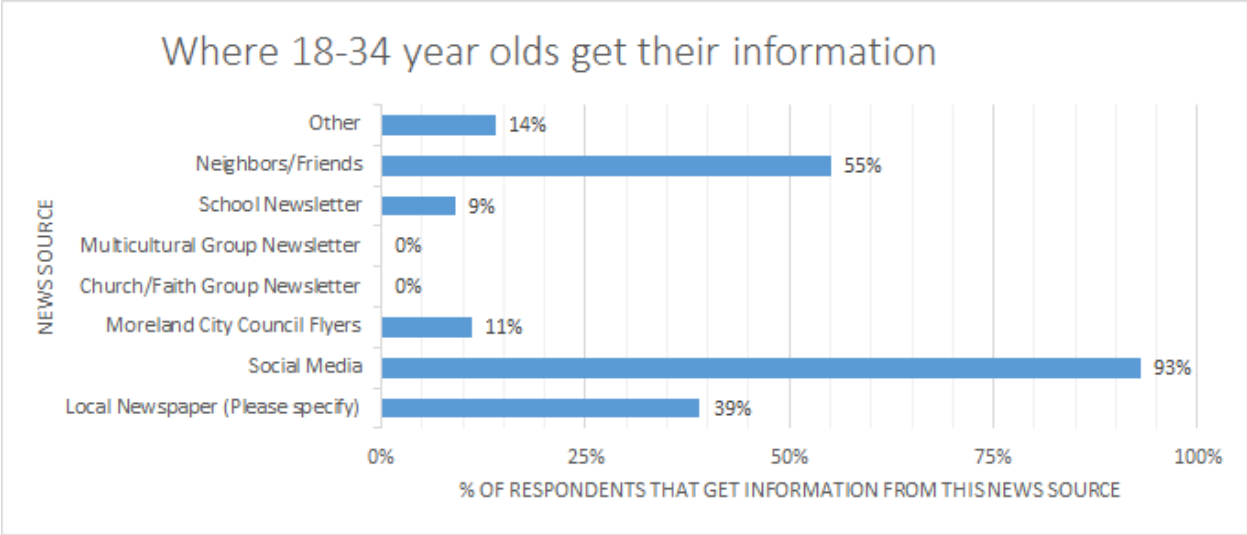


Figure 4-1: Where 18-34 year olds get their information about community events

Of the people who responded that they use the newspaper as source of information, 50% only read online newspapers, 20% only read print newspapers and 30% read a mixture of both. The most popular newspaper for this age group, according to our survey, was “the Leader”.

Another major finding from this survey was that a lack of trust in or knowledge of MEFL does not appear to be a major issue among this group. Other than “From a close friend,” MEFL was the source that the most people said they would be likely or very likely to take advice from on sustainability issues. Figure 4-2 shows the proportion of this group that is likely to take sustainability advice from various groups.

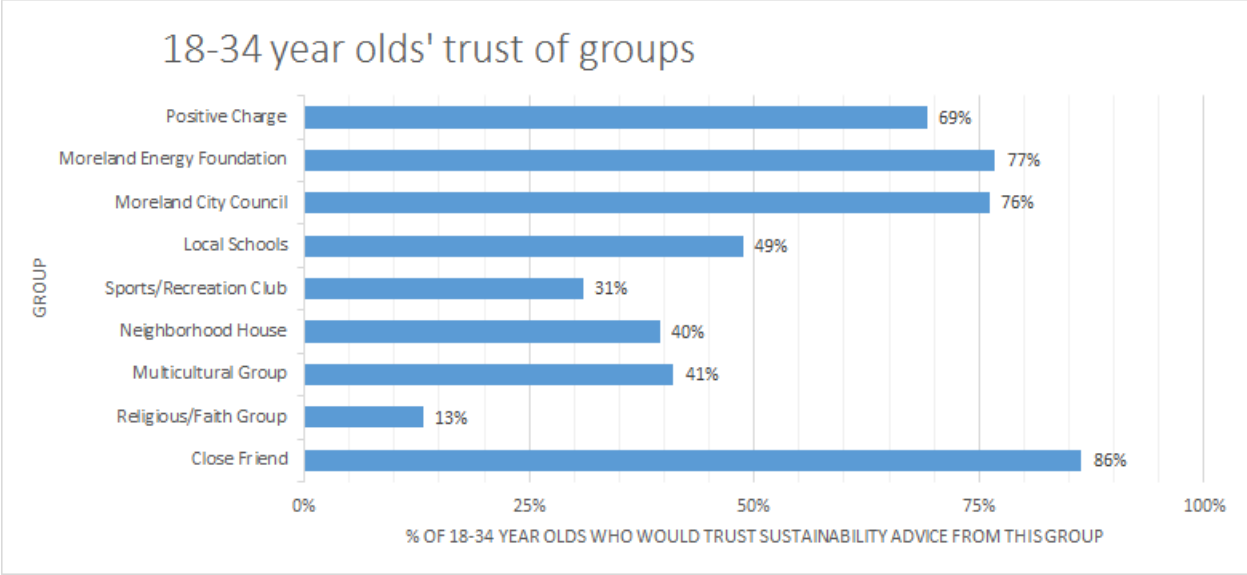


Figure 4-2: % of 18-34 online survey respondents that trust certain groups

This was the case even among the 27 respondents who did not report having been previously involved with MEFL; 64% of these individuals cited that they were likely or very likely to take sustainability advice from MEFL.

The data shows that the 18-34 age group preferred receiving information from friends or groups established for this purpose, like MEFL or a local council. Table 4-1 below shows the proportion of respondents that belonged to each type of group that would trust receiving sustainability information from that group.

Type of Group	% of Respondents Who Would Trust This Group
Religious/Faith Group (n=6)	33%
Multicultural Group (n=2)	50%
Neighborhood House (n=2)	100%
Sports/Recreation Club (n=17)	40%

Table 4-1: % of respondents belonging to groups that would trust advice on sustainability from their group

Overall, our pilot test was successful. We successfully reached the 18-34-year-old community in Moreland at a much higher rate than MEFL’s phone survey. In addition, we gathered useful information about how this group prefers to be contacted and whom they trust.

The conclusions drawn from this data, however, must be further researched to determine if community groups act as a trusted source of information for people between the ages of 18 and 34. In the next section, we will provide data on a similar pilot test conducted for CALD community members to determine their preferred mediums for receiving information.

4.2 Using cultural groups to access CALD community members

We contacted people within CALD groups with help from cultural community organizations. MEFL previously had positive experiences working with such organizations and already had some established contacts. After contacting them and conducting interviews, we determined they were keen to help spread information throughout their community group.

4.2.1 Community Group Leader Interviews

Based on the analysis of MEFL's *Water and Energy Survey*, we believed language barriers or trust issues were significant barriers to engagement in CALD communities. To evaluate the impact of these barriers, we conducted interviews with representatives from two organizations with experience working with these communities to obtain their perspective on what would motivate community members to adopt sustainable behavior. Almost 34% of the Moreland residents were born overseas, so talking to experts in the community helped us to better understand the ethnically diverse groups and their views on sustainability (*Census of Population and Housing, 2011*). We conducted these interviews in person, at each representative's community center in order to get the most information each interview. Visiting the centers allowed us to better understand the structure of these groups and also allowed us to better engage with the people we were interviewing. We chose to conduct in person interviews so that we could capture more honest responses and pick up on any social cues we might miss

from a phone interview (Opdenakker, 2006). The questions for these interviews are in Appendix C.

Our first interview was with the former CEO of MEFL, Jim Downey, who is the current Energy and Financial Inclusion Senior Manager at Kildonan Unitingcare, an organization that works with low-income residents and recent migrants to Australia. He identified that language barrier was likely a significant issue. He mentioned language has been a barrier to communicate with refugees and prevents them from getting proper shelters and life necessities. He thought this would apply to other newly arrived CALD group members. Mr. Downey believed MEFL was already seen as a trusted source by community members who knew of them. However, he also stated that many people in the community had recently immigrated into the country and had no ability to read or speak English. This language barrier, he felt, prevented these groups from receiving information from MEFL.

We also spoke to Sultan Cinar, a representative from the Alevi Community Council, a Turkish cultural group. Similar to what we heard from Mr. Downey, Ms. Cinar felt that the Turkish-speaking people of the Alevi Community Council simply could not receive information from MEFL because of a language barrier. When asked to help translate our message to the members of this community group, Ms. Cinar stated her openness to the idea because of how successful and widely accepted MEFL's previous programs, when delivered in Turkish, were in her community. She also noted that similar programs were currently needed because communication between MEFL and the Turkish-speaking community had diminished since those successful programs ended. From these interviews, it is fair to deduce that community organizations and their members want to employ sustainable practices and products into their

lives. However, they simply cannot receive adequate information to make informed decisions about these products because a large majority of this information is only provided in English.

4.2.2 Community Group Surveys

In order to learn more about how to contact people from non-English-speaking backgrounds, we conducted surveys at a meeting hosted by the Alevi Community Council. By conducting these surveys, we hoped to determine whether language barriers or lack of established trust played roles in preventing MEFL from contacting people from CALD groups and to identify ways MEFL could establish contact in the future. Data gathered from our surveys and discussions with community members at the event both provided valuable insight into how MEFL can form ties in the community.

The surveys aimed to find out much of the same information as the online survey developed for the 18-34 age group and the questions were adapted from that survey. After speaking with Ms. Cinar, we adapted the survey questions based on her recommendations and removed irrelevant questions and categories. In addition, we changed Question 1 from asking how likely a person would be to take sustainability advice about environmental issues from different sources to just ask whether or not a person trusts the source. This made it easier for the community members to follow along with the printed English-language copy when Ms. Cinar read the translated version to the group. After the survey, she translated feedback from and comments made by the group members.

Information from the event provided strong support for the theory that language barriers prevented the MEFL's *Water and Energy Survey* from reaching people within CALD communities. Of the thirty-two people present at the event, only a handful spoke any English at

all. All of the survey respondents cited Turkish as the language they spoke at home. In our conversations with the members of this group, several people mentioned that they had received phone calls or come across sustainability information, but could not make use of it because it was in English. According to Ms. Cinar, they said, “They get calls,” but because they are in English, “they don’t understand, or they don’t trust them.” One woman told us that she had received a call that she believed was from MEFL, but she could not understand the caller because he was speaking in English. Additionally, multiple people requested more information regarding sustainable practices and products in their own language.

