



YourEnergyOptions Consumer Use Analysis

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ABSTRACT

Lance McKee, of YourEnergyOptions would like to use his website to increase the adoption of renewable energy technology. The goal of YourEnergyOptions is to connect customers and providers in local communities so that they may help each other with information on installing renewable energy technology. Through interviews and a web survey, we determined that, from the perspective of potential users, YourEnergyOptions will need more information, users, and an easier to user interface in order to attract consumers when it launches.

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EXECUTIVE SUMMARY

The goal of YourEnergyOptions (YEO), a Worcester-based web site, is to expand and promote the local market for renewable energy through social networking. By creating opportunities for consumers and installers to interact, YEO hopes that these people will be able to share thoughts about their renewable energy experiences and help people become more aware of how to install green energy.

YEO is also hoping to help people find information about local clean energy installers, retailers, events and issues. This site also intends to help clean energy advocates provide their communities with news and opportunities for discussion and collaboration. Another goal of this website is to help clean energy businesses, especially local businesses, find, inform and serve customers.

Before YEO launches nationally, Lance McKee, founder of YEO, asked our team to determine the niche for his website. He asked us to determine what it would take to be a successful social networking site, along with including the interest of renewable energy. We were also to determine what types of information and features should be added or removed from the website. To do this we first developed a set of questions specifically addressed to two different groups of end users. The first included questions addressed to those people who have installed a renewable energy system, and the second group asked for information regarding people who were interested.

To fulfill YourEnergyOptions.com's goal of providing a communication tool that helps users, providers, and potential users of renewable energy share information on the renewable energy market, our team addressed the following questions:

1. How can YEO make it easier for its users to find installers, other Yourenergyoptions.com users, local installations, and information provided by other users?
2. What sort of information needs to be included on the profile page to make it appealing for other users to look at.
3. How can YEO make it easier for potential YEO users to create a profile through accessing the relevance of certain fields in the profile creation page?
4. How can we help Yourenergyoptions.com provide information to potential users of renewable energy through information provided through user profiles?

To answer these questions we conducted seven interviews to get users' first-hand experiences. We also developed a web survey that we sent to all the current users of the website. In this survey we asked a series of questions relating to user habits, usability, profiles, and content. On the basis of our limited interviews and survey, we found that there are three items that YourEnergyOptions needs to address. The items include usability of the website, fixing the profiles to meet users' needs, and understanding user habits to keep users coming to the site.

With regards to usability, users of the website want to be able to do the following things:

- Find Installers - to make it easier for users to find Installers in their community.
- Find other YEO users - to ask them questions about their experiences and talk about green energy related topics.
- Find Renewable Energy events - so people will be able to attend green energy events in their community.
- Share information on Renewable Energy projects - to help other users make decisions on installations and problems they might have.

After usability had been examined, we then determined YourEnergyOptions' current profile system has a number of drawbacks. The biggest concerns the interviewees had with the profile system relate to the information users provide in the profile and the profile creation process itself. Our data shows that some of the information users provide—such as “favorite books, favorite music, etc.”-- is unnecessary and that there are important items missing a project description section. The profile creation process presents users with doubts in that they are concerned about getting spam e-mail, privacy issues (some say they are hesitant to put in some information and feel that they should have the option to determine what is shown and is not), and are adamant in removing the unnecessary profile fields.

Understanding user habits, such as using social networks, blogging and forum use, and overall time spent on the internet is an area that YourEnergyOptions needs to have a better grasp of because if it doesn't understand its target audience's internet usage habits, then the site will not be able to provide users what they need to keep them coming back to the site. Our findings show that users' prior habits of internet use deal with checking email, purchasing items from business sites, looking up information (like addresses, descriptions of items, sites that deal with the searched item, etc.) and sharing experiences. Many of the users of this site, which are the users most likely to purchase systems and hire installers, are middle aged men who are homeowners. These users tend to be unfamiliar with social networking, which is a problem for YourEnergyOptions.

From our findings we have concluded that there are significant changes that YourEnergyOptions needs to make in order for the website to be successful. We recommend that the following changes be made:

- A simple title or page dedicated to the mission of the site needs to be added so first time users can become familiar with the purpose of the site, without have to look around for it.
- The search feature, which is intended to help find information and people throughout the website, should be able to filter well enough that whoever the user is searching for comes up first with the most relevant profiles or desired information.
 - Users found using username, email or last name.
 - Information found using keywords.
- Creating a Frequently Asked Questions page which should include:

- Information regarding renewable energies and their regulations.
 - An advocacy guide: Information detailing steps people should to take to install and promote renewable energy systems.
 - A list of where to find local installers and businesses.
- Incorporate a RSS news feed to the site.
 - RSS feed automatically updates news on specific information, in this case, renewable energy.
- A revised profile form should include::
 - Basic user information, such as name and contact info.
 - A brief description of what the user's occupation and role in the community is.
 - Their specific region of interest in the renewable energy field.
 - Their favorite sites, blogs, and forums, relating to renewable energy.
 - Have profiles identified as installers or consumers so that consumers can search for installers and vice versa.
- A section dedicated to projects they have completed or installed should be on each user's profile. Creating an events calendar so that users can look up dates for events regarding renewable energy.
 - All of our interviewees responded positively to the idea of having a calendar that lists all the events regarding renewable energy and some even mentioned that they would be more active if they saw such things.
- Adding a Forums or Blog section.
 - Our data showed that users like to discuss certain topics or have questions and want other users' feedback.
- Adding an Installer Rating system.
 - Our findings show that being able to see installers' ratings and projects they have done will be beneficial for consumers to use when thinking about installing a system.

After addressing all of these issues of the website, the overall layout of the website is most important. A profile system needs to be carefully created to grasp all information people want to share about themselves. Updating events and profiles will keep people coming back to the website, which will lead to people sharing their experiences.

CONTENTS

- Abstract 2
- Acknowledgements..... 3
- Executive Summary 4
- List of Figures..... 11
- 1.0 Introduction 12
- 2.0 Background..... 13
 - 2.1 Introduction..... 13
 - 2.2 Using the Internet to Create Offline User Interaction 13
 - 2.3 How Different Age Groups Use Social Networks..... 18
 - 2.4 How Consumers Currently Use the Internet 20
 - 2.41 Blogs..... 20
 - 2.42 Youtube 21
 - 2.43 Personal Websites 21
 - 2.5 Competitors to YourEnergyOptions..... 21
- 3.0 Methodology 22
 - 3.1 Introduction..... 22
 - 3.2 Develop a Consumer Profile & Portal 23
 - 3.3 Improving the YourEnergyOptions User Experience 23
- 4.0 Findings and Analysis 24
 - 4.1 Usability..... 24
 - 4.11 Introduction 24
 - 4.12 Finding Installers on YourEnergyOptions 25
 - 4.13 Finding Other YourEnergyOptions Users 29
 - 4.14 Finding Installations Near Users on YourEnergyOptions..... 30
 - 4.15 Finding Clean Energy Events 33
 - 4.32 Sharing Experiences..... 33

4.2 Profiles and Content.....	35
4.21 Introduction	35
4.21 Website Information.....	36
4.22 Profile Creation	37
4.3 User Habits	38
4.31 Prior Habits.....	38
4.32 Current Habits.....	38
5.0 Conclusions and Recommendations.....	40
5.1 Introduction.....	40
5.2 Content.....	40
5.21 Conclusions.....	40
5.22 Recommendations.....	40
5.3 Profile.....	41
5.31 Conclusions.....	41
5.32 Recommendations.....	41
5.4 User Habits	43
5.41 Conclusions.....	43
5.42 Recommendations.....	43
5.5 Usability.....	45
5.51 Conclusions.....	45
5.52 Recommendations.....	45
References.....	47
Appendix A: Web Survey	51
User Habits.....	51
Site Design.....	51
Site Usability (Scaled 1-5 with 1 being easiest, 5 most difficult).....	52
Appendix B: Interview Questions.....	54

LIST OF FIGURES

Figure 1 – Total number of unique visitors to selected social networking sites, as of March 2006..... 15

Figure 2 – Frequency of Visitation: Social Networking Sites 15

Figure 3 – A Third of Online Adults and Most Youths Use Social Networking Sites 19

Figure 4..... 21

Figure 5 - Page Subsequent to “Your Community” Some users did not see a point for this sort of information, or immediately turned around. 26

Figure 6 - YourEnergyOptions Search Page 30

Figure 7 – Web Survey Result, Finding Installations 31

Figure 8 - YourEnergyOptions Installations Page 32

Figure 9 – Web Survey Result, Sharing Projects..... 34

Figure 10 - YourEnergyOptions Profile Creation Page 35

Figure 11 - A Typical YourEnergyOptions Profile Page..... 36

Figure 12 – Web Survey Result, Web Information 37

Figure 13 – User Habits..... 39

Figure 14 - User Habits..... 39

Figure 16-Sample of Calendar..... 41

Figure 17-Sample Profile Creation Page 42

Figure 18 – A sample Project Description within Profile Creation..... 43

Figure 19-Sample of Installer Rating 45

1.0 INTRODUCTION

As the price for crude oil begins to approach \$100/barrel, people are beginning to focus more on alternatives to fossil fuels to heat their homes and fuel their automobiles. In addition to concerns about the prices and increased use of fossil fuels, there is growing concern that the burning of fossil fuels is leading to increased greenhouse gas emissions that are a cause of global climate change. As a result of these factors, renewable energy technologies are becoming increasingly attractive. The annual production of electricity by photovoltaic cells is increasing at a rate of 25 percent a year, and increased by 45 percent in 2005. Additionally, the amount of power provided by wind has increased ten-fold over the past ten years (<http://www.cleandedge.com/reports-trends2002.php>).

People in Massachusetts are adopting various renewable energy technologies on a rather limited scale. The Massachusetts Renewable Energy Trust documents only 102 solar panel installations in the state (<http://soltrex.masstech.org/systems.cfm?sortby=site&ascdesc=asc&startrow=1&watchid=SW0000000041&state=&q=>). Although fossil fuel prices are rising, they are still cheaper in the short term than installing renewable energy technologies such as geothermal heat pumps or photovoltaic panels.

