

Highway 16 Wood Stove Exchange Positioning and Marketing Recommendations

The Problem

Residents throughout the Highway 16 area in British Columbia, which includes Burns Lake, Houston, Smithers, Terrace and Hazelton, are known to have older wood stoves that produce an excessive amount of wood smoke. These wood stoves are not the clean burning or new technology versions that meet Canadian¹ or U.S. Emission Standards², but are, in fact, considered dirty burners that negatively contribute to the local environment and can impact residents' health.

In the area, wood burning accounts for 10 percent of household heating on the average and there are many households that heat exclusively with wood. And, according to information from Environment Canada, more wood burners can be expected within the region due to the pine beetle blight and the resulting available timber for firewood.

Other factors influencing wood burning, according to air quality officials in the local area, is the local desire to avoid heating bills as well as concern over the impact of fossil fuels on climate change, and the easy availability of firewood in general. The resulting problem is more wood burning in local neighborhoods which has the potential to impact the health and well being of these communities. This is a problem that needs correcting in order to avoid further increases in levels of wood smoke particulates in these communities, and to help these communities clean up their existing problem.

Highway 16 Exchange Details

To resolve the problem, the Ministry of Environment is implementing a wood stove exchange program, with the assistance of the Environment Canada, local communities and other key partners such as British Columbia Lung Association, Northern Health and the hearth products industry. The campaign will encourage residents along Highway 16 to replace their old wood stoves with new technology that produces minimal emissions, such as natural gas or propane freestanding stoves, pellet stoves and wood stoves that are certified (meet Canadian or U.S. emission standards). This exchange program has the goal of replacing more than 400 old wood stoves with newer technology over the period of three years (by the end of 2010).

The Challenge

As many government agencies and community organizations throughout Canada and the United States have experienced, working to help people replace old wood stoves is not an easy task. Many communities have had challenges resulting in lower than expected results. So, how can stove exchange programs be marketed to achieve a better rate of behavior change? And, specifically, in the instance of the Highway 16 program, how do senior government agencies and the communities of Burns Lake, Houston, Smithers, Terrace and Hazelton get residents to switch to newer appliances from the older, dirty burning options?

Solutions

The solutions are grounded in an innovative new approach to marketing called Community Based Social Marketing (CBSM). This form of marketing requires understanding the situation, becoming aware of the needs of target audiences, identifying the barriers and uncovering perceived benefits to the target, as well as defining the necessary incentives to encourage behavior change and adoption by the community.

¹ Performance Testing of Solid-Fuel-Burning Stoves, Inserts, and Low-Burn-Rate Factory-Built Fireplaces CAN/CSA-B415.1 standard published by the Canadian Standards Association

² New Source Performance Standards, Title 40, Part 60, Sub-part AAA of the Code of Federal Regulations (USA) (7-1-92 Edition), published by the United States Environmental Protection Agency

In order to achieve this goal as it pertains to wood burners, the Ministry is implementing a pilot wood stove exchange efforts using CBSM within the Bulkley Valley Lakes District (BVLD) and Terrace to determine how to achieve success for other programs offered within the Province. This document aims to examine the data and past experiences of other replacement programs and air quality officials, and provide recommendations for these two pilot efforts.

Building on Research

As a first step of the Highway 16 CBSM approach, research has been implemented, including **Six Focus Groups** by NRG Research Group in Burns Lake, Terrace and Smithers (40 total participants) and a **Quantitative Survey** conducted by the B.C. Conservation Corps and the Ministry staff within the town of Smithers (129 responses). An overview report by the NRG Research Group provides perspectives on the focus group and survey data from these two efforts. This analysis examines the NRG report as well as the following information to provide CBSM recommendations:

