SUSTAINABILITY ASSESSMENT: LONGBOARDS

LOADED vs. COMET

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A) INTRODUCTION AND RATIONALE FOR CHOOSING PRODUCT

For our project we decided to do our sustainability assessment on the increasingly popular consumer product of the longboard. Longboarding is an activity that has been growing in popularity among college students in recent years as a way of transportation across campus as well as a recreational sport. Longboarding in and of itself is a carbon neutral means of transportation, so we thought it would be interesting to investigate the environmental and social impacts of the product's manufacturing process. There is also great personal interest within our group on this topic. We looked at and investigated the companies "Loaded Boards" and "Comet Skateboards" for our assessment. Loaded Boards was picked as our conventional company, which we will be comparing to our sustainable company of focus, Comet Skateboards. We picked Loaded as the conventional company because they are known in the business for having some of the most impressive advertising in the business, aiding in their popularity. They also use composites like fiberglass ("Loaded Boards", 2011), as opposed to Comet whose board construction focuses on the use of sustainably harvested maple. We picked comet skateboards as the sustainable company because much of their advertising is focuses around environmental responsibility and cradle to cradle thinking ("Comet Skateboards", 2011). We deconstruct the longboard into their four main components to assess (deck, glue, paint, and griptape) and analyzed the sustainability of each individual component. We also compared the two companies for overall sustainability in terms of corporate practices and initiatives.

B) MATERIALS ASSESSMENT

Materials Assessment for Loaded

1) Bamboo

- Harvested in the Bamboo Mountains of China
- Shipped via train to Shanghai, China
- Shipped via freight to Los Angeles, California
- Shipped via truck to San Diego, California where the factory is located
- Steam and pressure are applied to the bamboo to make it usable for constructing longboards. The heat required for the process derives from the combustion of excess or scrap bamboo that is left over from cutting the shape of the longboard.
- Laminated with melamine resin (as opposed to the conventional urea-formaldehyde resin, which emits toxic formaldehyde vapors in the laminating process.) Melamine resin passes LEED certifications, whereas urea-formaldehyde does not.

2) Spray Grip
- Used on three of six different models of Loaded Longboards
- Standard epoxies are sprayed on to hold the grip material to the longboard. Standard epoxies are copolymers; involving a reaction between epichlorohydrin and bispenol-A.
- Recycled glass aggregate is used for the grip material itself. Glass aggregate is a coarse construction material that provides solid grip for Loaded longboard riders.

3) Printing
- All Loaded boards have printed designs
- Nontoxic epoxy is used to print the graphics
- One board, the Bhangra, has a bottom design that is a result of branding the bamboo rather than printing. Branding has little to no environmental impacts.

4) Griptape
- Loaded does not manufacture their own griptape
- Three of the six models come with griptape applied
- The griptapes used were standard ones from a variety of companies, whose names were not disclosed.
- Griptape is an adhesive backed material with a coarse surface, similar to sandpaper. It comes in a variety of grits, which Loaded utilizes to make different parts of each board grippier (such as the nose and tail of the Bhangra board.)

Materials Assessment for Comet

1) Maple
- Sustainably harvested using SFI standards which is a forestry industry governed standard
- They have convinced their supplier of maple to move to FSC (Forestry Stewardship Council) which is stricter than SFI and is governed by a third party. Their supplier will be meeting this standard by spring 2012.

2) Glue
- They are currently using formaldehyde free glue.
- Comet Skateboards moved to Ithaca New York to develop biocomposite technology with E2E Materials.
- Currently working with The University of Vermont on a whey based glue.

3) Paint
- They use water based coatings that produce no Volatile Organic Compounds.
- One of these coatings is made by Vermont Natural Coatings, and is produced with a by-product from the cheese manufacturing process.

4) Cradle To Cradle and recycling
- Comet skateboards has a program in place where people can send in used and broken boards to be recycled. The customer is then granted $5 off of their next purchase.

- The "off cut" from the manufacturing process can be used to heat their facility. This is possible because of the formaldehyde free glue that is used. The presses that they use to form their maple also need to be heated. Comet will be able to use their off cut to heat the presses by next year.
- According to Jason at Comet Skateboards, the old boards can be turned into " …all sorts of new products from bike racks to benches, if we can['t] use them we compost them because of the nature of the glues and paints being non toxic."

