

**ClimateChange411**

**Final Project for**

**Web 2.0 and its Business Applications, BUS 107**

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# ClimateChange411

The screenshot shows the Ning website for Climate Change 411. The header includes the Ning logo and a search bar. The main content area is titled "Climate Change 411" and features a navigation menu with "Main", "My Page", "Members", "Forum", and "Videos". Below the header, there are several widgets: "Members" with profile pictures, "Carbon Manager" with a "Sign In" button, "Categories" with a "Sign In" button, and "Links" listing various environmental organizations. The main content area is divided into two RSS feeds: "Scientific RSS" and "Technological RSS". The "Scientific RSS" feed includes articles like "The Science of Climate Change" and "Earth's Climate System". The "Technological RSS" feed includes articles like "Alternative Energy Innovations" and "Conventional Energy Supply". Below the RSS feeds, there is a "Blog Posts" section with a "Welcome" post. To the right of the main content, there is a "Welcome to Climate Change 411" section with a "Sign Up" button, a "Sign Up" button, and a "Sign Up" button. Below this, there are several "About Climate Change 411" sections with profile pictures and descriptions. At the bottom of the page, there is a footer with copyright information and a "Feedback" link.

This is a snapshot of the prototype of the site. It was created using the social networking creation site, [www.ning.com](http://www.ning.com). It has two RSS feeds, a blog, FAQ Wiki, Idea Exchange, and videos in the content part of the page. On the left side there are places to sign in to the Carbon Manager and the Carpool widget as well as links to relevant sites. To view this site online go to: <http://climatechange411.ning.com/>

ClimateChange411 provides carbon management tools for organizations, regional communities, and targeted demographics. CC411's carbon widget supports the 'measure and manage' carbon mantra using base lining, benchmarking, and social networking tools, and forming communities of practice. The first regional effort will be Silicon Valley, targeting an educated and environmentally aware community, at the 'edge of the chasm'. Vision of CC411 is to accelerate the adoption of carbon management as a practice, creating communities that are 'carbon aware and GHG conscious', affecting meaningful GHG reductions.

## Overview

ClimateChange411 is a social website addressing the urgency of climate change by providing a place where people can learn about climate science, energy technology, measure and manage their carbon footprint with easy to use carbon management tools, form carpools, and become active in policy change. Communities will evolve from using carbon management tools, car pooling, and around topics in the forums. Early members will likely be innovators and early adopters of energy efficiency technology, keenly aware of climate change, and probably have a presence in social networking sites. Promotion of the portal from social networking sites will encourage members to invite their friends and neighbors to join.

A goal of ClimateChange411 is to set up an online community of 1,000 or more people who are committed to achieving green house gas (GHG) reductions of at least 1 ton in a year, which is equivalent to 1 gallon of gas per week. In 4 to 5 years the goal is to reduce CO<sub>2</sub> from an average of 10 tons or more CO<sub>2</sub> per person down to about 7, some will be lower, 3-5 tons, and some will be higher, 7-9 tons. Using the carbon manager members will be able to track their progress and the community's progress towards reaching this goal which will be a great way to get members to feel connected to the site.

## Site architecture

The site architecture (figure 1) will comprise membership tools, RSS feeds, a carbon manager widget, links to ridesharing services, and social networking tools. Anyone may join, set up a member profile and subscribe to information and RSS site feeds. The portal provides information about climate change, a place to ask questions, have discussions, post ideas, join carpools, and interactively measure, manage and budget their carbon footprint. A blog keeps members informed about current events, including links to sites active in effecting policy, both of which can populate the member's carbon calendar. Members must follow 'community rules' to foster a community of collaboration with collegial discourse and dialog.