We also found strong evidence for the lack of established trust in MEFL and for the value of contact with community groups to address this barrier. Figure 4-3 shows the results of Question 2 of our survey, “Would you be likely to take sustainability information from... [Group]”.

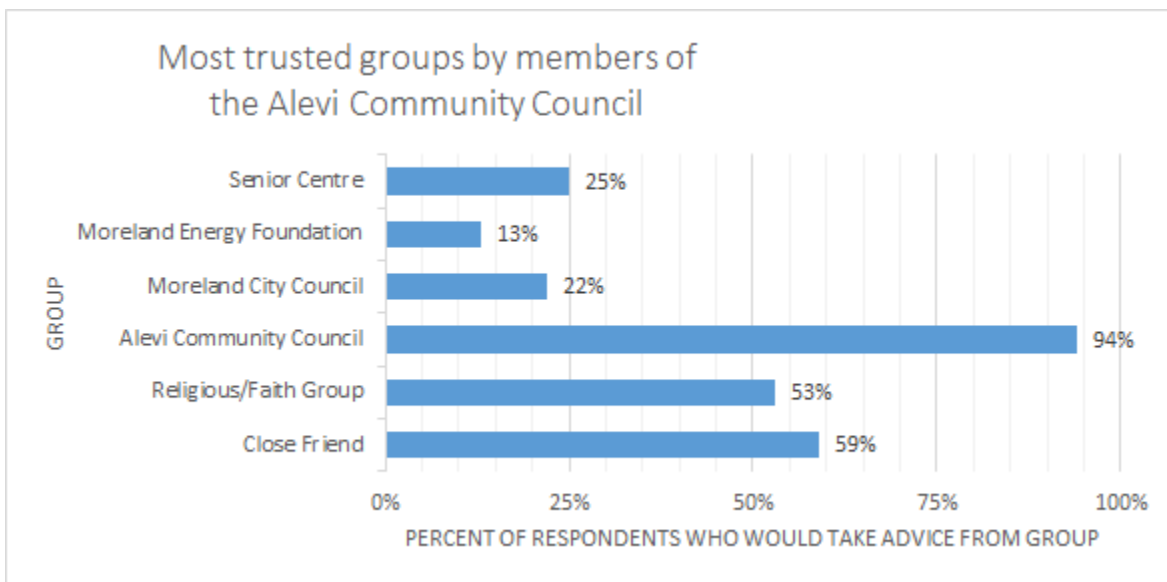


Figure 4-3: Trusted groups from Alevi Council survey

Of the people who completed our survey at the meeting, only 13% indicated that they would be willing to take advice on sustainability from MEFL, while 94% indicated they would take advice

from the Alevi Community Council. Despite the low indicated support for MEFL, everyone at the event was eager to speak with us and actively asked for more information about how to live sustainability. Given the difference in support for MEFL and the Alevi Community Council, it is likely that we received more support as MEFL representatives than might be expected based on the survey results because we had been introduced by a trusted member of the Alevi Community Council.

One additional insight revealed by our experience with the Alevi Council is the importance of having strong contacts within a community in order to promote engagement. We would not have been able to gather any data from the Alevi Community Council without the help we received from Ms. Cinar. She made it possible to deliver our surveys without translations by reading out the survey questions in Turkish and explaining them so people could write out their answers on English printouts. She also translated comments and input from the community members present and helped us tailor our survey to the group, telling us what questions might be irrelevant or confusing. Beyond just translating, Ms. Cinar's understanding of the community was crucial for helping us establish a good, trusting relationship with the community members present; she explained to people why we were conducting the surveys, how we could help them save electricity and therefore money, and that we wanted to make sure they had a voice in helping MEFL develop programs that could help their community.

The help we received from Ms. Cinar provided strong evidence for the importance of establishing liaisons between MEFL and community organizations. These community liaisons would have knowledge of MEFL, and would be active members in their respective community organizations. MEFL could use these community liaisons to communicate with to people from

CALD communities in the manner most appropriate for each group. In turn, the liaison would be able to keep MEFL informed about the sustainability needs of the community.

We received some additional data from the Imam Ali Islamic Centre Fawkner but they were collected too late to be integrated into this report. The data can be seen in Appendix J. The results were largely consistent with that of the Alevi Community Council with the MEFL representatives at the event being well-received despite the reported unwillingness to accept sustainability advice from MEFL as indicated in their survey responses.

4.3 Using trust to engage the 65+ Age Group

This section covers our efforts to engage the 65 and over group—the group we identified as the **least sustainable**. As stated in Section 3.3.2, we identified trust as one of the main barriers facing the uptake of sustainable products. We decided to focus on overcoming this barrier of not having a trusted source with the 65 and older age group because this was a major barrier we could thoroughly address in the timeframe of this project. In particular, we focused on identifying whom they trusted for obtaining energy-saving practice information and why they trusted some sources more than others.

4.3.1 Community Member Interviews

In order to learn which channels would be most effective for establishing trusted communications with people 65 years and older, we interviewed people from this age group. Because MEFL's *Water and Energy Survey* obtained a high response rate through landlines for this group, we decided to use the same method to conduct interviews. Phone interviews were also less time-consuming because they did not require us to travel between homes. During the

interviews, we were able to ask questions about their views towards certain community groups and their perception of sustainability.

We first emailed respondents from this age group who indicated in the survey that they were willing to be re-contacted about scheduling phone interviews. Due to a low email response rate, we cold-called these respondents. We were only able to conduct three phone interviews, so findings from these interviews must be further researched to validate their credibility. From the limited interviews we were able to conduct, we found this group would rather hear information from a friend because they are not always sure of the intentions of organizations like MEFL. They may worry that many of these organizations are trying to turn a profit by selling them an unreliable product and are not concerned with finding the best solution for their home. They would also be open to hearing sustainability information from their church group or the Moreland City Council because they consider these organizations trusted sources.

One obstacle to conducting these interviews was a lack of interest in the topics of sustainability and climate change. Some of the respondents did not give in depth responses because they were less interested in sustainability. In addition, we realized after our first interview that our questions were slightly confusing and too complex, especially if an interview respondent did not use sustainable products. As a result of this confusion, we changed the structure of our interview questions to a more casual conversation, which allowed the interviewees to feel more comfortable speaking with us and better understand our questions. The revised interview questions are in Appendix B.

We also visited Pascoe Vale Gardens (PVG), a senior living community, to conduct in-person interviews. The invitation to PVG residents is shown in Appendix H. We interviewed the 8 residents who attended our event so that we could find out more about PVG, what sources the

residents found most trustworthy, and where they thought information about sustainability could be best distributed. Some key information we discovered was that PVG Gardens offers assisted living in the form of serviced apartments where residents do not have to worry about cooking or cleaning. The residents who required this assisted living had high levels of dependency and were unable to make alterations to their homes, and were uncomfortable making major financial decisions or lifestyle changes on their own.

Another major finding was that MEFL was seen as a trusted source among this age group, but residents who were interested in the benefits of sustainable products were unsure of how to purchase or install such items. MEFL already provides such information through Positive Charge, but none of the residents we interviewed had heard of this program. All were interested in learning more about Positive Charge once we had explained the services it provided. With regards to other trusted sources, one interviewee suggested that MEFL attempt to contact and provide information through the Probus Club of Moreland, which is a business club for retired professionals. She explained that many members are active contributors, within the 65 and over age group, who are much more independent, and would therefore be able to make large financial decisions or lifestyle changes.

4.3.2 Community Group Survey

While visiting the PVG retirement community, we also conducted surveys to identify the following:

1. What organizations did residents feel were reliable sources of information?
2. Where did residents get information about community events?
3. What were residents' attitudes towards sustainability?

The format for the community group survey for the 65+ age group followed the same format as the survey for the CALD groups, with added questions surrounding sustainability. The PVG community members that participated in our survey identified the Moreland City Council, neighborhood houses, church groups and close friends as their preferred sources of information. The results of this survey question are shown in Figure 4-4.

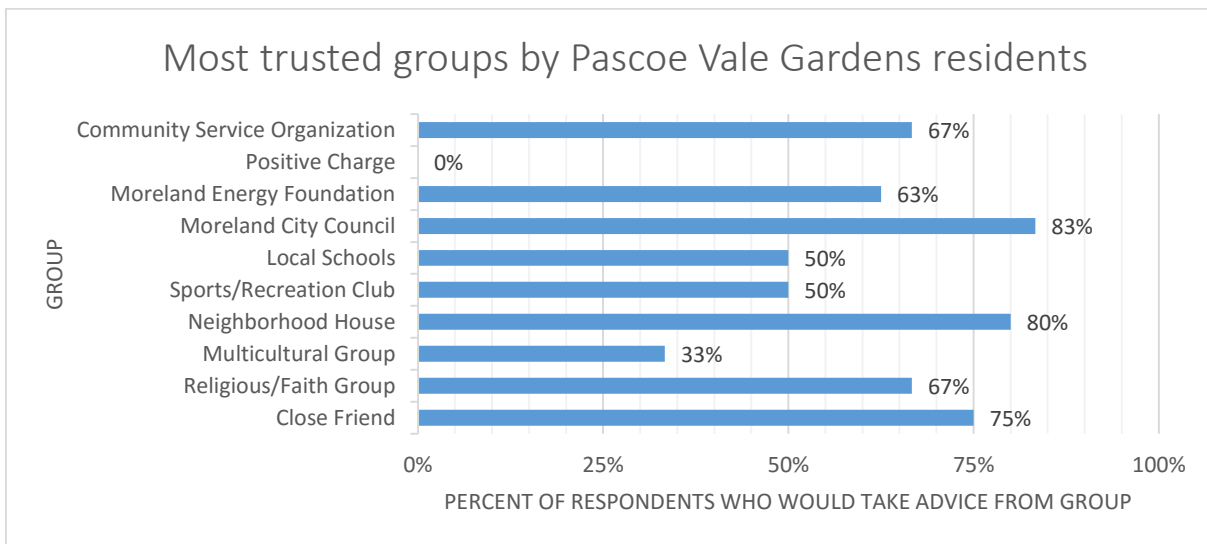


Figure 4-4: Most trusted groups by Pascoe Vale Gardens residents

One final finding we identified through this survey was that this age group is more likely to get their information through the local newspapers with 7 of our 8 respondents answering that they receive information from this source. Unfortunately, as only eight people took our survey during our event at PVG, further research is needed to validate the credibility of conclusions drawn from this data.