TO SUMMARIZE:

Material:	**Loaded**	**Comet**	**Which is more sustainable?**
Wood	Bamboo (harvested overseas)	Maple (harvested locally)	The carbon cost of shipping bamboo from China makes maple the more sustainable option
Griptape	Mixed retailers (Loaded does not manufacture their own griptape)	Jessup griptape (a well-known griptape manufacturer)	Both rely on third parties for production, and could be more sustainable by internalizing the process
Paint	Standard epoxies are used in Loaded's patented spray grip. Recycled glass aggregate is used to provide grip in combination with the epoxy	Comet uses water-based paints that produce no Volatile Organic Compounds (VOC's.) One type involves a whey based paint that was developed at UVM	Since Comet uses no epoxies, which contain formaldehyde and have negative effects on the environment and human health, the choice of water-based, VOC free paint is more sustainable.
Glue/Epoxy	The epoxy used to laminate Loaded longboards is melamine resin, which has no human health impacts and passes LEED certifications, which standard epoxies do not	Comet uses formaldehyde-free glue as well, and is currently working with UVM to create a whey-based epoxy or glue	The types of epoxies are similar in both companies, which suggests equality in sustainability. The epoxies used vary slightly in chemical structure and nature but have no human health impacts, and more minimal environmental impacts than the alternative

C) ENVIRONMENTAL AND SOCIAL IMPACTS

Environmental and Social Impacts of Materials for Loaded

DECK AND GLUE: Environmental Impacts

Loaded uses bamboo as their primary material for board construction. Bamboo is used not only for its functionality but because it can be one of the least environmentally harmful material to produce and use in terms of harvesting. Functionally, bamboo is known for its lasting elasticity and memory retention. It is also heavier and denser than a traditional poplar or aspen board core, which makes the deck relatively more durable and long lasting. Bamboo can be one of the most cost-effective and environmentally friendly choices when it comes to wood production if farmers can prevent erosion. Bamboo is commonly thought to be a variety of tree but is in-fact is in the family of grasses, Pocaceae. This means that it is harvested at a much younger age than most trees are. In comparison to an oak tree, which takes about 60-120 years to grow to maturity, a bamboo plant takes only 5 years to reach maturity. It is quickly and easily regenerative and is considered to be a renewable resource because of its short life cycle. It is unique because it does not require any pesticides to grow. Bamboo is commonly grown and harvested on large-scale plantations in rural China. These monoculture-growing environments cause many environmental damages to the ecosystem it is part of. One of these negative effects of bamboo harvesting is increased soil erosion. When this land is converted from multidimensional forests to host one type of plant with a quick "turn-over" rate, like bamboo, it is inevitable that soil will erode more quickly than a heterogeneous forest of slow-growing trees. Bamboo's high turn-over harvesting rate creates a lot of loose topsoil which can easily be carried away by wind. This not only exposes the topsoil, but rids the soil of valuable nutrients (Coggins, 2000).

Shipping is also a huge concern for Loaded's main source of Bamboo, as airfreight is one of the most energy intensive methods of shipping. Planes shipping materials over seas emit immense amounts of carbon and other pollutants into the atmosphere and utilize non-renewable energy sources for fuel ("Carbon Emissions", 2008).

The raw bamboo decks are treated with a non-formaldehyde resin, called melamine. In the past few decades in America, there has been a voiced need from the public for tighter

regulations regarding formaldehyde emission levels. High exposure to formaldehyde can include allergies, breathing difficulties, skin rashes and nausea. This plea by the public for formaldehyde regulations was answered by agencies such as the EPA (Environmental Protection Agency) that set maximum standards for commercial companies that use formaldehyde in their production processes. Loaded adheres to these standards when it comes to laminating boards, however, conventional epoxies are used in the graphic printing process. Melamine resin passes LEED certifications, whereas urea-formaldehyde does not. LEED is an internationally recognized green-building certification system that provides frameworks for implementing practical, sustainable, and measurable green-building design, construction, and maintenance solutions for their products ("Loaded Boards", 2011).