On a local level, YourEnergyOptions is attempting to bring people in communities, such as Worcester, together. Through providing a communications medium, YourEnergyOptions is allowing people to learn more about renewable energy installations and installers around them. By allowing people to learn more about the experiences of those around them, and communicating with those who have already installed renewable energy technology, YourEnergyOption hopes they can understand what steps they need to take to install a system.

YourEnergyOptions faces several challenges in achieving its goal. In order to create the networks of people it wishes to connect, it will need to become more visible, and increase its user base. YourEnergyOptions is most useful when users can connect with other users in their local community. If there are no users in a potential consumer's community, then YourEnergyOptions will not be as useful for the potential consumer. YourEnergyOptions will also need to be able to distill and provide the information that consumers are looking for in an easy to use format. If a user is unable to locate or view the information he is looking for, then the site is not achieving its goal.

The main objective of our project is to increase the usefulness and usability of YourEnergyOptions for consumers or potential consumers of renewable energy technology. We determined what makes a website attractive and easy to use for consumers of renewable energy technology. We also determined what features the website might want to implement in order to be more usable and encourage adoption of renewable

energy technology. Finally we learned more about the mindset of people who are interested in renewable energy technology and how they interact with the web.

2.0 BACKGROUND

2.1 Introduction

YourEnergyOptions is a Web 2.0 start-up. As a Web 2.0 site, it utilizes social networking functions to connect users to each other and allow them to communicate in an asynchronous fashion about their experiences with renewable energy technology

(<http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html>). In order to create an effective social network, we need to understand how the Internet can be used to create offline user interaction. Social networking websites are designed to serve as online extensions of the offline world. In this section we will discuss the three areas of Internet research we have conducted. Our first section, section 2.2, pertains to using the Internet to create offline user interaction. In section 2.3, we examine how different age groups use social network sites. The last section, section 2.4, we examine how consumers currently use the Internet. Our primary audience for YourEnergyOptions consists primarily of homeowners. These people tend to be older than the younger audiences that dominate social networks such as Facebook or MySpace. In order to attract a larger audience to YourEnergyOptions we need to understand how these different groups utilize social networks, and then tailor YourEnergyOptions to our target audience, but keeping in mind that younger users will eventually join our target audience.

We want to look at how current consumers of renewable energy technologies are using the Internet. By discovering how our target demographic is utilizing the Internet to share their experiences through blogs, forums, and other methods of online communication, we can tailor the format of YourEnergyOptions into one that would be more familiar and comfortable for consumers. By creating a positive user experience with the website, we believe that it will increase the usage of the website by these consumers.

Finally we want to look at current problems consumers are facing when they are making decisions about renewable energy technology. Through analyzing these barriers to adoption, we can determine what, if any information or features we might want to add to YourEnergyOptions that would encourage consumers to make the leap.

2.2 Using the Internet to Create Offline User Interaction

YourEnergyOptions was created to connect renewable energy consumers and installers through social networking. The hope of our sponsor is that this will encourage further renewable energy development and expansion. This section will provide an overview of how social networks that exist today are spurring offline user activity and interactions. We will look at a few current social networks and what kinds of activities have

occurred offline as a result of these social networks and also at the use of social networks by various businesses. We will also examine the negative results that can occur from online social networking to show YourEnergyOptions the problems that can arise from online social networking.

Do connections made between people online progress into offline face-to-face interaction? A case can be made by looking at online dating sites such as E-harmony and Match.com. These sites connect strangers via the Internet. From these connections relationships are formed that may progress from the online to offline interaction. Sites like these are called social-networking sites or online communities because they bring people together who share similar interests. Online communities and social networking sites come in many different sizes and types, ranging from virtual communities that connect people who live on opposite areas of the globe but share similar interests, to facilitating interactions amongst friends and family members, to community networks that focus primarily on issues relevant to a specific neighborhood or region (DiMaggio, Hargittai, Neuman, & Robinson, 2001).

Many businesses today, like YourEnergyOptions, are using the Internet and social networking sites to expand their businesses and attract more customers. According to a report by email research specialists Emedia, over one out of ten users visiting networking sites do so with business intentions (Social networking has business benefit.2007). The report also states that 87% of all respondents think that social networking sites can be used for business purposes, including networking (65%), exchanging ideas (58%), getting advice (44%), recruitment (43%), research (35%) and selling (31%) (Social networking has business benefit.2007). We see this today with sites like Facebook (networking), Encarta (research), Amazon.com (selling), marines.com (recruitment) and others. In a survey done by Forrester Research consisting of 3,357 people between the ages of twelve to twenty-one, 22% of those who identified themselves as MySpace users and 30% of Facebook users said they use the site to look for event information even though these sites are not known for having well developed event-planning features (Kharif, 2007). While a twenty-one year old has different interests than a twelve year old, they can still use the same site to accomplish their objectives. Although the primary audience of YourEnergyOptions is homeowners and installers (meaning they aren't in the 12-21 age range), these statistics are reliable in that they show how users, regardless of age, interact with social networking sites. According to research done by Eleanor Loiacono, an expert on web usability, there are five factors that determine usage of a website; usefulness, entertainment, ease of use, trust and response time (Loiacono, 2008). Of these five, usefulness and entertainment are the two most important factors.

Companies are now coming to the conclusion that they need to engage in discussions with customers and listen to their views. This is what many companies are doing by joining social networking sites like Facebook and creating company groups or profiles. In the near future, research and information companies need is less likely be produced by large-scale structured surveys, and more likely to be acquired through persistent

discussion using social networks as the mediator (Poynter, 2008). Figures 1 & 2 show the number of visitors to social networking sites as of March 2006 and frequency of visitation to social networking sites respectively. These charts show that there are a significant number of users that use social networking sites and visit them rather frequently.

Social scene	
Total number of unique visitors to selected social networking sites, as of March 2006	
Website	Unique visitors (in millions)
MYSPACE.COM	41,889
FACEBOOK.COM	12,917
XANGA.COM	7,448
LIVEJOURNAL.COM	4,047
Yahoo! 360°	3,614
MYYEARBOOK.COM	3,613
HI5.COM	2,609
TAGWORLD.COM	2,275
TAGGED.COM	1,668
BEBO.COM	1,096
FRIENDSTER.COM	1,066
Tribe Networks, Inc.	871
43THINGS.COM	661
SCONEX.COM	372
Total Internet audience	171,421

Audience: All persons at U.S. home, work, college/university locations

Source: [comScore Media Metrix](#)

Figure 1 – Total number of unique visitors to selected social networking sites, as of March 2006

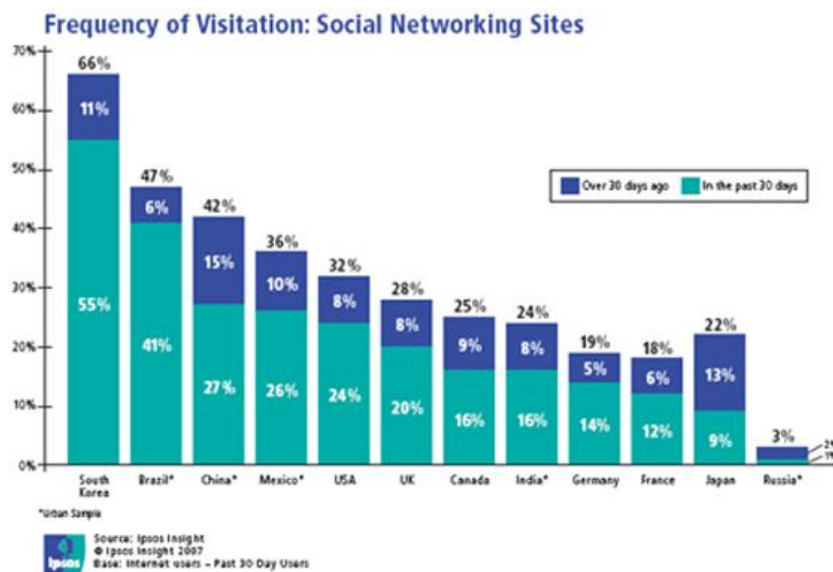


Figure 2 – Frequency of Visitation: Social Networking Sites

Source: Ipsos Insight

People want to have experiences; we are social beings and want to be in contact with other people and be in social settings (Loiacono, 2008). For example, when people go into Barnes & Noble, they have the option to get a cup of coffee at Starbucks, sit down at a table and read a magazine or book. This is an experience people enjoy because it stimulates the use of all five senses. You get to smell and taste the coffee; hear business going on and coffee brewing; the feel of the book or magazine in your hand, and see human interactions taking place. This is the eventual goal of businesses; making the user feel like they are having the same experience online as they would if they were in a store (Loiacono, 2008).

YourEnergyOptions' goal of connecting renewable energy consumers and installers through social networking, and to encourage further renewable energy development is similar to Meetup.com. Meetup.com is an online social network that lets its users find any topic and invite others to meet-up and discuss it or engage in some activity relating to it. Meetup.com focuses on allowing users to be a part of something bigger, both locally and globally. The site allows users to find others in their area who share their interests, make friends, as well as learn, teach, and share ideas. YourEnergyOptions has a similar goal, except their target audience is much more specific (only those interested in renewable energy). According to the founders of Meetup.com, people can change their world or the world in general by organizing themselves into groups (<http://www.meetup.com/about/>). The site also has a member bill of rights which provides users with a sense of security as well as encourages frequent user interaction. These "rights" are as follows:

1. The Right to Meet
 - a. Meetup.com encourages all Meetup groups to have a local monthly Meetup that's open to anyone interested.
2. The Right to Privacy
 - a. Meetup.com will never share users email addresses with anyone without their permission (unless required to by law).
3. The Right to Not Get Annoying Ads
 - a. Meetup.com will not show pop-up ads and will not spam users. All emails from Meetup.com will generally be related to your Meetup Group(s).
4. The Right to Meet About Anything
 - a. Meetup.com is non-partisan and non-denominational. They believe that everyone should have access to a Meetup Group dealing with anything.
5. The Right to Choose Where to Meet
 - a. Meetup Group Organizers can schedule Meetups at any place they choose.