5. Conclusions and Recommendations

The potential for improvement in energy conservation is reasonably high in Moreland, Australia. Through our analysis of the MEFL *Water and Energy Survey*, we determined that the community faces many barriers to sustainability. In addition, we established that MEFL did not gain a representative sample of Moreland with its survey. By combining this analysis with our research, we identified two main ways MEFL could improve engagement in its programs within the Moreland population: by developing incentives for identified barriers from MEFL's survey, and by providing an engagement strategy for the key demographic groups identified from MEFL's *Water and Energy Survey*. This chapter discusses the conclusions we drew from our research and the recommendations we made to MEFL based on these conclusions.

5.1 MEFL Survey Analysis

From our analysis of the MEFL's *Water and Energy Survey*, we identified two prominent barriers to the Moreland community's use of sustainable products: the **high upfront costs** associated with these products and **renter-landlord agreements**. However, due to the limited time we had to carry out our project, we were not able to develop fully tested recommendations to address these barriers within the community. Another key finding of our analysis of MEFL's survey also revealed that it **did not effectively reach** all demographic groups in the Moreland community. This section discusses each of the main conclusions we drew from our analysis of MEFL's *Water and Energy Survey* as well as our methods we recommend MEFL use to make future surveys more effective.

5.1.1 High Upfront Costs

Sustainable products often carry premium prices that people in the Moreland community may be unwilling or unable to pay. For example, the analysis of MEFL's survey showed that 44% of respondents who didn't have solar panels stated that high upfront costs were the main reason for not installing them.

Recommendation #1

We recommend that MEFL increase its efforts to promote existing financial incentive opportunities to the Moreland community. Data gathered from interviews and survey analysis has led us to conclude that more information about these opportunities will increase community members' participation in them. In addition, if this information were communicated via more effective channels, discounts and rebates promoted by MEFL would less likely be viewed as an organization's attempt to generate a profit. Some examples of these channels are discussed in more detail in Section 5.2, the Community Engagement Strategy.

5.1.2 Renter-Landlord Agreements

Renter-landlord agreements are a major deterrent to the uptake of sustainable products within the Moreland community. In 2011, over 32% of the Moreland population rented their homes, and therefore had little to no ability to make large home alterations (*Census of Population and Housing*, 2011). In rental housing, decisions regarding whether or not to install sustainable products are typically up to landlords, who see little return on such large investments since utility bills are usually paid by their renters. Furthermore, many of Melbourne's landlords rent out their properties through real estate agencies, who act as intermediaries between renters and landlords. Because of this arrangement, MEFL has had

difficulty directly providing information about sustainability and its potential benefits to landlords (Cox, 2015). In addition, the legislation detailed in section 2.3.2 does not require houses built before 2005 to meet state energy efficiency standards. We concluded it necessary for these same standards to apply to all newly rented properties within Moreland.

Recommendation #2

We recommend that MEFL continue to work with the Victorian State Government to develop updates in legislation regarding the energy efficiency standards of all residential properties. The Victorian government found that, on average, bringing a single pre-2005 house up to 2005 efficiency standards could cut greenhouse gas emissions by 3.4 metric tons annually (*Victorian Households Energy Report*, 2014). MEFL’s Zero Carbon Evolution, in contrast, seeks to decrease Moreland’s carbon emissions by 22%, or 310 thousand tonnes. Given that there are 58,000 households in the community of Moreland, bringing even half of the rented properties up to 2005 standards could bring MEFL significantly closer to achieving its goal.

5.1.3 Underrepresented Groups

The method used to deliver MEFL’s Water and Energy Sustainability Survey prevented it from collecting data from a representative sample of the population of Moreland. Though it did reach a large percentage of individuals over the age of 65, it did not achieve similar representation from residents between the ages of 18-34 or from residents from culturally and linguistically diverse (CALD) backgrounds. We believe the survey did not reach the 18-34 age group because it was administered only to households with landlines. Only half of people between the ages of 18 and 34 own landlines and therefore would not receive a survey administered in this manner (*ACMA Communications report 2013–14*, 2014). Our research

indicates that the survey did not reach people from CALD backgrounds due to a language barrier. The survey was only delivered in English, which prevented people from non-English speaking backgrounds from responding. This language barrier is discussed further in Section 5.2.2 as part of the Community Engagement Strategy.

Recommendation #3

We recommend that MEFL utilize a variety of different mediums for delivering their surveys. In particular, we suggest MEFL run online surveys in parallel with future phone surveys. Through our online survey we obtained 44 responses from people between the ages of 18 and 34, compared to the 20 responses from people in this age group obtained through MEFL's phone survey. Community groups could provide another possible medium for future surveys. We received 32 responses from people who spoke little to no English through a survey that we distributed through a cultural community group; this was one of the demographic groups for which MEFL's survey did not gather any data. These two survey mediums are discussed further in Sections 5.2.1 and 5.2.2 under the Community Engagement Strategy.

5.2 Community Engagement

As indicated in the previous conclusions, MEFL is not engaging certain demographic groups in the Moreland community, specifically the 18-34 age group, the 65+ age group, and people from CALD backgrounds. In this section, we discuss the conclusions of our research with these groups and our recommendations for how MEFL can engage people in these underrepresented and least sustainable demographics.

5.2.1 18-34 Group

Social media is an effective way to reach 18-34 year olds for gathering data and spreading information. The online survey was much more time-efficient and less expensive than MEFL's phone survey. The data gathered from our online survey reaffirmed that social media was effective an effective communication channel for reaching the 18-34 age group, as 93% of the survey respondents within this group listed this as one of their primary sources for information about community programs or events.

The main type of community group in which many 18-34 year olds are involved are sports groups. Half of the survey respondents reported they belong to community groups and nearly 40% of the respondents who belonged to a sports group reported that they would trust information from their group. Only a few respondents were involved with neighborhood houses and religious/faith groups, but they would consider taking advice from these community groups. Further research is needed, however, to justify these conclusions, as a small sample size diminishes their credibility.

Recommendation #4

We recommend that MEFL use social media to facilitate “word of mouth” communications to spread information among younger community members. Although the data from our online survey suggests that people from this age group see MEFL as a trusted source, they are more likely to accept information forwarded to them by a friend than information directly from MEFL. Over 85% of 18-34-year-old respondents to our online survey indicated they would take sustainability advice from a close friend, making this the most widely trusted source among this age group. MEFL can use this established trust to promote sustainability by making use of the social networks of their volunteers to spread more

information among 18-34 year olds on social media platforms. We used this method to promote our online survey: after sending our survey out through MEFL's Facebook page and email lists, we enlisted two MEFL volunteers from the Royal Melbourne Institute of Technology (RMIT) to send our online survey to their peers. The number of survey responses we received doubled within 24 hours, demonstrating the potential effectiveness of this method.

Recommendation #5

We recommend further analysis on the effects of community groups for 18-34 year olds. We received 44 responses from our online survey, half of which indicated participation in a community group. Seventeen respondents stated that they were affiliated with sports/recreation groups, of which 40% answered as likely to trust information about sustainability from these groups. Though it might be possible to conclude that sports/recreation groups are viable options for MEFL to establish channels of communication with, further research is needed to verify the conclusions drawn from these small sample sizes.

5.2.2 CALD Group

Our research suggests that cultural community organizations can provide effective forums for contacting people from culturally and linguistically diverse (CALD) backgrounds. Our visit to the Alevi Community Council event provided insight into how people view information from different sources. Only 13% of the members present indicated that they would be comfortable taking advice on sustainability directly from MEFL; however, people were very enthusiastic about speaking to us at the meeting even though we were there as representatives from MEFL. Many directly asked us for specific sustainability advice. This appears to have resulted directly from the fact that we were speaking to them at an Alevi Council

event—94% of those present said they would be comfortable taking advice from the Alevi Council. By establishing contact through a community group with a well-established reputation in the Turkish community, we were able to obtain enthusiastic responses from 32 people in the Turkish community despite language and trust barriers that precluded contact through other means. MEFL can establish effective channels to reach the many other diverse communities in Moreland using similar methods.

Recommendation #6

We recommend that MEFL work to establish strong, long-term ties with individuals within CALD cultural groups. During our visit to the Alevi Community Council meeting, we had significant help from Sultan Cinar, a representative from the Alevi community who had previously worked with MEFL on other projects. Ms. Cinar was crucial to our success at the Alevi meeting, both due to her knowledge of the Alevi community and her knowledge of MEFL. When we first arrived at the Alevi meeting, she introduced us to the group. She explained our goals in coming to the meeting, but also explained how MEFL could help the people in the Alevi community. Her knowledge of cultural customs in the Alevi community also proved important: she informed us that it was customary for anyone attending this type of event to bring a small gift for everyone present to share. This helped us establish a positive relationship with the group from the start and contributed to the high level of engagement we encountered with this community.

MEFL has also had positive experiences working with individual representatives from CALD groups in the past; one specific case was during the In Common Language program. The representatives consulted in this program provided important insight to MEFL based on their understandings of their own communities. This played an important role in ensuring the success

of the program. In one case, a representative from the community rewrote a translated resource because the original translation used language that was not suited to the specific Turkish-speaking population in Moreland. By establishing long-term contacts with people in CALD groups, MEFL can ensure they have access to advice from people who understand both the CALD communities and MEFL's own goals. This can help MEFL make the most effective use of CALD community groups to promote sustainability.

Recommendation #7

We recommend that MEFL provide additional resources in languages other than English. According to census data, over seven percent of Moreland residents speak little or no English (*Census of Population and Housing, 2011*). MEFL has significant resources available for community members who wish to learn about how to reduce their own electricity usage, including flyers, online resources, and the Positive Charge Helpline; however, most of these are in English, and are therefore unavailable to people who do not speak English. During our visit to the Alevi Council meeting, several people requested additional information about specific ways to reduce their household electricity usage, such as switching to more efficient light bulbs. Some of MEFL's current resources, such as the Positive Charge helpline, could likely answer such practical questions if they were available in languages other than English. By providing additional non-English resources, MEFL can ensure that people from diverse backgrounds have the information they need to use electricity sustainably.

5.2.3 65+ Group

Retirement villages may not be effective channels for communicating information about sustainable programs. Many residents of retirement villages have a high level of

dependency, and are not able to make major financial decisions or lifestyle changes on their own. The majority of people we interviewed at Pascoe Vale Gardens (PVG) lived in serviced apartments—apartments in which residents were taken care of by the staff. These individuals seemed very willing to hear about sustainable products but lacked the ability to implement changes themselves.