DECK AND GLUE: Social Impacts

Since the 1990's, the demands for bamboo from the American market have grown exponentially. To meet these steep demands, many natural Chinese forests are being clear-cut to make room for bamboo plantations. These monoculture plantations create a threat to the ecosystem health and the biodiversity of the forests by devoting all space and energy to one resource, bamboo, while excluding other needs of the ecosystem. A prime example of this threat is the displacement of China's most well known and beloved species, the Giant Panda. The panda's natural habitat is being converted to cropland to satisfy the growing international demands for bamboo. As a result of their steadily declining populations, the Giant Panda Bear is now listed on the endangered species list as "critically" endangered. The panda is a beloved umbrella species to many people. As a result of its endangerment, there have been growing social movements advocating for the protection of this beloved species, one of the most prominent movements being headed by the World Wildlife Foundation (Coggins, 2000).

PAINT: Environmental Impacts

All of the Loaded longboards have some type of graphic design. A non-toxic water-based epoxy is used for the graphics on the boards. This is a newly emerging type of paint and it does not contain or produce any VOC's including formaldehyde, ammonia, acetone, lead, or chemical residues or odor masking ingredients. The Food and Drug Administration have labeled these epoxies as non-toxic, causing no treat to human health. Non-toxic epoxies are used as an

alternative to polyester, which is the most commonly used paint in longboard construction. Non-toxic epoxies contain no solvents and produced an easy strippable film, which can be easily disposed of (Ramesh, 2009).

One longboard that Loaded produces called The Bhangra, has a bottom design that uses heated branding on the bamboo rather than printing to create the design. This process is environmentally sustainable because it saves the board from using excess material (paint) to cover the board. However, depending on the energy used to generate the branding tools, this process could actually prove to be unsustainable if that energy is produced from nonrenewable sources. Painting does not require any artificial energy, so in this sense, hand painted or screen-printed methods could be more environmentally sustainable ("Loaded Boards", 2011).

PAINT: Social Impacts

Customers of longboards appreciate and choose their longboards based on both the aesthetic components of the board just as much as the construction of the board itself. Graphic design is an important part of the production and marketing life cycle of the board. Loaded is knows for its bright and appealing contemporary graphic designs. Some boards have illustrations and others have text printed on them. Graphic designs can be more appealing to a viewer than plain text is. If Loaded were to move towards advertising for sustainability, a way that Loaded could promote the importance of being environmentally responsible could be through their graphic designs on the longboards. An environmentally themed design (such as promoting recycling or discouraging pollution) would provide two things for the consumer and for the producer: aesthetically appealing graphic that would draw in a viewer's attention and awareness about the environment and sustainable practices.

GRIPTAPE: Environmental Impacts

The griptape Loaded produces is composed of a product called glass aggregate. It is currently growing in popularity and being used more often as a replacement for sandpaper in longboard griptapes because it is a value-added and recycled product. Glass aggregate is made of 100% post-recycled glass that is ground up into small portions the size of grains of sand (Shayan, 2004). Additionally, Loaded purchases and uses standard griptapes from a variety of manufacturers to use on several on their pre-gripped boards. Recycled glass aggregate can help

contribute credits in the LEED rating systems. One credit called the "New Construction Rating System" was created with intention to promote the use of recyclable materials into construction ("U.S. Green Building Council", 2011).

GRIPTAPE: Social Impacts

The current international economic downturn points to the fact that within the service economy, it is difficult to find jobs and make profits due to the highly competitive market. Adding recycles aggregates to products can save money and creates a marketing edge over competitors who do not implement sustainable practices. Environmental consciousness is something that customers consider now more than ever when choosing products to buy. With its increased public need, companies may implement more sustainable practices as incentives for satisfying customers and in turn, making a profit. Loaded has yet to promote their use of recycled glass aggregate on their website or in any other marketing strategy. Perhaps if Loaded highlighted their sustainable practices for consumers, a whole new market of customers would become interested in purchasing a Loaded board. In this day and age, sustainably produced products are in high demand and Loaded could easily profit from this trend if they made a few policy and marketing changes.