Source: (<http://www.meetup.com/about/>)

Advancements in Internet technology have changed the way people conduct many daily activities. Some researchers are concerned that Internet users may reduce the time devoted to off-line social interaction and spend less time with print media, as well as with television and other media, due to the Internet (DiMaggio et al., 2001). However, not all online activities compete with offline interactions. Activities such as reading the

newspaper or looking in the yellow pages can be conducted online. The time people save because they shop online or find information more quickly might be spent offline socializing with family and friends. While some claim the Internet may discourage offline interactions, others claim it increases the participation of people in social groups. The more people are on the Internet, the more they tend to be involved in online organizational and political activity as well as offline organizational and political activity (WELLMAN, HAASE, WITTE, & HAMPTON, 2001).

However, there are strong negative associations between Internet use and measures of commitment to online communities. The reason for this is that the more people are online, the greater the likelihood that they will encounter annoying people who will act more unhelpfully than if they were meeting face-to-face (WELLMAN et al., 2001). The evidence that supports this idea is as follows:

1. People who use the Internet frequently tend to have larger online social networks and more frequent contact with network members.
2. Larger online social networks tend to contain a greater number proportion of weak ties.
3. The more weak ties there are in a social network, the more diverse it is likely to be. (meaning there is a better chance of people being there that don't really share the same interest)
4. The more weak ties there are, the greater chance that interactions between some network members will be distasteful.
5. The more weak ties there are, the greater the possibility that fewer network members will be directly connected with each other.
6. The more sparsely knit the network, the harder it is to mobilize social control that can encourage behavior appropriate to the community.
7. A large number of weak ties in a sparsely knit network increases the likelihood of exposure to obnoxious computer-mediated communication (e-mails, chats, etc.)
8. Experiencing such unpleasant computer-mediated communication will weaken commitment to the online community.

Source: (WELLMAN et al., 2001)

While YourEnergyOptions wants to use online social networking to create offline social interactions, there is the possibility that this plan can backfire. This might especially be an issue for novice web users. Compared to experienced Internet users, users new to or unfamiliar with the Internet engage in more aimless surfing, are less successful in finding information, and are more likely to report feeling discouraged over the course of their sessions (DiMaggio et al., 2001). These negative reactions the inexperienced users feel reflects not their Internet experience in particular but the frustration and sense of helplessness of not having immediate access to social support (DiMaggio et al., 2001). Having access to some sort of help provides users with a fallback option to use if they can not find things by themselves. Whether this help comes from an online consultant who is able to chat with the user online right then and there, or a Frequently Asked Questions page where

users can go and get immediate responses to common questions asked by customers or visitors to the site, does not matter as long as the user feels comfortable. People desire interactivity, where they can go back and forth comfortably and get quick responses to what they are looking for (Loiacono, 2008). Websites that have a “Questions & Answers” section or an “Ask an Expert” section, have to make sure that responses to questions are made in a timely manner (Loiacono, 2008). These sections should have someone managing them and keeping them up to date, otherwise they serve no purpose, as people are less likely to find information credible or useful if it is very old (Loiacono, 2008). The same rules apply to blogs and forums.

Many companies are using social networking websites to make a profit as well as help expand their customer bases. Additionally websites such as E-Harmony and Meetup.com have proven that online communities can lead to offline user interaction and involvement. This shows us that YourEnergyOptions’ goal of encouraging users to interact in the offline world, and take action to save the environment is both reasonable and realistic.

2.3 How Different Age Groups Use Social Networks

YourEnergyOptions.com hopes to use social networking to provide useful information for the expansion of renewable technology in local communities. In this section, we will talk about how the various age groups use social networks today and how each age group might be attracted to using a social network.

In this era of technology, computer skills are a necessity. Today’s youth are growing up knowing how to operate a computer, and sometimes even living on it, literally. Most teenagers and some adults are looking for some way to express themselves to their friends and others, and what better place than to do it on the Internet. “New findings, including six reports in the May *Developmental Psychology*, indicate that the Internet holds a special appeal for young people,” says psychologist Patricia Greenfield of the University of California, Los Angeles (UCLA). The Internet provides an unprecedented number and variety of meeting places, from message boards to instant messaging to so-called social networking sites (Bower, 2006). Being able to create and share information about themselves through social networks seems to be one of the most popular things to do on the web today. “Social networks like Facebook and MySpace are taking the web by storm because they make it easy to manage your personal data and keep in touch with people you know. But to get value out, you have to put something in -- photos, contacts, appointments, lists of your interests and your blog musings” (Gilbertson, 2007).

A social networking website allows people to create profiles about themselves and share them with others. Being able to interact with someone through the Internet appears to be the new fad. “According to the latest study on social networking from digital metrics specialist ComScore, social websites have grown by leaps and bounds during the last year. MySpace attracted more than 114 million visitors in June 2007, up 72% on the previous year, while Facebook saw 52.2 million, which equates to a staggering 270% rise” (Winder, 2007). Shown below in Figure 3 is a survey of people aged from 14-29, of what they do in their spare time. “Users of

social networking sites visit these sites on a regular basis and almost half of them (48%) admit using these websites at work. Nearly one in four (24%) users log in to social networking websites every day, with half of them logging in several times a day. Up to 45% of users log in at least once a week. The research shows that 81% of those surveyed use networking sites. The top five websites respondents have heard of are MySpace (89%), YouTube (88%), Friends Reunited (81%), Facebook (73%) and Bebo (51%)”

(<http://www.computerweekly.com/Articles/2007/09/18/226851/social-network-users-hide-identities.htm>) . With these numbers and statistics, we can see that people in these social networks are becoming part of a new movement. Our sponsor wants to harness this movement to promote the usage of renewable energy in local communities in the United States.

Trying to attract Internet users of all age groups to social networking is one of the many uncertainties of starting up a social networking venture. Before spending any money on a website, research needs to be done to determine if there is a particular interest to what the website deals with shown by enough people so that the website can be successful. The younger generations that grew up with computers and social networks are educated in the Web 2.0 domain, due to firsthand experience. “Ninety percent of teens are online these days. They represent the first generation to come of age in the virtual world” (Ostrow, 2008). “For older adults to take advantage of the Internet, they need to be aware of its capabilities and be able to develop a basic knowledge of computers. Interactive multimedia computer technology can be effective in teaching important information to older adults” (<http://www.getcited.org/pub/103379912>) . Shown in Figure 3 below is a chart of different age groups and how they use social networking sites.

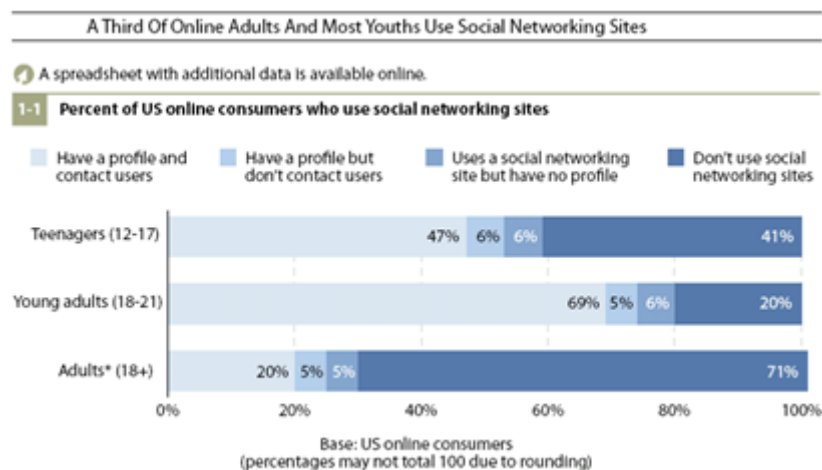


Figure 3 – A Third of Online Adults and Most Youths Use Social Networking Sites

(Li, 2007)

Adults on seem to use social networking sites for total different reason than the youth. Most adults tend to visit these sites much less than teenagers. “42% of adults that use social networking sites visit them daily or

more. And one in four adult users visit social networking sites monthly” (Li, 2007). They also tend to use these sites for other reasons than updating their profile and conversing with friends. “Most adults joined to stay in touch with friends and family. A third of US online adults said that connecting with friends and family was the biggest reason to use a social networking site. But many were also driven by curiosity — 26% said they were curious to see how the system worked, while another 15% said they wanted to see if someone they knew was a member. Only 5% said it was to find a date” (Li, 2007). While most social networking sites are used by teens and young adults, sites such as Alternativeenergy.com prove to be very successful in bringing people of all ages together. "AlternativeEnergy.com fills a void as it provides a voice to those eager to solve our dependence on fossil fuels and its economic, strategic, and environmental consequences," said AlternativeEnergy.com CEO and founder Douglas Schiller. "Social networking combined with news and educational features are an ideal way to raise awareness and motivate people to change their behavior to introduce energy efficiency into their day-to-day lives."

A specific group of adults, the baby boomers, seem to be becoming more and more interested in these social networking sites every day in that “Boomers represent a huge market and more than 65% of Americans between the ages of 50 and 70 use the Internet” (Lacy, 2007). However, while many feel that they are out of place by using sites that their children and grandchildren are using, there is huge market potential for developing social networks directed towards these boomers, who are becoming more and more educated in Web 2.0.

2.4 How Consumers Currently Use the Internet

In this section we will discuss how renewable energy customers or potential customer’s use the Internet. We will discuss how renewable energy customers or potential users use blogs or forums to help persuade them to implement a renewable energy system. This section will also cover how this group also rates and produces feedback on the system installed.

2.41 BLOGS

An example of how users of renewable energy share their experiences installing their systems is through the use of blogs. A prime example of this is Dan Sharp’s blog, “So you want to install solar panels...” In his blog he describes his experiences changing his and his wife’s lifestyles to lower their energy consumption. He also writes about his experience with the installation process all the way from finding a solar provider to dealing with inspections from the state. Dan Sharp, at the end of his blog, also gives some useful tips for potential users to follow to ease the entire process. Not only does the blog provide useful information about a first-hand experience, but it also provides a venue for discussion of the topic. A user posted feedback on his blog stating he had been looking to install a photovoltaic system, but he felt that at the time was not economical.

Shortly after that another user replied to his question saying that in certain regions of the United States incentives vary and in the end may be economically smart to invest. Blogs are a great tool for discussion; users can read the blogs but at the same time can give their thoughts on the subject. PewInternet.org conducted a study of what age groups use the Internet. This report suggests that 45% of 30-49 year olds use the Internet and 30% of them use blogs (<http://www.pewinternet.org/>)

2.42 YOUTUBE

Another way renewable energy costumers or potential users use the Internet is through posting actual videos of their installation process, one such case is through a user known as Yavor54. This user actually posted a video of his installation process on Youtube.com. Again this provided a great place for people to ask questions to Yavor54 about his experience and even as far as the materials he used in his installation.