In addition, retirement villages may lack the strong relationships necessary for highly effective information sharing. Many of our interviewees at PVG felt that attendance at social gatherings within the community was comprised of the same core group, and that this would hinder the spread of information throughout the community. In trying to capitalize on existing relationships, we believe MEFL will have more success by seeking out other, more close-knit organizations of people from this age group. However, because of the small number of people from this age group to whom we were able to speak, we cannot make a conclusive claim about this point.

Recommendation #8

We recommend that MEFL conduct further research to determine the feasibility of reaching the 65+ demographic group through community groups with active membership. We were only able to speak with eight residents from PVG and as a result did not obtain enough data to make strong conclusions about what methods of contact would be most effective for reaching people in this demographic group.

From our earlier analysis of MEFL's *Water and Energy Survey*, we concluded that community groups were an effective way to reach out to the community. However, based on our research, retirement villages with assisted living did not appear to be the most effective

community groups for promoting sustainability because they did not seem to encourage active membership. Groups in which membership involves greater commitment may be better suited for engaging with independent community members in the 65+ age group. Examples of such groups we identified from our interviews with PVG residents were Probus clubs, Rotary clubs and church groups. We recommend that MEFL conduct additional surveys to test these possible channels for communicating with Moreland residents over 65.

References

- 2010 Green Light Report. (2011). Melbourne, Victoria: Sustainability Victoria Retrieved from http://greenlightreport.sustainability.vic.gov.au/assets/pdf/Greenlight_Report.pdf.
- ACMA Communications report 2013–14. (2014). Retrieved from http://www.acma.gov.au/~media/Research%20and%20Analysis/Publication/Comms%20Report%202013%2014/PDF/Communications%20report%20201314_LOW-RES%20FOR%20WEB%20pdf.pdf
- Australia's emissions projections 2014-15. (2015). Australia Department of the Environment Retrieved from <http://www.environment.gov.au/system/files/resources/f4bdfc0e-9a05-4c0b-bb04-e628ba4b12fd/files/australias-emissions-projections-2014-15.pdf>.
- Bailey, N. (2011). *Evaluation Report Summary*. Retrieved from http://environmentvictoria.org.au/newsite/sites/default/files/useruploads/GreenTown%20evaluation%20report_public_short_final%281%29.pdf
- Bhalla, T., MacGrogan, A. S., Miller, E. A., & Tosi, N. A. (2013). *Improving Residential Solar Photovoltaic Uptake within the Moreland Municipality*. Retrieved from Worcester Polytechnic Institute: <http://www.wpi.edu/Pubs/E-project/Available/E-project-121613-061647/>
- Black, A. (2006). What's the Payback? : OnGrid Solar.
- Burn, S. M. (1991). Social psychology and the stimulation of recycling behaviors: The block leader approach. *Journal of applied social psychology*, 21(8), 611.
- Census of Population and Housing*. (2011). Australian Bureau of Statistics.
- Chu, S., & Majumdar, A. (2012). Opportunities and challenges for a sustainable energy future. *Nature*, 488(7411), 294. doi:10.1038/nature11475
- Cox, J. (2015, October 29th).
- Dillahunt, T., Mankoff, J., & Paulos, E. (2010). *Understanding conflict between landlords and tenants: implications for energy sensing and feedback*.
- Drozdenko, R., Jensen, M., & Coelho, D. (2011). Pricing of green products: Premiums paid, consumer characteristics and incentives. *International Journal of Business, Marketing, and Decision Sciences*, 4(1), 106-116.
- Energy in Australia. (2015). Retrieved from <https://www.originenergy.com.au/blog/about-energy/energy-in-australia.html>
- EPA. (2012). *Gas Guzzler Tax*. United States Environmental Protection Agency: EPA Retrieved from <http://www3.epa.gov/fueleconomy/guzzler/420f12068.pdf>.
- Gabriel, M., Watson, P., Ong, R., Wood, G., & Wulff, M. (2010). *The environmental sustainability of Australia's private rental housing stock*. Retrieved from Australian Housing and Urban Research Institute: http://www.ahuri.edu.au/publications/download/ahuri_40560_fr
- Glossary. (2015). Retrieved from http://sustainca.org/green_leases_toolkit/glossary
- Gouchoe, S. M., Everette, V. S., & Haynes, R. (2002). *Case studies on the effectiveness of state financial incentives for renewable energy*: National Renewable Energy Laboratory.

- Greene, D. L., Patterson, P. D., Singh, M., & Li, J. (2005). Feebates, rebates and gas-guzzler taxes: a study of incentives for increased fuel economy. *Energy policy*, 33(6), 757-775.
- Grimm, P. (2010). Social desirability bias. *Wiley International Encyclopedia of Marketing*.
- Guide to installing solar for households. (2015).
- Household energy use and costs*. (2012). Australian Bureau of Statistics Retrieved from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Main+Features10Sep+2012>.
- Hunt, S. N., Kurisko, T., MacDowell, W. D., & Pietri, T. A. (2013). *Motivating Sustainable Behaviour Change in Apartment Residents of Moreland, Australia*. Retrieved from
- OECD. (2008). Good practices in OECD countries. Retrieved from <http://www.oecd.org/greengrowth/40317373.pdf>
- Opdenakker, R. (2006). Advantages and disadvantages of four interview techniques in qualitative research. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, 7(4).
- Positive Charge Annual Review June 2015*. (2015). Retrieved from Moreland, Australia: <http://www.positivecharge.com.au/docs/Positive-Charge-Annual-Review-2015.pdf>
- Seidel, V. P. (2013). Sustainable community development-impact of residents' behaviour on total sustainability of a sustainable community.
- Setthasakko, W. (2009). Barriers to implementing corporate environmental responsibility in Thailand: A qualitative approach. *International Journal of Organizational Analysis*, 17(3), 169-169. doi:10.1108/19348830910974905
- Sundareswaran, C. (2011). *In Common Language Evaluation Report*. Retrieved from
- Sundareswaran, C. (2015, October 29th).
- The World Factbook. (2015). from United States Central Intelligence Agency <https://www.cia.gov/library/publications/resources/the-world-factbook/geos/as.html>
- Victorian Households Energy Report*. (2014).
- Williams, R. J., Bradstock, R. A., Cary, G. J., Enright, N. J., Gill, A. M., Liedoff, A. C., . . . York, A. (2009). Interactions between climate change, fire regimes, and biodiversity in Australia: a preliminary assesment: Australian Government Department of Climate Change.
- World Energy Outlook 2014*. (2014). Paris, France: International Energy Agency/OECD Retrieved from <http://www.iea.org/textbase/npsum/weo2014sum.pdf>.
- Zero Carbon Evolution. (2014). Retrieved from <http://www.mefl.com.au/get-involved/zero-carbon-evolution.html>

Appendix A: Moreland Household Water and Energy Sustainability Survey 2015

Starting on the next page is the full text of the final version of the *Moreland Household Water and Energy Sustainability Survey*.



Moreland City Council

Moreland Household Water and Energy Sustainability Survey 2015

Wednesday, 16 September 2015_V3

(Ref: 2829)

INTRODUCTION

Good (...), my name is (...) calling on behalf of Moreland City Council and the Moreland Energy Foundation from Market Solutions, a social and market research company.

Today we are conducting a survey on water and energy use at home, as well as decisions about expenditure on major household items that use energy and water. The results of the survey will be used to help inform the planning of water and energy usage initiatives in Moreland. For those who participate in the survey we are offering the chance to go into a prize draw to win 2 Apple iPad Airs valued at over \$700 each.

For this study, we need to speak with the person in your household who is aged 18 years or older who can speak to us about the energy and water usage and decision making within the household. Is that you?

IF YES, CONTINUE. OTHERWISE ASK TO SPEAK TO APPROPRIATE PERSON AND RE-INTRODUCE. IF PERSON NOT AVAILABLE, SCHEDULE CALL-BACK. DO NOT SUBSTITUTE.

The interview will take about 15-20 minutes and your responses will be held strictly confidential. My supervisor may listen to parts of this interview to assist in quality control monitoring.

YES, CONTINUE.....	1
Schedule call back	2
Soft refusal	3
Hard refusal.....	4
Non qualifying	5
Not a residential number	6
Terminated early	7
Communication difficulty.....	8
Language other than English.....	9
No contact on final attempt.....	10
Over quota	11
Duplicate	12
Away for duration of study	13
Non-working number	14
No answer	15
Answering machine – message left.....	16
Answering machine – other attempts.....	17
Engaged.....	18
Incorrect details	19
Have already completed survey.....	20

SECTION 1: CURRENT & INTENDED ACTIONS (MOTIVATIONS & BARRIERS)

ASK SECTION 1 QUESTIONS FOR THE FOLLOWING ITEMS ONE AT A TIME:

- | | |
|----|--|
| a) | Rainwater tanks |
| b) | Downpipes diverted to the garden or a raingarden |
| c) | Water efficient fittings, such as showerheads, tap aerators, efficient dual-flush toilet |
| d) | Water efficient garden items, such as mulch, drip irrigation, wicking beds |
| e) | Water efficient appliances, such as washing machines or dishwashers |
| f) | Energy efficient lighting like coil or LED globes |
| g) | Energy efficient appliances like air conditioner or hot water system |
| h) | Solar hot water |
| i) | Solar electricity panels |
| j) | GreenPower purchased from an energy retailer |

Q.1. Can you please state whether your property currently has [INSERT ITEM] installed?
[READ OUT AND CLARIFY]

- Yes - Installed before you moved to property..... 1
- Yes - Installed while you were living at property..... 2
- No 3

Q.2. **ASK IF RAIN TANKS ARE INSTALLED ON THE PROPERTY – OTHERWISE GO TO Q.4**
Is your rain water tank...? [READ OUT AND CODE ONE AT A TIME]

- For external use in gardens, pools, water features.... 1
- Internally plumbed to the toilet..... 2
- Internally plumbed to the laundry 3
- (Not sure)..... 4

Q.3. Has your tank been deliberately installed with a slow leak, for example to the garden or stormwater to maintain spare capacity so that it can capture the next rain fall?