Primary

- NRG Wood Stove Change-over Focus Groups and Survey Draft Report

Secondary

- Burn-it-Smart Workshops (Wood Energy Technicians of B.C.)
- Wood Stove Changeout Implementation Plan for the Sunshine Coast (Ministry of Water, Land and Air Protection)
- 2006 Great Okanagan Wood Stove Changeout Program (The Regional District of Central Okanagan Air Quality Program)
- Libby, MT article in *Hearth & Home* magazine
- District of Houston Bylaw No. 947, 2006
- Town of Smithers, Wood Burning Appliance Smoke Control Bylaw No. 1520
- Model Municipal By-law for Regulating Wood Burning Appliances (Environment Canada)
- Skeena – Blvd Wood Stove Exchange Program 2004 (B.C. Lung Association and B.C. Ministry of Water, Land and Air Protection)
- Wood Burning Focus Groups (Ontario)
- Canadian Census Data

Demographics

Highway 16 Residents

According to demographics data for the area, 31 percent of residents of Highway 16 are married individuals between the ages of 25 and 44. These residents generally own their own homes, with more than half of all residents in every community reporting an “owned dwelling.” Residents have a combined average yearly income of around \$50,000, and some college background. Based on the Census data, this puts them above average from Canadian citizen. And, nearly 44 percent of the community members are employed in manufacturing and construction. English is the predominant language for residents of Highway 16, with all communities reporting over 80 percent of English-only individuals.

According to the NRG report, residents living within the Highway 16 area are intimate with wood burning. Focus group participants have older wood stoves (dating from mid-1970s to mid-1980s) and half report that wood is their only source of heat. Many others rely on wood, but have a back-up of gas or electric heat.

Contributing Information

Perspectives on Green Products

The environmental benefits of new, cleaner-burning freestanding stoves, whether gas, wood or pellet, make them attractive green products according to information from manufacturers and the Hearth, Patio & Barbecue Association (HPBA). And, since going green in and around the home has increased in popularity over the past years, a new stove can be considered an attractive or greener purchase.

According to an article in *Environment* in June 2006, the use of recycled or biodegradable products is widespread, as is the use of environmental products. As many now know, consumer products are now often purchased because of their green benefits. However, according to Roper ASW's 2002 "Green Guide Report," the top reason that consumers do not buy green products is because they believe that they have to give something up, whether that is convenience, lower costs or exceptional performance. In short, when a green product doesn't deliver the same satisfaction as the non-green product, there may not be a good reason to make the change.

New Stoves Meet the Test

Wood stoves that meet the Canadian emissions standards or United States (U.S.) requirements perform at a much greater level of efficiency than older stoves. They use approximately one-third less wood, produce significantly less wood smoke - 70 percent according to the U.S. Environmental Protection Agency (EPA) - and are more efficient at heating a home or living space. Gas stoves and pellet stoves are even more efficient, require little work and also produce the best emissions reductions over wood stoves. According to stove manufacturers, consumers find great satisfaction in these new stoves and are always impressed by how much better they burn over the older wood stoves that are the subject of this report.

Style of Wood Burning

The new technology stoves are used differently than older stoves. Newer stoves require less wood overall but need to be loaded with more frequency. For example, the old stoves can be loaded once every 12 hours, while the new stoves require more attention. This is a point that needs to be considered in this program so that people are prepared.

Considering Past Exchanges

Over the past decade, most stove exchanges have been implemented as a sales promotion. They have been designed around a four to eight week promotional cycle, and often include ads and publicity to spread the word about the effort. These exchanges have included community partners that bolster the case for replacement by lending their credible support and promoting the effort to their target audiences. While the format has been extremely successful and many people have come forward to participate, the final results of these exchanges have not met expectations in terms of the number of stoves replaced.

There are, however, many exceptions. Wood stove exchanges that have coupled the promotion with an emphasis on public education and a long-term focus on behavior change have achieved greater success. And, the most effective stove exchange programs have been built around multiple year goals or an impending rule that prohibits burning wood in an uncertified appliance during poor air quality days. These exchanges also include local champions that labor tirelessly to make the program work. Past exchanges didn't include consumer feedback about the experience of working with retailers. More research is needed to determine what can be learned from the consumer experience.

Regardless of the make-up of a program, there appear to be common barriers to success: cost, accessibility of alternative fuels, and perceptions and attitudes about wood smoke and wood burning.

