# YourEnergyOptions, Inc.: A Web Business Plan

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by:

Patrick Benson
pbenson@wpi.edu


Brian Costa
bcosta01@wpi.edu


Austin Susmann
asusmann@wpi.edu


Michael Tessier
tessierm@wpi.edu

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Faculty Advisor:

Professor Robert Hersh

# Abstract

YourEnergyOptions' website lacked many features that a fully-functional Web 2.0 site typically requires: revenue generation, outreach, social-networking, and visual appeal and usability. Our goal was to generate low-cost recommendations that could be implemented to help YEO. Research was conducted via interviews, focus groups, user testing, articles, and web content. It was concluded that Emarketing, better ad selection and placement, a referral system, enhanced profile and forum functionality, and improved site structure would greatly aid YEO in its energy autonomy mission.

## Acknowledgments

# Executive Summary

There has been no time in recent memory when discussion of environmental concerns has been so great. Credible news sources and websites alike have increasingly devoted time and energy to stories about greenhouse gases, the melting polar ice caps, rising sea levels and more. Despite the importance of these issues alone, global climate change shares the spotlight with other issues of comparable significance, most notably national security and the frail economy. Interestingly, these three topics, environment, economy, and national security, are all interdependent. "Big Oil" is responsible for sending large sums of money away from this nation and into the pockets of leaders in hostile nations. Simultaneously, the fuels that are burned for heat, electricity, and transportation are a big factor in global climate change. Concern over these issues is being raised at the highest levels of government as well as every one of the recent Democratic and Republican national debates.

While people from different walks of life and every part of the political arena argue about exactly how these issues should be addressed, everyone can at least agree on one thing: something has to be done. With the U.S. in danger of falling into a recession, a long war in the Middle East that some people believe is motivated by energy concerns, and waning environmental status, the need to action is an immediate one. One proposed solution that is slowly but surely growing in popularity is renewable energy. Renewable energy, also known as alternative energy, is energy that is produced via resources that are considered to be perpetual. Inclusive in this category are wind, solar, biomass, and geothermal energy.

There are many reasons why renewable energy is being looked at so closely at present time. The development, construction, sale, and installation of renewable energy technologies would provide a great stimulus for the economy not only because of increased investment, but also because of the creation of many new "green collar" jobs. The production of energy within the United States would also decrease the flow of cash to nations in South America and the Middle East. This would go a long way in easing national security worries. The most direct consequences of renewable energy production would be the environmental impact. As the one of the world's leading energy consumers, it comes as no surprise that the U.S. contributes a large amount of environmental pollution. If this nation were to decrease dependence on coal and oil by increasing the use of solar, wind, and other renewable energy sources, greenhouse gas emission and other forms of pollution would simultaneously decrease. This would result from a decreased need for the mining, refining, and burning of traditional energy sources. For these reasons, renewable energy is pushed by a lot of forward thinking companies.

One such company is YourEnergyOptions, Inc., a Worcester-based internet startup company, that was founded by Lance McKee in 2006. The basic premise behind the website is that both consumers and providers (manufacturers, retailers, installers) of renewable energy technologies should be given a way to find and communicate with one another. There is also a particular interest on helping small businesses increase public awareness of their goods and services. All of this is meant be accomplished through user profiles (to establish awareness) and social-networking capabilities (to facilitate communication). At the outset of the project, there were a few problems with the website that hindered its ability to reach those goals, however. The general usability and visual appeal of the site were lacking. The profile and forum systems were also confusing and lacking in utility. Aside from those obstacles, the website lacked an outreach plan for bringing in new users as well as a revenue generating scheme which would create the funds necessary for future upgrades and maintenance. Our mission was to address these issues. The subsequent research was divided into four categories:

- Usability and aesthetics

- Traffic

- Encouraging user collaboration

- Revenue

The ultimate goal of this research was to provide YourEnergyOptions (YEO) with a solid set of low-cost, feasible recommendations for how it can restructure its website in order to address the problems previously mentioned.

There were a number of questions to be answered during the course of our research. The answers to these questions were then used to generate conclusions and recommendations that YourEnergyOptions could take into consideration while altering its business plan and restructuring its website. These questions included:

- How can YEO change its website to be more visually appealing and intuitive in its use?

- What strategies can the company use in order to reach out to its targeted user base?

- What social networking features should the site implement, change, or remove?

- What revenue-generating schemes can YEO use currently and in the future?

We answered these questions using an iterative methodology. Because the focus of the project related to web issues, a great deal of information was derived from web resources. These sources included forums, blogs, and articles posted online by web professionals, as well as comparisons to existing websites that have similar features and functions. From these and interviews with web professionals, we generated mock pages for yourenergyoptions.com. In order to evaluate the existing site and our mock pages, we convened a small focus group. The insights from the focus group were used to enhance our mock pages and introduce new features to them.

In terms of the YEO website structure and design, we found that several major revisions should be made to improve usability of the site. Most broadly, we found that the site's overall structure and visual style should be adjusted to fit the correct demographic group, namely the installers, retailers, and homeowners that will make up a majority of the business interaction on the site. Some of the recommended structural changes include:

- revising the placement of the internal page-to-page hyperlinks to fit the model of our proposed site map

- changing the placement of hyperlinks on the page itself

- simplifying the general template of the site itself

- a revamped color scheme

- adding dynamic visuals

- proper placement of content on the page

Because of YEO's limited resources and financial backing, we found that YEO should promote the site in the form of search engine optimization, viral marketing strategies, and external link generation. For search engines spiders, indexibility and keyword frequency are extremely important.

- Although YEO was already a Google-friendly site, it needed to weave relevant keywords into the tags and body text of the pages that were not user-generated.

- Adding external links to the site would also greatly improve YEO's ranking on popular search engines

- YEO already had several key viral marketing tools at its disposal, including a newsletter function and access to related social networks

- It also had advertising space that it could leverage in order to encourage local small businesses to spread awareness of the site

The website has several features that were the backbone of communication and the center of the users experience on the site. These features include the profile systems, the Forums/Wiki, and the Terms of Service and Privacy Policy.

- Forums/Wiki turned out to have major flaws in it, ranging from ease of use, to flow and presentation of information

- The profile system in place required information that was either too broad given that users could either be installers, retailers, or purchasers of renewable energy technology

- The Terms of Service and Privacy Policy were very basic and only featured in a section of the website rarely used, and could not be accessed anywhere else in the site.

The revenue generation of the site was also a major issue.

- Through research it was found that the behavior of a user viewing a website plays a large role in how advertisements are placed.

- YEO did not tailor any of its current advertisements to most effectively interact with the user.

- YEO was not taking advantage of other potential revenue generating methods, such as a referral fees and affiliate advertisements.

Our recommendations were based on the findings above. To describe the structural and visual recommendations for the site, we implemented our finding on mock webpage's. Our mock pages fall in to two categories, one type being focused mainly on the content of a certain page and less on the visual aspects, the other type focusing more on the structure, visual makeup, and suggested dynamic features for the page.

- We gave YEO a low-cost outreach plan which it could implement through search engine optimization, linking, and viral marketing.

- We encouraged YEO to look at the tags, internal links, and body text of the website's pages and ensure that they were laced with relevant keywords such as "renewable energy" and "installer."

- We also suggested that the website be reformatted so that every other page on the site was more easily accessible through links on the home page.

Viral marketing suggestions were also made in the form of mock promotional materials.

- These included a YEO User Startup Manual

- An electronic newsletter

- A promotion that would give small businesses the chance to earn free advertising on the website if they brought in others like them.

- A list of potential link partners was created along with an initial contact Email.

- A similar list of forums, blogs, and social networks that YEO could use to spread awareness of its site was also created.

With YEO's "Forums/Wiki" system not allowing user discussion, the system needed to be redesigned.

- YEO was given a mock up of the new design and functionality which included a more logical flow of ideas in the forum, and the removal of a "wiki style" posting system.

- The Terms of Service and the Privacy Policy were edited and revised in order to take into account the recommendations made.

- The ToS and PP also needed to be more prevalent throughout the site.

- Profiles on the site also had to be completely re-designed. Users, based on their role in the renewable energy marketplace, would use different profiles tailored specifically to that role.

- The means through which users entered their information, and how it would be displayed on the site were given to YEO as a series of mock pages.

To help generate more revenue, YEO needed to more effectively position and tailor its advertisements in a way that would increase user interaction.

- Simple ad types and placement rules were suggested.

- The advertisements would then have a better chance of being clicked to generate revenue.

- The advertisements that YEO hosted were also subjected to these changes to further incline installers, retailers, and contractors to place an advertisement.

- A mockup for a more effective ad creation page was provided.

In addition to these changes, YEO was encouraged to pursue other methods of revenue generation. These included implementing referral fees and affiliate advertisements.

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# 1.    INTRODUCTION

As oil supplies diminish and globate climate change becomes an issue of increasing concern, the need for renewable energy is rising.  On a global scale, greenhouse gas emissions from the consumption of fossil fuels (e.g. oil, coal) are causing drastic changes in the earth's climate in several ways.  Polar ice caps are melting while causing a simultaneous rise in sea levels (Williams, 2004).  Natural habitats are being altered in ways that are putting various species at risk of extinction (Williams, 2004).  The human species is even putting itself at risk of increasing health complications from exposure to particulate matter in the air caused by different forms of pollution.  The United States, as one of the world's leading consumers and purchasers of fossil fuels, is at an even greater risk in terms of national security (Geological Society of America, 2006).  Approximately half of the oil purchased by this country is acquired from nations that have volatile relations with the U.S., such as Venezuela, Iran, and other Middle Eastern countries (Energy Information Administration, 2007).  Dependence on these nations poses a security risk to the United States, especially considering how much revenue these nations generate from the sale of oil to the U.S.  Currently, not enough is being done to promote solutions to these problems.

The widespread use of renewable energy technology in the United States would go a long way in dealing with these issues.  However, renewable energy makes up only 7 percent of current energy production in the United States (Energy Information Administration, 2007).  Increasing this percentage would require a shift to large-scale renewable energy production as well as the construction of a new infrastructure to handle the distribution of these new energy sources.  One step in this process would be to begin the creation of new small scale renewable energy production at a local level.  This could one day lead to the use of local distributed generation and the creation of new infrastructure that would increase the efficiency of the distribution of power.  This method requires small-scale energy production at the locations where that energy is to be used.  One example is the installation of photovoltaic panels on the rooftops of buildings, where there is typically a large exposure to sunlight.  Such energy generation allows optimized energy production based on local conditions and eliminates the need for large scale production facilities.  Therefore, the growth of distributed generation depends upon the creation of a marketplace where consumers and installers/retailers to get together and exchange money for renewable energy goods and services.  Unfortunately, the current market has several faults.  These include high transaction costs and a lack of readily-available information.   These issues impede easy interaction between players (consumers and producers) in the market.

YourEnergyOptions, Inc. (YEO), a Worcester-based start up company, is attempting to address this issue head-on through the creation of an online community.  Through this community, users will be provided with the opportunity to address any questions or concerns that they may have regarding renewable energy technology and local installers. This will be accomplished through the social-networking features of the site.  YEO is trying to position itself to be a tool in the renewable energy marketplace that will lower transaction costs in terms of time and keep users informed.  Lance McKee, president of YourEnergyOptions, Inc., envisions a virtual marketplace where consumers and installers/retailers can easily find each other and communicate regarding their common interests.  The communication generated as a result will hopefully allow renewable energy technology to become more available, and compliment the existing energy production based on fossil fuel consumption, due to the lowering of uncertainties and transaction costs previously discussed.  The premise behind the YEO website is that consumers will first learn about renewable energy from partner websites that will link to YEO.  Once at YEO, they can contact other users in order to ask questions regarding purchase and installation. Business transactions should follow.  In order for such a community to be generated, the website has to perform two basic functions: networking and referral/rating.  The website must be an informative social-networking tool.

The current YEO website ([www.yourenergyoptions.com](www.yourenergyoptions.com)) has the beginnings of this informative social-networking tool, but is lacking in some important respects.  As far as education goes, there is some basic content as well as links to other websites.  This material falls short of what is actually needed for

uninformed users to make informed decisions concerning investments in renewable technologies. Unfortunately, YourEnergyOptions cannot compete with other available websites that currently focus on providing the necessary educational materials. In order to narrow the focus of the project it was decided by YEO, at our recommendation, that the site forgo the need to include formal education content on the website, and focus more on the social networking capabilities and functions. Through these, users could generate a form of content that would be useful for the community, and would not be generated by YEO.

The social-networking capabilities of the site are similarly lacking, making it difficult for consumers and installers/retailers to communicate. Currently, users can create a profile on the site that contains basic information about themselves and their involvement in renewable energy. There are only a small number of users, and they are given limited ways to find and communicate with each other. For YEO to become a virtual marketplace, it must attract new users. These users must then be presented with content that is organized in such a way that it is easy to access. Informed users must then be given the means to find and communicate with each other based on their needs and wants. Inclusive in this is the ability for users to share their experiences and add to an installer referral/rating system. This combination of a social network and a referral/rating network would give YEO its own niche. Finally, since YEO will not be selling any products of its own, revenue must be generated in order to continuously sustain the site so that it can meet the growing needs of this online community. This revenue can come from multiple sources, ranging from advertisements sold on the website to referral fees generated through a referral system.

The goal of this project is to aid YourEnergyOptions, Inc. make adjustments to its existing website in order to improve its usability, visibility, and profitability. Our recommendations are based on research gathered through interviews, user testing, a focus group, review of articles, and review of existing websites. Our research has helped us determine the most effective means of attracting new users, formatting web content, creating a social network, and generating revenue. In addition, we also developed unique features that could enable users to add/view installer ratings. Addressing these issues will allow YEO to help correct some of the faults of the current renewable energy technology market through its online community.

# 2.  BACKGROUND

## 2.1 Introduction

The creation of a local clean energy market through YourEnergyOptions, Inc., the central hub of the new market, is dependent upon the success of the company's website itself as a new social-networking site. A social networking site is where "…a group of people who use the Internet to communicate with each other about anything and everything (The Computer Language Company, 2007)." This success will rely on a few key aspects:

- Attracting new users

- Designing  effective website layout for aesthetics and ease-of-use

- Creating a social networking environment

- Generating Revenue

New users are necessary in order to drive up the websites usage and cause a similar increase in ad revenue.  At the same time, these users can hopefully be convinced to continue using the website if the layout of the content is aesthetically pleasing and user-friendly.  Once a commitment to the site is made, the user should feel more comfortable about creating an account and starting communication with other users.  This communication will be the cornerstone of YEO's niche in the renewable energy technology marketplace allowing local consumers, retailers, and installers to come together in a single location, express common interest, and work together towards their common goal.  The range of these potential outcomes is very broad and will hopefully include (but will not be limited to) the purchase and installation of a particular renewable technology.  The upgrading and maintenance of the site will then be dependent upon the revenue generated when these users respond to ads.

The creation of YourEnergyOptions' vision of a local market for clean energy technologies is achievable through the independent realization of each of these goals.  Although they are emphasized here as being independent for the purpose of clarity, they are in fact interdependent. The success or failure of one affects the results of the others.  This Background section provides insight into each of the four aspects above, including some of the issues that surround them, research into how they can be achieved, and their relation to yourenergyoptions.com.

## 2.2 Website Design

YEO's functionality and design is very important towards creating an effective social-networking site. There are many challenges to efficiently display a website.  One of them is to identify design features that help attract users to a website and cause them to return at a later time.  An article by Zhang (2000), "A Two Factor Theory for Website Design" considers how Herzberg's Work Motivation-Hygiene Theory could provide an analogy to the web environment (Zhang, 2000).  The two factors in Herzberg's theory that contribute to user satisfaction are the web features that supply the functional groundwork of a website (the hygiene factors) and those that entice users to stay with the website and contribute to their satisfaction (the motivational factors). He concluded that some examples of hygiene are clear/unclear directions for navigating the website, structure of information presentation is logical/illogical and the presence of accurate/inaccurate information.  Some of the examples of motivation are importance/lack of importance of the surfing activity to the user, presence/absence of multimedia, and visually attractive/unattractive screen layout (Zhang, 2000).  Using his results, it can help us provide a framework for the site to have less user dissatisfaction and more user satisfaction.  In an increasingly competitive web environment, motivational websites may prove to be a

competitive advantage. Though YEO.com has already been created and we are only modifying it, it is still important to know how the design process of a website is drawn up. This includes the steps taken to create a website and the coordination involved between directors, in this case Lance McKee, and the implementers, which is our team. After investigating a few case studies relating to organizational website design, we concluded that an ideal, universalized design process is nonexistent. According to van der Geest from Lin's article, only one out of the ten surveyed organizations, which are very similar to YEO's mission, defined goals and target audiences for a website, but none of them prepared a list of resources needed for their websites. Van der Geest found that each organization had its own unique design process (Lin, 2007). Lin's article focuses on several successful websites, in which the missions of the organization and the IT department initially did not have strong coordination but did later on. From this we conclude that our modifications on the YEO website will have to be our own unique procedures towards designing a website, not ones that are generic .There are certain aspects a website should have in to maximize "the stickyness" of the site for users. Since YEO's website is heavily dependent on external links, the organization and placement of these links are very important. The concept of "scent" links introduced in the article, "Improving Web Site Navigation: Creating High-Scent Links", concludes that by developing clear, telling links and elaborations, written within the potential users' frame of reference, have the potential for making websites easier to use and reducing the frequency of users becoming lost on the site (Zimmerman, 2004). Web design researchers have theorized that people searching the World Wide Web and websites forage for information much like animals and hunter-gatherer societies foraged for food. Researchers suggest that high-scent links (telling links and their descriptions) help Web site users efficiently find the information they seek (Zimmerman, 2004) Using this concept will help us modify the existing links on YEO.com as well as create new ones. Eye tracking is another method of compelling user focus on the website. Eye tracking relies on the "eye-mind hypothesis" where the eye is assumed to fixate on the text, symbol, or image currently being processed by the brain. When used in combination with usability methods that focus on performance keystroke and mouse movement logging and user behavior (observation), eye tracking can provide insight into cognitive processing (Cooke, 2004). On YEO.com, we want to minimize as much as possible the cognitive processing (which is a function of the amount of eye tracking), but simultaneously keep the website informational. YEO's current website has few multimedia applications. A past IQP project, "Renewable Energy Education," found unique ways to educate visitors by using videos and activities. They set up computers that could connect to live data being outputted from WPI solar panels (Conrad, 2004, Appendix M). They also structured their website to include a "journey" that a person can navigate through explaining topics involving renewable energies. (Conrad, 2004) These unique features were completed using the Macromedia MX suite. This includes Dreamweaver, a professional website creation tool; Fireworks, a graphic design application intended for web graphic development; and Flash, a graphics program used to create animations. Using some of these ideas and implementing them on YEO.com will help improve the structure of YEO's website.

## 2.3 Attracting New Users

The importance of drawing new users to yourenergyoptions.com cannot be emphasized enough. A clean energy market cannot thrive if it is not populated by consumers and producers whose interaction spurs the exchange of money for goods and services. Thus YEO needs to attract new users to its website if it wishes to be a catalyst for the development of a distributed energy technology market at both national and local levels. This is vital for YEO's vision for a solution to the energy crisis. At the same time, a flow of traffic is needed for the website to gain solid financial footing through ad revenue, which can be put toward future development, maintenance, and promotion. For these reasons, YourEnergyOptions must take action to attract users to its website.