- Yes 1
- No 2
- (Not sure)..... 3



Q.4. ASK IF ITEM INSTALLED WHILE LIVING AT THE PROPERTY – OTHERWISE GO TO NEXT QUESTION

And what was the MAIN reason for installing [INSERT ITEM]? [DO NOT READ OUT] [ONE ONLY]
And any other reasons? [ACCEPT MULTIPLES]

WATER ITEMS:

To reduce cost of water bills	1
To improve waterway health	2
To reduce the demand on Melbourne's water supply	3
Because I like feeling more self-sufficient	4
To save wasting a natural resource	5
I knew others/friends who had done it	6
To make my home more sustainable	7
To increase my property value	8
To do my bit to save the planet	9
To feel less guilty about my environmental impact ...	10
To keep my garden green	11
To reduce the extent of nuisance flooding locally	12

ENERGY ITEMS:

To reduce cost of energy bills	13
To reduce greenhouse gas emissions	14
To reduce the use of finite fossil fuel resources	15
Because I like feeling more self-sufficient	16
To make better use of our natural renewable resources (solar)	17
I knew others/friends who had done it	18
To make my home more sustainable	19
To increase my property value	20
To do my bit to save the planet	21
To feel less guilty about my environmental impact ...	22

Other (specify)	98
Don't know	99

Q.5. ASK IF ITEM NOT ALREADY INSTALLED – OTHERWISE GO TO NEXT QUESTION

How likely you are to consider installing [INSERT ITEM] in the next 12 months?

Very likely	1
Likely	2
Neutral	3
Unlikely	4
Very unlikely	5
Is already installed	6
(Don't know)	7

Q.6. ASK IF RAIN TANKS CONSIDERED FOR INSTALLATION – OTHERWISE GO TO NEXT QUESTION

Would you consider a rain water tank...? [READ OUT AND CODE ONE AT A TIME]

For external use in gardens, pools, water features	1
Internally plumbed to the toilet	2
Internally plumbed to the laundry	3
(Not sure)	4



- Q.7. **ASK IF LIKELY/VERY LIKELY TO INSTALL ITEM – OTHERWISE GO TO NEXT QUESTION**
 And what is the main reason for considering to install [INSERT ITEM]? [DO NOT READ OUT] [ONE ONLY]
 And any other reasons? [ACCEPT MULTIPLES]

WATER ITEMS:

To reduce cost of water bills	1
To improve waterway health	2
To reduce the demand on Melbourne's water supply	3
Because I like feeling more self-sufficient	4
To save wasting a natural resource	5
I knew others/friends who had done it	6
To make my home more sustainable	7
To increase my property value	8
To do my bit to save the planet.....	9
To feel less guilty about my environmental impact ...	10
To keep my garden green.....	11
To reduce the extent of nuisance flooding locally	12

ENERGY ITEMS:

To reduce cost of energy bills.....	13
To reduce greenhouse gas emissions	14
To reduce the use of finite fossil fuel resources.....	15
Because I like feeling more self-sufficient	16
To make better use of our natural renewable resources (solar)	17
I knew others/friends who had done it	18
To make my home more sustainable	19
To increase my property value	20
To do my bit to save the planet.....	21
To feel less guilty about my environmental impact ...	22
Other (specify)	98
Don't know	99



Q.8. ASK IF UNLIKELY/VERY UNLIKELY TO INSTALL ITEM – OTHERWISE GO TO NEXT QUESTION

And what is the main reason for not considering to install [insert answer]? [DO NOT READ OUT] [ONE ONLY] And any other reasons? [ACCEPT MULTIPLES]

Risk of property damage	1
Cost.....	2
Time.....	3
Too busy/higher priorities.....	4
Concern about building/planning regulation	5
Concern I will be taxed	6
Unaware/Never thought about it.....	7
Insufficient space.....	8
No demand for rainwater on my property.....	9
Not my responsibility	10
Negative previous experience	11
Not sure where to get information	12
Not sure who to get to install it.....	13
I see no benefit in it.....	14
Neighbours wouldn't like it	15
Insufficient financial payback to be worthwhile.....	16
I rent – can't make building alterations.....	17
I'm in an apartment – can't make alterations	18
Other (specify).....	98
Don't know	99

GO TO NEXT SECTION AFTER COMPLETING QUESTIONS FOR ALL ITEMS



SECTION 2: ATTITUDES TO THE ENVIRONMENT

Q.9. I'm now going to read out some statements regarding the environment as ask if you agree or disagree. Do you agree or disagree that...? [WAIT FOR RESPONSE: is that agree/disagree or disagree/strongly disagree]

[ROTATE STATEMENTS]

- a) You are conscious about the amount of water you use
- b) You are conscious about the amount of energy you use
- c) You would like more information about sustainable water management
- d) You would like more information about climate change
- e) You want to do everything I can to help the environment
- f) You are concerned about climate change
- g) You are concerned about Melbourne's water supplies
- h) You are concerned about the health of our local waterways
- i) You are concerned about the rising cost of water and energy
- j) There's nothing meaningful you can do about the environment as an individual
- k) You are prepared to use rainwater in the toilet, laundry and outside my home
- l) Environmental management is the responsibility of government, not the general community
- m) You have done everything you reasonably can to improve water management in your home
- n) You have done everything you reasonably can to improve energy management in your home
- o) You would support increased regulation to better protect the environment
- p) You are actively involved in environmental groups, lobbying or volunteering

Strongly agree.....	1
Agree	2
(Neutral)	3
Disagree	4
Strongly disagree	5
(Don't know).....	6



SECTION 3: ENGAGEMENT & COMMUNICATIONS APPROACHES

Q.10. Moreland City Council and the Moreland Energy Foundation want to encourage the community to improve sustainability at home. The following questions will help in planning this approach.

Please indicate your level of support for the following. Do you support the idea of...? [IF RESPONSE IS YES CLARIFY: would you personally get involved]

[ROTATE STATEMENT]

- a) Financial incentives like subsidies, bulk buys, Council loans and prize draws
- b) Providing a list of reliable installation contractors
- c) Creating neighbourhood water and energy usage action groups and providing local community educational events like installation demonstrations, neighbourhood street parties and workshops etc.
- d) Creating friendly competitions between streets, neighbourhoods or community groups around water and energy efficiency
- e) Using community champions or a celebrity to drive uptake of home water and energy efficiency measures
- f) Using local community groups like environment, sporting, gardening, religious groups or schools to promote water and energy usage at home
- g) Setting local community water and energy efficiency targets
- h) A water-efficient garden competition**

Support and would personally get involved	1
Support but wouldn't personally get involved	2
Wouldn't support	3
Unsure	4

Q.11. Do you have any other suggestions to encourage the community to improve water and energy use at home?

[RECORD VERBATIM] [PROBE FULLY]

SECTION 4: DEMOGRAPHICS

Finally, some questions about you so that we know we have spoken with a good cross-section of the local community.

Q.12. [RECORD GENDER]

Male	1
Female	2

Q.13. How old are you? (DO NOT READ OUT)

18 – 24 years	1
25 – 34 years	2
35 – 44 years	3
45 – 54 years	4
55 – 64 years	5
65 years and over	6
(Refused)	7



Q.14. Which of the following best describes your house type? (READ OUT)

Detached house	1
Semi-detached house, townhouse or villa	2
Apartment or unit.....	3
Other (specify).....	4
(Refused)	5

Q.15. For the property you have been answering in relation to, are you an owner-occupier, renter or landlord?
[DO NOT READ OUT]

Owner-occupier (including paying off mortgage)	1
Renter.....	2
Non-resident landlord	3
Other (specify).....	4

Q.16. Do you speak a language other than English at home? [DO NOT READ] [ONE ONLY]

No – only speak English	1
Italian.....	2
Arabic	3
Greek	4
Turkish	5
Mandarin.....	6
Urdu.....	7
Nepali	8
Vietnamese.....	9
Punjabi.....	10
Hindi	11
Other (specify).....	12
(Refused)	13

Q.17. What is the highest level of education you have achieved or are currently studying for? (READ OUT)

Secondary school.....	1
TAFE or industry training.....	2
University undergraduate degree	3
Post-graduate qualification or higher.....	4
(Refused)	5

Q.18. Which of the following best describes your household? (READ OUT)

Single/ living alone	1
Single parent (children at home).....	2
Couple (children at home).....	3
Couple (no children at home).....	4
Group/ shared household	5
Other	6
(Refused)	7

Q.19. **ASK IF NOT A SINGLE PERSON HOUSEHOLD – OTHERWISE GO TO NEXT QUESTION**
How many people currently live in this household?

RECORD NUMBER.....	1
--------------------	---



Q.20. How many years have you lived here in your home?

RECORD NUMBER OF YEARS 1

Q.21. What suburb do you live in? [DO NOT READ OUT]

Brunswick 1
 Brunswick East 2
 Brunswick West 3
 Coburg 4
 Coburg North 5
 Fawkner 6
 Glenroy 7
 Gowanbrae 8
 Hadfield 9
 Oak Park 10
 Pascoe Vale 11
 Pascoe Vale South 12
 Other (specify) 13
 (Refused) 14

Q.22. **ASK IF NOT A COUPLE HOUSEHOLD – OTHERWISE GO TO NEXT QUESTION**

Which of the following best describes you approximate annual personal income?

\$0 - \$37,000 (Low) 1
 \$37,001 - \$80,000 (Middle) 2
 \$80,001 or more (High) 3
 (Refused) 99

Q.23. **ASK IF A COUPLE HOUSEHOLD – OTHERWISE GO TO NEXT QUESTION**

Which of the following best describes you approximate annual household income?

\$0 - \$74,000 (Low) 1
 \$74,001 - \$160,000 (Middle) 2
 \$160,001 or more (High) 3
 (Refused) 4



SECTION 5: FUTURE PARTICIPATION

Q.24. In the coming months, Council will be running some community focus groups to further explore water management at home, as well as trialling a pilot project to help residents improve water management on their property. Would you be interested in participating in the community focus groups or a pilot project regarding water management at home? You would be compensated with a small cash amount to cover your out of pocket expenses.

- Yes – community focus groups..... 1
- Yes – pilot 2
- Yes – community focus groups & pilot 3
- No 4

[RECORD DETAILS – NAME, PHONE NUMBER, POSTAL ADDRESS, EMAIL ADDRESS]

Q.25. Would you like to enter into the prize draw to win one of 2 Apple iPad Airs valued at over \$700 each? [IF ASKED: 32GB WiFi + Cellular]

- Yes 1
- No 2

[RECORD DETAILS – NAME, PHONE NUMBER IF NOT ALREADY RECORDED]

CLOSE

Q.26. Thank you for answering our survey questions. On behalf Moreland City Council and Moreland Energy Foundation I would like to sincerely thank you for your time - your opinions are greatly appreciated. As part of quality control procedures, someone from our project team may wish to re-contact you to verify a couple of responses you provided today. For this reason, may I please record your first name?