Environmental and Social Impacts of Materials for Comet

DECK: Environmental Impacts

Comet uses Maple wood as their primary material for the decks of their longboards ("About Comet", 2011). In order to determine if Maple wood is a sustainable, as compared to other woods (aside from government regulations or certifications) we must look at two factors: how many years it takes for a particular species to reach maturity and be harvested and how durable the wood is in comparison to others. While species like Oak and Hickory can grow for several hundreds of years before reaching maturity, Maple trees have a fairly short lifespan in comparison and grow back faster after being cut. Maple is also a very hard wood with a proven track record of durability. The fact that Maple trees have a shorter lifespan than other trees and proves to be durable makes it a more sustainable material for deck production than other species

of trees. However, methods of harvesting must also be considered in terms of the sustainability of Maple. Since Maple is such a hard wood it is generally cut down with gasoline powered chain saws. These saws not only emit carbon into the atmosphere, but they also run on non-renewable resources and have an environmental impact. In contrast, trees like Bamboo are harvested by hand, meaning that the harvesting process has less of an impact on the environment (Koerner, 2008).

The Forest Stewardship Council (FSC) and The American Forest and Paper Association's Sustainable Forestry Initiative (SFI) are the two most prevalent auditing programs to measure forest sustainability. Comet currently sustainably harvests their Maple wood using SFI, which is identified as a forestry industry governed standard. The goal of this and any forest management auditing system it based on methods of transparent processes that 1) Assure the public that a given land owner has demonstrated a commitment to an ecologically healthy and economically viable forest, 2) Provide landowners an assessment of their management and advice on how to achieve better performance, and, 3) to ensure the rights and cultures of indigenous people and local communities are respected. While SFI meet these basic standards, FSC offers a more effective system for assessment because overall it is more specific, transparent, and involves stricter regulations that support the three goals listed above (Clark & Kozar, 2011). Comet has recently convinced their wood supplier to move to the FSC standards, and they will be meeting this standard in the coming year. By making this change, Comet is proving that they wish to lesson their impact on the environment and are willing to meet stricter regulations on their materials in order to do so ("About Comet", 2011).

Transportation and turnover are also important factors that affect the environment in board production. Comet trucks its wood from various forests in Maine, Vermont, and Ontario (Salfi, 2011). Although we could not obtain direct information on what type of trucks they use, it is safe to say that this trucking process emits carbon into the atmosphere and uses non-renewable resources as an energy supply. However, since Comet's factory is located in Ithaca, New York, they are only a few hours away from their main suppliers of Maple wood, which means that the trucking process will produce less emissions than if their factory was still located in California. Trucking their products to customer's specific geographic locations will play a role in transportation-related impact and make a difference on the company's perceived sustainable products. Even if all of the Maple wood they use is harvested locally and transportation impacts

are limited in order to get the wood to Comet's factory in Ithaca, New York, shipping the boards out to customers needs to be considered. If they are shipping their boards across the country, there are still technically responsible for the impacts of the emissions from those transports. If customers live in California, shipping bamboo from China may result in less fossil-fuel consumption than trucking in Maple trees from the Northeast and then trucking the board to the consumer cross country (Eyring, 2010). That being said, Comet is currently subjected to the shipping processes that already exist and therefore have very little say in the environmental effects of trucking across the United States and the world. They use UPS to ship boards domestically and they airfreight all over the world. As an attempt to limit their environmental impacts they try as much as possible to efficiently package their products in order to cut down on materials as well as the number of trucks needed to ship their boards (Salfi, 2011). In terms of turnover, Maple tends to be a more durable material than other wood, including bamboo. Therefore, in theory there should be fewer consumer turnovers with a deck made from Maple and the product will last longer, meaning it is ultimately more sustainable than other wood types in this sense. However, turnover is greatly dependant on consumer use of their deck (Tsiliyannis, 2012).

DECK: Social Impacts

Although harvesting Maple in unsustainable ways can often result in loss of forest health, which can lead to many social problems such as human health issues, as well as loss of recreational areas and other benefits that forests provide, FSC has a dedicated Social Policy Program to prevent this in the forests they certify. Through FSC principals and criteria, supporting policies, and continued stakeholder engagement, they have proven to be effective in improving social considerations in forests. They make sure to follow all applicable laws that apply to harvesting trees. They also respect the rights of workers and indigenous peoples and allow for the equitable use and sharing of benefits. FSC also works to reduce the environmental impacts of logging activities, in the attempt to also lesson social impacts in this way. Most importantly FSC identifies and uses appropriate management of areas that are in need of special protection, like cultural or sacred sites, or habitat of endangered animals or plants ("FSC: Social Policy Program", 2011).