Traffic to yourenergyoptions.com is essential for the survival of the company if it wishes to promote local clean energy action at the national level. Such a large undertaking will require the website to be continuously monitored, updated and upgraded. Consequently, a trained staff (or at least one IT professional) will have to eventually be hired. YEO can be classified as having the business model of a "navigational service" (Alpar, 2001). This means that it doesn't make money by selling its own products but

rather provides its users with information. It directs them to what they are looking for. Such businesses rely solely on selling advertising space. The money that they make is typically proportional to the number of clicks on each particular ad (Alpar, 2001). Thus, YEO could sustain itself on a long-term basis if it successfully attracts users and enables the simultaneous increase in click-through rates and ad revenue. For example, if there is a banner ad for a particular type of solar panel, the number of people that click on the ad will increase as the number of people exposed to it increases. Theoretically, increasing website traffic should therefore cause an increase in revenue. The amount of revenue actually needed by YEO will depend upon how the company changes in the future (e.g. services offered by the company, number of IT professionals hired, etc.)

In a promotional model developed by Wu et al. (Wu, 2005), the attraction of new users to a web-based company is Stage One of a two-stage model and is accomplished through advertising, with Stage Two consisting of the actual sales of products. Because YEO will not directly sell goods, its Stage Two will be directing the users to useful resources and information. However, Stage Two cannot become successful unless Stage One is successful. Common sense, as well as research into current scholarly literature (Ilfeld, 2002; Wu, 2005), suggests that advertising should be done through several mediums. However, there is some debate as to which mediums should be taken advantage of. Wu implies that pure online methods are sufficient, while other sources (Ilfeld, 2002; Bellizi, 2000) argue that "it would be a mistake to advertise solely online." Therefore, YourEnergyOptions must take into account the various methods of internet marketing and their costs must be weighed against their potential benefits.

For YEO, a lack of funds will limit the list of potential advertising methods to those which will require little to no capital. This rules out a large number of traditional "offline" advertising methods like commercials or print advertising. Similar costly online methods, such as paid-for advertising and paid-for listings in search engines, are also out of the question. Therefore, YEO needs to creatively take advantage of free online advertising schemes that both scholars and non-professionals alike have recognized as beneficial. If done properly, this low-cost online advertising approach should lead to an increase in the population of yourenergyoptions.com online community. This theory is validated by Ilfeld's study, which shows a direct correlation between online advertising and an increase in website traffic. At the same time, the low cost of such online advertising methods (as compared to traditional offline methods) will enable YEO to greatly increase advertisement frequency. A study by Broussard suggests this increased frequency should similarly increase the probability that a consumer will respond to the ad (Broussard, 2000). Now the questions that beg to be asked are "What are some online advertising methods and which are most effective?" This is where research to date fails to provide specific, definite answers.

The new difficulty that arises is finding non-traditional advertising methods that are inexpensive but, at the same time, still effective. Scholarly articles on this topic are, to say the least, scarce. The best source of ideas for this type of rogue advertising is non-scholarly websites that offer educational material on how entrepreneurs who are working their way up from the bottom, such as YEO's founder, Lance McKee, can get more people to visit their websites. Although such research using non-scholarly websites is typically discouraged, it seems logical when taking into account what we are trying to accomplish. It makes sense that if we are trying to generate traffic to a new website for someone who has virtually no resources for advertising, we should take into consideration the advice of other people who have already done the same thing. What is similarly encouraging is that although these sources are not related, they appear to give credit to the same advertising techniques as being effective. These include getting links from other credible websites to yourenergyoptions.com, giving away a prize as an incentive for people to visit the site, taking advantage of previously-existing social networks, submitting articles to related websites that will link back to YEO, and using the "Invite a Friend" technique to encourage users to bring in other people themselves. These forms of advertisement, which depend largely on word-of-mouth, are part of what is known as "viral marketing," a scheme that depends on the willingness of current users to promote the website on their own. The usefulness of this approach is emphasized by many people and organizations, such as Concept Marketing

Group, Inc (http://www.marketingsource.com).  Undoubtedly, yourenergyoptions.com will have to rely on this method, which has minimal costs and relies on users to voluntarily do a large portion of the work.

Another technique for increasing website visits, which is mentioned by these sites and discussed further below, is search engine optimization.  Its importance is emphasized by many professionals in the field of internet marketing (Green, 2003; Lorge, 1999).  It is the process by which a website is modified to get the maximum amount of attention possible from search engine "spiders," which companies like Google use to pick up on web pages that have relevant keywords.  Web designers can take advantage of what these spiders look for in order to give their websites a higher ranking on search results.  For example, spiders give more weight to pages that, among other things, have relevant key words in bold.  This is particularly important considering that 80% of all website traffic starts at search engines and directories (http://www.apexpacific.com/index.html).  This technically makes search engine optimization the most powerful means of web marketing.  When an entrepreneur wants his or her website noticed, search engine optimization of the site is one of the key steps to take.  Without it, 80% of web traffic will never reach the site.  Now, taking into account that Google alone is reported to have over half of the market share for search engines (Elgin, 2005), it is definitely worthwhile for web designers to keep Google's spiders, as well as those of the other engines and directories, in mind while creating and modifying sites.  A page that is "optimized" for search engines and directories can thus greatly increase its audience potential by reaching out to 80% of the users it was never exposed to previously.  One website, neoforma.com, saw its hit count climb to almost *one million* per month as a result of its own optimization.  This and similar success stories has encouraged some experts to recommend that companies serious about web prominence hire someone whose responsibility is to keep their websites continuously optimized (Lorge, 1999).

With this information, it becomes clear that one of the primary objectives of YEO should now be to answer the following question:  "How can yourenergyoptions.com be optimized to give it the highest possible ranking among other search results?"  The problem with addressing this issue is that, as noted by e-marketing expert David Green, website optimization "is something of an art in itself and consequently an entire cottage industry has sprung up advising clients" (Green, 2003).  As a result, there is a variety of people offering advice, some of which is good and some of which is bad, even illegal.  However, Green does offer some basic insight into website optimization, including bold keywords and the importance of links from other credible websites. (Interestingly, the latter suggestion is also made by many of the "non-professional" website that we found by performing a search of our own using Google.)  The websites that he provides, as well as many others that we'll encounter, should prove to be invaluable in aiding us in our mission to make more people aware of yourenergyoptions.com.

The attraction of new users to yourenergyoptions.com is vital for the company itself and the local clean energy market that it wishes to create.  The benefits of this traffic generation are two-fold: increasing the market population and generating revenue to sustain the market's potential.  Research has shown that effective advertising is essential, but YourEnergyOptions, Inc. faces a huge limitation because of its lack of significant financial backing.  Despite putting traditional big-money advertisements out of reach, YourEnergyOptions can still take advantage of free and/or low cost online advertising methods that will allow them to reach large audiences on a regular basis.  However, because market research to date does not provide concrete evidence as to exactly which advertising methods are best for an entrepreneur in Lance McKee's position, some creativity and reliance on the real-world experience of other entrepreneurs that have survived these same obstacles are needed.  Our task with respect to generating website traffic, which we describe in more detail in the *Methodology*, is therefore to consult as many resources as possible, obtain a solid understanding of effective low-cost online marketing techniques, and formulate a feasible outreach plan for Lance McKee and YourEnergyOptions, Inc.  This will include determining the ways to best utilize non-standardized (e.g. viral marketing) and standardized (e.g. search engine optimization) techniques simultaneously.

## 2.4 Generating Revenue

Having a steady source of income is a major issue that affects most small businesses today. If such a source is not found, the cost to maintain, advertise, and make changes ends up coming directly out of the owner's pocket. This issue can be especially difficult to solve for a small business on the web. These businesses have much less opportunity to generate revenue that will help to sustain their business. The types of revenue that can be generated also depend on the type of business. Small web based businesses can be summed up as either businesses that are trying to sell a product or a service, or a business that is trying to inform. YourEnergyOptions, Inc. falls under the latter, and are much more limited in the type of income that can be generated.

YourEnergyOptions, Inc. mainly wants to focus on informing the users of its site about many different aspects involving renewable energies. This can be accomplished by directing the user to appropriate information found on other's websites or creating its own content on renewable energies, as well as helping in the communication of consumers and installers through the use of forums. This gives the users of yourenergyoptions.com a portal into the world of renewable energies. This goal, however, limits ways sustainable revenue can be generated since the information YourEnergyOptions, Inc. will provide to the user will consist mainly of hyperlinks and information found on other websites. Therefore, yourenergyoptions.com cannot charge the user for the information. YourEnergyOptions will, however, be creating a place where an interaction can occur between consumers and producers. This interaction, in most cases, will lead to a business transaction. When this transaction occurs, it is due to an interaction that originated on YEO, and because of this money can be generated through these referrals. The only issue with this is for a website that is trying to generate traffic and build up a user base; this could be a potential deterrent. Referral and affiliate programs, however, are a commonly used way to generate revenue when a website is creating an interaction between consumers and producers, so it should not be overlooked as a potential source of revenue generation. Seeing such a system will not be put in place at first, the main source of revenue will be created through the use of advertisements.

Advertising on a website can be done in many different ways. To increase the revenue generated by these advertisements, it must be determined what the most effective way to host these advertisements. There is a "potential marketing goldmine" for the advertisers if they can somehow attract the "millions of users across the globe" (Bayles, 2002) who go on the web. This also means there is a "potential marketing goldmine" (Bayles, 2002) for sites that are able to attract more people. These sites will be sought after by advertisers to hopefully gain a spot on the site to advertise. Also, if a website is able to solve the issues of "users visually skipping ads", "slow [advertisement] download times", or "low click through rates," (Bayles, 2002) then a website will be able to generate a more steady revenue through advertisements.

The issues of "users visually skipping ads" and "low click through rates" (Bayles, 2002) can be attributed to many factors. The main issue is that the web is a "user driven experience where the user is actively engaged in determining where to go next." (Nielson, 1997) This means that web advertisers have little to no control over what the user is going to do. The main reason someone is on the web is "to get something done" (Nielson, 1997) and therefore is rarely swayed from their original goal. Due to these factors, "users visually skip ads" resulting in "low click through rates" (Bayles, 2002).

Another factor which causes problems for the user is "slow [advertisement] download times" (Bayles, 2002) on a web site. This will result in the user becoming frustrated and, in most cases, force them to search for their information somewhere else because "people don't like waiting for a fancy brand message" (Nielson, 1997, 1) page number for direct quote). This issue can also be attributed to "low click through rates" (Bayles, 2002) in advertisements due to the user avoiding the website entirely. Even if a website is able to overcome these issues, "there is no guarantee that [a company] will be able to sell all of its ad inventory" (Marshall, 2002, 1). If a website is unable to sell all of its advertisement space, this results in smaller percentages of people clicking advertisements. With small percentages of people clicking advertisements

much less money is being generated, making it harder to sustain the website. Due to these issues, the web has become an increasingly difficult way to generate steady revenue from advertisements alone.

There are also many different ways for people to advertise on the web. Banner ads are often used as internet advertisement (Bayles, 2002). These banner ads "can create brand awareness, message association, purchase intent, and [even] brand favorability" (Bayles, 2002, 363). This is useless to the website hosting these advertisements if they are not generating large revenue. If a website can determine what the best types of advertisements are, then they can focus on those types of advertisements and gain steady revenue.

In addition to banner ads, pop up ads are another commonly used way to advertise on the web. Pop up ads are typically unfavorable from the user's perspective. They have "slow download times" (Bayles, 2002) because they open in their own window and usually contain flashy animations. It is not uncommon for web surfers to close the window in protest to these nuisances. This results in "users visually skipping ads" (Bayles, 2002) and accompanying low click-through rates. Banner advertisements, on the other hand, are more commonly used because of their lack of intrusiveness. Banner advertisements are built into the website and can be placed in different places. They are not met with as much distain from the user and therefore typically result in greater response rates (Bayles, 2002).

The most useful banner advertisements link the user to respectable websites that do not appear to have malicious intent. Similar to flashier hyperlink, they bring the user to useful places full of the information they want. These types of advertisements are met with less "visual skipping" and thus have large "click through rates" (Bayles, 2002). Advertisements that behave in this manner will generate larger revenue in comparison to advertisement methods such as pop ups. For YourEnergyOptions to generate sustainable revenue from advertisements, it must understand all the issues surrounding advertisements such as "users visually skipping ads", "slow [advertisement] download times", or "low click through rates" (Bayles, 2002), as well as what the best types of advertisements are. By understanding these factors, YourEnergyOptions, Inc. will be able to host advertisements more effectively and gain revenue to maintain, advertise, and modify its own website.

## 2.5 Creating a Social-Networking Environment

One of the most common ways of creating collaboration between users on a web site is through the use of social networking features. Since these have only recently become more mainstream on the internet and because designing them is more art than science, there has been little published research on the proper way to create an effective social network. The best way to get information about social networking sites is to analyze some of the more popular ones, such as facebook.com. Similarly, the best way to come up with features for a website is to look how existing websites deal with similar concepts.

One particular feature that is of interest to YEO is the ability to comment on installers on the site, giving other users feedback about installers. One site containing a feature similar to this is ratemyprofessor.com. This site allows users to post a profile about a professor, including their name, college, department, and location. Once a profile is created, a user can post a rating and comments about the professor. The comments are usually no longer than a paragraph and are purely optional, although many users take advantage of it. The ratings are on a scale of 1 to 5, and rate the professor's clarity, helpfulness, and easiness. The site averages all of the ratings and posts them in the profile. The individual ratings and comments are also viewable from the professor's profile. The site allows the user to scroll through all of the comments, if there are more than just a few. The site also includes a forum system which allows users to expand on their existing comments.

On facebook.com, user profiles are the backbone for the website. This contains information about the user which other users can view. Information such as user's name, location, contact information, job information, interests, and even a photo are all part of their profile. Since the profile may contain sensitive personal information, facebook.com uses a "friend" system to allow other users access to a person's profile.

If a user is a friend with another user, they can view all information that is being displayed on the other user's profile, and vice versa. If a user is not a friend, that user can only get a cursory glance of the information in the other user's profile, such as a picture and name. A user can also search through all of the profiles on the site, based on different criteria. For instance, if one puts "green architecture" as an interest in their profile, they could click on that word and facebook.com would search and display other profiles that also have that as an interest. The use of a profile-based system is common enough that yourenergyoptions.com already has one in place, but not nearly as developed as the one on facebook.com. It should be noted at this point that profiles in facebook.com are separated into groups called networks that, for the purposes of yourenergyoptions.com, would be necessary given the different purposes of the websites.

Another feature included in facebook.com is called "The Wall." Each profile has a wall that people can post messages on. A user has the right to post messages on their own wall as well as delete what others have posted. A user can also post on the walls of their friends. Since a user must befriend another user before they can post on their wall, it cuts down on any random or malicious postings. Also displayed in the users profile is a short list of other people they have "friend-ed." When looking at another friend's profile, it will also display the friends that the users have in common. It will not show all of these friends since the lists can be very long. The site also allows users to post photos by placing them in albums. An album just denotes a collection of photos with a similar theme or concept. The interesting thing about photos is that users can "tag" other users in a particular photo. The tags show up on the user's profile as a link that displays the user's pictures. Users can also comment about photos that are posted, which appear underneath the photo, and look similar to wall postings. Another important feature on facebook.com are events which users can create and invite other users. A user can post the event with a title, a short description and a photo. Users who are invited can respond if they will be attending or not and can also post comments about the event. These features are what help make facebook.com a successful social network and can be applied to yourenergyoptions.com.

A user can also send private messages to another user, even if they have not friend-ed them. This concept is similar to email in many ways, the only difference being the message never leaves the confines of the site itself. If a user wants to send another user a message, all they have to do is click the "Send Message" link in the other user's profile. The user can then type a brief message and send it to their intended user. Each user is given an inbox in which messages are stored and read. Messages can be replied to, deleted, and even sent out to multiple users at once. By applying this private messaging system to yourenergyoptions.com, it would make it easier for users to contact each other. This is especially important with regards to consumers and people trying to sell renewable energy technology. This gives them an ability to contact one another and discuss business opportunities outside of the public view of everyone else in the site.

It has been argued the one of the reasons that facebook.com has been so successful is not solely due to its interesting social networking features, but that it is based more on the activity of users while they are *not* on the internet (Gabby, 2006). In short, facebook.com depends on the activities and actions of its users while they are offline, for its success online. This is good news for YEO Inc. since many of its users work on green energy outside of the internet, through events and demonstrations. The same study also talks about the need for a social networking site to foster trust between the site and its users (Gabby, 2006). Trust will be essential when it comes to dealing with the interactions between consumers and installers/retailers, as users will not be comfortable using this feature without it. The best way of generating trust is through the websites terms of service, in which YEO Inc. will make certain guarantees about any personal information that is put on their site. Considering the specific tasks of bringing together consumers and producers of renewable energy technologies, the larger task of creating collaboration among advocates of green energy seem to fit right in line with the aims of a social networking site.

# 3.    METHODOLOGY

## 3.1 Introduction

This project was aimed at helping Lance McKee and YourEnergyOptions, Inc. determine the most efficient use of internet-based tools for creating a centralized location where potential providers and consumers can communicate with one another in order to facilitate the ultimate goal of energy autonomy through local, small-scale actions.  The project relied on research into methods of attracting new users, effectively organizing content on the web pages, increasing the social-networking capabilities of the site, and generating ad revenue.  The main research tools included interviews, archival research, web content analysis, focus groups, and surveys.

The following *Methodology* section explains in depth the methods of research into the four objectives listed above.  The importance of each objective is described, and each is then divided into a set of tasks.  For each task, a detailed research plan is outlined which includes questions to be answered, information required, resources for obtaining information, and potential deliverables.

## 3.2 Making the Website Easier to Use

### 3.2.1 Introduction

It is essential that the overall website design and structure of YEO.com is attractive and easy to use. For investigating appropriate ways to make the design and structure, the following steps were taken to achieve the best possible layout for YEO.com.  First, we had to determine the general features, links, and visuals that YEO.com either had too much of, or too little.   To this, we gathered information about successful website design through interviews, a case study, and online sources.  This information is shown in the results and analysis section.  By using this information, we then implemented these results by creating mock pages as described in the next section.

### 3.2.2 Website Modification

For the most part, modifications of the website were done in Macromedia Dreamweaver (a website design program) and Macromedia Flash (an animation program with website design integration). Macromedia Dreamweaver is the software we used the most to make these changes.  It was generally easy to use, required minimal program language knowledge, and was very helpful in making mock pages.  Over time, we learned the website coding language HTML which was used in Dreamweaver and defines the website itself.  We also found many excellent online sources that not only provided tutorials on coding websites, but also had sample code we could use as a basis if we needed to create an object.  By learning these skills, we eventually effectively altered the website to more sufficient standards.

We used our ample knowledge of using Dreamweaver as well as the knowledge of how a website of this type is typically set up to create mock pages.  We found the best way to make the mock pages was through experimentation.  By creating several various prototype designs we then showed them to users in a focus group.  We then used the testers' opinion, as well as Lance's opinion, to determine the appropriate format that would be most appealing to visitors.  The mock pages were then modified using these results.