RECORD FIRST NAME IF NOT ALREADY RECORDED

My name is (...) from Market Solutions, if you have any queries about this survey feel free to call this office during business hours – would you like the number? (Provide number if required – 03 9372 8400 and ask to speak to John Roberts).

If you have any general queries, you can call Moreland City Council on 9240 1111 or the Market Research Society’s Survey Line on 1300 364 830.

NON QUALIFYING CLOSE: Thank you for your time but unfortunately you do not qualify for our research.

RECORD INTERVIEWER'S ID



AUDITING (OFFICE ONLY)

Q.27. Was the date and time of interview correct?

Yes 1
No 2

Q.28. Was the interview recorded correctly?

Yes 1
No 2

Q.29. Was the interviewer courteous?

Yes 1
No 2

Q.30. AUDITOR'S ID

ENTER ID.....



Appendix B: Community Member Interview Protocol

This document contains the entire protocol for our interviews with community members. It contains the goals of these interviews as well as the full list of questions we would ask.

1. Introduction

1.1. Interview Goals

The overall goal of this project is to explore what barriers hinder further uptake of sustainable residential electricity practices in Moreland and what incentives can help overcome such barriers. Through previous research, analysis of the results of MEFL's *Water and Energy Survey*, and discussions with staff members at MEFL, we have identified a few potential barriers and incentives which we believe merit further investigation. We plan to focus specifically on how lack of established credibility within a community can impact the success of groups such as MEFL and how such groups can establish credibility within a community. By conducting interviews with members of the community, we hope to obtain more in-depth information about the reasoning behind participants' sustainability choices than that which the survey provided.

These interviews will seek to accomplish three main goals:

- **Explore whether specific barriers (identified through previous research) play a role in individuals' decisions to forgo various electricity sustainability practices.** This goal will require questions to learn about the motivations behind participants' decisions.
- **Explore whether specific incentives or motivational tactics (identified through previous research) can induce individuals to engage in further electricity sustainability practices.** This goal will require more specific questions about particular incentive programs.
- **Examine specifically how trust or credibility influence whether or not people are willing to accept help from MEFL to improve their electricity sustainability.** We would like to use the contact we will have with members of

the public through these interviews to learn about how people might respond to endorsements from different groups.

Previously, we also planned to ask if respondents had any additional ideas of important barriers or incentives; however, further examination of the results of MEFL’s *Water and Energy Survey* showed that a similar question in the survey already covered this. Ultimately, we hope the results of these interviews will help us develop specific methods that MEFL can use to foster uptake of sustainable behaviors within specific communities within Moreland.

1.2. Participant Selection

To identify the groups who engage in the most and least sustainable practices from MEFL’s survey data, we analyzed the results of a survey question ranking the likelihood of their household installing different sustainability products in the next year. This question asked residents to rank the likelihood of their household installing different sustainability products in the next year. We gave each respondent a sustainability ranking based on their answers to this question by assigning point values to each answer (Figure B-0-1).

Answer	Points
Is already installed	8
Very Likely	4
Likely	2
Neutral/Don’t know	0
Unlikely	-2
Very unlikely	-4

Figure B-0-1: Sustainability Ranking Scheme

We focused on four of the different energy-efficient products: energy-efficient lighting; energy-efficient appliances; solar panels; and GreenPower, a collection of programs through which residents purchase renewable energy credits through their utility provider. We chose not to include results from questions relating to solar hot water in our analysis, even though it was included in the MEFL Survey, because it is an older technology that is being replaced with methods that are more efficient. A person who answered that they were very unlikely to install all four products would have received a score of -16, whereas someone who had all of these products already installed would have received a score of 32. These were the range of scores that could be calculated from this survey question.

This allowed to easily compare the relative sustainability of different individuals. The group with scores in the highest quartile is our “most sustainable” group and the group in the lowest quartile are the “least sustainable”. Potential interview subjects will be selected from the survey respondents in the “least sustainable” group who agreed to participate in further research.

1.3. Overview of Interview

These interviews will be semi-structured in nature; the specific wording and order of the questions will be determined beforehand, but if necessary may be altered somewhat during the course of a given interview in order to clarify the questions for the participant or address topics as they come up in conversation. The interviewer should have the discretion to follow any additional new lines of questioning that arise in conversation with the participant; but regardless of an additional questions asked, the interviewer should make sure that scheduled questions have been asked by the end of the interview.

2. Interview

2.1. Interview Request

We plan to initially contact potential participants through email. We believe email is preferable to telephone calls for initial interview requests because emails would be less disruptive to individuals than phone calls in the middle of the day and would allow us to establish credibility from the start through the use of an official email address and letterhead or logo. If a potential interview subject does not respond to the email within a week, an interviewer will make a follow-up phone call to request the interview. A sample interview request is included below.

“Dear [Mr./Mrs./Ms.] [participant name],

I would like to thank you for your participation in our recent Household Water and Energy Sustainability Survey. I saw that you indicated that you were interested in participating in further research; with that in mind, would you be able to take part in a short 10-15 minute interview to answer a few follow-up questions to help with our research? My name is [interviewer name]. I am part of a group of American university students working with the Moreland Energy Foundation on behalf of the Moreland City Council to gather information on sustainable electricity usage in Moreland.

If you can speak with us, please let us know through email at WPI@mefl.com.au or by calling the Moreland Energy Foundation at (03) 9385 8585 and asking to speak with the team from WPI. Please feel free to contact us if you would like more information about our research or the type of questions we plan to ask. You can read more about our project [here](#) on the Moreland Energy Foundation’s website. If you would like to participate, please let us know so we can set up a time to speak. I’ll follow up with a phone call about a week from now if I don’t hear back from you before then.

Thank you for your participation so far. I understand you may have a busy schedule and I appreciate you taking the time to hear about our research. I hope to hear from you soon.

Regards,

Benjamin Gillette

Theresa Inzerillo

Tyler Van Nostrand

Yingzhe (Jason) Zhao



Moreland Energy Foundation Limited

Suite 6, Level 1, 200 Sydney Road, Brunswick | Postal Address: PO Box 276 Brunswick Victoria 3056

Please consider the environment before you print this email.”

2.2. Interview Schedule

A plan for conducting an interview is included here, including an introduction and list of potential questions.

2.2.1. Preamble

“Hello, our names are _____ and _____. We are university students from Worcester Polytechnic Institute in the United States working on a project with the Moreland Energy Foundation. We are trying to identify specific things that keep people from engaging in sustainable or environmentally friendly practices. You recently took the Moreland Household Water and Energy Sustainability Survey. We would like to ask you a few follow-up questions to gain a better understanding of your views on sustainable practices. We are hoping to identify some key issues throughout the community that keep people from engaging in energy-saving practices so that we can help MEFL change their current programs to make them as effective as possible. This interview should take around 10-15 minutes and your responses will be kept entirely confidential. Feel-free to ask us any questions you may have during the interview. You are welcome to stop the interview at any time. Thank you for your participation.”

2.2.2. Questions

- *Before we start, are you familiar with MEFL and its programs?*
- *How long have you lived in Moreland?*
- *What is the neighborhood you live in like?*
 - *Are the people close-knit in your neighborhood?*
 - *Is your neighborhood involved in any groups or organizations? Neighborhood houses, church groups, etc.*
- *Are you involved in any groups or organizations?*
 - *How often do you meet or have events?*
 - *Do you think hearing information about MEFL from this group or someone in it would make you more likely to participate in MEFL’s programs?*

- *Would hearing information from your local council make you more likely to participate in MEFL's programs?*
- *"If you wanted to find information about how to [engage in a particular sustainable practice, i.e. putting up solar panels], how would you go about finding such information? What sources would you use?"*
 - *"Would you consider seeking information from a non-profit environmental organization like MEFL? Why/why not?"*
 - *Close friend/family?*
 - *"Would you consider a non-profit environmental organization [with which you were not familiar] to be a reliable source of such information? Why/why not?"*
- *Would you like any information about positive charge or do you have any other energy-saving questions?*

2.2.3. Closing Statement

"Thank you so much for your time speaking with us. Your response on sustainable practices is really helpful for our research. If you have further questions and other thoughts, please don't hesitate to contact us at mefl-b15@wpi.edu. If you are interested in seeing how we use this data, I would be happy to send you a copy of our final report at the end of the project. Before I go, is there anything that I can [do right now to help you with any sustainability questions you might have (can talk about Positive Charge, etc. if they would like to information about something)]? Thank you again and have a wonderful day!"

Appendix C: Community Group Representative

Interview Protocol

This document contains the entire protocol for our interviews with community group representatives. It contains the goals of these interviews as well as the full list of questions we would ask.

1. Introduction

After background research, discussion with staff at MEFL, and analysis of the results of the recent Household Water and Energy Sustainability Survey, we decided to examine how a lack of established credibility among some communities within Moreland might create a barrier to engagement in MEFL's programs, and by extension, a barrier to engagement in sustainable practices. The *Water and Energy Survey* results showed significant community support for using community groups to promote sustainability; additionally, previous MEFL projects (specifically the GreenTown and In Common Language programs) had benefitted from contact with community groups. Based on these results, we decided to examine how endorsements from community groups could help address a credibility gap. We would like to conduct interviews with representatives from several community groups in order to learn more about how such a program might fare.

2. Interview Goals

The overall goal of our project is to identify barriers that prevent people from engaging in sustainable behaviors and to identify incentives that can be used to overcome those barriers. By conducting interviews with representatives from different community organizations, we hope to learn about how a specific barrier, lack of established credibility, may play a role within different communities in Moreland.

These interviews have four main goals:

- **Learn about different communities in Moreland**
 - We want to gain a basic understanding about the different communities in Moreland before we try to draw any conclusions about those communities.

We also need to learn about what roles our interview subjects' organizations

play in their respective communities in order to fully understand how we can use the information they give us.

- **Evaluate whether a credibility gap exists**
 - Currently, this is still speculative. Our previous research and analysis is consistent with this theory, but does not provide direct evidence for a credibility gap. Before moving on to community surveys or a pilot program, we need to verify that a credibility barrier is, in fact, a significant barrier.
- **Evaluate how endorsements from different groups might help address this gap**
 - Community group leaders should be able to give us a general idea of what organizations carry influence within their communities. This will help us to identify specific groups whose endorsements would be most helpful.
- **Identify any other ways to address credibility issues within individual communities**
 - Community group leaders will understand their communities better than we do; they may be able to let us know about different tactics or methods that could prove more effective within their communities.