Moving their factory to Ithaca, New York has also created local jobs and livelihoods in this area. Many longboarding companies are located on the west coast, so Comet is bringing opportunities for people interested in longboards eastward (Salfi, 2011).

GLUE: Environmental Impacts

Formaldehyde glues were historically favored whenever strong structural joins are required for bonding wood products. Urea formaldehyde and phenol formaldehyde glues are those most commonly used in composite wood products. Although Formaldehyde occurs naturally in our environment, it is generally not dangerous at this natural state because is does not accumulate. It is broken down within a few hours by sunlight or by bacteria present in soil and water. However, formaldehyde glues can harm the environment due to the toxic emission it creates when formed, used, and broken down. While very little formaldehyde is present in a form that can be released, small quantities of formaldehyde gas can be emitted from various wood composite products. Although these low level emissions will diminish over time, they are still harmful and formaldehyde free glues are much more safe in terms of environmental health ("Sticking it to Formaldehyde", 1998). Comet is currently using formaldehyde free glue for their longboards, which do not posses the toxic properties that formaldehyde glues do. Comet is currently developing a biocomposite glue with e2e Materials, their main supplier of materials. Biocomposites glues can be formed by replacing petrochemical resin with a vegetable or animal resin and using natural fibers such as wood or hemp instead of bolsters like fiberglass or carbon fiber. This will form a more natural and environmentally friendly and safe adhesive for their boards. Comet is also working on developing a whey-based glue for their boards with the University of Vermont. Whey is the liquid remaining after milk has been curdled and strained. It is a by-product of the manufacture of cheese. This is a natural material that has the potential to be used as a safe, alternative adhesive (Salfi, 2011).

GLUE: Social Impacts

Formaldehyde glues can be extremely toxic and dangerous to humans and cause life long health issues which can even result in premature death. However, the formaldehyde free glue that Comet is currently using poses little to no human health threat. However, it is still important to acknowledge that this glue is not made from natural materials and the chemicals used could have

unknown threats to human health. The biocomposite and whey-based glue's that Comet is currently developing utilize natural materials and pose no threat to human health. The whey-based glue also takes a usually unwanted byproduct that would usually be disposed of and up-cycles it for adhesive purposes, creating safe glue and supporting the dairy industry (Salfi, 2011).

PAINT: Environmental impacts

Comet's decks are screen-printed by hand using water-based inks opposed to oil based paints, which produce harmful vapors during application (Salfi, 2011). Oil paints can be attractive because of their short dry time, but they contain resins, solvents, pigments and additives that can be harmful to the environment because they contain chemicals that, when evaporated release volatile organic compounds (VOCs) into the air. Oil based paints can also harm the environment if not disposed of properly by contaminating groundwater, rivers, lakes and streams (Kim, 2011). Comet's water based paint does not contain VOCs and does not pose a treat to groundwater or cause ozone depletion. Comet's boards are also clear coated with durable water based paint and a high gloss finish which are made from poly whey from Vermont Natural Coatings, made from a byproduct of the cheese production process ("About Comet", 2011).