Some of the major pages that were prototyped were the home page, the community portal, the co-op page, and the forums.  Most mock pages were created by the other teams, but these pages all are linked together literally and themed in the same manner in order for testers to get a unified feel of the site.

### 3.2.3 Creating Dynamic Features

Macromedia Dreamweaver is generally limited to static websites with little animations. But by using advanced HyperText Markup Language programming, PHP programming, and Macromedia Flash, it allowed us to create dynamics for website. Macromedia Flash was utilized primarily to create a prototype animated title. Other dynamic features were created mainly using PHP and HTML programming. Some of the dynamic features that were created using PHP include a sidebar with links that change colors when the mouse is hovered over it and an automatic scrolling news feed on the home page. One last dynamic piece that was modified is the Google map located on "Your Community" page. Currently on YEO.com, there are several layers of maps with links next to them that is confusing the user. After revision, we created a more interactive map which allows users to view other user's renewable energy installments in their city. For example, when a homeowner or business creates a profile on YEO.com, they can input where they are located in a city, what renewable energy installments they have set up at their facility, how much electricity it produces, how much money they are saving, etc. This inputted data would be used for a script to automatically display this particular user on a Google map for others to also see. A decorated icon (i.e. a cartoon solar panel if the user has a solar panel or a wind turbine if the user has a turbine) would represent the user along with a picture and some of the data described above. A sidebar describes how much the displayed city is saving through renewable energies. If we can successfully create a renewable energy installment map using the ideas from these websites as well as many others that are out there, it will help make the site less mundane and more interactive, increasing the users' desire to come back to the website.

## 3.3 Attracting New Users

### 3.3.1 Introduction

As described in the *Introduction* and *Background*, attracting new users to yourenergyoptions.com is important for several reasons. The website will not be able to thrive as an online community for people interested in renewable energy technology if it is not populated by users. If YEO hopes to be a local catalyst for communication between consumers and installers, retailers, manufacturers, etc., it first needs to make people aware of the website and its function as a social network. At the same time, user activity on the website is necessary for generating revenue.

Our task with respect to generating website traffic was to consult a few key resources and obtain a solid understanding of website marketing techniques that YourEnergyOptions can utilize. These resources include Emarketing case studies provided by professional organizations such as Forrester Research, Inc., and Emarketing web content (articles and educational sites) generated by people who have real world experience with increasing "internet visibility." Interviews would have been helpful, but no willing interviews were found. These potential interviewees either didn't respond, or indicated that they were not interest in doing "pro bono" work that they typically receive monetary compensation for. As a result of YEO's limited financial backing, the proposed methods for increasing website visibility had to be effective and have low implementation costs. Because of this restraint, YEO was left with only three inexpensive but popular Emarketing techniques: search engine optimization, viral marketing, and the creation of direct links from related sites. Once a sufficient amount of research was been completed in these key areas, it was possible to formulate a feasible outreach plan for Lance McKee and YourEnergyOptions, Inc. The methodology for research into each of the previously listed topics is described in the following sections.

### 3.3.2 Search Engine Optimization

Optimizing yourenergyoptions.com for search engines and directories such as Google and Yahoo is essential for the attraction of a large fraction of internet users to the site. Approximately 80% of all internet traffic begins when a user types a keyword into these search-dedicated sites. (http://www.apexpacific.com/index.html). What most people don't realize, however, is that the results they get in return are partially determined by "spiders." "Spider" is the nickname for the computer algorithms that

Google and other sites use to crawl randomly about the web and index random sites. Indexing is the process by which sites are added to a search engine's database. But while this indexing process might be random, the rankings that websites are given as a result are not. The sites that use these spiders give them particular criteria to look for, such as important keywords that are in bold, near the top of a page, or in hyperlinks. These criteria differ for each search engine, but are for the most part similar. The better a site matches these criteria, the higher its ranking will be among search results given after keyword input.

To optimize YEO's website, we first gathered information on exactly what these spiders look for, how they look for it, and how heavily each of these is weighed in their respective ranking systems. It was necessary to find ways to allow YEO to more aggressively seek the attention of spiders without participating in activities that would get it blacklisted by search engines. Such blacklisting would result in the removal of YEO from important databases that will link searchers to the site. Luckily, sites such as Google willingly give away information about their spiders (http://www.google.com/support/webmasters/). This information is provided through useful tutorial links that are clearly labeled, such as Google's "How can I create a Google-friendly site?" Within these links, it is easy to learn what to do as well as what not to do in order to achieve maximum exposure through frequently-used search tools. Because of the easy availability of this information, this step in the research should be completed relatively quickly. Using Google's Webmaster Help Center, information was obtained on the blacklist optimization strategies mentioned above. A list of these unfair practices was found, then used to look over the current YEO website. Once it was determined that YEO was not using any optimization strategies that would get its pages banned from search results on Google, the website's URL was submitted to Google so that its pages would be indexed more easily and frequently.

With the website submitted to Google, it was time to look at the site through the "eyes" of a search engine spider. Other than making sure that no unacceptable optimization strategies were in play, this was the most important step in the process because optimization would be pointless if spiders such as Googlebot cannot index the web pages. In order to determine the indexability of yourenergyoptions.com, the website was first verified on Google Webmaster Central so that the Webmaster Tools could be used. This verification was accomplished by uploading an HTML file specified by Google onto yourenergyoptions.com. Google then checked the website for this file. Once the file was found, we were given access to special information about the YEO website via Google Webmaster Tools. These tools provided information about the sites indexability, such as which pages could be indexed, how often indexing took place, and whether or not any errors were encountered during the indexing process.

After verifying and analyzing the indexability of the current site, feasible optimization practices were determined. There has to be something that sets certain websites apart from others, allowing them to consistently achieve relatively high rankings on Google and other search sites. It was our task to determine what it is that those sites do. To propose a comparative analysis of highly-ranked sites would have been lofty and unbelievable. Archival research could have provided some clues, but analysis of web content was the best bet for obtaining useful optimization advice. Search engines like Google are constantly changing how the index the web, so articles found through archival research would likely have been outdated. Web content was the best bet for recent advice. There is a very large number of websites dedicated specifically to search engine optimization (SEO), such website is www.seo-helper.com, that offer free, useful SEO content. This content was analyzed, and then used to help YEO with its own optimization.

The information provided by Google and web content from professionals who are familiar with search engine optimization yielded more definite answers as to how YEO should change its site to achieve higher rankings. The recommendations that were determined to be the most important were then suggested to YourEnergyOptions. These recommendations were made only if they were 1) low in implementation cost and 2) in-line with YEO's plan for dynamic, user-generated pages. These recommendations were mostly centered on the keyword optimization of tags and the website's linking strategy.

### 3.3.3 Creating Links to YEO

The importance of links to yourenergyoptions.com from related sites is self-explanatory. YEO will be able increase the flow of people to its site if there are links to it that are provided by sites that have similar or related objectives. Such links are particular useful because they are targeted at people who have already shown an interest in renewable energy. Success will depend on our ability to find websites from related organizations that have a strong potential for forming a joint venture or partnership with YEO.

Some research into sites that are closely related to YEO has already occurred. Lance McKee, founder of YEO, has mentioned that he hopes to form future partnerships with other organizations. At the same time, he wishes to structure his site so that it "complements the IREC, NABCEP and MTC websites (and others like them) and pleases the owners of those websites by not competing with them and by helping them accomplish their missions (personal communication, 2007)." Forming partnerships with other sites and getting them to link their users to YEO required that we first found sites that have missions that are related those of YourEnergyOptions, Inc., then determine what kind of content/services they provide, and how they provide their services to users. As a list of these sites was generated, research was conducted into best practices for forming linking partnerships.

As with search engine optimization strategies, there is free information available on the web about how to approach other webmasters and site owners for link partnerships. One useful article was that was brought up during research was written by Corey Rudl (Rudl, 2003). Based on the suggestions of Mr. Rudl and others like him that were found on the web, an example e-mail was drafted to the Massachusetts Technology Collaborative. Keeping best practices in mind, the e-mail was written as an example of how Lance McKee and YEO can go about initiating contact with other webmasters in the future. This initial communication introduced Lance McKee and YourEnergyOptions. It also explained our interest in their site and what benefits they and their users can expect to gain from the partnership. In the future, these e-mails will initially be directed at smaller renewable energy websites, which will likely be more willing to form a partnership with YEO. As popularity grows, partnerships will be established will larger and more popular sites.

The hope is that YEO can form a reciprocal relationship with these sites in which both sites have something to gain. Because YEO has recently decided to focus on users who are assumed to have some knowledge of renewable energy, one group of sites that is of particular interest to YEO is educational websites. Relationships with these websites will be based on the premise that they (the other websites) will be responsible for educating users about renewable energy and the associated technologies, then sending these "educated" users to YEO so they can talk about current issues and hopefully find installers. In return, YEO will refer its users back to these educational websites if they are ever in need of any broad information that YEO is not set up to provide.

### 3.3.4 Viral Marketing

The viral marketing aspect of this project required more extensive research than what has been discussed in the previous sections. Viral marketing depends on the use of pre-existing social networks in order to spread awareness of a product on its own, which is why this form of marketing is referred to as "viral." A big part of viral marketing is word-of-mouth, or communication about the product of interest by the people who are already using it. If people who are using the product are satisfied with it, they'll likely tell at least one or two friends about the product or service. This generates interest as well as new users. Then, if these new users who have been referred to the site from other people or locations are satisfied as well, they'll continue to spread the word. Considering the low cost of viral marketing techniques, the potential returns on investment could be huge.

Again, research into business and advertising journals, magazines, and other materials may yield some useful information. However, it will be more useful to consult firms that specialize in viral marketing

techniques as well as some of the "cottage industry" professionals themselves in order to gain information that is based on real world successes and failures. As with the websites that discuss search engine optimization, there is no shortage of people willing to offer their opinions on viral marketing techniques. Some of these sites require money for their services while others are non-profit. Concept Marketing Group, Inc. and AnOwnSite Internet Marketing Strategies are just two of many organizations that give away free information based on the opinions of professionals and entrepreneurs. A great deal can be learned from these sites, as well as blogs and forums. These web resources were consulted for information about the real-world experiences of people who have used viral marketing to advertise their websites, products, or services. The websites for Concept Marketing Group, Inc. and AnOwnSite Internet Marketing Strategies were found through Google searches. Other sites that offer the same type of e-marketing information were found in the same way. The sites that we found were then scanned for useful content related to viral marketing. This content was analyzed in order to find common viral marketing practices.

As with search engine optimization, the research that was conducted over the previous seven weeks was used to create a list of viral marketing strategies that fit two criteria: 1) low implementation cost and 2) feasibility. As a deliverable, a list of viral marketing strategies that YEO could take advantage of was created and some example promotional materials were produced. These materials included an Installer Promotion, a YEO newsletter, and a YEO Startup Manual.

## 3.4 Generating Revenue

### 3.4.1 Advertisements

To best generate revenue for YourEnergyOptions through the use of advertisements, the key factors of advertising on the web needed to be analyzed and applied to the current advertisement revenue generating system. The system that was being used on YEO included the use of Google advertisements and advertisements hosted on the site for installers, retailers and contractors. Both of these systems had some sort of flaw because of the lack of revenue being generated through them. To fix these issues, the key factors of advertising on the web need to be determined.

The first way to fix these issues was to determine what the most effective advertisements are. These advertisements do not interfere with the user or annoy them in any way that gives them a negative impression of the website. Instead they help the user find other information or lead them to other reputable sites. There are many different ways to advertise on the web, so it needed to be determined what the most effective type of advertisements were. It was important to determine this because if the most effective advertisements were used, then more click-throughs would occur from the users and a larger revenue source would be generated.

Another key factor that needed to be determined was the best way to place or orientate advertisements so that they would most efficiently and effectively interact with the user. If an advertisement is placed in the most effective manner then the user of a website will be more compelled to interactive with it. It was important to determine this because an advertisement can be placed anywhere on a site, but only a few places actually interact with the user. If an advertisement is placed in such a place, it increases the ability for it to generate revenue.

Click-through rates is another factor that needed to be looked at if a website is trying to generate a revenue source through advertisements. A website is paid more money if the advertisements on their website are visited by their users. The more users which click the advertisements, the more revenue is created, so increasing click-through rates of these advertisements was an important issue.

Now to find answers to these issues, three methods were used to determine the information needed. The first method used to find this information was through research of professional journals, books, and websites. Research was an effective method to find widely used well documented types of advertisements, and positions that could be potential used on yourenergyoptions.com. Research of these mediums was also

useful in determining how to use a combination of both the proper advertisements and the best positions to increase click-throughs. Though it was expected to find research in each of these mediums, the best source ended up being websites. These websites supplied statistical data and case studies about different advertisements and their positions. They also explained which advertisements and positions had positive aspects, such as high user interaction. Included in these case studies was a basic understanding about how a user interacts with a website and how to best take advantage of this behavior. Other useful information found in these websites was accounts of peoples' experiences with certain advertisements and positions, as well as their own attempts to increase the click-throughs of their advertisements. Cumulatively this research was then used to rate the different types of advertisements and placements available on the web, to determine which ones should be used by YEO.

The second method to be used to find information was observation of current websites and the types of advertisements and positions being used by them. Websites that were well known and generated a large amount of traffic were observed because they could be considered popular and successful. These websites would be using the proper advertisements and positions on their sites so that they would deter their users as little as possible. Included in this observation was website related to renewable energies and sites that were not related, so that any differences between the two could be seen. This observation served to both provide ideas of what advertisements to use, as well as how to best position them, so as to best generate click-throughs. This observation was also used to validate the information being determined through the other methods of research.

The final method used to find information was through interviews with professionals. The professionals that were interviewed were website developers. They create websites and understand how users interact with their websites. This knowledge allowed them to provide information about how to best interact with a user of YEO through the use of advertisements and placements. These interviews also helped to further validate the information found through observations of websites and research.

### 3.4.2 Additional Revenue-Generating Methods

In addition to revenue generated through advertisements, other sources of revenue needed to be found. YourEnergyOptions, inc. had limited choices in the ways that revenue could be produced. Its main source of revenue generation was through the use of an inefficient advertisement program. YEO was also limited in its ability to maintain, modify, or advertise, and with plans to go national this became an ever growing issue. Without a better way to generate revenue the website would ultimately have to close. To prevent this other revenue generating methods needed be added to the site.

At the time, YEO was behaving as a social networking site which allowed for the interaction between consumers and producers. This interaction was occurring by itself and for free, but because it was occurring on YEO there was a possibility to take advantage of that transaction. By doing so it allowed for another possible place to generate revenue, through referrals and affiliates. Putting such a feature in place would allow for the additional revenue required by YEO, but it would also serve as a road block when the site is trying to generate a user base. Despite this issue, the use of referrals and affiliates would be a viable way for YEO to diversify its means to raise revenue, and thus was an important revenue method to pursue. To determine all the information needed to set up such a system, research was conducted. This research was conducted by searching for information on websites. These websites provided information about what goes into setting up referral and affiliate program. This research was then compiled so that when YEO opts to diversify its means to raise revenue through the use of referrals and affiliate advertising, the ground work will be put in place.

### 3.5 Creating a Social-Networking Environment

3.5.1 Introduction

One of the goals set by YEO Inc. was to create social networking features for yourenergyoptions.com. This goal was largely based on the concept of bringing together consumers, installers, and retailers of renewable technologies. The goal was also meant to bring in new users and keep past users returning to the site.

In order to make yourenergyoptions.com an affective social networking site, the site had to create its own niche that no other site currently had. With this concept in mind, the focus of YEO's social-networking features are to help bring together installers and retailers of renewable energy technology with their consumer base. This being the case, the features and functions needed for the site to fill this niche were created and modeled around the needs and wants of these groups. These were coupled with typical functions and features normally implemented in a social networking site. Since certain social networking features were already implemented, it was, in certain cases, only necessary to alter existing features instead of creating new ones.

3.5.2 Finalizing Functionality of Social-Networking Features

In order for the social networking aspects of the site to be useful to anyone, information about the sites users needed to be collected. The specifics behind how this happened were not part of this project (See YEO-reg-group Consumer Profiles and Portals; YEO-loc-group Installers/Retailers Profiles and Portals). The task here was to meet with each group individually, using their information and experience from their interviews and surveys with YEO end users, and generating a design. The design or designs not only utilized the information gathered but also conformed to the specifications of our sponsor. From here, the designs along with changes made to existing features (see Section 3.4.3), were used to generate mock ups of a new site. This site was used in the focus group, specifically the brainstorming part in the focus group. The focus group consisted of people picked by our sponsor and it took place at the Worcester Center Project Center. At one point during the meeting, each member individually used the existing website, and in the process generated feedback. After the individual testing was finished, the group as a whole was asked to discuss their opinions of the mockups, and their thoughts and ideas on what they liked, disliked, or would like to see added or removed, as well as their comparisons between the existing site and the mockups. For the focus group, we took notes about not only the individual reactions of the users, but the overall discussions of the focus group as well, which we also audio taped. For a detailed breakdown of the focus group see Appendix F: Focus Group Proposal. After the focus group was completed, we began the process of redesigning the mockups we'd created using the suggestions and ideas gathered from the focus group. For this process, the data gathered from the focus groups, along with the advice of the other groups, and our sponsors specifications were all used to create a model that better suited the given user. These models constitute a major portion of what we delivered to YourEnergyOptions Inc.

3.5.3 Re-Designing Existing Features on the Website

Since the beginning of the project, we'd been recommending features and functionality for yourenergyoptions.com, to improve its social networking capabilities. Many of these features were not implemented on the website. Those features and functions were covered in section 3.4.2. Some of the features that had been recommended, such as the forums, were already implemented on the site but were either not implemented properly or were not working the way we had recommended. These features didn't need to be completed from scratch. In fact it was suggested by our sponsor that any functionality that we can create by modifying existing features was preferable to creating entirely new features. That being the case, certain social networking features, like the forum system, were re-designed to the specifications given by YEO, integrated into the mock ups, and tested during the focus group. These also underwent a similar revision phase after the focus group and made up the remainder of the deliverables to YEO.

# 4.    RESULTS AND ANALYSIS

## 4.1 Introduction

Research conducted into website appearance and visibility, outreach, social networking, and revenue lead to the results described in the following sections. These results were analyzed and interpreted in a way that would allow them to be applied directly to yourenergyoptions.com. Important findings were collected in areas that include but are not limited to viral marketing and search engine optimization, forums and profile systems, ad revenue, referral systems, and website aesthetics. This information was gathered via web content, interviews, and a focus group. The information was then used to analyze the YourEnergyOptions website itself. The website's efforts for outreach, usability, social networking, and revenue generation were then examined. These results were separated by category and are described below.

## 4.2 Website Design

According to interviews conducted and websites reviewed, special visual techniques should be changed on YEO.com to enhance the visit of a user. Successful website design techniques were determined using our focus group results, interviews, and online sources. It is important to look at some of the major flaws found on the website. Some of these flaws include poor link placement, unclear titles, and non-dynamic content. (personal communication, 2-12-2008) It is important to change these flaws in order to let the user get the best experience possible.

According to our interview with Professor Loaciano, the first steps taken toward designing a professional website are to focus on the targeted customers. Therefore the questions one needs to consider are the following:

What age group is the audience?

Is the audience likely to be predominantly male or female, or a mix?,

What is their socio-economic status?