We would like to eventually develop a survey that could be sent out to the community to obtain quantitative data on how community group support influence people's decisions; insights from these interviews will help to make sure the questions on this survey are relevant and effective.

3. Interview Structure

Jason Cox provided us with a list of contacts for people at several community and religious groups with which MEFL has had contact in the past. This people on this list will form our subject pool. They will be contacted through email and asked if they are willing to speak with us about how to promote sustainable practices within their community. We will seek to conduct interviews in-person, ideally at interview subjects' offices in order to avoid any inconvenience for the subject. The interviews will be semi-structured in nature, following the outline of questions shown below.

4. Questions

- Try to gain a basic understanding of the different communities within Moreland
 - *“Tell me about [your [x] community in Moreland/ your community in [x neighborhood]].”*
 - *“How big is your organization? Do you consider your organization closely connected or loosely connected?”*
 - *“How often does your group get together? (Maybe outside of regular services for religious group/ other events for non-religious groups)*
 - *“What is your role in the organization?”*
 - *If worked with MEFL before, “MEFL has worked with you before on [x] program. Are you familiar with that program?”*
 - *If yes (familiar), “Was the program successful? (How did that project go with your group?) Did people in your community gain a better understanding on MEFL or sustainability?”*
- Ask about potential barriers to sustainability in the community
 - *“We are trying to gain a better understanding the role community organizations such as yours could play in helping MEFL accomplish the goal of improving energy sustainability.”*
 - *“How important do you think energy sustainability is to those in your community? Why?”*
 - *“Are you aware of any programs that have been broadly supported in your community such as [Positive Charge]?”*
 - *“Do you think members of your community have heard of MEFL?”*

- *If yes, “How many do you think have heard about MEFL? How do you think they heard about MEFL?”*
 - *“Can you think of anything that might make it difficult for MEFL to engage people in your community on the issue of electricity sustainability?”*
 - *If this is a CALD community, Language barriers?*
 - *Is MEFL seen as a trusted source?*
- *“One specific area we’ve been looking at is how lack of established credibility or unfamiliarity with an organization might make people less likely to trust MEFL or engage in its programs. What are your thoughts on this? Do you think this does occur in your community?”*
 - *“Are there any specific reasons why people in this community might not trust an organization like MEFL?”*
 - *“What is your view on dealing with this issue?”*
- *Ask about potential incentives*
 - *“We would appreciate any thoughts you have on how an organization could establish credibility with a large portion of your organization such that they would consider engaging in the sustainable practices.”*
 - *“What ideas do you have on this?”*
 - *“One possibility we’ve been looking at is trying to use recommendations from you to help establish a positive reputation for MEFL within the community to make people more comfortable with engaging in MEFL’s programs or listening to MEFL’s suggestions on how to engage in sustainable practices. What are your thoughts on this?”*

- *“How might we implement this? For example, would a letter from you work? Maybe us speaking at a normal get together? Do you have any other ideas?”*
- *“We have also considered utilizing local council as an endorsement. How do you think people from your group would respond to an endorsement like this? (From your organization? From local religious groups?)”*
- *“Are you aware of other organization like MEFL that have utilized your organization to engage with your members? Who? Was it successful? Why?”*
- *“We also want to pilot test an approach to engage community members via a short presentation hand-out. Would you consider letting us do that at one of your gatherings?”*

Appendix D: Community Engagement Survey –

English

This document is the Community Engagement Survey we created to assess what community groups people trust getting information from.

We are working with the Moreland Energy Foundation Ltd. (MEFL) to conduct research on the barriers to the adoption of sustainable practices. With this survey, we are hoping to gather more information about the community in order to better understand these barriers and come up with incentives or strategies that can motivate sustainable behavior change. This survey will take only a few minutes to complete and will be very helpful to our research. Thank you!

1. Do you belong to or are you involved with any of the following types of groups? (Select all that apply)

- Religious/Faith Group Sports/Recreation Club
 Multicultural Group Moreland Energy Foundation
 Neighborhood House

2. How likely would you be to take advice from each of the following on sustainability issues?

	Very Unlikely	Unlikely	Undecided	Likely	Very Likely	N/A
Close Friend	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Religious/Faith Group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Multicultural Group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighborhood House	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sports/Recreation Club	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Local Schools	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moreland City Council	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moreland Energy Foundation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive Charge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Senior Centre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Where do you get information about community programs or events?
(Select all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Local Newspaper
Please specify: _____ | <input type="checkbox"/> Multicultural Group Newsletter |
| <input type="checkbox"/> Social Media | <input type="checkbox"/> School Newsletter |
| <input type="checkbox"/> Moreland City Council Flyers | <input type="checkbox"/> Neighbors/Friends |
| <input type="checkbox"/> Church/Faith Group Newsletter | <input type="checkbox"/> Other _____ |
-

4. How old are you?
- 18-24 years old
 - 25-34 years old
 - 35-44 years old
 - 45-54 years old
 - 55-64 years old
 - 65+ years old
 - I prefer not to say.
-

5. What language do you speak at home?
- English
 - Turkish
 - Arabic
 - Greek
 - Italian
 - Mandarin
 - Other _____
 - I prefer not to say.
-

6. Do you rent or own your home?
- I rent my home.
 - I own my home (including paying off mortgage).
 - I am living with family.
 - I prefer not to say.

Appendix E: Community Engagement Survey –

Mandarin

This document is our Community Engagement Strategy translated into Mandarin. This was translated by a native Mandarin speaker from outside the Moreland area.

我们是来自 Moreland 能源基金会（Moreland Energy Foundation Ltd.）。我们正在研究是什么阻止了人们更多的使用绿色能源。通过下面这个调查，我们希望更多的了解这个社区，从而给 Moreland 能源基金会提供一些建议和意见。调查很短，只需要您几分钟的时间，但对我们的研究十分有帮助，非常感谢！

1. 你属于，或者参与以下任何的组 织吗？（请选择所有你参与的组织）

- 宗教，信仰组织
- 多元文化组织
- 社区组织/委员会
- 体育/娱乐俱乐部
- Moreland 能源基金会

2. 你从以下渠道获取绿色能源信息的可能性有多大？

	一定不 会	可能不 会	不知道	可能会	一定会	不适用 (N/A)
亲近的朋友	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
宗教，信仰组织	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
多元文化组织	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
社区组织/委员会	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
体育/娱乐俱乐部	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
当地学校	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moreland 市议会	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moreland 能源基 金会	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive Charge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
老年中心	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. 你从以下哪些渠道获取有关社区活动和项目的信息？

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> 当地报纸，请注明_____ | <input type="checkbox"/> 多元文化组织的新闻信 |
| <input type="checkbox"/> 社交网络/社交媒体 | <input type="checkbox"/> 学校新闻信 |
| <input type="checkbox"/> Moreland 市议会海报 | <input type="checkbox"/> 邻居或朋友 |
| <input type="checkbox"/> 宗教，信仰组织新闻信 | <input type="checkbox"/> 其他 _____ |
-

4. 你的年龄是？

- 18-24 岁
 - 25-34 岁
 - 35-44 岁
 - 45-54 岁
 - 55-64 岁
 - 65 岁或以上
 - 我不想回答
-

5. 你在家说什么语言？

- 英文
 - 中文普通话
 - 广东话
 - 其他 _____
 - 我不想回答
-

6. 你租房吗还是拥有个人住房？

- 租房
- 我拥有个人住房或贷款购房
- 我和父母或其他家人共有住房
- 我不想回答

Appendix F: Community Engagement Survey –

Turkish

This document is our Community Engagement Strategy translated into Turkish. This was translated by a native Turkish speaker from outside the Moreland area.

Biz, sürdürülebilir uygulamaların benimsenmesi önündeki engeller üzerinde araştırma yapan, Moreland Enerji Vakfı Ltd. (Moreland Energy Foundation Ltd.) ile çalışan dört Amerikalı üniversite öğrencisiyiz. Bu anket ile toplum hakkında daha fazla bilgi toplayarak sürdürülebilir uygulamalar hakkındaki engelleri daha iyi anlamayı ve sürdürülebilir davranış değişikliklerini motive edebilecek teşvik veya stratejiler bulmayı amaçlıyoruz. Bu anket araştırmamızda bize çok yararlı olacak ve sadece birkaç dakikanız tamamlamak için yeterli olacaktır. Teşekkürler!

1. Aşağıdaki gruplardan herhangi biriyle kendinizi ilişkilendirir misiniz? (Uygun olanların hepsini seç)

- Din / İnanç Grubu
- Farklı Kültürlere Mensup Kişilerin Bulunduğu Grup
- Mahalle Evi
- Spor / Rekreasyon Kulübü
- Moreland Enerji Vakfı

2. Eğer sürdürülebilirlik konusunda tavsiye almanız gerekseydi, aşağıdakilerden hangisinden alırdınız?

	Çok Düşük İhtimal	Düşük İhtimal	Kararsız	Muhtemelen	Büyük İhtimale	Uygulanamaz (N/A)
Yakın arkadaş	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dini / İnanç Grubu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farklı Kültürlere Mensup Kişilerin Bulunduğu Grup	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mahalle Evi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spor / Rekreasyon Kulübü	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yerel Okullar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moreland Belediyesi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moreland Enerji Vakfı	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive Charge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Yaşlılar Merkezi	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Programlar veya olaylar hakkında nereden bilgi alırsınız? (Uygun olanların hepsini seç)

- Yerel gazete. Lütfen belirtin: _____
- Sosyal medya
- Moreland Belediyesi el ilanları
- Kilise / İnanç Grubu Haber Bülteni
- Farklı Kültürlere Mensup Kişilerin Bulunduğu Grup Bülteni
- Okul Bülteni
- Komşular / Arkadaşlar
- Diğer _____

4. Kaç yaşındasınız?

- 18-24 yaşında
- 25-34 yaşında
- 35-44 yaşında
- 45-54 yaşında
- 55-64 yaşında
- 65+ yaş
- Söylememeyi tercih ediyorum.

5. Evde hangi dili konuşuyorsunuz?

- İngilizce
- Türkçe
- Arapça
- Yunanca
- İtalyanca
- Mandarin
- Diğer _____
- Söylememeyi tercih ediyorum.

6. Kendini eviniz var mı yoksa kirada mı oturuyorsunuz?

- Kirada oturuyorum.
- Kendi evim (ipotek de olabilir).
- Ailemle birlikte yaşıyorum.
- Söylememeyi tercih ediyorum.