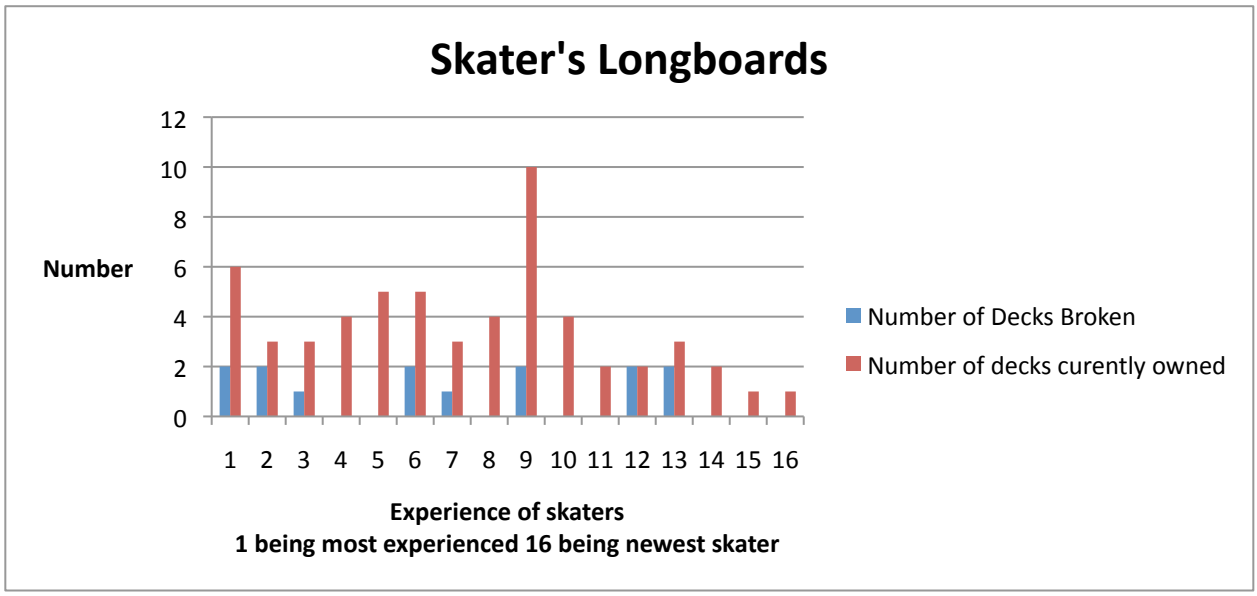
PAINT: Social Impacts

The non-VOC coating that Comet uses, ensures that people who spray and work on the boards will not get sick from the evaporation of harmful chemicals. This ensures safety for all workers at Comet and allows them to work in a healthy environment. Using poly whey also supports the Vermont economy and up-cycles a cheese manufacturing byproduct (Salfi, 2011).

GRIPTAPE: Environmental and Social Impacts

While Comet does not make its own grip tape, (which makes its environmental and social impacts difficult to track) they do have grip tape available when ordering from their website. A company called 'Jessup' makes this grip tape and uses silicon carbide adhered to plastic. Silicon Carbide is the chemical compound of carbon and silicon. It is a typically man-made material produced by a high temperature electro-chemical reaction of sand and carbon and forms an excellent abrasive. Silicon Carbide is non-toxic and does not harm the environment or human health in its production or usage ("Silicon Carbide", 2002).

SURVEY ON DURABILITY AND TURNOVER RATES



In conducting this survey we were looking for data regarding the durability of skate decks and turnover rates, allowing us to give advice to consumers of Longboard products. We asked skaters when they started skating, how many decks they have broken in their skating career, and how many decks they currently own. The goal of this was to see how long skate decks appeared to be lasting people. The x-axis shows the experience of the skater, "1" being a skater that started skating in 2003, and "16" representing a skater beginning in 2011. The data shows that after the initial few years of skating where no decks were broken, the number of broken decks is primarily dependent upon how much stress people place on the deck. If one plans to simply cruise on the deck, provided the rider is within the designed weight range for the deck and keeps it out of the rain, it can last indefinitely. This survey provided proof for our assumption that turnover rates of boards are heavily dependent on individual usage and do not always depend on the materials the boards are composed of.

D) CORPORATE PRACTICES

Cooperate Practices for Loaded

Apart from looking at Loaded's materials, they do not seem to have many corporate practices (apart from using their cut off to run their presses and recycled glass aggregate) that reflect their attempt to become a sustainable company. There are many initiatives that Loaded has the potential to take regarding environmental sustainability. Loaded is a large enough company with enough revenues and a large enough customer base that such initiatives, if implemented, would most likely flourish and only improve upon their business in today's economic market.

Cooperate Practices for Comet

Regional Supply Chain

Comet recently moved their factory from California to Ithaca, New York in order to be closer to their main supplier of materials, e2e Materials. In Comet's case local production has proven to be more sustainable and more cost effective. Typical manufacturing for many products uses different materials from all over the world. These are then often shipped to places like China for assembly and shipped back to the United States upon completion. When companies outsource their manufacturing this way, they not only reduce manufacturing jobs in America, but also perpetuate a system that leaves a massive carbon footprint through the use of air shipping. In Ithaca Comet is able to both cut costs on shipping and contribute to the local economy. The workers in the plant are local, and most of their materials are from the Northeast ("About Comet", 2011).