What would those people want to see?

According to a case study done on renewable energy by Ellison (2004), few people felt that they knew a great deal about any of the forms of renewable energy, and yet the vast majority of respondents believed that renewable energy is a good idea. The age group most likely to know a 'great deal' or a 'fair amount' [about renewable energy] were the 55 to 64 year olds. For example on the subject of solar water heating, 31% of that age group responded that way, compared to 23% of 35 to 54 year olds and 17% of 25 to 34 year olds. There were also significant differences on the basis of gender with men far more likely to feel knowledgeable than women. For example on photovoltaics, 37% of men stated that they knew 'a great deal' or 'a fair amount' compared to 14% of women. (Ellison, 2004) It is unclear whether or not the men who responded were just more likely to make the assumption that they knew more than they actually did. But assuming that their responses were accurate, this is very important information to know because if males are the main visitors on YEO.com, than the visual aspects of the site should be adjusted more towards males.

According to Loaciano, there are very important differences between what men and women both find pleasing about an images. Some of the images females are more attracted to would be pictures, statics texture images, bright colorful images, and people's faces. Men tend to be more attracted towards more abstract pictures, simple dynamic movements, structural images, and technology. YEO.com currently has too many women oriented images and needs to be adjusted more towards male attraction. Also, Luciano claims that Macromedia Flash is the most ubiquitous graphic tool. It should be used to enhance the images and text in the website. However, overuse of Flash makes the website look less professional. In our mock pages, we try to use flash in a way that is profession, but yet not distractive.

Artistically, the site should have a pleasing, natural color scheme that fits well with green energy. (Vigil, 2008) Diane Vigil is an administrator of a high-visibility online community (VirtualPromote / JimWorld forums) within the web design and Internet promotion industries. Vigil made it very popular and coached numerous people to improve their web design and Internet marketing skills. According to Vigil, color schemes (similar to musical chords) are harmonized sets of colors, which means when mixed together they appear pleasing to the eye. By using Vigil's proposed red-green-blue color wheel, Figure 1 shows an example of a three-color scheme that are not harmonized and a three color scheme that is harmonized. The mock pages we have developed have been adjusted to fit both a harmonized theme as well as natural colors to match the theme of green energy. (Vigil, 2008)



*Figure 1: Not Harmonious*      *Figure 2: Harmonious*

YEO should be easy to navigate and one should be able to get where he or she wants in a few clicks. Pages should be interconnected with adequate link location, but also not cluttered with too many links. All main pages should be closely linked to all other main pages.

Updated features should be considered in order for the site to have a lasting appeal. A news feed system should be added to the home page make the site less repetitive and to increase traffic. The Google map applet currently on YEO.com should have more appealing features attached on it. According to our focus group, the map should include icons on it that from sight, allow users to distinguish between homeowners, installers, retailers, etc. Cookies should be used so that YEO remembers and welcomes the user back when they return to the site and they don't have to sign in every time they visit the site.

## 4.3 Website Visibility

### 4.3.1 Search Engine Optimization

After conducting research into optimization techniques, a low cost search marketing plan was developed. Several criteria had to be kept in mind while developing this plan. First and foremost, any actions that would be taken to help YEO with its search engine ranking had to be considered an ethical practice by Google's standards. Secondly, these actions had to fit with YEO's plan for content that is constantly updated and at the mercy of the user (for the most part). YEO's limited financial backing was another major consideration. These criteria helped shape the search marketing plan that was recommended to YEO.

The first step in developing this plan was to weed out any blacklist optimization strategies that would get YEO in trouble with popular search engines. There was not any temptation on the part of YEO to use these practices, but they are sometimes suggested by webmasters who can be considered less than professional. These strategies were eliminating right away so that YEO would not unwittingly use them. A significant difference was found between honest optimization strategies and "blacklist" strategies. It comes as no surprise that the optimization strategies considered to be unfair by Google are intuitively wrong. These methods of tricking the search engine spiders typically confuse and mislead the user as well. For example, one blacklist optimization strategy is to load web pages with popular but irrelevant keywords. When undetected, this technique artificially boosts a page ranking because the spider is made to believe that there is a large amount of relevant content on the page that does not actually exist. It is easy to see why this can confuse and frustrate search engines and users alike. Other such strategies include: hidden texts or links, cloaking redirects, duplicate content, "doorway" pages, and much more (Google Webmaster Help Center). After a list of blacklist optimization strategies was compiled, YEO was examined and not found be using of

any of them.  From the home page, links were followed and the content on the resulting pages were read.  All of the content was found to be relevant to its respective page topic.  Equally as important was that this content was not found to be overinflated with keywords, whether irrelevant or not.  No duplicate content was found on yourenergyoptions.com.  Also, the website was not found to be a part of any sort of trade-exchanging affiliate program built for the sole purpose of falsely increasing page ranks.

As soon as blacklist optimization strategies were taken out of the picture, research focus was shifted to methods that YEO could actually use.  This part of the process was begun by immediately eliminating high-cost optimization strategies.  High-cost optimization strategies were immediately eliminated.  At first it seemed unfortunate to have to eliminate these options, but further research showed that these methods would produce little benefit for YEO regardless of the cost anyway.  One such strategy is to outsource the optimization work to another company.  Target Electronic Marketing, Inc. (http://www.targetem.com/new-ppc/search_engine_optimization.html) and Submit Express (http://www.submitexpress.com) are just two companies that charge for their optimization advice and services.  Companies like these give other websites the opportunity to pay a premium for services that usually involve but are not limited to keyword analysis, content analysis, submission to search sites, and progress reports.  While these things are nice, YourEnergyOptions does not currently have capital available to hire outside firms to do this type of work.  As it turns out, much of this work would be irrelevant for YEO anyway because of the nature of its content.  This is explained more clearly later.  Another costly optimization strategy employed by some webmasters is pay-per-click (PPC) advertising.  In short, it allows a site owner to pay to have his page automatically appear on as a search result for a given keyword, regardless of the page's actual rank.  The site owner than pays a previously agreed upon fee for every click that results (PayPer Click Universe).  In a sense, this is just an expensive way to bypass optimization.  In the future, YEO might consider adopting this strategy if its ad revenue has increased.  Until then, PPC advertising should be considered a luxury.

Because YEO will host dynamic pages that depend heavily upon user-generated content, many traditional optimization techniques had to be abandoned.  In a sense, this helps ease the pain of not being able to outsource the optimization work.  YourEnergyOptions is currently in the process of re-focusing its business plan.  It has been suggested that YEO should convert itself into a "web service" whose main function is to provide local companies with the chance to advertise to local consumers.  This would be done through an advanced personalizable profile system which would enable the company to display contact information as well as details about the type of work they do and projects they have completed in the past.  Installers would also be able to include consumer-created testimonials on their profiles.  These are great ideas that will help YEO establish its niche within the renewable energy technologies market.  Unfortunately, it takes a huge chunk of control out of the company's optimization potential.  One of the biggest factors in search engine optimization is the use of keywords throughout relevant content that can be indexed by search engine spiders (Pandia Search Central).  By allowing users to generate the websites content, YEO essentially lets the reigns go on its site.  Luckily though, this should lead to an abundance of profiles, blogs, and forums that contain relevant key words, such as "renewable," "solar," "geothermal," etc.  If indexed by search engine spiders, this content will significantly improve YEO's popularity with search engines (Wilson, 2006).

YEO's primary concern with respect to search engine optimization will have to be on its indexability because 1) this is one of the few things the site owner will actually be able to control and 2) it is the most important aspect of search engine optimization.  If a website is filled with unindexable content (Flash animations, pictures, etc.) spiders cannot submit material from the site to a search engine and the content will not be given a good rank (if ranked at all) on popular search sites (Google Webmaster Help Center).  Fortunately, this is one of the few things that Lance McKee and other people working on the website can control.  This can be ensured by limiting content to mostly text, which Lance McKee has already done.  It is also essential to easily link content on the website through links and to make sure that there are not problems with the websites coding that will lead to errors during indexing.  Using Google Webmaster Tools, the YourEnergyOptions website was shown to be easily indexable.  The YourEnergyOptions website has been determined to be easily indexable using Google Webmaster Tools.  Googlebot, Google's spider (the software

that the search engine uses to crawl the net and index pages), appears to be reaching and indexing the site an average of every 5-10 days. Most of the pages are indexed and there are no reported crawl errors other than 8 missing URL's and 11 duplicate title tags (Google Webmaster Tools). These errors should be addressed by either eliminating or repairing the 8 missing URL's and individualizing the duplicate title tags based on the content on their respective pages.

Effective keyword use in the website's tags and the small amount of owner-generated content will be helpful. As has been previously discussed, the frequency and location of keywords is extremely important for optimization, but YEO will depend heavily on user-generated content. However, there are many pieces of the website which Lance McKee himself will have control over. This includes title tags, meta tags, links, and the small amount of body text that YEO will generate itself (on the home page, the "About Us" page, mission statement, etc.) (Pandia Search Central). Aside from indexability, keyword effectiveness in these areas is the last low-cost search engine optimization strategy that YEO can really take advantage of. YEO doesn't actually have to worry as much as some other companies about keyword popularity because of its business focus. After all, there aren't many synonyms you could replace for terms like "renewable energy," "solar panel," or "wind turbine" that the average person would be aware of. YEO therefore has to focus on using these keywords smartly, by including them in their tags and links. Tags are little pieces of HTML code that are used to describe a website to a web browser or search engine. Examples of title and meta tags are shown below in Figure 3.



```
<HEAD>
<TITLE>Stamp Collecting World</TITLE>
<META name="description" content="Everything you wanted to know
about stamps, from prices to history.">
<META name="keywords" content="stamps, stamp collecting,
stamp history, prices, stamps for sale">
</HEAD>
```

*Figure 3: Sample Tags*

Also, when creating links YEO has to avoid using generic text like "More info." Instead, it must be specific in what that link leads to. So if that link brings the user to a list of solar panel installers in Worcester, MA, the link should say "Solar panel installers in Worcester, MA."

Linking, both internal and external, could drastically affect the site's ranking. As discussed in the previous paragraph, keywords in links lead to higher ranks than if those same keywords were located only in body text (Pandia Search Central). What's also important is that all of these links function properly and that they lead to useful content that is accurately described by the link that leads to it. Also, because spiders like Googlebot randomly follow links to and from pages, it would be helpful to be able to access every page of yourenergyoptions.com from the homepage in some way. Currently, the website is a little confusing to navigate and the linking is not as intuitive as it should be. All of these suggestions and comments are in the way of internal linking. External linking (links to YEO's website from other websites) is also extremely important. Increasing the number of these outside links would greatly increase YEO's ranking on search engines. This external linking strategy is described in more detail in Section 3: Links to YEO.

### 4.3.2 Viral Marketing

Viral marketing will benefit YEO by allowing for an increased awareness of the website through word-of-mouth and existing social networks. By using existing communication networks, the cost to YEO is minimal. Again, the importance of this cannot be overlooked for a small business. Through the existing networks referenced above (i.e. social networks, blogs, forums) YEO and its members can easily make contact with other people and spread awareness of the website, its purpose, and its benefits. In a sense, YEO

can use this as a means for free advertisement with time being the only opportunity cost. The added benefit of advertising in this way is that it will allow YEO to target very specific audiences.

As with search engine optimization strategies, the list of viral marketing techniques was cut down to leave only those that were actually feasible for the company in its current state. Once again, high-cost strategies were out of the question. This includes hiring marketing firms to come up with and implement viral marketing campaigns. YEO's viral outreach must instead focus on methods that require little time and/or money, and preferably those that can be easily spread via the users and not solely by the website administrator. With that said, several marketing experts do offer free advice online about the characteristics of good viral marketing campaigns. One expert that is frequently referenced on other websites is Dr. Ralph Wilson, who is referred to as "the guru of viral marketing." Dr. Wilson's Six Principles of Viral Marketing, cited by many throughout the web, are listed below (DeAngelis, 2006).

1. Give away products or services
2. Provide for effortless transfer to others
3. Scale easily from small to very large
4. Exploit common motivations and behaviors
5. Utilize existing communication networks
6. Leverage the resources of others

Any viral marketing strategy that is to be suggested to YEO must follow these principles as closely as possible.

The purpose of online social networks is to facilitate communication with people who share similar interests. This type of communication increases the feasibility of word-of-mouth marketing. Luckily, there is no shortage of environmentally-centered social networks which can be used to increase YEO's web visibility. A long list of these social-networking sites, blogs, and forums were very easily found on the internet. It will be extremely important for YEO to take advantage of these "green networks" because they are populated by people who have already proven that they share interests and concerns with the current members of YEO, and their ultimate goals are in line with those of the company as well. Getting these people to join YEO should be much easier than pulling the average user from some other page on the internet, and they are more likely to participate actively in the discussions hosted on the site. YEO should therefore encourage its users to join these networks (those that do not compete with YEO) and give them ways to "spread the good word." They could do this by creating example signatures for these members to leave on other people's profiles.

Email marketing is touted by many Emarketers as being highly effective, but better yet is the fact that it is absolutely free. One webmaster, Case Stevens of AnOwnSite Marketing, refers to Email marketing as "the most important marketing tool he has (Stevens, 2007)." Similar to commenting on people's profiles on existing social networks, Email allows for free communication through existing networks that are built on person-to-person relationships. In essence, YEO already has this capability built in with its newsletter function. Case Stevens uses his website's newsletter for this exact purpose. Unfortunately, newsletters have never actually been sent out by YEO. In order to use this newsletter as a viral marketing opportunity, YEO needs to begin coming up with useful news and information that it can distribute via Email. At first, these newsletters might simply consist of information about the website itself, how it is changing, and what it offers. These Emails may be sent out to current users, encouraging them to forward the information to their friends, and so on and so forth. Interested people would then be directed back to yourenergyoptions.com by the Email.

Blogging and commenting can serve two important purposes for YEO: 1) increase awareness of the website and 2) verify its credibility. If someone from YEO was to blog and/or comment frequently and leave a "signature" behind every time, awareness of YEO would increase and readers of that blog would be given an easy way to get to yourenergyoptions.com without having to find it through a search engine (Wilson,

2006).  Active participation in relevant blogs will be much like joining green social networks in that it will enable YEO to target potential users based on their obvious interest in renewable energy or other environmentally-related topics.  Key to the success of this so-called blogging campaign is that Lance McKee or whoever is posting these comments as a representative of YEO provides useful posts.  Users will be more likely to follow links back to YEO if they get the impression that the posts and comments they are reading come from an expert.  Fortunately for Lance, he has already indicated that he has a large number of contacts who posses a genuine interest in renewable energy.  It would be worth while for him to contact these people and politely ask them if they would include a link to YEO whenever they post something online related to renewable energy or any other green topic.  The more of these that YEO can get in the future the better.

Installing a "Refer a Friend" function on the website will help YEO spread awareness through its current users.  This is a common feature on many sites.  It enables current users to send a particular article or link to friends via e-mail.  YourEnergyOptions does not currently have this feature, but could probably implement it easily by adapting its current private messaging feature.  This feature, in a sense, would be an extension of the Email marketing previously discussed.  Special promotions by the website through Email lists could also be utilized as a viral marketing tactic.  For example, YourEnergyOptions could offer free premium advertising to any installer who gets five other installers to create profiles on YEO.

### 4.3.3 Links to YEO

The creation of outside links to YEO will benefit the site's efforts in search engine optimization and viral marketing.  Because of its dual importance, it is given its own section for greater appreciation.  Page rankings increase not only when a website incorporates important keywords into internal links, but also when external links lead to the website in question.  For a search engine, a large number of external links to a particular website helps to validate the significance of that site's content (McGee, 2004).  These would also help YEO in its viral marketing campaign by establishing easy ways for people to reach YEO from outside locations that are already a part of their own independent network of sites.

Links will be useful for driving users with very specific interests to the site.  The principle behind this concept is exactly the same as that behind joining green social networks and commenting on environmentally-centered blogs and forums.  There are plenty of "green" websites on the internet that have established user bases.  Getting links on these websites will allow YEO to tap into these user bases.  Much like a YEO signature on a blog, these links will direct traffic to yourenergyoptions.com in the form of environmentally conscious internet users who likely already have some background knowledge in renewable energy and technologies that have the capability to produce it.  That is why those users were on those websites in the first place, because they have some interest in green living.  So it's not unreasonable to assume that they should be targeted because they'll be more willing to user YEO, then spread awareness of it to their friends if they were happy with their user experience.

Unfortunately, generating links to a website is not an exact science.  Link creation is not comparable to search engine optimization.  There are no algorithms, trends, or tools that aid in the process.  The process of creating external links is even different from viral marketing in that there are no principles or helpful studies about criteria of successful campaigns.  At most, there are only suggested best practices – advice on how to best go about asking other websites to add links on their pages to your own site.

Some material has been posted on the web about these best practices for generating links.  At best, these are simply helpful suggestions based on the past experiences of the author.  They lack any evidence or proof of just how well those practices work.  This advice is limited to the fairly obvious:  look for sites that share themes with your own, study the sites, find a suggested location for the link, write a friendly letter to the site owner or webmaster and indicate your interest (Rudl, 2003).  It would be in the best interest of YEO if Lance McKee were to take these steps toward forming link partnerships with other webmasters.

It is essential for YEO to find link partners who's missions compliment but do not compete with its own.  This is a common suggestion from several "experts" who have posted material on the web about generating links.  It is a very practical suggestion that should be taken seriously.  Trying to contact a competitor about trading links would more than likely be a dead end.  Further, it defeats the purpose of creating links because it would present users with the chance to leave YEO for a competitor.  This is dangerous because there is no guarantee that they would come back.  Regardless of this competition, it is important that link partners compliment YourEnergyOptions because their services would then be seen as a tool by the YEO users rather than a pointless link that doesn't provide any benefit.  For example, YEO should strongly consider linking to educational websites such as that of the Massachusetts Technology Collaborative ([http://www.mtpc.org/](http://www.mtpc.org/)).  This website provides a large amount of helpful material for anyone who wishes to learn about renewable energy technologies, regulations involved in their installation, incentives, etc.  This is something that YEO lacks.  At the same time, YEO will be focusing on building up a huge database of local businesses that sell or install those technologies.  The MTC's website isn't quite so helpful in helping consumers find local installers and retailers.  Therefore, a link trade between YEO and the MTC would be extremely helpful to the users of both websites, which offer complimentary services.

## 4.4 Generating Revenue

### 4.4.1 Ad Revenue

To determine how to best optimize the ad revenue generation of the yourenergyoptions.com, the behaviors of a user viewing a web page were analyzed. By understanding how a person views a web page, the proper advertisements could then be placed and positioned. This in turn would increase the number of click-throughs and thus increase the revenue generated by the site. To determine these behaviors research was conducted into case studies involving the tracking of a user's eye. Two such case studies were found in which a number of user's were tested in their viewing of several websites. In addition to the studies, two interviews were conducted in which the validity of the claims made by the case studies were supported.