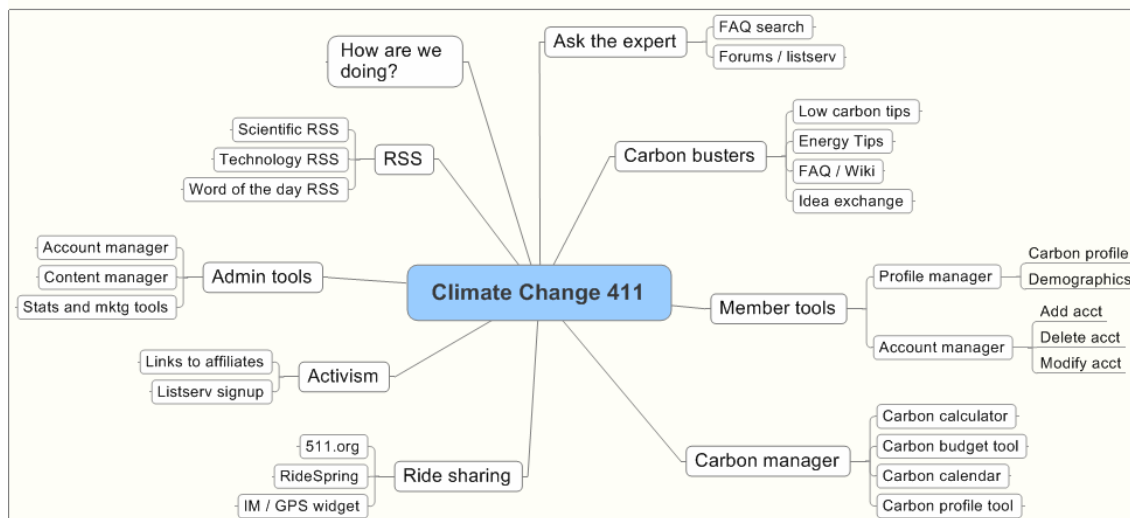


Figure 1: Site map of ClimateChange411

## Information and Technology:

The science of climate change, new energy, and efficiency technology will be provided through RSS feeds, and a searchable FAQ. The science RSS will link to peer-reviewed articles explaining climate change concepts. It represents the problem side of the equation. The technology RSS presents new energy and efficiency solutions to help solve the problem of climate change. Members can post questions to 'ask the expert' for community dialog, or navigate a searchable FAQ Wiki (discussed below) for energy efficiency solutions. Technology components and widgets are integrated using standard XML messaging.

### **Carbon Manager Suite Widget:**

The Carbon Manager Suite widget is a differentiator in both scope of information and integration with social networking tools. Using this tool, ClimateChange411 members (aka low carbon citizens) measure, manage, and budget their carbon footprint. Members first generate an emissions baseline, which is part of their 'carbon profile'. Next they compare their carbon footprint with members of similar income and household size. This 'benchmarking' process to similar members (pivot browsing) includes social-linking tools for sharing tips, comparing budgets, and facilitating dialogue. The carbon tool integrates a spreadsheet and calendar with their 'carbon profile', to help members stay on their budget, and share tips and suggestions with other low carbon citizens. Members can enter their odometer reading each month, as well as any air travel. Expansion plans for the widget tool include an API to future smart meters (PG&E, e-meter, and Blue line Innovations), allowing real-time analysis of energy use and emissions. Members may publish their energy and emission baseline, carbon budget, and calendar reduction goals to the larger portal, and form virtual groups, such as businesses and neighborhoods. These groups can engage in 'collaborative competitions', like a 'carbon challenge', where groups of 50 to 100 individuals work collectively to 'save a ton' of CO<sub>2</sub> emissions in one day.

### **Ask the Expert / Searchable FAQ Wiki Knowledgebase:**

Members may post questions and answers to key topics, such as the cost effectiveness of an energy efficiency project, or query a searchable FAQ, using a Wiki foundation, a community knowledgebase. These activities will highlight an expert, perhaps several, to emerge from the community. To show appreciation of the work of answering questions, the expert with the greatest contribution will be featured. Eventually, the FAQ could be expanded into an overall guide on Q&A for energy, emissions, and climate.

### **“Did you know?”**

“Did you know?” are hints that are sent to the community daily via the notification method in the member's profile. The hints are generated by the community but will be seeded with popular topics in the beginning. These include energy efficiency tips, when electricity is most carbon intensive, and include thoughtful dialog resolving consumer questions, such as when it makes sense to purchase a new hybrid, or focus on carpooling.