2.43 PERSONAL WEBSITES

Another way people on the Internet provide feedback about their renewable energy systems is through the use of personal website. Gray Watson, owner of 256.com, writes about his experience with his own Photovoltaic system. Figure 4 displays the energy output of Gray's solar panels on the first day, the dip in the graph was during times of no sun light. Gray also posted an in-depth excel spreadsheet that goes over all of his spending, incentives received, money saved since installation, and estimated time until his system pays for itself. Also through his personal website Gray provides links to other sites which all have personal feedback on other renewable energy users' systems. Their technical expertise appears to affect the amount of feedback given by the user. One of the links that Gray provided displays in-depth graphs showing power output of the renewable energy user's personal system, it even went as far as the temperature of his basement at certain times of day.

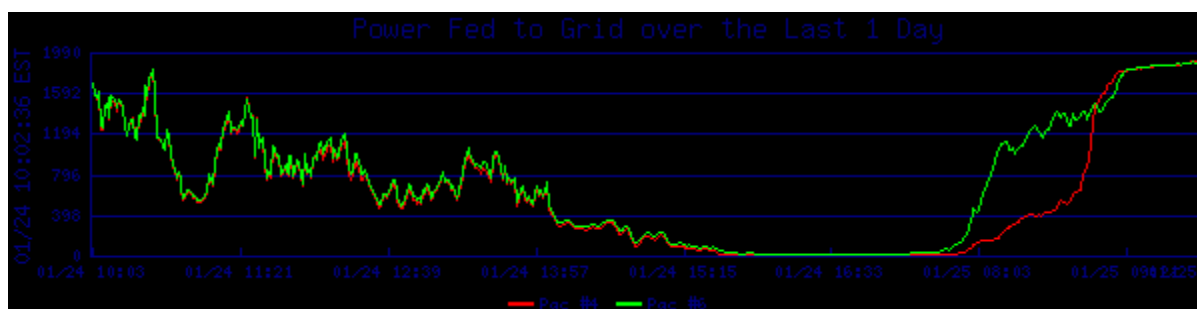


Figure 4

(<http://256.com/solar/>)

2.5 Competitors to YourEnergyOptions

In this section we examine competitors to YourEnergyOptions.com and see how they function. For a social network to function properly the site needs to have users. A way to help YourEnergyOptions gain users is to

discuss what their competition offers to potential users. A potential competitor to YourEnergyOptions is Greeniacs.com. Greeniacs.com is not tailored exclusively to renewable energy, but is a social network that connects people with the interest of all things green, ranging from changes in energy consumption habits to large scale renewable energy system installations. Like YourEnergyOptions, Greeniacs.com provides a social network, a profile system, forums, an event page, and a directory for listings of products and services. A few features that Greeniacs.com provides that YourEnergyOptions does not are: a personal blog, a personal email account through Greeniacs.com, access to GreeniacsRadio, and GreeniacsMessenger. The success of the website is present through their hit counter which states that over two-million people have seen their site. Another thing that stood out was their news feed section. It appeared to be constantly updated which suggests a bit of site stickiness, or a sites ability to attract and keep new users. Alternativeenergy.com is a site that has almost the same goal as YourEnergyOptions but has more users on their network, 415 registered users. On their main page they have a plethora of information ranging from video posting by users to discussion on news articles involving alternative energy. They also provide blogs for their users to share their experiences as well as photo sharing. One thing this site provides that both YourEnergyOptions and Greeniacs.com do not provide is the ability of users to connect with a large number of users through the use of groups. Alternativeenergy.com goes as far as to provide classified ads for users searching for jobs in the renewable energy market, which is updated daily.

In conclusion renewable energy users or potential users use blogs and forums, not only to give feedback on their systems but also to open discussion for potential users to ask them about their personal experiences. Feedback on the systems installed is usually done by the user, and varies with each person. Also renewable energy users or potential users would use social networks to connect with others who are interested in renewable energy. The real niche for YourEnergyOptions is the fact that it seeks to connect people to installers.

3.0 METHODOLOGY

3.1 Introduction

This project is intended to help YourEnergyOptions Inc. facilitate the use of renewable energy in local communities by assisting consumers in communicating their experiences with installers and renewable energy technologies through social networking. Through a questionnaire, interviews, and a focus group we attempted to determine how YourEnergyOptions can best serve users that are going to be consumers of renewable energy technology.

Our objectives were as follows:

- Determine what content and features should be present on the consumer profile and portal page.
- Examine how potential and current users of YourEnergyOptions currently use the website to accomplish tasks in order to improve the YourEnergyOptions user experience.

3.2 Develop a Consumer Profile & Portal

In order to develop a profile and portal system centered on the activities and needs of a typical consumer, we needed to determine what information consumers are looking for on YourEnergyOptions. Additionally we needed to determine what information users would be willing to share in their profiles. In order to accomplish this objective we took a three pronged approach..

First, in order to gain quantitative feedback on YourEnergyOptions.com we developed a questionnaire that we sent out to the current website users. The questionnaire consisted of multiple choice questions that users answered via an online survey system. A link to the questionnaire was sent to users via e-mail, and it was hosted at WPI using their online survey system. From this survey we received fifteen responses. We then analyzed the information using quantitative methods. Through the web survey we hoped to discover how usable YourEnergyOptions is, what kinds of information people want to find on YourEnergyOptions, and what they use YourEnergyOptions for.

Second, for a more qualitative perspective on the website we conducted 7 in-depth interviews. These interviews were conducted with two different user groups: customers that currently have installed renewable energy technology and customers that are considering installing renewable energy technology but have yet to do so. These interviews were conducted using the semi-standard format, preferably in-person. Questions for the interview were developed by the project team based on the current state of the website, our background research, and input from our sponsor. Questions were of the open-ended type and assumed some sort of prior experience with the website. If the user has not had website experience then we assisted the user in exploring a YourEnergyOptions profile and portal before he answered our questions. The interviews were recorded using a digital audio recorder, if the interviewee allowed us. At least two team members were present at each interview. One was responsible for taking notes, the other responsible for asking the questions.

After the interviews were completed we analyzed the responses by categorizing them and noting when similar responses were provided by different interviewees.. The main problem we had with our survey was a low response rate. There was no feasible way to mitigate this low response rate, as the only contact point we had for most YourEnergyOptions users was their e-mail.

3.3 Improving the YourEnergyOptions User Experience

Our second objective was to examine how potential and current users of YourEnergyOptions currently use the website to accomplish tasks in order to improve YourEnergyOptions user experience. Due to the limited pool of willing interviewees, we utilized the same interview pool to address this objective as the previous one. Additionally we asked several questions about the YourEnergyOptions user experience in the web survey we outlined in the previous section as well.

From our background research we came up with a set list of questions for both user groups. These questions ranged from in-depth, content oriented questions pertaining to the user's opinions on what content they look for when on a website, what features they commonly use, as well as basic questions pertaining to the user's Internet habits and use of the YourEnergyOptions website. This type of information allowed us to see where these users' interests lie and for what purpose they use the Internet, and more specifically, the YourEnergyOptions website.

Interviews were conducted using a semi-standard format, in person if possible, at an agreed upon meeting place. These interviewees were sent an interview request email requesting their participation in an interview. If we received no response from the e-mails in a timely manner, then we followed up with either more e-mail communication or a telephone call. There were at least two project members present for each interview when possible. One member was responsible for interviewing while the other was responsible for taking interview notes. If we could not meet in person, interviews were conducted over the phone. If the phone interview method was utilized, we asked the interviewee, at some point before the interview, to go through the current YourEnergyOptions website and familiarize themselves with it so that when asked questions about they were not too overwhelmed.

Following the interviews, we had post-interview analysis. This process involved going through each task and determining how easy each task was to accomplish, whether or not the task was actually accomplished, and suggestions that the user might have had to improve the process. We noted any confusion the user might have had with the process, as well as the user's apparent interest in performing the task.

4.0 FINDINGS AND ANALYSIS

4.1 Usability

4.11 INTRODUCTION

In this chapter we discuss our findings. We asked interviewees to undertake five tasks that included the following: finding installers, finding other YourEnergyOptions users, finding installations, finding clean energy events, and sharing information on renewable energy projects. These tasks were chosen due to the tasks being typical activities that our sponsor expects users on YourEnergyOptions to carry out. Our group

had a limited amount of interviewee's throughout the term. Nine interviews were done in person, and there were 15 responses to our web survey results.

4.12 FINDING INSTALLERS ON YOURENERGYOPTIONS

Users generally had problems finding installers on the website. In one interview, our interviewee was unable to get to the part of the website where one would search for an installer. The part of the website that asks for a zip code, before entering the community portal, turned into a roadblock that prevented him from ever even attempting to find the installers. It appeared that he believed the webpage asking for the zip code was the community portal itself, and the page did not appear to be of much use to him. Additionally the other part of the site where one might find installers, using the search page, proved to be too ineffective to use.

When an interviewee was asked to locate installers in his community, he became confused while navigating the website. He was able to locate the link labeled "Find local installers", but when the page loaded, he was presented with options that were irrelevant to his needs. On that particular page, options such, as "Find local advocates", "Find local installations", and "Find local businesses" were all offered, which were misleading to him. On the other hand one interviewee was able to find local installers easily. This would explain the dichotomy of user experience. Some people are much more tech savvy and understand how to use the web. The interviewee also utilized the community page to perform a search for local installers. Unfortunately while using Internet Explorer the interviewee encountered technical difficulties, and was unable to load the map. until switching to Mozilla Firefox.

Home About Us Your Community Your Portal Wikis & Forums Classifieds Search Login

Your Energy Options

Enter community location

Select a city and view that city's Clean Energy Portal

Country : United States

† You have to enter either Zip code/ Postal code OR City

Zip code :†

OR

City :† State : --Select--

Go

Home About Us Your Community Your Portal Wikis & Forums Classifieds Search Login

Place an ad on the YourEnergyOptions website!

Figure 5 - Page Subsequent to "Your Community" Some users did not see a point for this sort of information, or immediately turned around.