To start off, the behavior of a user was used to determine how to best place and orientate advertisements. The first case study that observed this behavior was preformed by the Nielson Norman Group, in which 232 users were observed as they viewed various websites (Nielsen, 2006).  From their study they concluded that the "dominant reading pattern [of a user viewing a web page] looks somewhat like an F", as seen in Fig. 4 (Nielson, 2006).
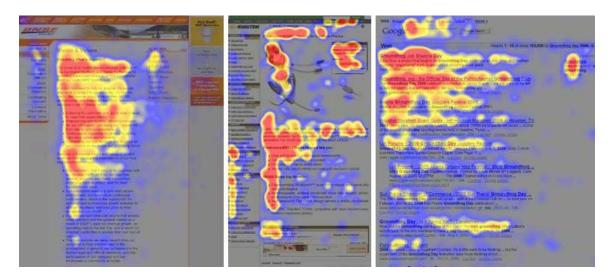
*Figure 4: F-Shaped pattern*

(Nielsen Norman Group, Retrieved on February 19, 2008,
http://www.useit.com/alertbox/reading_pattern.html)

When this pattern was applied to the layout of the web pages on YEO, it could be seen that the advertisements were not placed in a way that understood this behavior. Both the Google ads, and the advertisements YEO hosted, were placed on the bottom of all the web pages. By positioning them in that manner it decreased the chance that an advertisement would be seen or even clicked.

The second case study that viewed a similar pattern was performed by the Eyetrack III study, in which 46 people were observed as they viewed various websites (Outing, 2004). The Eyetrack III study observed that "the eyes most often fixated first in the upper left of the page [followed by a] left to right [motion]", and only after the user viewed the "top portion of the page for some time did their eyes explore further down the page" (Outing, 2004). Though the study did not try to identify the movement of the users' eyes with a shape, it could be clearly seen that the behavior was similar to the findings of the Nielson Norman Group. When this information was applied to the way YEO positioned and orientated its advertisements, it could be clearly seen that the advertisements were not placed in an effective matter to be viewed by the users of the website, as seen in Fig. 5.

*Figure 5: YourEnergyOptions.com home page*

(YourEnergyOptions, inc., retrieved on January 19, 2008, http://www.yourenergyoptions.com)

The Eyetrack III study also found that advertisements should be placed in "close proximity to content" (Outing, 2004). A user is on a site to find some sort of content, so by placing an advertisement near content it generates more views. Advertisements should also not be given any "visual barriers" between themselves and the content (Outing, 2004). By doing this it makes an advertisement appear like something completely different from the site. At the time, YEO was not placing its advertisements near content and they were subject to a large green border that isolated them from the content of the site. By positioning them in such a manner YEO was limiting the amount of views these advertisements were receiving, and thus was restricting the number of click-throughs these advertisements were receiving. Just positioning the advertisements in the proper manner would not generate revenue alone, however, the right types of advertisements needed to be used as well.

The behavior of a user was also useful in determining which advertisements would most effectively draw a user's attention. Through the Eyetrack III study, it was determined that "text ads were viewed most intently", racking up "an average eye duration time of nearly 7 seconds" (Outing, 2004). At the time, YEO was using text advertisements provided by Google, as seen in Fig. 6.



*Figure 6: YourEnergyOptions text advertisements*

(YourEnergyOptions, inc., retrieved on January 19, 2008, http://www.yourenergyoptions.com)

It was important that these advertisements were continued to be used, because they generated such an attraction to the user. By using these advertisements, it allowed for the users of YEO.com to observe the advertisement for a longer time. When the advertisements were viewed for a longer time, it increased the probability that they would be clicked, and generate revenue.

It was also determined by the Eyetrack III study that the size of an advertisement matters. Through the study they observed that "bigger ads had a better chance of being seen" (Outing, 2004). At the time, YEO was not incorporating anything larger then a banner ad. Though banner advertisements are the width of a page, they are on average an inch tall. When a user views this as they scroll down a page, it is most often skipped over. To overcome this issue YEO needed to adopt advertisements that run vertically on a web page. These advertisements would be more beneficial because they were larger and viewed more intently, and thus had a better chance of getting clicked and generating revenue. These claims were not only based on the case studies, but from information gained through interviews with web professionals.

The two interviews that were conducted helped to further support the changes that were proposed to YEO. The first interview was conducted with Troy Thompson, a web designer who owns his own web and print design business called Daedal Creations. In the interview, questions related to the validity of the claims made by the case studies were asked, in which Troy supported the findings. When asked about the though process that goes into the websites he had created, Troy mentioned that his websites are usually built to interact with people's behavior (T. Thompson, personal communication, February 13, 2008). He said that this behavior does depend due to the content of the site, but in general users do follow a set pattern when viewing a site (T. Thompson, personal communication, February 13, 2008). Troy also mentioned it is the job of the website designer to try and capture this behavior to most effectively interact with the user (T. Thompson, personal communication, February 13, 2008). In fact Troy mentioned that the basic behavior of a user viewing a site is in an "F-shape", and that he tries to tailor the websites he creates to capture this pattern (T. Thompson, personal communication, February 13, 2008). When asked about the types of advertisements that should be used, Troy mentioned that he likes to use text advertisements, because of they do not look like an advertisements, so they deter users less (T. Thompson, personal communication, February 13, 2008).

The second interview conducted was with Llora McGrath, a New Media major at Emerson College, who has knowledge in both coding and designing websites. In the interview conducted with Llora, she too supported the claims made by the case studies. She also liked to add that sociology was a big factor when designing websites (L. McGrath, personal communication, February 2, 2008). Each website must be tailored to fit the theme of the content, as well as tailored for the audience (L. McGrath, personal communication, February 2, 2008). Llora also mentioned that this plays a role in where advertisements are placed (L. McGrath, personal communication, February 2, 2008). She pointed out that most forums place their advertisements on the bottom of the page mainly because they do not want to interfere with the content of the site (L. McGrath, personal communication, February 2, 2008).

Through these two interviews it could clearly be seen that the research that had been conducted was up to date and relevant. More importantly tailoring advertisements to interact with the users of a website was a technique used by web professionals when designing websites. So for YourEnergyOptions to most effectively generate revenue, it needed to adopt certain advertisements and positions to most effectively interact with the behaviors of the users of its site.

At the time, YEO had both Google Ads and advertisements it hosted for installers, contractors and retailers. Neither of those advertising methods were fully taking advantage of the way people view a web page. So to most effectively capture this behavior all advertisements on YEO needed to be placed following a certain criteria. To start off, the Google advertisements needed be positioned at the top, left, or right of a web page. By doing so it placed the advertisements near content and in places the users view intently. These advertisements needed to also look as if they were part of the site and not something added in after it was created. The types of Google Ads that needed to be used were large and text based. By doing so the advertisements would draw a user's attention better. If this criterion was followed, then the advertisements

should draw a user's attention best and hopefully generate large amounts of click-throughs. Most of this criterion should also be used for the types and placements of advertisements YEO hosts for installers, contractors, and retailers. These changes can be seen when comparing the existing and mock website in Figures 7 and 8.



*Figure 7 Side by side comparison of home pages*

(YourEnergyOptions, inc., retrieved on January 19, 2008, http://www.yourenergyoptions.com)
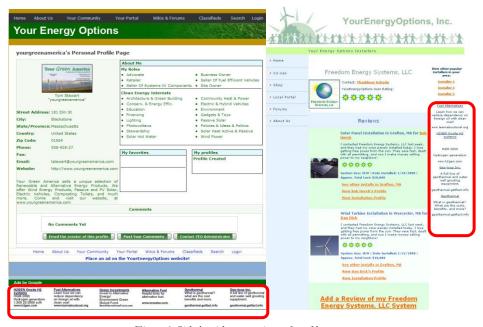


*Figure 8 Side by side comparison of profile pages*

(YourEnergyOptions, inc., retrieved on January 19, 2008, http://www.yourenergyoptions.com)

Ideally advertisements that YEO hosts should be placed at the top, right, or left of the page, but seeing that these advertisements do not rely on click-throughs to generate money, they could also be placed at the bottom. These advertisements should also be large and mainly textually based, but a stationary graphic is fine as well. By following this criterion, it still leaves plenty of advertisement possibilities for installers and contractors, as well as generates traffic to their sites.

In addition to the current advertisement methods, a shop page was be added to the site, as seen in Appendix I. The shop page consisted of a list of contractors, retailers, and installers who are on the site, along with a short description of what they do. Each contractors and installers name would be listed in basic text and will be given the opportunity to upgrade to graphical advertisement to distinguish themselves from others. This thus opens another place for YEO to generate revenue.

## 4.4.2 Additional Revenue-Generating Methods

In addition to revenue generated through advertisements other methods of revenue generation were looked into. These other methods were referral fees and affiliate advertisements. Though these additional methods of revenue generation were way beyond the scope of what could be handled, they were still viable methods of revenue generation that could be looked into. To determine what goes into setting up referral and affiliate systems, research was conducted on the web.

To start off, a referral and affiliate system are practically the same. A referral system will charge a referral fee to installers, contractors, and retailers when a business transaction takes place due to an interaction on yourenergyoptions.com. An affiliate system will charge a referral fee to installers, contractors, retailers, and anyone else who has an advertisement on the site, and receives some sort of business transaction because of the affiliate advertisement. In both cases a referral fee is charged when some sort of business transaction occurs. In a way both programs are basically saying "send me money if I send you business" (AllBusiness.com, 2007). Though these may have been viewed as deterrents to installers, retailers, and contractors, it is a common business practice used to generate revenue. Amazon.com has an affiliate program, in which a referral fee is paid "when a customer comes to your site, [and then goes] to Amazon's site through a link [to] purchases something" (AllBusiness.com, 2007). This is a perfect example of an affiliate advertising program that is commonly used to generate revenue. Such a program would be used on yourenergyoptions.com, specifically on the shop page. The affiliate advertisements would lead a user to purchase something on another site and YEO would generate revenue for directing its user to the affiliate's website. Similarly, contractors.com is a contractor referral service. This service creates an interaction between both consumers and contractors, where most often the interaction leads to a business interaction. This is a perfect example of a common referral program that is used to generate revenue. Such a program would be used by YEO, in which a referral fee would be charged when such a business transaction occurs.

Though both systems are commonly used, they do require some sort of agreement or contract. This is a necessity, so that there is no confusion between the two participants in the agreement. Most commonly these agreements or contracts consist of several different factors. The first factor is setting up some sort of "enrolment" in which the participant "submits an application" to join the program (AllBusiness.com, 2007). The second factor determines what types of "links" will be used, if any, between the websites (AllBusiness.com, 2007). "Tracking" is another factor that must be considered to explain how "referred customers will be tracked and reported" (AllBusiness.com, 2007). Next the "referral fee" should be determined so that there is no issues about how much will be paid when a referral occurs (AllBusiness.com, 2007). Similarly the "payment terms" should be determined, so that it is known when a payment is expected (AllBusiness.com, 2007). Next something should be mentioned about "licensing", seeing that certain images or content that will be used may be sensitive or copy written (AllBusiness.com, 2007). Something about the "terms of agreement" should be mentioned, so it is known when the contract could be canceled or modified (AllBusiness.com, 2007). Finally an agreement or contract should supply some information about "limitations and disclaimers", so things such as liability could be known (AllBusiness.com, 2007).

Despite the necessity of creating some sort of agreement or contract, both the affiliate and referral programs are valuable ways for YourEnergyOptions to further improve its revenue generating scheme. Both programs are regularly used on the web and thus should be adapted to work for YEO. Seeing that YEO plans to go national, more revenue is going to be needed to maintain, modify, and further advertise the site. To generate this additional revenue YEO needs to add onto the site both a referral service and affiliate advertising on the shop page.

## 4.5 Social Networking

After going through the process of creating a profile, all those working on the project came to the conclusion that the profile as it exists is confusing and in some cases superfluous or even unnecessary. This belief was reinforced when one member of our focus group described the "My Favorites" part of the profile as annoying and would "forget it." Another member also commented that "You may want to say regular mail or snail mail" when looking at the opt-in part of the profile creation. One of the ideas that came out of the experience and the discussion afterwards, was to split up profiles into different categories. In our interview with Professor Eleanor Loiacono, the notion of targeting the website to a specific audience came up repeatedly (E. Loiacono, personal communication, February 4, 2008). This helped reinforce our recommendation that there should be an installer and consumer profile. This way we could focus content on the website towards the specific audience coming to it, depending on whether they are installers, retailers or consumers.

In targeting the profile system to specific users we hope to help alleviate much of the confusion. The separation also makes it easier for us to tailor certain features, such as the find a local installer versus find a local supply house. Thanks to the research done by the other two WPI groups, we've come up with content that these groups are looking for. Based on suggestions from local web designer Troy Thompson (T. Thompson, personal communication, November 30, 2007) and some the ideas from Professor Loiacono (E. Loiacono, personal communication, February 4, 2008) we developed mock ups of the profiles and their creation pages, as well as include these in a prototype interactive site. Using the existing websites profile system we got ideas and comments from the focus group (See Appendix W: Current Profile Creation Page… with comments from the focus group). Comments included, but were not limited to, whether the website would keep their personal information secure, clarifying how stuff you entered into the profile would be displayed (i.e. your picture, title of your bio), and which personal roles in the renewable energy market were missing and which needed refining. There were also comments about the wording of different parts of the profile creation process, including comments like "You should change site owner to property owner." After this, we showed them our current mockups, and asked them to comment about them, and what they thought of them versus the existing profile system. For the most part their comments ended up being directed more towards the features of the site then the design and layout.

One of the features brought up several times during the focus group was the "Rate My Installer" feature. Generally speaking, the response towards having this feature on the site was very positive. When reviewing the mockups, we asked point blank what they thought of the idea. Their responses included "…this would be a real service to customers" and "In the long, run this would be a good idea." The group really liked the idea of using a rating system based on specific criteria, and came to the conclusion that allowing users to write comments would open up the site to libel issues. Another feature that came up was the "Ask an Expert" feature. The feedback was generally positive. The group even helped brainstorm some ideas for where we find experts, by looking at local writers groups that have qualified experts, and even approved our ideas of using installers that are YEO members write in return for free advertising somewhere on the site.

One of the features on the site that is currently implemented is the forums system (See Appendix U: Current Forum Page…). The focus group got a chance to use the forum system and found that there were many aspects that were either unnecessary, or poorly implemented. Members of the focus group were confused as to how the posting and commenting systems worked. One member even found that the

explanation provided confused things even more. Using existing forum systems as a template (Ubuntu 2008, JLC Online, 2008) and some of the specification given by our sponsor we came up with a new design and structure for the forums. One of the biggest changes was the removal of the wiki based entry system. With this feature in place, users could edit another users post in a forum, with almost no accountability built in what-so-ever. The other major change was to the way the commenting system worked. Originally, you could not comment on any particular post, but rather to the topic in general. When the focus group got a chance to look at our mockup of the new forum system, they were extremely pleased. When asked if that's what they were looking for, one member said "Right, exactly" with the other adding "Yeah, exactly."

Another problem found with the website was the lack of visibility of its Terms of Service and Privacy Policy. Both of these could only be found in the "Classifieds" section of the website. Since these are the staple behind what a user can and cannot do on the site, they should be visible at any time by any user on any page on the site. This was also brought up during the focus group when one member noted that we should "…put a link [in personal information part of the profile creation] saying Privacy Protection statement" so user wouldn't "...have to look all over the damn page."

# 5.    CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

Based on the findings and analysis discussed in the previous section, here we offer conclusions about YEO's business plan and its website. These conclusions focus on the areas of website usability and appearance, outreach, social networking, and revenue. A direct result of these conclusions was a set of feasible recommendations for YEO. The bulk of these recommendations are made in the form of mock pages, promotional materials, forums, and more. The purpose of these is to give YEO low-cost ways to increase its website visibility, improve user satisfaction and communication, and make money that can be put toward future site maintenance.

## 5.2 Website Design

For website design, we created mock pages to show the details of our recommendations. We do not imply that all the aspects of the mock pages should be used to change YEO; we created them as visual aids for generating ideas about possible revisions to the current YEO website. Our mock pages fall into two categories. The first category of mock pages focuses mainly on our suggested content for that particular page. The second category, which is discussed here, mainly focuses on our suggested structure, visual makeup, and dynamic features of that page.

In terms of the home page design, it should be simplified as suggested visually in Appendix J. (This appendix and the others that are referred to in this chapter were not included in the report proper because they were too large to fit on a single page with text that would properly explain their purposes.) There are too many links on YEO's current home page. It makes it difficult for the user to find what they are looking for right away. We suggest that the menu bar be moved to the left as a side bar not a horizontal menu. Eye catching phrases such as "New user? Click here!" or "Click here to read more!" are used on the right of the page for getting the users involved with YEO.com. Visually, it has a suggested dynamic title as well as a menu that lights up when the cursor is over it. These two dynamic features are added to make the site look much more professional. The title, side menu, and color theme stays constant throughout the other mock pages to provide unification. For the other main pages, the general layout remains the same as the home page (See Appendix K). The idea for the creating these mock pages were to use their content and mold it into the overall visual style that stays constant throughout the site.

## 5.3 Website Outreach

### Search Engine Optimization

YEO is already a Google-friendly site and search engine optimization is limited to the small amount of content not controlled by the users. As a web service that will depend on user profiles and social networking, a majority of the website's pages will contain user input. However, YEO will still maintain control over content on the homepage and sections such as "About Us." The YEO webmaster will also have control over the internal linking of the website's pages and its title and meta tags. These will therefore be the only owner-optimizable pieces of the website. Other than that, YEO will only be able to increase its page rankings by increasing the number of outside links to yourenergyoptions.com.

Based on these conclusions, YEO should:

- Focus on improving its ranking on popular search engines like Google by weaving keywords into the owner-optimizable content mentioned above.

Optimization of tags and content created by the website should be accomplished by choosing keywords that are relevant to the mission of the website. At present time, the exact service that the site will offer is still being debated. No matter what its mission ends up being though, it will probably be summed up using the words "renewable energy," "local," "installer," "solar," "wind," "consumer," and so forth. These key words must be included in the tags and body text of the YEO-created pages so that they may be indexed appropriately by Googlebot and other spiders.

- Improve the internal linking strategy of its website.

  The internal linking strategy of the site can also be improved by including these keywords and naming links so that they accurately describe the content to which they are linked to. Also, links should be formatted so that it is possible to reach any and every page on the site from any other page within YEO. This will not only make it easier for a knowledgeable user to navigate the site, but also increases the probability that spiders will reach the various pages throughout the YEO network.

- Forming link partnerships with other websites so that they will link to pages on yourenergyoptions.com. The formation of link partnerships is discussed more in an upcoming section.

## Viral Marketing

Research into popular viral marketing techniques used in Emarketing yielded a few important conclusions which YEO can make use of. As was expected, a sufficient number of viral strategies were found which would have no monetary cost for YEO. These should be taken advantage of once the website is set up to offer its web service. In order to make implementation of viral strategies as easy as possible, YEO should focus on those which it is already capable of using. In order to be as effective as possible, the viral marketing strategies used should follow a combination of as many of the criteria listed below as possible:

- Gives something to the user as an incentive to use it and pass it on

- Easily passed on from one internet user to the next

- Takes advantage of existing networks or directories

Based on these conclusions, several viral marketing strategies that YEO should take advantage of are given below with brief descriptions of each.

- ➢ Networking

  - o There are a large number of green blogs, forums, and social networks which YEO should take advantage of. These are already populated by people who have shown an interest in environmental issues and are more likely to be or become consumers or providers of renewable energy technology. YEO should encourage its users to leave comments on these sites, along with a "signature" that will link people to YEO. See Appendix A: Potential Viral Marketing Media for examples of websites that YEO could use to help increase awareness of its site.