Appendix G: Community Engagement Survey –

Revisions

This document contains all of the changes we made to the initial Community Engagement Survey for each group we surveyed (Appendix D).

1. Alevi Community Council Survey

We changed “Multicultural Group” in Question 2 to “Alevi Community Council” and “Multicultural Group Newsletter” to “Alevi Community Council Newsletter”.

2. Mandarin Survey

The only changes in the translation of this survey into Mandarin were to remove all language besides English and Mandarin and added Cantonese as another option.

3. Pascoe Vale Gardens Survey

We added “Community Service Organization” to the list in Question 2 for the Pascoe Vale Gardens survey. In addition, we added a question to address sustainability: “How important is sustainability to you?” This question was formatted as a 1 to 5 scale, where 1 is not important and 5 is very important.


4. Online (18-34 years old) Survey

We made a few changes to the initial survey when we put it online to get information from 18-34 year olds. We took out the option of “Senior Centre” in Question 2. We added a new question to

ask whether respondents read the newspaper online or in print. We also changed Question 6 to ask whether an individual “Still lives at home” instead of “Living with family”.

Appendix H: Invitations to Pascoe Vale Gardens

Residents



Resident Notice

Sustainable Energy Survey

Volunteers from Moreland Energy Foundation Limited are coming to PVG at 2pm on Friday 4 December 2015 hoping to conduct face-to-face Surveys with Residents.


They are trying to identify the barriers to the adoption of sustainable practices.

The Survey should only take a few minutes to complete as there are only 6 questions.



If you're interested in taking the Survey, please visit the Volunteers in Apartment 14 between 2.00pm and 3.30pm on Friday 4 December 2015.

If you have any queries, please ask at Reception.


Cheers ...



Leanne Fisher
Manager



Monday, 30 November 2015



Resident Notice

Sustainable Energy Survey

Volunteers from Moreland Energy Foundation Limited are coming to PVG at 2pm on Friday 4 December 2015 hoping to conduct face-to-face Surveys with Residents.


They are trying to identify the barriers to the adoption of sustainable practices.

The Survey should only take a few minutes to complete as there are only 6 questions.



If you're interested in taking the Survey, please visit the Volunteers in Apartment 14 between 2.00pm and 3.30pm on Friday 4 December 2015.

If you have any queries, please ask at Reception.

Cheers ...



Leanne Fisher
Manager



Monday, 30 November 2015

Appendix I: Database Documentation

This document outlines the structure of the Microsoft Access database created as part of our project work.

1. Introduction

This database contains all of the responses MEFL gathered from the *Moreland Household Water and Energy Sustainability Survey 2015*.

2. Database Structure

This section will describe the tables used in the making of this database as well as the relationships that exist between them.

2.1. List of Tables

General Survey Responses

- Participant
- AttitudesAndEngagement

Sustainable Product Survey Responses

- Downpipes_Responses
- EnergyEfficientAppliances_Responses
- GreenPower_Responses
- RainwaterTank_Responses

- SolarElectricityPanels_Responses
- SolarHotWater_Responses
- WaterEfficientAppliances_Responses
- WaterEfficientFittings_Responses
- WaterEfficientGardenItems_Responses

Reference Tables

- Suburb_Ref

2.2. Table Descriptions

This section will describe all of the tables that are in the database.

2.2.1. General Survey Responses

Participant

This table has a row for each participant in the survey. This row contains the participant's main ID number (P_ID) as well as their responses to Questions 1, 2, 3, and 12-23 of the survey. In addition, the last two columns of each row are for SLA and the weight given to the participant by Market Solutions in its analysis of the data.

AttitudesAndEngagement

This table has a row for each participant in the survey. Each row contains an identifier for the specific row (ID), the participant's ID number (P_ID) and their responses to Questions 9-11.

2.2.2. Sustainable Product Survey Responses

Each of the following tables corresponds with one of the 9 products asked about in the MEFL survey. They all have the same set-up. This table has a row for each participant in the survey. Each row contains an identifier for the specific row (ID), the participant's ID number (P_ID) and their responses to Questions 4,5,7, and 8. The "RainwaterTank_Responses" also contains the participant's response to Question 6.

- Downpipes_Responses
- EnergyEfficientAppliances_Responses
- GreenPower_Responses
- RainwaterTank_Responses
- SolarElectricityPanels_Responses
- SolarHotWater_Responses
- WaterEfficientAppliances_Responses
- WaterEfficientFittings_Responses
- WaterEfficientGardenItems_Responses

2.2.3. Reference Tables

Suburb_Ref

This table acts as a mechanism for mapping the names of the suburbs to their codes as answered in Question 21 of the survey. It contains a row for each suburb and each row has two fields, the code number for the suburb (Suburb Code) and the name of the suburb (Suburb_Name).

2.3. Table Relationships

With the exception of the “Suburb_Ref” table, all of these tables are related to one another by the P_ID field. When these tables are combined on this value, the resulting rows are the entire responses from each participant. The “Suburb_Code” field in the “Suburb_Ref” table refers to the “Q21” field in the “Participant” table.

Appendix J: CALD Groups—Additional Data

Towards the end of our project, an opportunity arose to conduct additional surveys at the Imam Ali Islamic Centre Fawkner after Friday prayer services. Many residents who attend services at the Islamic Centre are from CALD backgrounds; specifically, many of these residents speak primarily Turkish. This opportunity came too late for us to include the results in the main body of this report; instead, the data and subsequent analysis are included here.

Representatives from MEFL were invited to speak to the people in attendance before and after Friday prayer services on December 11th. We were unable to join these representatives to conduct our surveys because they wanted to minimize interruptions to their prayers. Instead, we gave our surveys to Jason Cox, who delivered the surveys after the end of the service. A Turkish-language version of the survey was not completed in time for the services due to issues with the availability of translators, so the survey was only available in English.

After the services, Jason Cox informed us that he had been able to collect eight responses to our survey. The relatively low number of surveys collected was not due to a lack of interest in contact with MEFL's representatives; to the contrary, Jason told us that he had only been able to collect a few survey responses because he was busy helping people who had specific questions about how to reduce their electricity usage. The data from these responses is in the tables below.

The small number of responses limited the conclusions we could draw from this event, but we were able to learn a few things from this event. The respondents from this group were very willing to take information from the Islamic Centre, with 100% of respondents indicating that they would trust information from this group. In contrast, 0% were willing to take

sustainability advice from MEFL. This is significant because they were very willing to talk to the MEFL representatives that attended Friday prayer services.

Question 1: Do you belong to or are you involved with any of the following types of groups?

Answer	Responses	%
Religious/Faith Group	7	100%
Multicultural Group	4	57%
Neighborhood House	0	0%
Sports/Recreation Club	0	0%
Moreland Energy Foundation	0	0%

Question 2: How likely would you be to take advice from each of the following on sustainability issues?

Question	Very Unlikely (1)	Unlikely (2)	Undecided (3)	Likely (4)	Very Likely (5)	Total Responses	Total Percent Likely	Total Percent Unlikely
Close Friend	0	0	0	4	3	7	100%	0%
Religious/Faith Group	0	0	0	2	4	6	100%	0%
Multicultural Group	0	0	1	4	0	5	80%	0%
Neighborhood House	3	0	2	0	0	5	0%	60%
Sports/Recreation Club	2	1	2	0	0	5	0%	60%
Local Schools	1	2	2	0	0	5	0%	60%
Moreland City Council	1	1	2	1	2	7	43%	29%
Moreland Energy Foundation	1	2	2	0	0	5	0%	60%
Positive Charge	1	2	2	0	0	5	0%	60%
Senior Centre	1	2	2	0	0	5	0%	60%

Question 3: Where do you get information about community programs or events? (Select all that apply)

Answer	Response	%
Local Newspaper	0	0%
Social Media	0	0%
Moreland City Council Flyers	0	0%
Church/Faith Group Newsletter	7	100%
Multicultural Group Newsletter	4	57%
School Newsletter	0	0%
Neighbors/Friends	2	29%
Other	0	0%

Question 4: How old are you?

Answer	Response	%
18-24 years old	0	0%
25-34 years old	0	0%
35-44 years old	1	14%
45-54 years old	5	71%
55-64 years old	1	14%
65+ years old	0	0%
I prefer not to say.	0	0%

Question 5: What language do you speak at home?

Answer	Response	%
English	1	14%
Arabic	0	0%
Greek	0	0%
Italian	0	0%
Mandarin	0	0%
Turkish	5	71%
Other	1	14%
I prefer not to say.	0	0%

Other Language (Question 5)

Language
Urdu

Question 6: Do you rent or own your home?

Answer	Response	%
I rent my home.	1	14%
I own my home (including paying off mortgage).	6	86%
I prefer not to say.	0	0%
I am living with family.	0	0%

Total Respondents 7

Appendix K: Summative Teamwork Assessment

Though our project changed dynamically throughout our time in Melbourne, our team was able to react both positively and efficiently. With critiques and suggestions provided by advisors and sponsors, we were able to successfully change our original focus and methods. Our project initially focused on identifying barriers to and incentives for sustainability within the community of Moreland. After analyzing survey data and discussing its implications with sponsors, we shifted the focus of our project to establishing channels of communication between MEFL and key demographic groups within the Moreland community.

With this shift, we employed new methods and elected to change the structure of our final report to incorporate our new methods and their related findings into individual chapters that explained the two different focuses of our project. We internally discussed how these changes would affect our work in the coming weeks and, through scheduling extra meetings, maintained communication with both advisors and our sponsor to ensure our intended deliverables were acceptable. Though these large changes required extra work in a short timeframe, we deemed them necessary and maintained a positive attitude throughout their completion.

The daily functions of our group were specialized in that group members with strong communication skills facilitated discussion during meetings, while others who were more meticulous note takers transcribed these discussions into guides for further discussion later on. All team members constantly exhibited a desire to have a positive impact on MEFL's progress in the Moreland community. The most effective tool that helped us maintain focus on our goal was a to-do list that prioritized our daily tasks.

As a team, we did not always work with deadlines as effectively as we could have. While we did regularly meet our deadlines, we often completed work shortly before those deadlines, leaving little time for editing or review. By keeping better track of timelines and completing assignments earlier, we can leave more time for team review. This will help us produce more polished writing without the need for multiple submissions. This would have allowed us to make more effective use of advisor feedback this term by catching the smaller, grammatical issues ourselves and leaving our advisors more time to focus on giving feedback to revise our larger issues.