Home About Us Your Community Your Portal Wikis & Forums Classifieds Search Login

Your Energy Options

See profiles in Worcester and surrounding towns

Local Advocates

- All
- Architecture & Green Building
- Chillers
- Co-generation
- Community Heat & Power

Within 20 mile radius [Go](#)

Local business

(*Important: Choosing an installer)

- All
- Architect
- Auto Dealer Or Mechanic
- Bike Dealer Or Mechanic
- BioFuel Producer

Within 20 mile radius [Go](#)

Local Installations

- All
- Battery Storage
- Berming
- Best Practices
- Biofuel

Within 20 mile radius [Go](#)

Local Schools

- All
- Preschool
- Elementary
- Middle School or Jr High
- High School

Within 20 mile radius [Go](#)

Local Ethanol & Biodiesel

- Biodiesel
- Ethanol

Within 20 mile radius [Go](#)

Local Green Building

- All
- Battery Storage
- Berming
- Best Practices
- Biofuel

Within 20 mile radius [Go](#)

Local Organisations and Agencies

All

Within 20 mile radius [Go](#)

Local Events

All

Within 20 mile radius [Go](#)

Home About Us Your Community Your Portal Wikis & Forums Classifieds Search Login

Place an ad on the YourEnergyOptions website!

Figure 6 - Page Subsequent to "Find Local Installers" – There is no list of Installers, or even an installer option. This page is cluttered with multiple options.

Your Energy Options

Worcester's Clean Energy Portal



Do you have a picture of your town or city? Please click [HERE](#) to send us the image

Upcoming Green Events in or near Worcester
[\[Add An Event\]](#)

Send us a URL to include below with other Clean Energy links for Worcester

- Worcester Earn-a-Bike
- Regional Environmental Council
- Worcester-Dome
- Ctrl New Eng. Solar Store
- Freedom Energy Systems
- IREC
- Sustainable Worcester

Calculating your city's environmental footprint



Under Construction

Click on any map to see clean energy moving forward in Worcester

- [Local Infrastructure Resources](#)
- [Local Green Building](#)
- [Local Ethanol & Biodiesel](#)
- [Local Events](#)
- [Local Installations](#)
- [Local School](#)
- [Local Organizations & Agencies](#)
- [Local Business](#)
- [Local Advocates](#)

- Create Clean Energy profiles to build this map database
- See what other communities are doing
- Get local Clean Energy news in your email
- Promote Clean Energy in Worcester

Worcester's Clean Energy Bulletin Board

- Get advice on energy options at your home location in Worcester
- Clean energy incentives (and disincentives!) in Worcester
- Worcester government forum on energy issues
- Worcester clean energy business forum, ideas and resources
- Worcester clean energy career forum
- Worcester religious and civic organization energy forum
- Worcester clean energy education forum
- Worcester clean energy do-it-yourself forum

See other YourEnergyOptions Forums and Wikis, such as:

- Participate in global, national and regional dialogues
- Volunteer opportunities
- Myths about Renewable Energy

[Learn more about clean energy](#)

Figure 7 - YourEnergyOptions Worcester Community Portal

4.13 FINDING OTHER YOURENERGYOPTIONS USERS

This section is intended to determine how easy it is to find other users of the website. People who are looking to ask direct questions to people need to be able to find other users on the site.

It was generally difficult for users to locate other YourEnergyOptions users. When one interviewee attempted to find other users he knew by name on YourEnergyOptions, he attempted to do so through YourEnergyOptions search feature. The search feature completely failed to bring up the users he was looking for, in spite of the fact it was known that the users being searched for did have profiles on YourEnergyOptions.

When asked if he was able to locate users that shared the same interest as him, one interviewee did not know where to begin to search for this. He felt like he had to jump around from page to page before he found a link that brought him to all the users. He did find it useful to type in the area code to find users near him, but the lack of users was a major concern. He attempted to use the search feature, but was unsuccessful in finding relevant results.

Another interviewee had difficulty with the search feature on YourEnergyOptions. He felt that when he typed geothermal, people with geothermal installations should show up. Additionally he had difficulty getting to users on the portal pages. He believed that clicking someone's username would bring him to their profile, when it in fact did not. He was not able to get to the other users profiles from the portal without the navigation scheme being explained.

Home About Us Your Community Your Portal Wikis & Forums Classifieds Search Login

Your Energy Options

Search this Site






Enter one or more keywords to search for.
Note that '*' and '?' wildcards are supported.

Search for: Results per page: 10

Match: any search words all search words

Live list of new profiles

Username

	Creator of profile	Profile title	Profile type	City	Date created
	Jonathan Cole	Title missing	Person Profile	Honokaa	2008-02-18
	Fully	More than just the little things...	Person Profile	Somerville	2008-02-13
	ruby	username	Person Profile	worcester	2008-02-12
	jondag	Worcester Local First: Think Local First	Person Profile	Worcester	2008-02-12
	joshuarr	Energy Discussion Organizer	Person Profile	Winchester	2008-02-08

Home About Us Your Community Your Portal Wikis & Forums Classifieds Search Login

Place an ad on the YourEnergyOptions website!

Figure 6 - YourEnergyOptions Search Page

4.14 FINDING INSTALLATIONS NEAR USERS ON YOURENERGYOPTIONS

Users had difficulty finding installations near them. With one interviewee, when he attempted to get to the part of the website where one would locate installations near them, he was road blocked at the part of the website that asked for a zip code or location because he wasn't sure what the site was asking. As a result he

was never able to find installations located near him. Due to the lack of installations recorded, two other interviewees had difficulty finding specific installations. When asked to look for solar hot water in the area, he could not find any listings. In contrast, another interviewee easily found local installations near him, but had the same map loading problem mentioned earlier.

According to our web survey, slightly more than 40% of YEO users though it was easy to find installations near them. This contrast to our interviewee's experience may be due to the fact most of our interviewees had not used YourEnergyOptions before, but the survey users were previous users, and thus more familiar with the website.

3. How easy is it to find other renewable energy technology installations near you?

1 - Excellent 5 - Poor

n = number of respondents

- 1 (n=1) 14.3%
- 2 (n=2) 28.6%
- 3 (n=1) 14.3%
- 4 (n=1) 14.3%
- 5 (n=2) 28.6%

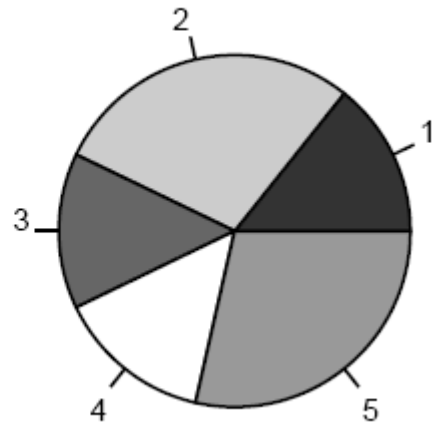
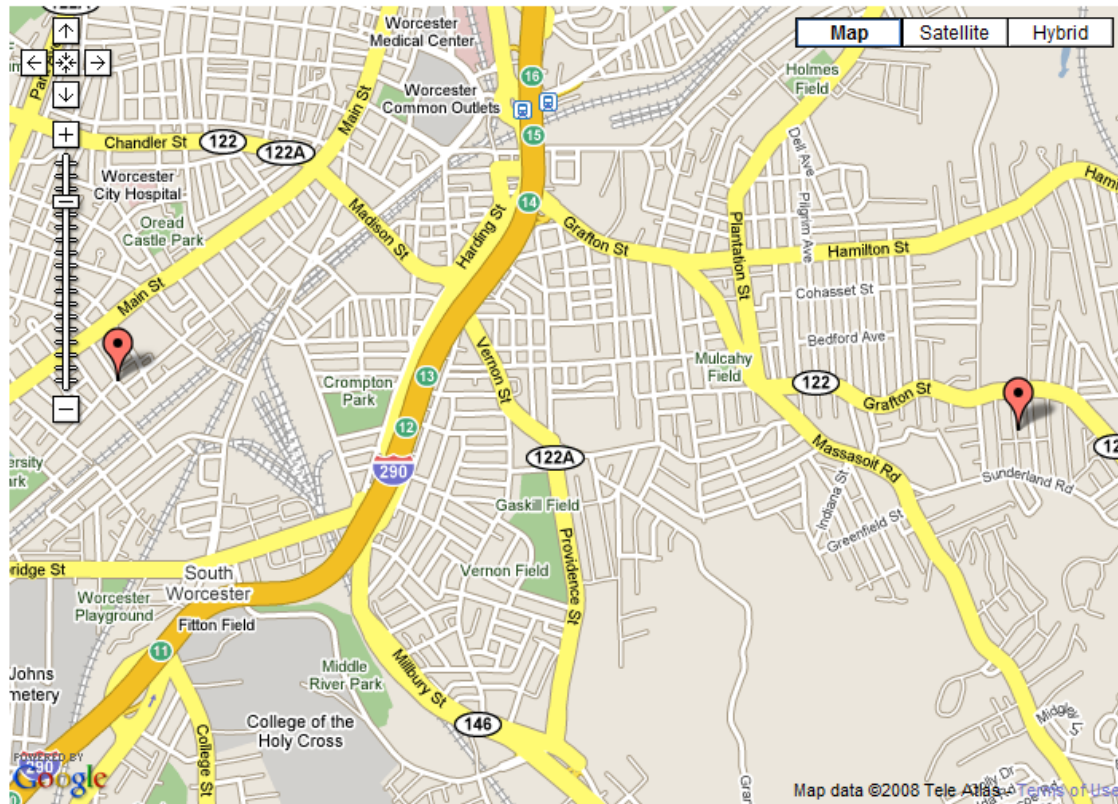


Figure 7 – Web Survey Result, Finding Installations

Your Energy Options

Installations and green buildings near you

◆ See profiles in surrounding towns



Kilby Street duplex



Kilby Street
Worcester
MA
01610
Main South Community Development Corp (www.mainsouthcdc.org) is installing photovoltaic panels on 10 affordable homes it is renovating as part of the Kilby-Gardner-Hammond revitalization project. (Photo Worcester Telegram & Gazette)

Figure 8 - YourEnergyOptions Installations Page

4.15 FINDING CLEAN ENERGY EVENTS

Many people are interested with what is happening within their community. People that come to this site tend to be green energy advocated and are looking for ways to help out. Through events posted on the website, people will be able to attend and begin to make a difference.