- ➢ Newsletter

  - o The newsletter function is something that YEO already has but doesn't use. A newsletter can be considered email marketing. If used properly, this newsletter can be used to both keep current members up to date and encourage new members to join. Even better is the fact that, with an electronic newsletter, links can be inserted that bring the reader right back

to the YEO homepage or any other page for which a link is provided. These newsletters can be send out to current users, who will be encouraged to forward them to people they know who aren't yet taking advantage of the services YEO offers. See Appendix C: Sample YEO Electronic Newsletter.

- ➤ User Manual

  - o The viral marketing potential of a YEO User Manual isn't obvious at first, but becomes clearer if the right content is included. The main function of the manual would be to instruct the user, an installer for example, on how to go about creating a profile on YEO as well as complete other tasks. Coupled with this as an introduction, YEO could include details about what exactly this user can expect to gain from creating such a profile. Together, these would make a powerful marketing tool when sent out via Email to potential users from their friends who are already on the network. See Appendix D: Sample Page from Proposed YEO User Startup Manual.

- ➤ Page Referral Feature

  - o Many popular websites today have a feature built into them that allows users to refer pages to other internet users. YEO doesn't currently have such a feature, but should include one. This would be particular useful in allowing YEO members to send links to installer profiles, or even portions of the YEO User Manual described above.

- ➤ Business Promotion

  - o YEO has advertising space that is can use a leverage to encourage businesses to create profiles. This can be accomplished by creating special offers that reward businesses for getting others like them to sign up. For example, an installer promotion could be offered the first 100 installers who create profiles on YEO. These installers would receive an Email from YEO telling them that if they can get five other installers or retailers to join YEO, they'll be given free premium advertising for a week. In this way, the advertising space becomes motivation for small businesses to bring others into the network. See Appendix E: Example Business Promotion for a proposed promotion.

## External Links to YEO

The current YEO website is seriously lacking in links from external websites. This handicaps search engine optimization and web visibility as a whole. YEO should enter into formal relationships with other websites that have missions involving renewable energy or green living in general.

A draft of an "Initial Contact Email" was made and given to Lance McKee. The purpose of this Email is to establish communication between Lance and the owners of potential link partners. This first contact is important because it will be Lance's first opportunity to introduce YEO and explain to future partners how his website compliments their own. See Appendix B: Initial Contact Email for Potential Link Partners. An Email similar to this one should be sent to potential partners. Other webmasters are likely to take a formal communication like this one more seriously than a terser, informal one.

## Recommendations for the Future

Considering the fact that YEO will be based largely on user-generated content, the website will not appear to be fully operational until it has attracted and maintained a sufficient user base. For this reason, we recommend holding off on large-scale advertising through traditional print and electronic media. Instead, we suggest that YEO begin by gradually building its user base using the outreach methods previously discussed. This includes the business promotion, newsletter, search engine optimization, and more. These should be

sufficient for slowly increasing awareness of YEO's services while it simultaneously implements changes to the site's structure and visual appearance, features, and revenue-generating system. This could be accomplished at the local level; Worcester County, for example. Success in doing so this should lead to a YEO website that is a microcosm of what it could potential be when launched at a larger level. Attempting a high-level launch of the website before it is ready would be a mistake. More than likely, people would remember their negative experiences with the website and not come back or, equally as bad, speak poorly of the site to others.

Once the website is fully-operation (meaning that it performs the way Lance McKee expects it to) and a user foundation has been established, YEO will be ready for statewide, regional, or perhaps even a national launch. By this time, the members that have already been using the site will have added enough content to show what the website is capable of and what benefits new users can expect. Hopefully the website will have begun to generate revenue by this point in time as well. This will allow YourEnergyOptions to expand its outreach through media which it has not yet taken advantage of. Radio is one example. YEO should also look into print advertisements, such as newspapers, magazines, and trade publications. Lance should also contact installer unions, consumer groups, and other organizations which have pre-existing contacts who would likely be interested in the website's services. If they see that the website is potentially very useful to the people their represent, they might consider notifying their members about yourenergyoptions.com. YEO should also considering creating take-home advertisements such as brochures or business cards that can be left at places that are frequented by installers and do-it-yourselfers, such as hardware stores. Trade schools would be another target for such materials. Finally, a YEO representative such as Lance McKee should try to go to trade shows and conventions that are focused on renewable energy technology. Brochures and business cards would be handed out from a YEO booth where people would learn more about the website and how they can register. A computer or two could also be set up where people would be able to create user profiles right away.

## 5.4 Revenue Generation

<u>Advertisements</u>

The current methods of revenue generation on the site include Google advertisements, as well as advertisements that are hosted by the site for installers, retailers, and contractors. The use of these ads is problematic for various reasons:

- The advertisements were placed in one of the least viewed parts of a website and were separated from content due to placement and visual barriers.

- The advertisements did not look like they were part of the site.

- The advertisements did not take advantage of how people view a website.

- The installer, retailer, and contractor advertisement set up is confusing.

Recommendation:

Advertisements on YEO should be placed following a specific criterion. These criteria most effectively interact with the way people view a website and thus will generate click-throughs. These criteria are:

- The advertisements should be placed at either the top, left or right of the page, the exception being the hosted ads which can be on the bottom.

- Place advertisements near content and not separated by visual barriers.

- Make advertisements look like they are part of the site.

- The advertisements should be large and text based, the exception being hosted advertisements which can be a stationary graphic.

- Additional advertisement opportunities should be added, such as on the shop page.

- The installer, retailer, and contractor advertisement hosting should become organized, such as in Appendix H.

## Referral Fees

YourEnergyOptions is the referee between consumers and producers, but it is not profiting from this interaction.

Recommendation:

YEO should implement referral fees and an affiliate advertising program. Both of these take advantage of the referral service YEO provides between consumers and producers. Referral fees will be charged whenever an installer, retailer, or contractor receives business due to an interaction that takes place because of the site. Affiliate advertisements will also be implemented on a shop page, in which revenue is generated due to people being referred to other sites in which a transaction of some sort occurs. By implementing these methods YEO may be able to increase opportunities to increase its revenues.

## Recommendations for the Future

For YourEnergyOptions to succeed as a business, it needs to start generating revenue. For this to be accomplished, YEO needs to use the recommendations and deliverables that have been provided. For these recommendations and deliverables to be most effectively used they must be unveiled properly. The recommendations should be implemented in steps as the website progresses and becomes more established. First and as soon as possible, the recommendations related to the advertisements should be put in place. This will allow for greater ad revenue generation as the website develops. The next step, once YEO has the money to do so, is to set up the shop page. This will allow for a place to start putting affiliate advertising, which was one of the other recommendations made. This too will bring in further revenue as the site expands. Finally after these other changes have been made, and the website has gone national, the referral system should be put in place. By then there will be a large enough user base of consumers and producers, so that people are not deterred by this system. This last recommendation is also the most important of the revenue generating methods, because it takes advantage of a service YEO will be providing for free.

## 5.5 Social Networking

## Forums and Wiki System

The current system in place has several faults. First, the existing system allows any user to edit any post made by any other user, virtually anonymously. The reason being that the system only notes the last person to edit the post and if someone else edits the post after another user vandalizes, the vandal will not be displayed. Second, posting a comment about a post is difficult and confusing since the comment system is based on the topic, not the post. This means that there is no consistency between the comments and the posts as they are not tied directly to each other. (See Appendix U: Current Forum Page...) Third, integrating a wiki style entry system with a forum requires users to allow work accredited to them to be edited in any way shape or form, breaking down any trust a user might have with the site, and any confidence they have that their posts will represent them and their opinions honestly and correctly.

Recommendation:

The site should therefore remove the wiki aspect of its forum system, and assure users that the only people allowed to edit a topic or post are themselves and site or forum administrator. The site should also change the posting system so that each post has its own comment section, dedicated specifically to the post. The site should also make it very clear who posted what, and when, this includes comments. (For further details See Appendix P: Forum Mock Page)

## Terms of Service and Privacy Policy

The existing Terms of Service (ToS) and Privacy Policy (PP) currently are difficult to find on the site. A user can only get to them by going to the "Classifieds" section of the site. The ToS and PP are also slightly lacking in information about the existing site, and don't have the content necessary to deal with proposed changes to existing features or to newly proposed features. This means that both the ToS and PP need to be displayed more openly on the site and should be viewable by any user, registered or not, at anytime while at the site.

Recommendation:

Specifically the site should have links at the bottom of every page that links to both of these articles. This means that YEO will also have to add, remove, or change parts of the ToS and PP in order to take into account the recommendations made by the group as a whole. The terms of service is missing several legal issues, specifically dealing with YEO's role in the interaction of users, its responsibility for external links, it's stand on the Digital Millennium Copyright Act, and what YEO is liable for in terms of content posted by users on the site. Or the Privacy Policy, the site needs to include a section about children under the ages of 18 and 13, as well as exactly what keeping a profile private entails.

## Profile System

As it stands, the website only uses one type of profile (See Appendix V: Current Profile Page...), and allows users to create sub-profiles within that profile for consumers, business and advocates. This system is not being used to its complete potential due to its confusing nature. In addition, the process of setting up a profile contains certain problems. For starters the amount of information one can enter about their role in the renewable energy market is so vast and broad that it can overwhelm and confuse some users. The profile also requests a certain amount of personal information from users, but does not provide a clear idea of what the site does with that information or how, if at all, the site will protect it. The user can also put in their profile their favorite books, music and other non-renewable energy technology related items.

Recommendation:

The site should implement separate profiles for consumers, installers and retailers. These will help us focus the content of the site and gear it towards the specific demographics that site is trying to attract. The profiles should then be reworked in terms of content, through the recommendations made by others, and be formatted in a way that user will not feel overwhelmed and confused. (See Appendix N: Personal Profile Mock Page and Appendix R: Installer/Retailer Profile Mock Page) The site should also change how the information in these profiles are displayed in order to take into account any new features and data proposed by other groups. (See Appendix O: Installer/Contractor Profile Creation Mock Page and Appendix Q: Personal Profile Creation Mock Page and Appendix S: Retailer/Supply House Profile Creation Mock Page) Including the recommendation by one of the other groups to use an events system to help users keep track of local renewable energy or green events (See Appendix L: Event Mock Page). Using these recommendations, the comments from the focus group, and the existing city portal page, we also came up with a revised version of the City Portal Page (See Appendix M: City Portal Mock Page)

## Installer Rating System

Due to the overwhelmingly positive reaction, from the focus group conducted on February 12th, towards the notion of a "Rate-My-Installer" feature it would be worthwhile to consider the notion of including it on the site. The site would benefit from allowing its users to rate installers on the website. Based on information gathered from the focus group the use of a rating system would help users to make an informed decision about who to use as an installer based on the reviews of other users.

Recommendation:

This would best be implemented as a feature that's separate from the installer profile, in other words the rating would not be displayed directly on the profile. The ratings should be viewable by any users, registered or not, that visits the site. For a rating to be posted, the user must have a registered profile on the site. Their rating will be based on a scale of one to five on different criteria such as quality of work, timely, politeness, and cost. Ratings will not allow users to write comments about the installer they are reviewing as this could bring up certain legal problems.

## Recommendations for the Future

For the most part, major feature development with the website should be over. Many social networking site add new features all of the time, but they are usually minor features developed over a short period of time, that have no major impact on the use of the site. Any major revisions that should be made on the site should be done few and far between, so as not to keep users constantly trying to keep up with changes on the site. As the site expands and gains a user base, it may be a good idea to rethink how certain features work with the current user base, and if there are any features that can work now that the site has the revenue and users. Based on what YEO finds, it may want to consider doing an overhaul on the site. Should YEO decide this is necessary, it should make sure to let users know what's coming.

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# 7. Appendix A: Potential Viral Marketing Media

| SOCIAL NETWORKS | |
|---|---|
| *Name* | *URL* |
| Care2 | http://www.care2.com/ |
| 11th Hour Action | http://www.11thhouraction.com/ |
| Do Something | http://www.dosomething.org/volunteer |
| Step it Up | http://stepitup2007.org/ |
| RiverWired | http://riverwired.com/ |
| Gaia Community | http://www.gaia.com/community/ |
| EcoSpace Conscious Community | http://www.profiles.ecospace.cc/ |
| 2People | http://www.2people.org/ |
| DoTheRightThing | http://dotherightthing.com/ |
| beTurtle | http://beturtle.com/ |
| GoodTree | http://goodtree.com/e |
| greenbin | http://www.greenbin.com/ |
| Holistic Local | http://www.holisticlocal.com/members |
| Zelixy | http://zelixy.com/ |

| BLOGS | |
|---|---|
| *Name* | *URL* |
| Alternative Energy Blog | http://alt-e.blogspot.com/ |
| Business Green Blog | http://blog.businessgreen.com/ |
| Groovy Green | http://www.groovygreen.com/groove/ |
| How to Go Green | http://www.howtogogreen.com/ |
| Business of Green | http://blogs.iht.com/tribtalk/business/green/ |
| Joel Makower: Two steps forward | http://makower.typepad.com/joel_makower/ |

| FORUMS | |
|---|---|
| *Name* | *URL* |
| Tree Hugger | http://jobs.treehugger.com/greenbizjobs/ |
| beTurtle Forums | http://beturtle.com/forums |

# Appendix B: Initial Contact Email for Potential Link Partners

To whom it may concern (preferably the president or someone else high up):

My name is Lance McKee and I am a Massachusetts resident. Like many people, I have grown increasingly concerned with the growing problems faced by our nation and the environment in which we live. Over the years, this concern has motivated me to look more closely at possible solutions to issues such our struggling economy, global climate change, national security, and more. After much thought, I came to the conclusion that renewable energy technology was the way to go. This, in my opinion, is the only way for our nation to weather the "perfect storm" that we are about to face. Serious investment in renewable energy technology will decrease our dependence on foreign oil, create jobs and revenue that will help rejuvenate the economy, and decrease $CO_2$ emissions into the atmosphere. What's more, distributed electricity generation will also decrease dependence on the sometimes-unreliable grid system currently powered by large plants. Undoubtedly, energy autonomy is the way to go. I believe so strongly in this that I've begun taking the first steps toward independence by installing a solar water heater.

My research into renewable technology began long ago through websites such as yours. I'd like to take this opportunity to compliment the Massachusetts Technology Collaborative on a job-well done on its website. I find the MTC's site to be very informative in a large number of areas, providing consumers with a wide range of information that they need in order to help them make decisions within the renewable technology market. The pages that focus on the technologies themselves, Massachusetts policies, financing, and other topics along those lines are particular useful for consumers. Your mission "to advance technology-based solutions that lead to economic growth and a cleaner environment in Massachusetts" is an admirable one.

With that said, I'd like to tell you about YourEnergyOptions, Inc. YourEnergyOptions is a company I started two years ago with a mission very similar to yours. My mission is to provide consumers and providers within the renewable technologies marketplace with the tools they need to reduce transaction costs. My hope is to facilitate communication between the two sides of the market through online networking. The basic premise is that local installers/retailers/etc. are given free advertising through a profile on our website, yourenergyoptions.com. This profile includes contact information, details about products and services, examples of previous work, and more. This is an excellent opportunity for local businesses to increase their visibility. At the same time, consumers are encouraged to come to the site and create their own profiles. They are then given the ability to communicate with each other and share their opinion and experiences as they relate to renewable energy. More importantly though, they are given free access to all of the provider profiles on the site. The locations of these businesses are even displayed on an interactive map in order to simplify the process. You can see how this website is built in order to bring consumers and providers together. Providers get free advertising to a targeted local audience. Consumers are given the ability to communicate with each other in order to help reduce uncertainties, as well as the tools to find local installers so that they can start the purchasing process.

YourEnergyOptions and the MTC are very much alike in their ultimate goals, but differ in the ways in which they approach them. In effect, our sites are two different means to the same end. As president of YEO, I'd like to approach the MTC with the chance to form a link partnership. This partnership would greatly benefit us both because our sites compliment each other. They do not compete. Together, the educational and outreach services of the MTC partnered with the business advertising/communication aspects of YEO would do a lot of good toward our common goal, "to advance technology-based solutions that lead to economic growth and a cleaner environment in Massachusetts."

YourEnergyOptions could use a partner like the MTC to link out to in order to give users with the complete educational content that they seek. At the same time, people who visit the MTC, both installers and providers, would get a lot of use out of the services that YEO provides. I'm sure that the installers, retailers, and other providers of renewable energy technology who visit your website would greatly appreciate the chance to advertise for free and easily reach the local demographic. Consumers would similarly be grateful for the chance to find someone to who sells and/or installs the technologies that they've learned about on your website.

I invite you to visit yourenergyoptions.com and see what our web services are all about. Once you've done so, feel free to contact me at lancemckee@yourenergyoptions.com. I look forward to hearing from you.

Sincerely,
Lance McKee

## Appendix C: Sample YEO Electronic Newsletter

# GreenLetter

The official newsletter of YourEnergyOptions, Inc.

## From the desk of Lance McKee:

Hello everyone!

It's been a very exciting month for us here at YourEnergyOptions. In the past three weeks alone we managed to add 100 installers to our database. All of them have created profiles and I encourage you to check some of them out!

Speaking of renewable energy technology...I was surfing the web yesterday for some encouraging news and I came across a great story from the MetroWest Daily News. The story is called "City urged to green up with solar panels" and it's a perfect example of how helpful incentives are in the renewable energy technology marketplace, or any marketplace for that matter.

Yours in renewable energy,
Lance McKee

## A new feature on yourenergyoptions.com

You've asked for it, and now you've got it.

After many requests from installers, YEO has finally enabled a feature on its website that allows them to show special offers right on their profiles! This is very exciting for all of the small businesses that advertise on the site. The feature has been enabled for about two weeks and there are already plenty of offers posted. Amazing!

## Upcoming Event

On March 13, 2008, the Massachusetts Technology Collaborative will be hosting a renewable technology showcase at the DCU Center in Worcester, MA. (Click here for directions)

This will be a 5-hour long event where manufacturers will be showing off some of the equipment. Everyone from consumer to installer is welcome. YEO will be there, encouraging people to create profiles. Stop by our booth and say "Hello!"

## Picture of the Month

Thank you to Borrego Solar Systems Inc. of Chelmsford, MA for submitting this month's Picture of the Month! We've seen a lot of installations here at YEO, but that is a beauty.

For more info on this installation, visit the Borrego Solar Systems Inc. profile.

To submit a photo, read the Rules for Submission, or view our gallery of past winners, please visit http://www.yourenergyoptions.com/PictureOfTheMonth.

### This issue brought to you by

| H2GEN Onsite H2 systems | Fuel Alternatives | Green Investments | Alternative Fuel | Geothermal | Geo-loop Inc. |
|---|---|---|---|---|---|
| HGM 2000 Hydrogen generators 1,000-20,000 scfh www.h2gen.com | Learn how we can reduce dependancy on foreign oil with clean coal! www.learnaboutcoal.org | Invest in Alternative Energy! Environment Green Mutual Fund. AlternativeFund.com | Helpful links for alternative fuel. www.toeeka.com | What is geothermal? What are the costs, benefits, and more? Geothermal.getfast.info | A full line of geothermal and water well grouting equipment. Geothermal.getfast.info |

## Appendix D: Sample Page from Proposed YEO User Startup Manual

# The basics – (b) How to use a forum

Figure 3.3



**Chapter 3**

6. If you read something that you'd like to comment on, simply click the "Post Your Comments" button at the bottom of the existing comments.
7. If you read something that seems inappropriate for the website, hit the "Contact YEO Administrator" button.