### **Word of the Day:**

Members may sign up for a daily listserv (patterned after TechTarget's Whatis listserv <http://whatis.techtarget.com/>) which presents a new word each day with links back to the ClimateChange411 portal, Wikipedia, the Energy Portal, Real Climate, etc. Example entries include carbon footprinting (see appendix A) carbon offsets, carbon intensity, etc. Key topics from word of the day may also become a separate entry in the searchable ClimateChange411 Wiki.

### **Ridesharing:**

There will be an area where people can join groups to carpool. To form a carpool on the fly, carpoolers may be contacted through their instant notification method that was selected in their profile which could be by IM or Twitter. To build the carpool the start time is entered and the route is plotted and if there is a carpool matching this, the person is added to the carpool. If there isn't a direct match, the route is expanded to see if there is overlap with another carpool. Eventually this method of determination could be done with a carpool mashup that plots Park and Ride carpool arrival times on a map.

### **Forums:**

Forums are used by members to discuss any aspect of climate change, energy policy, energy efficiency, etc. Within these discussions, the group might decide that mailers should be sent to members about actions to take, e.g., signing petitions, events to attend, or websites to visit for more information.

## **Idea Exchange:**

This is an area of the site where ideas are exchanged and ranked. The more popular ones rise to the top of the list, and the least will fall off (like Dell). Some ideas may generate topics for the forums or group actions, e.g., policy activism. Knowledge management tools can 'harvest' text from the idea exchange, which can also be submitted to 'ask the expert'.

## **Policy Activism:**

There are links to sites that are active in promoting energy and emissions policy. These include Powervote.org, Environment California, and Union of Concerned Scientists.

## **Blog:**

Posting to the ClimateChange411 blog will include timely news including the latest climate change information, and calls to action to attend town hall meetings on energy policy (cross posted to calendar).

## **Videos:**

Videos will be posted at YouTube, and on the ClimateChange411 site (flash video) to inspire people to take action on energy and climate change. Videos of science lectures, new technology, and policy (see the link to Gore's recent speech on a carbon free energy future) will help in education and awareness.

## **Donations:**

Donations will be set up to use [Chipln](#) which sends payments directly to the website's PayPal account.

## **How are we doing?**

The site offers community members a place to give suggestions. Members vote on them and the most popular ones will be adopted.

## **Marketing Plan**

### **Strategy:**

The 'business goal' of ClimateChange411 is to 'move the needle' on average and aggregate carbon emissions for 1,000 to 10,000 Silicon Valley residents between years 2008 and 2010. CC411 will use carbon management and social networking tools to baseline, benchmark, and set budgets for members to achieve individual and aggregate GHG reductions (average reduction of 1-2 tons CO<sub>2</sub> per person). An online community will be built that will be active in setting and achieving GHG reduction, sharing tips, spreading knowledge and awareness, and active in local, regional, and US energy policy. The initial marketing strategy is regional, focusing on Silicon Valley and greater Bay Area first. Why Silicon Valley?

- Level of science and engineering education – can understand science
- Technical occupations – understand that technology can solve problems
- Maslow's hierarchy – have disposable income for addressing energy issues
- Open-minded values and environmental awareness
- Less than 15% of people have done a carbon footprint, or know what it means
- Silicon Valley CO<sub>2</sub> emissions are 40% to 60% petroleum based - can be reduced significantly
- Early actions for [AB32](#) (baseline, benchmark, budget, feedback, setting 2010 targets)
- Silicon Valley residents like using Web tools, and participating in social networks
- 70% or more are on the left hand side (early majority) of the technology adoption curve
- Have an overall awareness of climate change, and are on the border of 'urgency'

## Ecosystem:

The technology adoption curve is broken up into five different categories ranging from innovators to early adopters, early majority, late majority, and finally laggards, who are the last to adopt technology. The majority of the ecosystem of ClimateChange411 falls into three of these categories, the 'innovators', 'early adopters', and 'early majority'.