Users were not able to locate clean energy events near them. One interviewee suggested that a section be added to the website that allows users to post clean energy events that were going on near them. Again the page before the community portal proved to be an impediment to utilizing these features found in it.

Additionally it was suggested by him that such a list of events be placed in a forum style format to allow for easier sharing of information by users.

There was a lack of calendar events on the webpage. Another interviewee wanted a list of events, under the calendar, so it would be easier to access, instead of clicking on all dates on the calendar. He was also looking for news feeds about renewable energy related topics. He was unsuccessful, and was disappointed there the news was not updated. The lack of events listed on YourEnergyOptions proved to be an impediment for all other interviewees as well.

4.32 SHARING EXPERIENCES

All interviewees were open to sharing their renewable energy experiences. They felt that sharing experiences is beneficial for other potential users of renewable energy to learn from. They believed sharing their experiences will help users determine what installers to use, what problems they might encounter, and could answer any questions that users might not think of at the start.

One interviewee said that she would be willing to share experiences and resources, but at the same time is expecting the same in return. She also mentioned, that having something that deals with rating the installers is good.

Another interviewee seemed open to sharing his experience with renewable energy, he stated that he wanted a section on his profile to showcase his project. He also said that he had been visited by people in his neighborhood seeking some information about his experiences with his solar hot water heater and did not mind answering a few questions.

Another interviewee said he would comment on other user profiles if he felt he could gain information about a certain project. He has had other people who were interested in solar energy ask him questions at his home. He says he has no problem with sharing information, and he also said he has no problem with sharing photos of his solar panels either.

Another interviewee was open to sharing his experiences with renewable energy as well. He was enthusiastic about his geothermal heating and cooling system and even felt it would be useful for others if he uploaded PDF files of the documents he used to plan for his system.

Our responses from the web survey show mixed feelings about sharing experiences as well. Some feel it's fairly easy to share information, and some felt it was difficult.

6. How easy is it to share information on renewable energy projects?

1 - Excellent 5 - Poor
n = number of respondents

- 1 (n=1) 14.3%
- 2 (n=1) 14.3%
- 3 (n=2) 28.6%
- 4 (n=2) 28.6%
- 5 (n=1) 14.3%

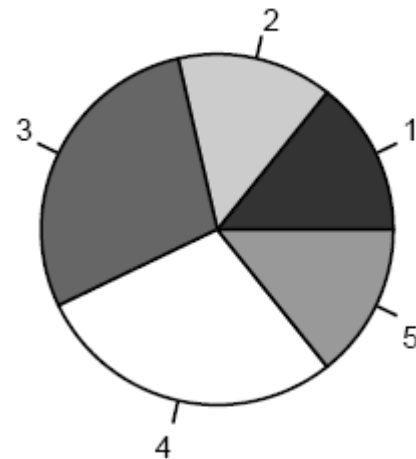


Figure 9 – Web Survey Result, Sharing Projects

Most users were unable to determine how to share information on their projects. While one interviewee was able to get to the page where he could create other profiles, he found this method to be confusing, and the concept of creating a separate profile for a solar panel installation appeared disconcerting to him. It gave him too many options at once. When he saw the page where other profiles could be created, he suggested trimming down the amount of types of profiles that could be added, and did not feel inclined to actually attempting the creation of a profile for his install. This task was simply too overwhelming. Other interviewees had similar experiences. They did not understand the concept of creating separate profiles for his renewable energy installations, and also for the organization until it was explained. However one interviewee made a separate profile for each of his installations, and thought it was unnecessary for there to be two different profiles between himself and his projects.



Figure 10 - YourEnergyOptions Profile Creation Page

4.2 Profiles and Content

4.21 INTRODUCTION

The profiles on the website are currently set up to show the user's name, location, and email as well as items like personal interests, roles dealing with renewable energy, etc. Users are then supposed to be able to find users based by their username, email or location. Additionally users would create profiles for their organizations, installations, and businesses that would connect to their personal profile. We asked users in an open-ended manner how they felt about what information the profiles provide. This section describes the value the users managed to derive from the profiles and their experience with them.

Your Energy Options

Lance McKee's Personal Profile Page

[Add this profile to My favorite profiles]


 <p>Lance McKee "Lance McKee"</p> <p>Street Address: 10 Circuit Avenue East City: Worcester State/Province: Massachusetts Country: United States Zip Code: 01603 Phone: 5087520108 Fax: 508-752-0108 Email: lancemckee@charter.net Website: http://www.lancemckee.com</p> <p>After 9/11, I started studying the world of oil, and I came to believe we are headed for one disaster after another unless we make a transition to clean energy.</p> <p>My search for a way to earn a living in this field led me to think I might build a website applying geospatial technologies, which I know about from previous and current work.</p> <p>My daughters helped me reshape my original vision, and the result is YourEnergyOptions. Now we are partners in this new business! We hope others will help us succeed, and we hope we will help them succeed.</p> <p>As Richard Heinberg says, "Beyond acceptance must come a further stage — action. Those who simply spend their time learning about oil depletion and the melting of glaciers are often glum plums... However, those who are spending hours a week organizing local food systems, car co-ops, and economic localization forums seem to flip over into an infectious cheeriness." I'm feeling better already.</p>	<p>About Me</p> <p>My Roles</p> <ul style="list-style-type: none"> Advocate Homeowner Writer Or Speaker Business Owner Website Visitor <p>Clean Energy Interests</p> <ul style="list-style-type: none"> Architecture & Green Building Electric & Hybrid Vehicles Financing Geothermal Heat Pumps Passive Solar Policies & Ideas & Politics SmartGrowth Solar Hot Water Conserv. & Energy Effic. Education Gadgets & Toys Industrial Ecology PeakOil Simple Living Stewardship
	<p>My favorites</p> <p>My Favorite Books</p> <ul style="list-style-type: none"> PowerDown A Century of War Cradle to Cradle The Future of Money Horton Hears a Who <p>My Favorite Movies</p> <ul style="list-style-type: none"> An Inconvenient Truth Syriana The End of Suburbia <p>My Favorite Music</p> <ul style="list-style-type: none"> Bach Joni Mitchell <p>My Favorite Radio Channels</p> <ul style="list-style-type: none"> http://www.wicn.org/programs/thisnewcar/schedule.htm <p>My Favorite Websites</p> <ul style="list-style-type: none"> http://www.odac-info.org/ http://www.energybulletin.net/ http://www.renewableenergyaccess.com <p>My Favorite Blogs</p> <ul style="list-style-type: none"> http://tyler.blogware.com/ http://makower.typepad.com/

Figure 11 - A Typical YourEnergyOptions Profile Page

4.21 WEBSITE INFORMATION

Users found the amount of information on the website was lacking. When they attempted to use the search function, most interviewees could not find the people they were looking for. The search button didn't bring up people that matched the search criteria. Instead brought up were all the users of the website and anything they have done on the site (like creating a company profile or other type of profile). There was nothing showing who was an installer or who was a consumer. The maps showing where the users are located are

somewhat helpful in that it allowed the interviewees to see how many people in their area have or are interested in installing a renewable energy system. Additionally, one interviewee stated that he could not find a lot of people that he believed would be interested in renewable energy on YourEnergyOptions in his community, and noted his community portal was rather bare.

One interviewee tried created a community profile in his zip code but did not because it required an email address. Another interviewee felt that the links on the website lacked clarity. He was confused when navigating the website and unable to find installers on his own. He was disappointed that he was not able to locate a frequently asked questions page, or a page with additional information on renewable energy. Another interviewee stated the website did not contain enough information, and due to that he would not use it to get information on renewable energy installation at all.

According to our web survey results it showed that people found there was insufficient information on YourEnergyOptions.

5. How would you rate the amount of information currently available on YEO?

1 - Excellent 5 - Poor

n = number of respondents

- 1 (n=0) 0.0%
- 2 (n=0) 0.0%
- 3 (n=1) 12.5%
- 4 (n=4) 50.0%
- 5 (n=3) 37.5%

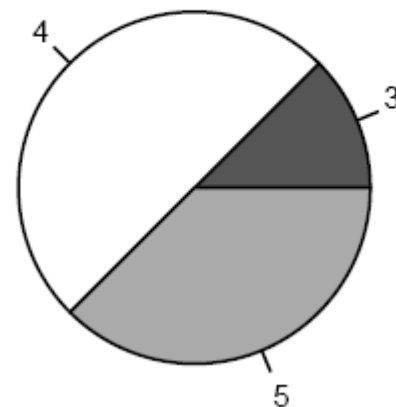


Figure 12 – Web Survey Result, Web Information

4.22 PROFILE CREATION

Users found that some of information asked for in the profile was superfluous. Most interviewees felt that the parts of the profiles asking about subjects such as favorite movies or books were not conducive to meeting people interested in renewable energy.

One interviewee touched upon this topic saying her main concern was not asking details about users personal finances. She feels that these are sensitive issues and ones that people may not be willing to share openly with others they haven't really met. Other than that, she said she would be willing to share other information like

what technology they want to learn about, what interests them as concerning with renewable energy. She did say, along with the other people we have interviewed that the sections dealing with favorite books, music, and movies are irrelevant and shouldn't be on the profile creation to begin with.

One interviewee felt that some of the categories presented did not have any relevance to renewable energy. Another interviewee felt that the profile creation page was good, but did have some privacy reservations about it. He felt that the asking for the favorites was in order to target advertisements, and he did not want to do that. Another interviewee did not like the favorite topics, however he did like the section to list blogs, websites, and television programs. He felt music, and favorite movies were irrelevant. He was disappointed that there was not a project section. He felt some of the options presented were only applicable to business people, and not to him as a consumer. Overall, the profile creation process presented most interviewees with doubts. They were concerned about getting spam e-mail, privacy issues and were adamant in removing the unnecessary profile fields

4.3 User Habits

Understanding user habits is an area that YourEnergyOptions needs to better grasp around because if it doesn't understand its target audience's internet usage habits, then the site will not be able to provide users what they need to keep them coming back to the site. It gives a baseline idea of their internet experience and where YourEnergyOptions users are coming from. Additionally it will help us understand how willing our target audience is to interact with a website such as YourEnergyOptions on a daily basis.