Renewable Energy

At their old Factory, Comet used 50% solar energy to run their facilities. However, since moving to Ithaca, they have not been able to employ renewables. Comet remains interested in wind energy and plans to utilize this technology when it comes online. For the time being Comet

has decided to invest in conservation and efficiency over renewable energy. They are in the process of renovating an old goat farm into a building for their use instead of constructing a new building. They are also making sure that it is properly insulated so that when they start using renewables, they will be more effective. Comet believes that efficiency and renewable are the solution and one cannot be effective without the other.

Comet is currently heating their building by using off cut on their decks from the manufacturing process. They can do this because there are no toxins in the glue they use. They also uses heated presses to make the boards, which they plan to run on the burning of their off cut within the next year which will drastically cut their use of electricity (Salfi, 2011).

Recycling

Comet recycles, up-cycles or composts nearly all of their scraps. They also encourage customers to send back their used or broken boards by giving them five dollars off their next purchase. They use scraps for heating, as mentioned above. Comet also up-cycles boards into new products such as bike racks and benches. If they are not able to do this, they compost the boards safely ("About Comet', 2011).

Introducing C2C to Consumers

Comet is extremely interested in C2C (Cradle to Cradle) thinking and are constantly moving towards this idea within their manufacturing process. They have introduced this idea to their consumers and their community, as well as other companies and overall are a good example of a small company, working to provide customers with the best products in terms of quality and sustainability ("Comet Skateboards", 2011).

E) RECOMMENDATIONS FOR CUSTOMERS AND POLICY MAKERS

When considering purchasing any product, a conscientious consumer will investigate both the product in question and the company supplying said product. The first step towards being an informed consumer is to do research about what you're buying. Especially in the case

of longboards, knowing information about the company, the materials that make up the board, and the durability of the board is essential in making a careful choice.

From a consumer perspective, comparing and deciding between Loaded and Comet can be a daunting task. One important component to take into account is the outward message of either company. Both Loaded and Comet have "mission statements," or overall goals, plans, and visions for the future of either company. However, Comet puts a large percentage of their advertising towards maintaining a "green" image by advertising things such as a board recycling program, a closed-loop manufacturing cycle, and whey-based resins. This is important because it shows that Comet consciously strives towards sustainability, and has plans to continue implementing environmental initiatives in their business methods.

After initially investigating the company, the next step is to consider the life cycle of the board. For longboards, we highly recommend researching the wood component of each deck. With our project, the difference is gigantic; Loaded's bamboo is shipped overseas and is heavily treated before it becomes a deck, whereas Comet boards are made with maple, which is grown and harvested within the New England area. The durability of either company varies with the user, however both companies design decks that are built to last years if treated well. It is essential to consider factors other than price and popularity when choosing a longboard in order to pick a durable product that was sustainably created.

Once you have done your research and are adequately informed about the two (or more) companies, you must make an educated decision based on your personal priorities. Some people simply choose the cheaper option, in this case, Comet. However, in regards to sustainability, we recommend Comet due to their multiple sustainable initiatives, local wood harvesting, and use of non-toxic epoxies and resins in their construction process. Loaded's carbon footprint is many times higher than Comet's due to the overseas shipping of Bamboo, and there few sustainable initiatives and goals within the company. Both products are well-made and durable, but Comet is the clear choice for a conscientious consumer.

Although consumer choice is one of the most powerful deciding factors between sustainable and conventional companies, the role of policy makers is not insignificant. Within the longboard industry there is much room for regulation as well as increased standards in a variety of fields. One way that policy makers could greatly increase sustainability is to update

existing forestry management standards (such as FSC) and make the guidelines stricter and more comprehensive. Additionally, one major environmental impact of the longboard construction process is a result of disposal of paints, epoxies, and resins containing VOC's (Volatile Organic Compounds). By limiting the standard levels of VOC's in these adhesives, policy makers could have a considerable impact upon the longboard industry, as adhesives play a large role in the construction of both Loaded and Comet boards. For companies that ship overseas, such as Loaded, policy makers have the potential to shape and increase efficiency for airfreight. Capacity and fuel efficiency are two areas in particular that policy makers could create standards and restrictions for. And finally, there are often incentives that exist for utilizing alternative energy sources, both in transportation and production. Policy makers can create initiatives of this type; offering a company an economic reason to invest in environmentally friendly technology over conventional ones.

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