'Innovators' are scientists and those who understand climate science and have a sense of urgency. They would love to have widgets pasted on every energy using device on the planet, and would manage their carbon emissions with technology (cost isn't an issue). They like information, love geek-forward-gadgets. They will more than likely participate in the FAQ Wiki and expert(s) will probably evolve from this group.

The 'early adopters' fit the Technographics (2) model believing that technology will solve the problem. They are the 'go-green' generation of well-educated men and women and especially moms who want a healthy planet for their kids. They will be drawn to the site by the carbon manager which gives them the ability to form groups and participate in carbon challenges. They might be interested in the Word of the Day.

The 'early majority' believe climate is changing and that carbon energy has had it's ride and that it is time to get ready for change. They will buy fuel efficient cars, are conscious of their choices, have some idea of what a carbon footprint is but no idea of what it means or how to manage it. They will probably reference the FAQ to get answers to their questions.

In recent surveys (Stanford and SSV) less than 15% of Silicon Valley residents knew what a carbon footprint was, or if they did, what could be done about reducing it. People to the left of the chasm are well versed in climate science and energy technology. The people most important in 'moving the needle' are early majority – who will use / adopt a new technology if it makes sense to them, and if they can afford it.

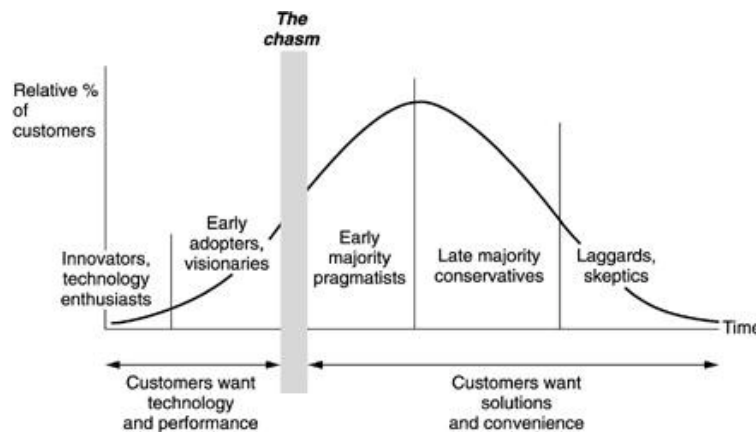


Figure 2: Technology Adoption Curve (1)

Where are we today on the technology adoption curve? (See Figure 2) About one in four Silicon Valley residents are on the left hand side of 'the chasm'. Over half of Silicon Valley's residents are on the right hand side of the chasm, in the 'early majority', and they understand that carbon emissions are bad, less carbon energy is better so 'go green'. What is green? Does 'green' move the needle? How do you 'manage' real emissions reductions? How do we reach California's 2020 GHG reduction goals (AB32)? How can individuals, families, neighborhoods, and cities work together to reach these goals? The majority of GHG emissions in California are from residential buildings and transportation, not industry and commerce. To affect a significant reduction in GHG emissions, and specifically to reach the AB32 targets for 2020, we need to have communities working collectively in order to 'move the needle'.

## **Promotion:**

The site will be promoted on Facebook, MySpace, and LinkedIn because the targeted demographic interested in climate and energy participates here. The blog will be added to web sites concerned about climate change like <http://www.wecansolveit.org> which offers a place to register blogs. Tag clouds associated with climate change, global warming, renewable energy, and green technology will help promote the site. Google Alerts will keep track of climate science, energy policy, and local news featuring technology. This is effective in connecting members of similar interests and for promoting the site. ClimateChange411 will participate in social cause networks (Social Edge). [Technorati](#) will be used to keep track of what people are saying about this site. Outreach is a key component within the marketing plan, and includes an evangelists' regional network. The carpool and carbon management tool widgets will also promote the site. Search engine Optimization (SEO), RSS marketing, presentations to business, the local community, and especially 'aggregators' such as schools, will help move the passion of the innovators and early adopters into the early majority. Both WebEx and TeamViewer will be employed.