4.31 PRIOR HABITS

To determine how users use the internet, questions were asked regarding their use of the YEO website itself. Through examining these habits, we will better be able to understand what the users are using the website for.

More than half did research before coming to YourEnergyOptions, and did research via word of mouth. One interviewee is not from the technology era. Most of the research he did was through word of mouth or basic information he found on the internet. He said though that if the website turned out the way we are hoping to get it, then it would be extremely beneficial for users to use. Many of our interviewee's mentioned that their use of the internet is for work and personal use, mainly looking for renewable energy technology news or updates.

4.32 CURRENT HABITS

Mostly all of our interviewee's accessed the website rarely. More than half said that they access this website either once a month or never. Along with this, through our results, it shows that people never update their personal profile page. However, through the web survey, a respondent mentioned he used the sites for leads, which is a major accomplishment of YEO. Shown below in our pie graphs are results from 8 respondents.

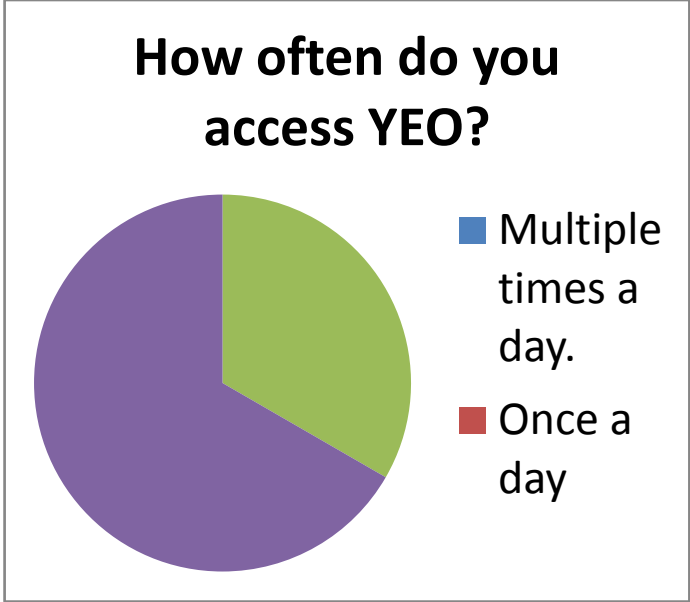


Figure 13 – User Habits



Figure 14 - User Habits

5.0 Conclusions and Recommendations

5.1 Introduction

In this chapter we present our conclusions and recommendations based on our interviews with consumers. We then use these results to make recommendations, based on the needs of these consumers. Our recommendations focus on four different aspects of using the site: Content, Profiles, Usability, and User Habits. Our group has explored many issues relating to those of the potential consumers and users of the website, and has recommended these changes due to popular demand. Along with the demand for more content and different features, our group has made all recommendations based on evidence from interviews, a focus group, and a web survey. With our recommendations, along with the information received from interviews, YourEnergyOptions can better understand the needs and preferences of its end users. Though we had a limited amount of data from which to draw conclusions from, we believe they are very useful.

5.2 Content

5.21 CONCLUSIONS

After conducting several in depth interviews, we have found that there was a similar disfavor for features and information that was currently displayed on the website. Our results showed that there was a common statements made about each of the following.

- The first and most commonly discussed is the lack of a mission or goal of the website. First time users are looking for an explanation and purpose of websites.
- The search feature did not work and tended to show irrelevant information. Neither people nor desired information could be found in an organized manner. Instead of finding this desired information, a mass of just about everything on the webpage is displayed.
- Interviewees also displayed a demand for a Frequently Asked Questions page. They were looking to find links providing further information on renewable technologies, and also advocacy guides.
- Many of the links were confusing to most of our interviewee's. They tended to click on links that took them to places that they did not want to go.

5.22 RECOMMENDATIONS

Based on these conclusions, we recommend:

- A simple title or page dedicated to the mission of the site needs to be added so first time users can become familiar with the purpose of the site, without have to look around for it.
- The search function should be refined so that whatever the user is searching for comes up with the most relevant topic. When searching for friends or businesses, that particular person or company should be the first thing to show up.
- The creation of a Frequently Asked Questions page. Included in the FAQ section should be:
 - Information regarding alternative energies and their regulations.
 - An advocacy guide; Information for steps these people need to take to install and promote these systems needs to be provided.
 - A list of where to find local installers and businesses.

- The implementation of an events calendar. This will also attract users to come back to the site to check on new upcoming events. Below the calendar should be a list of the events by day, preventing unnecessary clicking on individual dates.

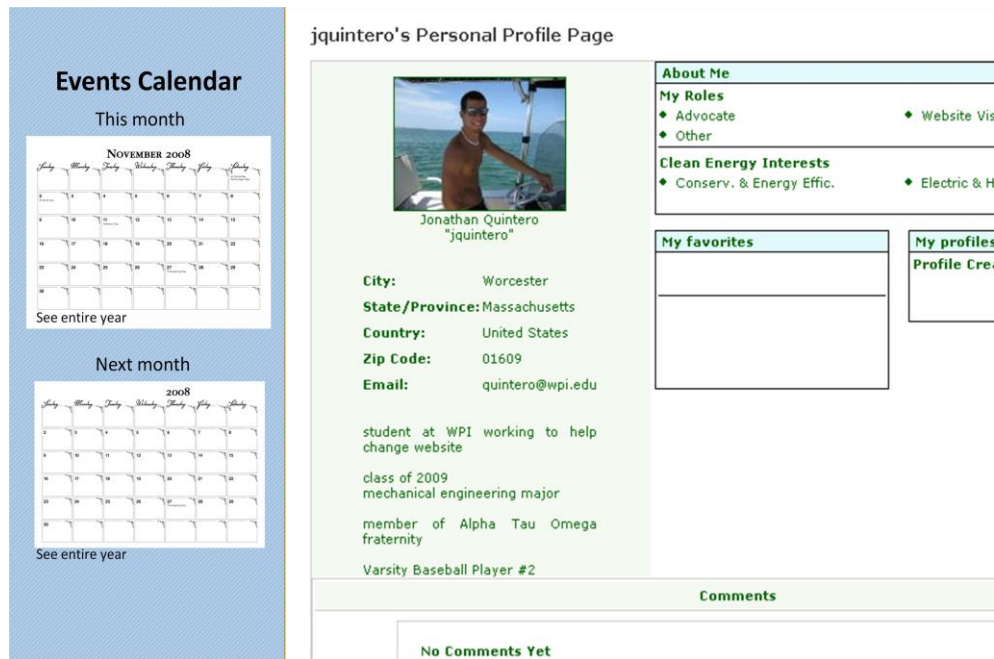


Figure 15-Sample of Calendar

5.3 Profile

5.31 CONCLUSIONS

Another large portion of this website that needs to be reconsidered is the profile page. All of our users found that a lot of information asked for in the profile creation, such as favorite books, music, and movies have no purpose being on the website according to our respondents. Our results also showed that overall there is just too much information asked on this profile creation page.. The check marks that described their interests was useful to many of them and most of them liked to know other people's occupations.

5.32 RECOMMENDATIONS

Based on these conclusions, we recommend:

- Restructuring of the profile creation page. This will help simplify the profile creation process for new users.

- The points that need to be asked on this page are:
 - Basic user information, such as name and contact info.
 - A brief description of what the user's occupation and role in the community is.
 - Their specific region of interest in the alternative energy field.
 - Their favorite sites and blogs, relating to renewable energy.
- Placing a project description section on user profiles. This will make it easier for users to display their projects. There should be a fill in box that allows users write in any other specifics about their project that the would like to share.

Home About Us Your Community Your Portal Wikis & Forums Classifieds Search Login

Your Energy Options

Personal Profile Creation Page

User name:
Password:
Email:

Contact Information:
Name:
Address:
City:
State/Zip:
Phone:
Website:

Other Information
How did you hear?
Are you a student:
School Name :
Student Grade Level :
Opt-in to receive email from vendors :
Opt-in to receive mail from vendors :
Opt-in to receive phone calls from vendors :

Figure 16-Sample Profile Creation Page

Projects:
 Have you installed a renewable energy system?
 Yes
 No

What type of system(s) have you had installed or currently own?
 Geographic Setting:

Features *

<input type="checkbox"/> Battery Storage	<input type="checkbox"/> Berming
<input type="checkbox"/> Best Practices	<input type="checkbox"/> Biofuel
<input type="checkbox"/> Co-generation	<input type="checkbox"/> Community Integrated Clean Energy
<input type="checkbox"/> Composting	<input type="checkbox"/> Conservation Innovation
<input type="checkbox"/> Daylighting	<input type="checkbox"/> Energy Efficiency
<input type="checkbox"/> Fuel Cell	<input type="checkbox"/> Gardens
<input type="checkbox"/> Geothermal Heat Pump	<input type="checkbox"/> Geothermal - Passive
<input type="checkbox"/> Greenhouse or Sunroom	<input type="checkbox"/> Green Roof
<input type="checkbox"/> Heat Exchanger	<input type="checkbox"/> High Efficiency Windows
<input type="checkbox"/> High R-Value Insulation	<input type="checkbox"/> High Solar Gain
<input type="checkbox"/> High Thermal Mass	<input type="checkbox"/> Hydrogen Generator
<input type="checkbox"/> Insulation Innovation	<input type="checkbox"/> Landscaping
<input type="checkbox"/> Local Materials	<input type="checkbox"/> Natural Ventilation
<input type="checkbox"/> Passive Solar	<input type="checkbox"/> Permaculture
<input type="checkbox"/> Renovation Or Retrofit	<input type="checkbox"/> Solar Electric (Photovoltaic)
<input type="checkbox"/> Solar Thermal	<input type="checkbox"/> Smart Building Controls
<input type="checkbox"/> Strawbale Construction	<input type="checkbox"/> Sun Angled Overhangs
<input type="checkbox"/> Woodstove or Pellet Stove	<input type="checkbox"/> Water (hydro) Power
<input type="checkbox"/> Wind Turbine	<input type="checkbox"/> Water Collect/Reduce/Reuse
<input type="checkbox"/> Window Shades & Quilts	<input type="checkbox"/> Other

Describe your installations. (i.e. prices, installers, problems run into, other helpful tips.)