# Appendix E: Sample Business Promotion

**Thank you for becoming a registered installer on YourEnergyOptions**

**Congratulations! Now that you're on yourenergyoptions.com, you can begin to take advantage of all of the resources YEO has to offer!**

- Allow anyone who comes to the site to see your personal profile
- Tell people about yourself
- Give customers easy access to your contact information
- Show potential customers some of your previous work
- Advertise current deals and special offers
- Let people know what kind of technology/services you offer
- Find supply houses
- Network with other installers
- And more!

All of the benefits of being a YEO member described above are free to you, JUST FOR CREATING A PROFILE! This is part of YourEnergyOptions' mission to help local installers increase their business and keep energy dollars in their own community.

On top of these free benefits, we provide you with the opportunity to pay for special advertisements on pages throughout the site. This includes ads on consumer pages!

Help YourEnergyOptions grow its database of local installers and you can get free premium advertising! All you have to do is refer 5 local installers to the site and hand each of them one of the codes below. If five installers create profiles and prove to us that you referred them to YEO by entering one of these codes in the appropriate field, you'll get one free premium advertisement for a full week in the state of your choice.

| YEO | YEO | YEO | YEO | YEO |
|---|---|---|---|---|
| Promotional code: 0010201 | Promotional code: 0010202 | Promotional code: 0010203 | Promotional code: 0010204 | Promotional code: 0010205 |

# Appendix F:  Focus Group Proposal

<u>Part 1: Determining User Expectations</u>

- Estimated Time: 45 minutes
- Purpose: To determine what these users would like to get out of YEO to help their position in the marketplace, but not necessarily specific to website features.
- Plan:
    - Describe the basic premise behind YEO:
        - *YourEnergyOptions, Inc. wants to create a novel web service that will help consumers and installers/retailers/etc. find each other in the renewable energy technology market.  Exactly how this will be done is still an open question..  The purpose of this focus group is to determine what content, features, and services yourenergyoptions.com can offer in order to achieve this goal.*
    - Questions:
        - From your position in the marketplace, what can YEO do to help you?
        - What would you like to be able to take away from this site?
        - Would you be willing to enter personal information about yourself in order to help YEO provide you with information?
            - What kinds of information would you provide YEO?
            - What are you opposed to?
        - As a consumer, do you feel that it is important to be able to talk about yourself or green energy issues in a publicly?
        - How comfortable would you feel about getting information about renewable energy products and the experiences other YEO users have had with installers from forums?
        - How do you feel about a company rating system as a consumer?
        - As an installer/retailer/etc., how would you feel about such a rating system?

<u>Part 2: User Testing on Existing Website</u>

- Estimated Time: 45 minutes
- Purpose: To test the usability of the current yourenergyoptions.com.  Users will be sat down at separate laptops and be observed by moderators as they are given tasks to complete.  The users will be encouraged to think out loud as they go.  It is the responsibility of the moderator to give tasks, ask questions, take notes on user thoughts, and record any visible difficulty that the user is having while navigating the site.
- Tasks:
    - Go to yourenergyoptions.com
    - At first impression:
        - What do you think of the site?
        - What do you feel that the purpose of the website is?
    - Create a profile (this profile can be deleted after the focus group if you wish)
    - Find an installer close to your home
        - What did you learn about that installer?
        - What else should you have been able to learn?
    - Post a comment on the forum topic "Solar Panels in Western MA"
        - How would you describe the process of finding the actual forum?
        - Did you understand what topic you were commenting on?  (Not if they understand the material itself, but physically what they're commenting on.)
        - Find the profile for "tessierm"
            - What did you learn about this gentleman?
            - What else would you have liked to learn?
            - Is there any information that you don't care to learn about?
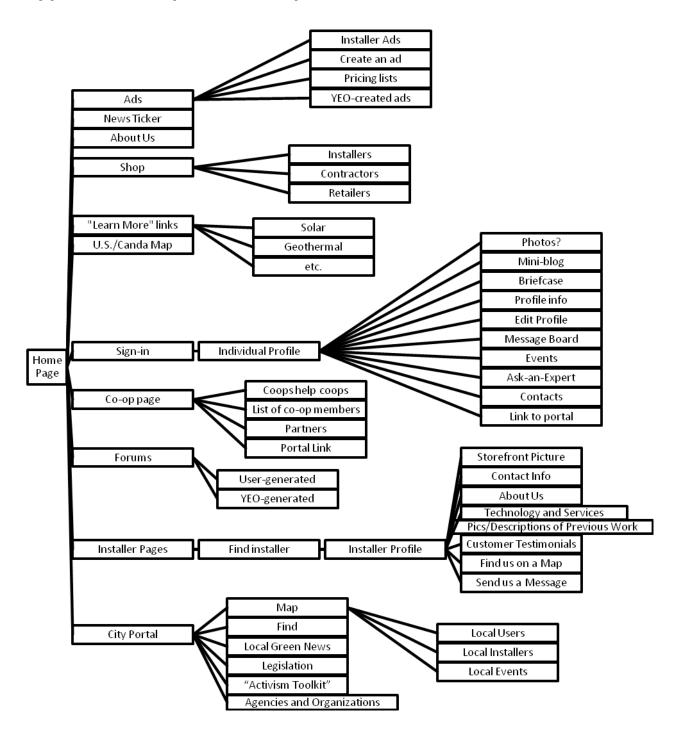        - Send a private message to "tessierm"

<u>Part 3: Brainstorming Session</u>

- Estimated time: 45 minutes
- Purpose: To get answers to some general questions about user experiences with the website and the opinions of the website that were generated as a result.  We hope that the questions will spawn user discussion amongst
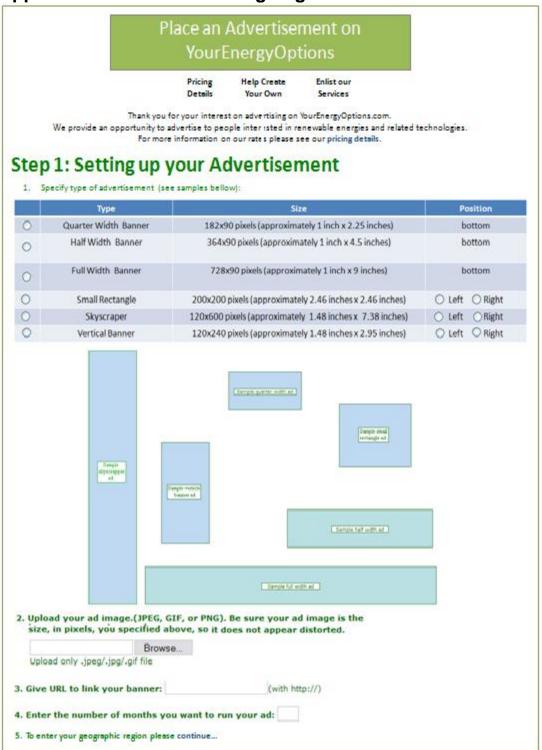
the group.  Side-by-side comparisons between the current site and the prototype website created by Team 3 will also be made.  Users will be asked for their opinions about the proposed changes, keeping in mind that they are looking at a prototype.

- Questions:
    - Now that you've used the website, what do you think?
        - How did it compare to what you were expecting from the site?
        - Are there any features that stick out positively in your mind?
            - What about negatively?
        - How do you feel about its general design?
        - What are you impressions concerning:
            - Creating a profile?
            - Finding an installer?
            - Commenting in a forum?
            - Viewing a profile?
            - Sending a private message?
            - Anything else?
        - Do you have any recommendations on how we can change:
            - Creating a profile?
            - Finding an installer?
            - Commenting in a forum?
            - Viewing a profile?
            - Sending a private message?
            - Anything else?
    - We've been working on some potential changes to the YEO website.
        - What do you think of the side-by-side comparisons for:
            - The home page
            - The forum
            - The consumer profile
            - The provider profile
        - We also have some novel ideas.  What do you think of:
            - Ask-an-Expert feature
            - A provider profile that would eliminate the need for a personal website by giving installers/retailers/etc. a place to show previous work, contact information, etc.
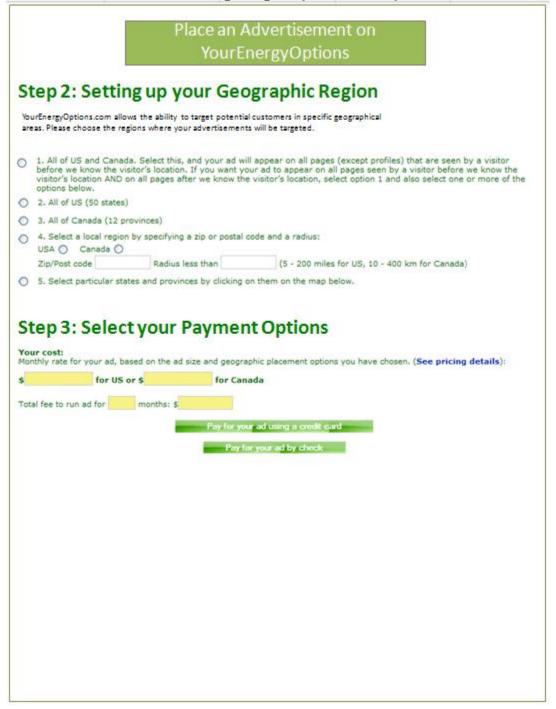
# Appendix G: Proposed Sitemap

## Appendix H: Mock Ad Hosting Pages

### Place an Advertisement on YourEnergyOptions

Pricing
Details

Help Create
Your Own

Enlist our
Services

Thank you for your interest on advertising on YourEnergyOptions.com.
We provide an opportunity to advertise to people interested in renewable energies and related technologies.
For more information on our rates please see our pricing details.

## Step 1: Setting up your Advertisement

1. Specify type of advertisement (see samples bellow):

| | Type | Size | Position | |
|---|---|---|---|---|
| ○ | Quarter Width Banner | 182x90 pixels (approximately 1 inch x 2.25 inches) | bottom | |
| ○ | Half Width Banner | 364x90 pixels (approximately 1 inch x 4.5 inches) | bottom | |
| ○ | Full Width Banner | 728x90 pixels (approximately 1 inch x 9 inches) | bottom | |
| ○ | Small Rectangle | 200x200 pixels (approximately 2.46 inches x 2.46 inches) | ○ Left ○ Right | |
| ○ | Skyscraper | 120x600 pixels (approximately 1.48 inches x 7.38 inches) | ○ Left ○ Right | |
| ○ | Vertical Banner | 120x240 pixels (approximately 1.48 inches x 2.95 inches) | ○ Left ○ Right | |

Sample quarter width ad

Sample small rectangle ad

Sample skyscraper ad

Sample vertical banner ad

Sample half width ad

Sample full width ad

2. Upload your ad image.(JPEG, GIF, or PNG). Be sure your ad image is the size, in pixels, you specified above, so it does not appear distorted.

[            ] Browse...

Upload only .jpeg/.jpg/.gif file

3. Give URL to link your banner: [            ] (with http://)

4. Enter the number of months you want to run your ad: [    ]

5. To enter your geographic region please continue...

# Appendix H: Mock Ad Hosting Pages (continued)

## Place an Advertisement on YourEnergyOptions

## Step 2: Setting up your Geographic Region

YourEnergyOptions.com allows the ability to target potential customers in specific geographical areas. Please choose the regions where your advertisements will be targeted.

○ 1. All of US and Canada. Select this, and your ad will appear on all pages (except profiles) that are seen by a visitor before we know the visitor's location. If you want your ad to appear on all pages seen by a visitor before we know the visitor's location AND on all pages after we know the visitor's location, select option 1 and also select one or more of the options below.

○ 2. All of US (50 states)

○ 3. All of Canada (12 provinces)

○ 4. Select a local region by specifying a zip or postal code and a radius:
USA ○   Canada ○
Zip/Post code [          ]   Radius less than [          ]   (5 - 200 miles for US, 10 - 400 km for Canada)

○ 5. Select particular states and provinces by clicking on them on the map below.

## Step 3: Select your Payment Options

**Your cost:**
Monthly rate for your ad, based on the ad size and geographic placement options you have chosen. (**See pricing details**):

$ [          ] for US or $ [          ] for Canada

Total fee to run ad for [     ] months: $ [          ]

Pay for your ad using a credit card

Pay for your ad by check

# Appendix I: Mock Shop Page

**YourEnergyOptions, Inc.**

## Shop

### Installers / Contractors / Retailers:

| Name | Type | Information |
|---|---|---|
| Solar Store | Retailer | We specialize in all solar panels and other systems ................................... Profile    Website |
| John Doe | Installer | Local installer who specializes in all types of installations ............... Profile    Website |
| Forman and Son Green Energy Installations | Contractor | Father and son contractors who install all types of renewable energy systems ...................... Profile    Website |
| … | … | … |
| … | … | … |
| … | … | … |
| … | … | … |

### Affiliates:

The Solar Store is your one-stop shop for solar energy parts and systems

evergreen solar. Think Beyond.

ENERGY² Saving Energy, Generating Energy    SCHÜCO

## Appendix J: Home Mock Page



YourEnergyOptions, Inc.

**YUI 2.5.0 Released** Wednesday, February 20, 2008

Welcome back, Pat!

- Co-ops
- Shop
- Local Portal
- Forums
- About Us

This website is your local window on the rapidly expanding world of clean energy. The local information here comes from local clean energy advocates and businesses who have created pages, or "profiles," to describe their interests and activities. You can learn about them and about local meetings, jobs, classes, organizations, alternative fuel sources and more. We hope that you, too, will create profiles. Here is map to all of the renewable energy installements in the US and Canada:



**Members Sign in Here**

**Your Renewable Energy Resources**

Image 1
Learn more about renewable energies
Read more >

Image 2
Advertise on YourEnergyOptions.com
Read more >

Fuel Alternatives

Learn how we can reduce dependency n foreign oil with clea coal!

www.learnaboutcoal.org

H2GEN Onsite H2 systems

HGM 2000
Hydrogen generators
www.h2gen.com

Geo-loop Inc.

A full line of geothermal and water well grouting equipment.

geothermal.getfast.info

Geothermal

What is geothermal? What are the costs, benefits, and more?

geothermal.getfast.info

## Appendix K: Installer Profile Mock Page



YourEnergyOptions, Inc.

Your Energy Options Installers

- Home
- Co-ops
- Shop
- Local Portal
- Forums
- About Us

### Freedom Energy Systems, LLC

Contact: **Thaddeus Szkoda**

YourEnergyOptions User Rating:

★★★★★

**View other popular installers in your area:**

**Installer 1**

**Installer 2**

**Installer 3**

### 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 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: 1/22/2008 | Approx. Total Cost: $10,000**

**See other installs in Grafton, MA**

**View Dan Dick's Profile**

**View Installation Profile**

**Add a Review of my Freedom Energy Systems, LLC System**

## Appendix L: Event Mock Page

## Appendix M: City Portal Mock Page

**Your Energy Options**

Signed-in as

"bobert"
**Bob Hersh**

❖ Edit My Profile
❖ My Album
❖ Contacts
❖ My Briefcase
❖ My Community

### Welcome to the Worcester, MA Community Portal!

| Map | Satellite | Hybrid |

| Zip code | Radius | General Interest | Specific Interest |
|---|---|---|---|
| 01609 | 50 Miles | Local Advocates | Architecture and Green Building |

### MY EVENTS

• Green Energy Convention
9 Days
• Worcester Town Hall
14 Days

#### Events Calendar
**January 2008**

| | 1 | 2 | 3 | 4 | 5 |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 |
| 27 | 28 | 29 | 30 | 31 | 1 | 2 |

next »

#### Events History

### Consumer Content
• Installer Ratings
• Ask-an-Expert

### Legislation
A place where users can read up on national, state, and local legislation. As part of the advocacy toolkit, we'll also provide them with information on how they can help make changes at those levels.

### Local Events
A place where users can post event notices, indicate there interest in attending, or post content from events that have already occurred.

### Find Local Installers
A place where users can find installers, read their user ratings, and be linked directly to their websites.

### Agencies and Organizations
A place where users can learn about, join, and communicate with local agencies and organizations.

We want your help!  Refer a friend to YEO!

Donate to
YourEnergyOptions!

$

Privacy Statement          About Us          Questions and Feedback

## Appendix N: Personal Profile Mock Page

# Appendix N: Personal Profile Mock Page Continued

Donate to
YourEnergyOptions!

$

## My Favorite...
Books:
An Inconvenient Truth
The Jungle
Blogs:
www.hershsblogspot.
org
Websites:
www.facebook.com

## Green Message Board

**Solar Home**.org
AMERICA'S SOLAR STORE - SINCE 1998

**Message from Solar Home**
"Mr. Hersh. Thank you for showing an interest in our products. Would you like to schedule a consultation?"

Read entire conversation

**Message from pbenson**
"Sup, buddy? Buy that solar panel yet?"

Read entire conversation

**Message from KareO**
"You bought a PV panel?!?!?! I've been thinking of investing in one. If you have one, could I ask you a few questions..."

Read entire conversation

More Conversations...

We want your help! Refer a friend to YEO!

## Appendix O: Installer/Contractor Profile Creation Mock Page

**Your Energy Options**
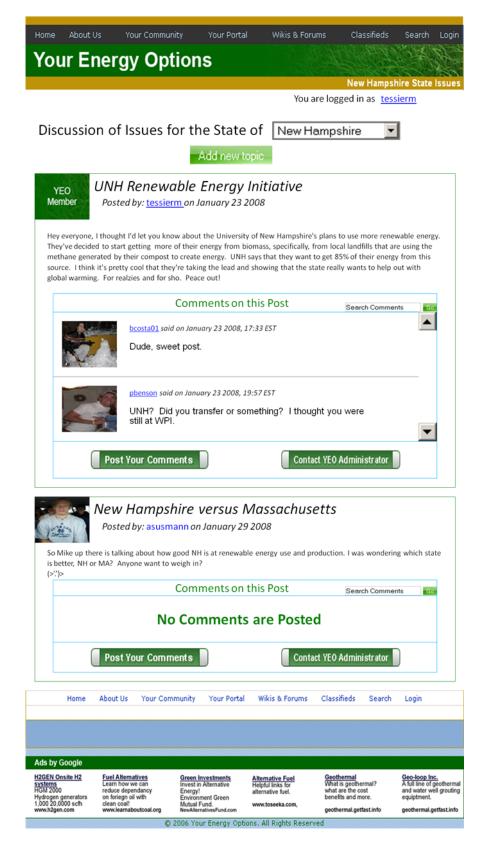
## Installer/Contractors Profile

Any field with Red Lettering is required to complete this form.

### User Information

Company Name :    [                    ]    Click to see if this company name is taken

Password :    [                    ]    Re-Enter Password :    [                    ]

Your Name :    [                    ]

### Business Contact Information

If you have any questions about what we use this information for and what we will do with it, please read our Privacy Policy.