## **Primary ways to promote the site:**

- SEO – RSS, sitemaps, blogs with factual articles and links to science and technology
- Evangelists who will give presentations in schools and local city government (connectors)
- Webinars using TeamViewer (for carbon widget) and WebEx (for CC411 mission overview)
- YouTube video of carbon widget, emphasis on baseline, benchmark, and management tools
- Tell-a-friend / sign-up challenges – create micro communities / carbon networks
- Leverage emerging carbon workshop / carbon management consulting activities

## **Marketing tactics**

- SEO - XML sitemap to promote visibility in the Google index
- RSS feeds and landing pages for each of RSS feed (scientific, technical, word of the day)
- Tell a friend - 'circle of three' - membership (raises membership 3x in each generation)
- Word of the day (Appendix A) - email listservs - also an RSS feed
- Evangelists - need 10 evangelists that will show the carbon manager tool at school events

## **SEO techniques**

SEO activities will include using RSS marketing through aggregators (a distributed linking strategy), XML sitemaps, and embedding metadata in the wiki (supported by MediaWiki), listing in the DMOZ project, and a more formal linking strategy involving cross-posts in blogs.

## **SEO Technical details:**

- RSS feeds - submit to aggregators, SEO - each RSS has a page description
- XML sitemap (installed) – and Google Analytics to measure / manage traffic
- Wiki / FAQ - uses embedded metadata to aid discovery by indexing agents
- DMOZ open directory project – listing
- Linking strategy from blog and RSS articles to science, technology, and policy

## **Presentations to local groups (in person and online):**

- (SSV), to industry using TeamViewer and WebEx
- Carbon consultants (carbon management workshops)
- YouTube showing how to use the carbon manager.
- TeamViewer shows how to actually use the widget
- WebEx demonstrations - show how the portal works

## Targeted outreach activities using experts

- Find local people who are doing carbon baseline and management workshops.
- Work with energy efficiency experts, who reduce emissions by reducing energy
- WebEx and TeamViewer presentations for industry sustainability and green teams
- Schedule a talk for Sustainable Silicon Valley / Menlo Park and Atherton Green- provide a tool for communities to measure, manage, and set and achieve reduction goals - move the needle!
- Schools are points of aggregation - why? Surveys show that parents, especially Mom's with children, are concerned there might not be a planet for their children's families to grow up in.

## Metrics:

This site will be considered a success if there are participants in the Q&A and in the discussions. Over time if there are more and more links to this site then that will be a measure of the success as well. The Carbon Manager Suite widget is a built in metric in that people will be able to see how they are managing their carbon footprint over time and be able to compare it to others.

## Member goals and carbon metrics

- 100 – 1,000 members in 2008-2009
- 300 – 3,000 members in 2009-2010
- 3,000 – 10,000 members in 2010-2012
- 1 ton challenge for all new members in year one
- 10 => 7 => 5 => tons per member target in 2008 => 2010 => 2012

## Carbon reduction tactics - to move the needle

- Focus on energy efficiency
- Reducing petroleum (rideshare)
- Solar (installation) and PPA (Power Purchase Agreement)
- Offsetting (wind RECs, reforestation, methane capture)
- New technology adoption - PHEV, IntelliGrid, smart energy and demand response

## Policy and activism

When an important policy is being debated and action is required by the community, email with 'action links' will be sent to members. This is similar to politicians sending email to constituents to sign petitions on bills in Congress. Mailers will be set up so that friends may also be informed and will be asked if they would like to become a member who will potentially add more members to this site. The blog will also be posted to with this information so anyone, not necessarily a member, subscribing to the site will see it.

## Focus on activism

- CAFE standard (California waiver)
- RPS and energy (AB1969)
- RFC AB32 (you can participate electronically)
- Importance of being politically active as a 'multiplier'- offset to intransigence
- Don't just change light bulbs, change laws.

## Other drivers for action:

- Early action on AB32 - does AB32 move from voluntary to mandatory in next 3 to 5 years?
- Tightening petroleum supplies and energy costs affect transportation and regional economy
- Opportunity to leverage local adoption of energy efficiency with regional clean technology



## References:

**Robert D. Cormia**, Faculty, Foothill College, Team Member Sustainable Silicon Valley, and Utilities and sustainability task Force (USTF) For San Mateo County. Advisor on energy technology, climate science, energy use and developing multi-year emissions profiles. Within communities develops energy strategy that includes emission targets. Guest speaker at schools and businesses on climate change and energy policy.