Figure 17 – A sample Project Description within Profile Creation

5.4 User Habits

5.41 CONCLUSIONS

After conducting our interviews and analyzing the responses provided by the interviewees and our websurvey (who were YourEnergyOptions members or other renewable energy supporters) we found that user’s prior habits of internet usage consist of checking email, purchasing items from business sites, looking up information (like addresses, descriptions of items, sites that deal with the searched item, etc.) and sharing experiences. From these results we can better address the question “What can YourEnergyOptions do to connect consumers and installers via the internet?”.

5.42 RECOMMENDATIONS

We recommend that YourEnergyOptions should implement the following changes:

- Add a Forums or Blog section

- There is no place for users to go to if they have questions or want to engage in a discussion. Our data showed that users like to discuss certain topics or have questions and want other users' feedback. This encourages more user to user interaction.
- Add an Installer Rating system
 - Interviewees responded positively to this idea. They provided us with valuable information dealing with all aspects of the rating system. Installers may be hesitant about allowing users to rate their company but the system will help show credibility of installers.
 - Add and allow private profile to profile commenting
 - Allow users to contact each other by enabling messaging via the website, and messaging via email which users can already do. From our data we saw that users wanted to be able to contact each other; YourEnergyOptions users currently can't do that efficiently. We recommend that the manner should be similar to the way messaging is done via social networking sites like Facebook and Myspace.
- Identify profiles as installers or consumers.

This will allow consumers to search for installers and vice versa. This would be a valuable tool and is something that the search feature can use to be more efficient.

YourEnergyOptions



Freedom Energy Systems, LLC

Contact: [Thaddeus Szkoda](#)

YourEnergyOptions User Rating



Reviews

Solar Panel Installation in Grafton, MA for Bob Hersh



I contacted Freedom Energy Systems, LLC last week, and they had my solar panels installed today. I love getting free power from the sun. They were fast, dealt with all permitting, and now I make money selling power to my neighbors!

System Size: 1kW | Date Installed: 1/28/2008 | Approx. Total Cost: \$20,000

[See other installs in Grafton, MA](#)

[View Bob Hersh's Profile](#)

[View Installation Profile](#)



Wind Turbine Installation in Worcester, MA for Dan Dick



I contacted Freedom Energy Systems, LLC last week, and they had my wind turbine installed today. I love getting free power from the wind. They were fast, dealt with all permitting, and now I make money selling power to my neighbors!

System Size: 1kW | Date Installed: 1/22/2008 | Approx. Total Cost: \$10,000

[See other installs in Grafton, MA](#)

[View Bob Hersh's Profile](#)

[View Installation Profile](#)



[Add a Review of my Freedom Energy Systems, LLC System](#)

Figure 18-Sample of Installer Rating

5.5 Usability

5.51 CONCLUSIONS

Our results show that there is a fault with the current system used to find installers. Our interviewees displayed some frustration when trying to locate a local installer. This was either caused by losing interest due to having too many steps to perform the search or confusion with the “Find local installers, organizations, events, etc.” page. Searching for users also seemed difficult for our interviewees. Some interviewees had a hard time finding the search tool on the site. As well as being hard to find the search tool used by the site failed to show any users. Finding local installations also caused some problems for interviewees due to having too many steps needed to conduct the search.

5.52 RECOMMENDATIONS

We recommend that YEO should:

- Make a page dedicated only to finding local installers. This will make finding an installer easier for users, which is one of the main goals for Yourenergyoptions.com
- Make the search page more prevalent to users. This will make navigating Yourenergyoptions.com easier for the user.
- Make a separate page for newly registered users. A link to this page should be on the community page. This will allow users to see the freshest content on the site; new projects, new installers, new events, etc.
- Adding a projects section to user profiles. Searching for a user will also yield projects that a user may have posted. This will make it easier for users to share projects and experiences with other users.

Adding notes to the map to show if projects have been posted by a certain users. This again will help users find local installations.

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APPENDIX A: WEB SURVEY

Note: A technical glitch interfered with the recording of free-response questions. As a result, the qualitative data from them is placed at the end of this appendix, and not attributed to any specific question. However the questions asked for free-response are still listed in order, but no results are attributed to any specific question. Due to time constraints, we were unable to re-administer the survey.

User Habits

1. How often do you access the YEO website?
 - a. Multiple times a day (n=0) 0.0%
 - b. Once a day (n=0) 0.0%
 - c. Once a week (n=1) 33.3%
 - d. Once a month (n=2) 66.7%
2. When surfing the internet, reading blogs, or reading forums, what do you look for?
 - a. Free response.
3. When have you last updated your profile on YEO?
 - a. In the past day (n=0) 0.0%
 - b. In the past week (n=0) 0.0%
 - c. In the past month (n=1) 33.3%
 - d. In the past year (n=2) 66.7%
 - e. Never (n=0) 0.0%
4. Why did you become a member of YEO?
 - a. Free response.
5. How do you currently use the website?
 - a. Free response.

Site Design

1. What are your first impressions about site design?
 - a. Free response.
2. What features of the individual profile are most useful?
 - a. Free response.
3. What features, if any, would you like to add to the profile page?
 - a. Free response.
4. What features, if any, would you remove from the profile page?
 - a. Free response.
5. When looking at others' profiles, what do you find most appealing?
 - a. Pictures (n=0) 0.0%
 - b. Blogs (n=1) 50.0%
 - c. Interests (n=0) 0.0%
 - d. Location (n=0) 0.0%
 - e. Background and role in community (n=1) 50.0%

Finding installers and retailers

1. YEO plans to offer its members a list of renewable energy installers. What information about installers would you like to see on YEO?
 - a. Free response.
2. Would you post a classified ad on YourEnergyOptions.com?
 - a. Yes (n=0) 0.0%
 - b. No (n=2) 100.0%
3. How easy is YEO to use compared to other social networking websites?
 - a. Very easy (n=0) 0.0%
 - b. Easy (n=0) 0.0%
 - c. Neutral (n=2) 100.0%
 - d. Difficult (n=0) 0.0%
 - e. Very Difficult (n=0) 0.0%

Site Usability (Scaled 1-5 with 1 being easiest, 5 most difficult)

1. How easy is it to find installers on YEO?
 - a. 1 (n=0) 0.0%
 - b. 2 (n=3) 37.5%
 - c. 3 (n=1) 12.5%
 - d. 4 (n=1) 12.5%
 - e. 5 (n=3) 37.5%
2. How easy is it to locate other YEO users near you?
 - a. 1 (n=1) 12.5%
 - b. 2 (n=3) 37.5%
 - c. 3 (n=0) 0.0%
 - d. 4 (n=2) 25.0%
 - e. 5 (n=2) 25.0%
3. How easy is it to find other renewable energy technology installations near you?
 - a. 1 (n=1) 14.3%
 - b. 2 (n=2) 28.6%
 - c. 3 (n=1) 14.3%
 - d. 4 (n=1) 14.3%
 - e. 5 (n=2) 28.6%
4. How easy is it to find clean energy events near you?
 - a. 1 (n=1) 14.3%
 - b. 2 (n=2) 28.6%
 - c. 3 (n=1) 14.3%
 - d. 4 (n=2) 28.6%
 - e. 5 (n=1) 14.3%
5. How would you rate the amount of information currently available on YEO?
 - a. 1 (n=0) 0.0%
 - b. 2 (n=0) 0.0%
 - c. 3 (n=1) 12.5%
 - d. 4 (n=4) 50.0%
 - e. 5 (n=3) 37.5%
6. How easy is it to share information on renewable energy projects?

- a. 1 (n=1) 14.3%
- b. 2 (n=1) 14.3%
- c. 3 (n=2) 28.6%
- d. 4 (n=2) 28.6%
- e. 5 (n=1) 14.3%

APPENDIX B: INTERVIEW QUESTIONS

- Consumers thinking about installing renewable energy technology.
 - What first made you interested about installing renewable energy?
 - Do the incentives make the reason for purchasing a system more appealing?
 - Are you aware of the programs and rebates available from federal, state, and local levels?
 - Have you talked to anyone else that has installed a system, or knows about the field?
 - Do you have a list of local installers to pick from, or know where to find them?
 - Do you feel that if local installers and people like yourself could talk amongst each other would be beneficial to progression of renewable energies?
 - How often do you spend time surfing the internet, and what are you usually looking for?
 - Would you be interested in joining a social network that allows you to communicate with others like yourself and installers, about renewable energies?
 - Do you participate in forums, or blogs?
 - Do you use forums to help you evaluate certain products, or services?
 - Would you be interested in upcoming local events regarding green energy?
 - What type of information are you willing to tell about yourself, so others that use the site can see? What information do you think should not exist in a profile?
 - If you were able to see other people registered in your area, would you contact them/read their page to learn more about renewable energy?
 - Would you be looking for more information about these technologies from a FAQ page, or would you ask a professional about it.
 - How often and why would you visit this site?
 - How well does the site answer the questions you sought after, and what information needs to be added?
- Already installed.
 - What kind of renewable energy system do you have installed and how long have you had it?
 - Why did you decide to install a renewable energy system?
 - How did you hear about your renewable energy system or any type of renewable energy system in general?
 - Whom did you have install the system?
 - Why did you choose this person?
 - How did you find this person?
 - Whom else did you consider if anyone else?
 - Where do you see yourself as it concerns to renewable energy? (i.e. only a consumer, consumer and advocate, activist, etc.)
 - If you were on a renewable energy website, what kind of content would you be looking for or expect to see?
 - features
 - blogs and forums
 - content
 - information
 - events
 - renewable energy news?
 - Etc.
 - user interaction
 - profile to profile commenting

- photo-sharing
 - anything else?
 - Have you ever considered writing about your renewable energy experiences via a magazine, newspaper or online network?
 - If yes, what kind of information would you be willing to share?
 - Are you interested in meeting and discussing with people who have similar systems installed or looking to install a system via an online network like YEO?
 - If you were looking to install a system, how would you use YEO to make more informed decisions about choosing what kind of system to install, which installer to use, etc?
 - Based on your renewable energy installation experience, what features or content should YEO have that will facilitate future users looking to install a system or find info regarding renewable energy?
- Tasks to accomplish for usability
 - Use YEO to find users near you.
 - Use YEO to find information on local renewable energy installs.
 - Use YEO to find a local installer.
 - Use YEO to discover what clean energy events are going on near you.