Street Address 1 :    [                ]    Street Address 2 :    [                ]

City :    [                ]    Zip/Postal Code :    [                ]

Country :    [ United States ▾ ]    State/Province :    [ --Select-- ▾ ]

Phone :    [                ]    Fax :    [                ]

E-Mail :    [                ]    Partner :    [ No ▾ ]

Website :    [                ]    Keep this profile private    ☐

### Other Information

How did you hear about this site?    [                ]

Any questions or concerns about what happens if you opt-in, see our Privacy Policy

Would you like to...

| | |
|---|---|
| opt-in to receive E-Mail from retailers or supply houses ? | [ No ▾ ] |
| opt-in to receive postal mail from retailers or supply houses ? | [ No ▾ ] |
| opt-in to receive phone calls from retailers or supply houses ? | [ No ▾ ] |
| receive the YourEnergyOptions Newsletter? | [ No ▾ ] |

## Appendix O: Installer/Contractor Profile Creation Mock Page (continued)

### Your Business Profile

What is the title of your profile ? (within 40 characters)

Your title, along with your company photo and name, are one of the three things that distinguish your profile when others search for business profiles

What would you like people to know about your business ?

Your photo helps distinguish you among other businesses and profiles, and appears next to your business name in your profile, searches and forum posts. If you don't provide a photo, you will be given a default image.

Upload a photo of your business : [ Browse... ]

Upload only .gif/.jpg/.jpeg file Maximum size 2 Mb

### What your business installs...

☐ Fuel Cells          ☐ Greenhouses        ☐ Heat Pumps
☐ Other Bio Fuels     ☐ Solar Electric     ☐ Solar Thermal
☐ Sun rooms           ☐ Water Power        ☐ Wind Turbines
☐ Wood Stoves         ☐ Other

Further describe what your business does:
(Maximum 1200 characters)

### Photos of previous work

Select an album : [--Select--  ▼]   or create a new album   [ Create ]

[ Browse... ]
[ Browse... ]
[ Browse... ]
[ Browse... ]
[ Browse... ]

[ Add ]

You have read and agree to the Terms of Service of yourenergyoptions.com  ☐

[ Create ]  [ Cancel ]

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

**Place an ad on the YourEnergyOptions website!**

## Appendix P: Forum Mock Page

## Appendix Q: Personal Profile Creation Mock Page



**Personal Profile**

Any field with Red Lettering is required to complete this form.

### User Information

Username : [                    ]  Click to see if this username is taken

Password : [                    ]  Re-Enter Password : [                    ]

Your Name : [                    ]

### Personal Information

If you have any questions about what we use this information for and what we will do with it, please read our Privacy Policy.

Street Address 1 : [                    ]  Street Address 2 : [                    ]

City : [                    ]  Zip/Postal Code : [                    ]

Country : [United States ▾]  State/Province : [--Select-- ▾]

Phone : [                    ]  Fax : [                    ]

E-Mail : [                    ]  Partner : [No ▾]

Website : [                    ]  Keep this profile private ☐

### Other Information

How did you hear about this site? [                    ]

Are you a student ? [Yes ▾]    This should only appear if the previous question is answer is "Yes"

School Name : [                    ]  Grade Level : [HighSchool ▾]

Any questions or concerns about what happens if you opt-in, see our Privacy Policy

Would you like to...

opt-in to receive E-Mail from vendors ? [No ▾]

opt-in to receive postal mail from vendors ? [No ▾]

opt-in to receive phone calls from vendors ? [No ▾]

receive the YourEnergyOptions Newsletter? [No ▾]

## Appendix Q: Personal Profile Creation Mock Page (continued)

### Your Profile

What is the title of your profile ? (within 40 characters)

Your title, along with your username and photo are one of the three things that distinguish your profile when people search for other profiles.

What would you like people to know about you ?

Your photo helps distinguish you among other users and profiles, and appears next to your screen name in your profile, searches and forum posts. If you don't provide a photo, you will be given a default image.

Upload a photo of you :   [ Browse... ]

Upload only .gif/.jpg/.jpeg file Maximum size 2 Mb

### Your Roles in the Community

☐ Advocate                      ☐ Architect                  ☐ Builder
☐ Building Inspector            ☐ Building Manager           ☐ Business Owner
☐ Chimney Sweep                 ☐ City Manager               ☐ City Planner
☐ Consultant or Analyst         ☐ Do It Yourselfer           ☐ Electrical Inspector
☐ Electrician                   ☐ Energy Auditor             ☐ Engineering
☐ Environmental Inspector       ☐ Farmer or Tree Farmer      ☐ Homeowner
☐ HVAC Inspector                ☐ Lender                     ☐ Plumber
☐ Property Owner                ☐ Retailer                   ☐ Religious Leader
☐ Scientist                     ☐ School Principle           ☐ Teacher
☐ Website Owner                 ☐ Writer or Speaker          ☐ Other

Further describe your role in the community:
(Maximum 1200 characters)

## Appendix Q: Personal Profile Creation Mock Page (continued)

### Your Roles in the Community

- ☐ Architecture & Green Building
- ☐ Community Heat & Power
- ☐ Educational Material
- ☐ Ethanol & Biodiesel
- ☐ Gadgets & Toys
- ☐ Greentags & REC & C credits
- ☐ Healthy Communities
- ☐ Industry Ecology
- ☐ Ocean Power
- ☐ Peak Oil
- ☐ Policies & Ideas & Politics
- ☐ Simple Living
- ☐ Stewardship
- ☐ Telecommuting
- ☐ Wind Power

- ☐ Chillers
- ☐ Conserv. & Energy Effic.
- ☐ Energy Star
- ☐ Financing
- ☐ Geothermal Heat Pumps
- ☐ Group Purchasing Power
- ☐ Heating Oil Bio Fuel
- ☐ Investing
- ☐ Organic Gardening
- ☐ Permaculture
- ☐ Research
- ☐ Small Hydro
- ☐ Solar Heat Active & Passive
- ☐ Volunteer Opportunities
- ☐ Wood and Pellet Stoves

- ☐ Co-Generation
- ☐ Electric & Hybrid Vehicles
- ☐ Environment
- ☐ Fuel Cells
- ☐ Greenhouses & Sun Rooms
- ☐ Health Care Industry
- ☐ Hydrogen Generation
- ☐ Lighting
- ☐ Passive Solar
- ☐ Photovoltaics
- ☐ Ridesharing
- ☐ Smart Growth
- ☐ Solar Hot Water
- ☐ Water Purification
- ☐ Other
- ☐ Check All

### Your Favorite Green Themed...

Books: _____

Websites: _____

Blogs: _____

### Your Renewable Energy Installations

- ☐ Geothermal Heat Pump
- ☐ Greenhouse or Sunroom
- ☐ Heat Exchange
- ☐ High R-Value Insulation
- ☐ Passive Solar
- ☐ Solar Thermal
- ☐ Water (Hydro) power
- ☐ Other

- ☐ Geothermal – Passive
- ☐ Green Roof
- ☐ High Efficiency Windows
- ☐ Natural Ventilation
- ☐ Solar Electric
- ☐ Wood or Pellet Stove
- ☐ Wind Turbine

You have read and agree to the Terms of Service of yourenergyoptions.com    ☐

# Appendix R: Installer/Retailer Profile Mock Page

# Appendix S: Retailer/Supply House Profile Creation Mock Page

## Your Energy Options

## Retailers/Supply Houses Profile
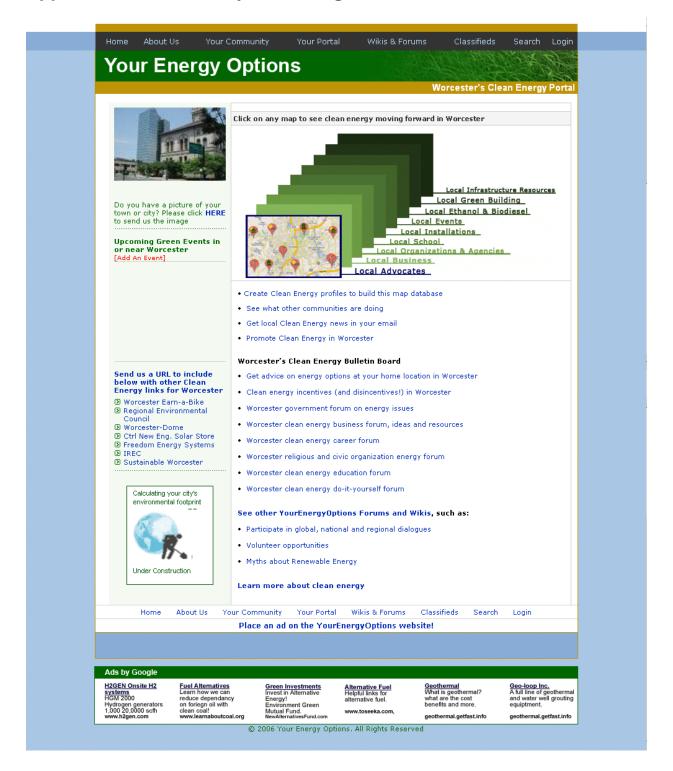
Any field with Red Lettering is required to complete this form.

### User Information

Company Name :     [                    ]    Click to see if this company name is taken

Password :     [                    ]    Re-Enter Password :     [                    ]

Your Name :     [                    ]

### Business Contact Information

If you have any questions about what we use this information for and what we will do with it, please read our Privacy Policy.

Street Address 1 :     [                ]    Street Address 2 :     [                ]

City :     [                ]    Zip/Postal Code :     [                ]

Country :     [ United States ▼ ]    State/Province :     [ --Select-- ▼ ]

Phone :     [                ]    Fax :     [                ]

E-Mail :     [                ]    Partner :     [ No ▼ ]

Website :     [                ]    Keep this profile private    ☐

### Other Information

How did you hear about this site?     [                ]

Any questions or concerns about what happens if you opt-in, see our Privacy Policy

Would you like to...

opt-in to receive E-Mail from installers or contractors ?     [ No ▼ ]

opt-in to receive postal mail from installers or contractors ?     [ No ▼ ]

opt-in to receive phone calls from installers or contractors?     [ No ▼ ]

receive the YourEnergyOptions Newsletter?     [ No ▼ ]

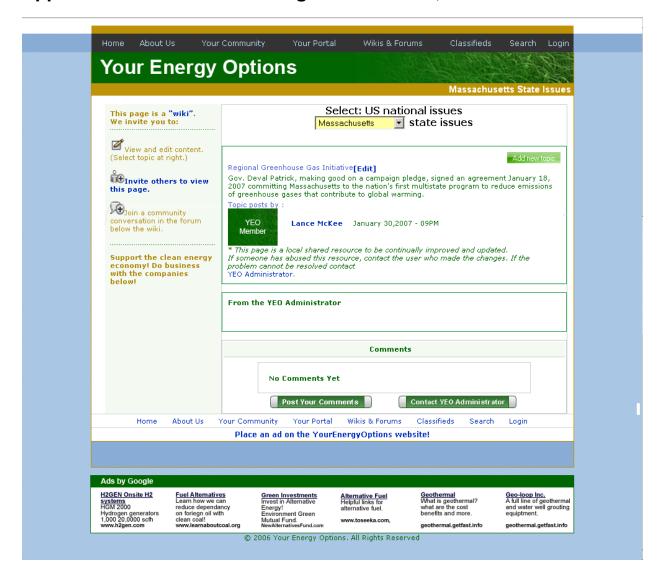## Appendix S: Retailer/Supply House Profile Creation Mock Page (continued)

### Your Business Profile

What is the title of your profile ? (within 40 characters)

Your title, along with your company photo and name, are one of the three things that distinguish your profile when others search for business profiles

What would you like people to know about your business ?

Upload a photo of your business :

[ Browse... ]

Upload only .gif/.jpg/.jpeg file Maximum size 2 Mb

Your photo helps distinguish you among other businesses and profiles, and appears next to your business name in your profile, searches and forum posts. If you don't provide a photo, you will be given a default image.

### What your business offers...

☐ Fuel Efficient Vehicles
☐ Wood & Pellet Stoves

☐ Systems and Components
☐ Other

☐ Wood or Fuel Pellets

Further describe what your business does:
(Maximum 1200 characters)

You have read and agree to the Terms of Service of yourenergyoptions.com ☐

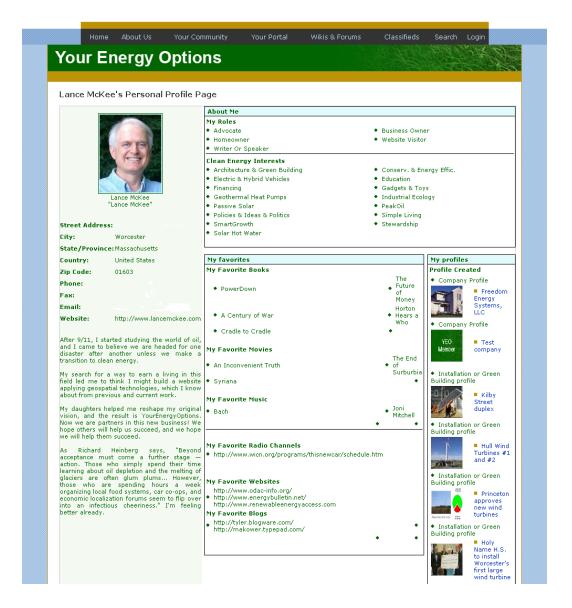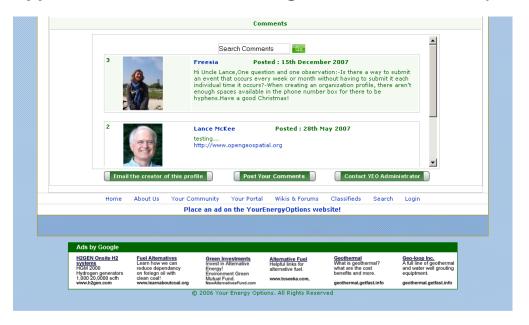# Appendix T: Current City Portal Page as of Feb. 22, 2008

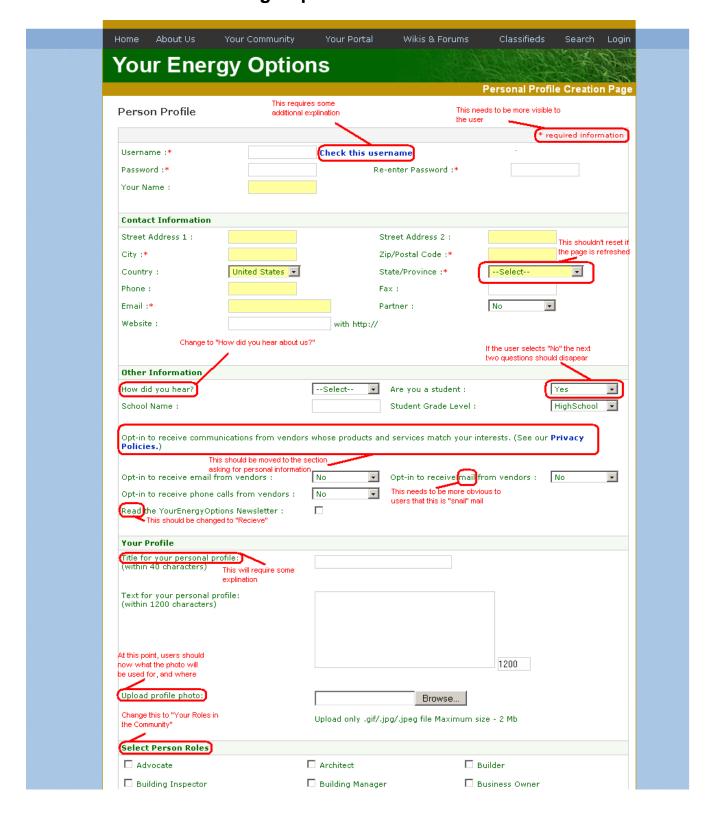# Appendix U: Current Forum Page as of Feb. 22, 2008

# Appendix V: Current Profile Page as of Feb. 22, 2008

# Appendix V: Current Profile Page as of Feb. 22, 2008 (continued)

# Appendix W: Current Profile Creation Page as of Feb. 22, 2008 with comments from the focus group

## Appendix W: Current Profile Creation Page as of Feb. 22, 2008 with comments from the focus group (continued)



☐ Chimneysweep    ☐ City Manager    ☐ City Planner

☐ Consultant Or Analyst    ☐ DoIt Your Selfer    ☐ Electrical Inspector

*These should all be moved to the installers / retailers profile creation page*

☐ Electrician    ☐ Energy Auditor    ☐ Engineer

☐ Environmental Inspector Or Mgr    ☐ Farmer Or Tree Farmer    ☐ Homeowner

☐ HVAC expert    ☐ Installer Co Gen    ☐ InstallerFuelCells

☐ Installer Greenhouses & Sunrms    ☐ Installer Heat Pumps    ☐ Installer Other Biofuel

☐ Installer Solar Electric    ☐ Installer Solar Thermal    ☐ Installer Water Power

☐ Installer Wind Turbines    ☐ Installer Wood Stoves    ☐ Lender

☐ Plumber    ☐ Retailer    ☐ Religious Leader

☐ Scientist    ☐ School Principal    ☐ Seller Of Fuel Efficient Vehicles

☐ Seller Of Systems Or Components    ☐ Seller Of Wood & Fuel Pellets    ☐ Seller Of Wood Stoves

☐ Site Owner    ☐ Teacher    ☐ Website Visitor

*This should not be a choice*

☐ Writer Or Speaker    ☐ Other

*Either this means a propery owner or a website owner, either way it needs to be clarified*

**Select Your Interests** — *Change to "Your Renewable Energy Interests"*

☐ Architecture & Green Building    ☐ Chillers    ☐ Co-generation

☐ Community Heat & Power    ☐ Conserv. & Energy Effic.    ☐ Electric & Hybrid Vehicles

☐ Education    ☐ Energy Star    ☐ Environment

*Clarify interested in educational material or interested in educating people*

☐ Ethanol & Biodiesel    ☐ Financing    ☐ Fuel Cells

☐ Gadgets & Toys    ☐ Geothermal Heat Pumps    ☐ Greenhouses & Sunrooms

☐ Greentags & RECs & Ccredits    ☐ Group Purchasing Power    ☐ Health

*Clarify how this applies to renewable energy*

☐ Heating Oil Bio Fuel    ☐ Hydrogen Generation    ☐ Industrial Ecology

☐ Investing    ☐ Lighting    ☐ Ocean Power

☐ Organic Gardening    ☐ Passive Solar    ☐ PeakOil

☐ Permaculture    ☐ Photovoltaics    ☐ Policies & Ideas & Politics

☐ Research    ☐ Ridesharing    ☐ Simple Living

☐ Small Hydro    ☐ SmartGrowth    ☐ Stewardship

☐ Solar Heat Active & Passive    ☐ Solar Hot Water    ☐ Telecommuting

*Should include a check for "Healthy Communities"*

☐ Volunteer Opportunities    ☐ Water Purification    ☐ Wind Power

☐ Wood & PelletStoves    ☐ Other

*Should include a "Check All" check*

**Give Your Favourites** — *Change to "Give Your Renewable Energy Favorites"*

You can insert more than one. Seperate with comma.

# Appendix W: Current Profile Creation Page as of Feb. 22, 2008 with comments from the focus group (continued)