1. **Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers** (1991, revised 1999), Geoffrey Moore and [http://en.wikipedia.org/wiki/Crossing\\_the\\_Chasm](http://en.wikipedia.org/wiki/Crossing_the_Chasm)

2. **Technographics®**: Registered trademark of Forrester Research. <http://www.forrester.com>  
Definition location: <http://well-formed-data.net/archives/65/forrester-research-social-technographics>

### Key web sites that provided information for this project:

The Greenhouse Gas Protocol	<a href="http://www.ghgprotocol.org/">http://www.ghgprotocol.org/</a>
WRI (World Resources Institute)	<a href="http://www.wri.org/">http://www.wri.org/</a>
Real Climate	<a href="http://www.realclimate.org/">http://www.realclimate.org/</a>
Climate Ark	<a href="http://www.climateark.org/">http://www.climateark.org/</a>
IPCC	<a href="http://www.ipcc.ch/">http://www.ipcc.ch/</a>
Stanford GCEP	<a href="http://gcep.stanford.edu/">http://gcep.stanford.edu/</a>
DOE (EIA)	<a href="http://www.eia.doe.gov/">http://www.eia.doe.gov/</a>
PG&E (PEC)	<a href="http://www.pge.com/pec/">http://www.pge.com/pec/</a>
Apollo Alliance	<a href="http://www.apolloalliance.org/">http://www.apolloalliance.org/</a>
Plug-in America	<a href="http://www.pluginamerica.org/">http://www.pluginamerica.org/</a>
Grist	<a href="http://grist.org/">http://grist.org/</a>
Greentech Media	<a href="http://www.greentechmedia.com/">http://www.greentechmedia.com/</a>
NASA GISS	<a href="http://www.giss.nasa.gov/">http://www.giss.nasa.gov/</a>
NOAA	<a href="http://www.noaa.gov/">http://www.noaa.gov/</a>
Stop Global Warming .org	<a href="http://www.stopglobalwarming.org/">http://www.stopglobalwarming.org/</a>
Planet Green .com	<a href="http://planetgreen.discovery.com/">http://planetgreen.discovery.com/</a>
California Climate Action Registry	<a href="http://www.theclimateregistry.org/">http://www.theclimateregistry.org/</a>

Retrieved on 7/27/2008

Appendix A – Word of the Day Sample Mailer

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WhatIs.com: Word of the Day  
July 28, 2008  
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IN THIS ISSUE  
.....  
-- Word of the Day: Carbon Footprint  
-- Learning Center  
-- Recent Additions and Updates

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TODAY'S WORD: CARBON FOOTPRINT  
.....

A carbon footprint is the measure of the environmental impact of a particular individual or organization's lifestyle or operation, measured in units of carbon dioxide.

A carbon footprint is composed of two parts, a primary and secondary footprint. The primary footprint is the sum of the direct carbon dioxide emissions of burning of fossil fuels, like domestic energy consumption by furnaces and waters heaters, and transportation, like automobiles and airplane travel. The secondary footprint is the sum of indirect emissions associated with the manufacture and breakdown of all products, services and food an individual or business consumes.

Here are the key features of Carbon footprint:

- \* Energy baseline
- \* Carbon intensity
- \* Supply chain
- \* Chemicals used onsite
- \* Employee driving and travel
- \* Waste (and recycling diversion)

Carbon footprints are used as part of an emissions inventory,

Developed by WRI in World Resources Business Council on Sustainability

California AB32

For our complete definition, including hyperlinks, visit:  
[http://whatis.techtarget.com/definition/0,,sid9\\_gci1310988,00.html](http://whatis.techtarget.com/definition/0,,sid9_gci1310988,00.html)

RELATED CONTENT:

Sustainability  
<http://go.techtarget.com/r/4124468/394376>

Carbon offsets

ISO14000

Downloads and general information can be found at WRI Web site.