U.S. Program Efforts

The EPA and the HPBA have entered into a long-term partnership called The Great American Wood Stove Changeout campaign in the United States. Other partners in this effort include the Chimney Safety Institute of America (CSIA) and the Steel Recycling Institute. The Great American Wood Stove Changeout is designed to aid communities in helping wood burners replace their old wood stoves and fireplace inserts, as well educating them to how to properly enjoy a fire that protects air quality.

Currently, The Great American Wood Stove Changeout has implemented six pilot programs - in Libby, Montana, Dayton, Ohio and Pittsburgh, Pennsylvania - and is working to conduct local research on barriers and incentives from these programs. The HPBA is also working independently on a number of stove changeouts throughout the U.S. and the HPBA of Canada, an affiliate organization to the HPBA, has been an active participant in the "Burn it Smart" public education effort. Details are available at <http://www.burnitsmart.org/>

Currently, The Great American Wood Stove Changeout program is providing materials and information to public officials to help them educate their populations and to inform their local programs. Details are available at www.woodstovechangeout.org or www.epa.gov/woodstoves.

Data Analysis

Perspectives on Wood Burning

The NRG report provides a snapshot into the backgrounds of people who heat their homes with wood. From the data it is evident that wood burners in the Highway 16 corridor like the warm, comfortable heat produced by wood stoves and they appreciate that wood is an inexpensive fuel compared to other sources. A strong majority says burning with wood is very enjoyable. Additionally, most indicate that burning wood is necessary to heat their households.

These wood burners believe that wood heat is very much different type of heat than heat from a central furnace. They believe that they are good at burning wood (they have done it for years and do it well). More specifically, they believe that wood is a consistent, independent, reliable, and renewable fuel source. The main reason these households heat with wood is because it is cost efficient, firewood is abundant and the heat is dry. While the mess from wood stoves is a hassle, and is the main drawback with this source of heat, the benefits seem to outweigh the challenges.

These wood burners generally have electricity as their other source of heat, and they also live in single detached homes or mobile homes. Frequent power outages and lack of natural gas make wood burning essential. And, many people seem to be unaware about the need for the new, low emission technology.

Knowledgeable Wood Burners

The wood burners in these studies claim they know what they are doing and they know how to manage a fire. Almost all of the respondents say their household uses their woodstove properly. Wood burning is something they have been doing since childhood (18 years of wood burning experience on the average). They feel they generally do a good job with their firewood – 89 percent split the wood before seasoning and 78 percent cover their firewood outside. A strong majority indicate that heating with wood is necessary and there are three reasons why households heat with wood: cost efficient, abundance of wood and the dry heat.

The most common methods described to keep a fire burning properly include using dry wood, keeping the fire hot, keeping the stove and chimney clean and allowing the air to circulate. Although not widespread, some respondents say that they use accelerants to light the fire and keep it going. According to air quality officials in B.C., many wood burners seem to be defensive and feel threatened by messages that imply wood burning is anti-social or not friendly to the environment. Some also live with elder family members that burn garbage, including plastic in their wood stoves.

These wood burners, in general, say they make an effort to reduce the amount of wood smoke that they generate by using seasoned wood and building hotter fires. However, dampening the fire and burning despite air quality warnings are still done by a small percentage of wood burners.

Wood Smoke Attitudes

According to focus group respondents, wood smoke is generally not an issue in their community, but they know it can be a problem. Cars and industry are most definitely the big issues of concern to these households, not residential wood burning. Within the Highway 16 corridor, when people dislike wood smoke (and it is not often) it is because of odor, although health and visibility can be issues. Stains within the home can also be a problem. But no matter their concerns, a majority of people do like the smell of wood smoke.

Attitudes about wood smoke shift when people discuss the type of wood they are burning as well as garbage burning. This taints how people think of wood smoke. When the wood is dry and no garbage or other materials have been added to the fire, people believe that wood smoke is not offensive. Rural participants do not feel their neighborhoods are smoky, while those closer to town say that they have

neighbors that produce a lot of smoke. But, instead of putting the focus on themselves, they put it on their neighbors.

Health and Visibility

For many, wood smoke seems to be unhealthy if it can be seen, although when people don't like wood smoke it is because of its negative health impacts. However, health is not credible as an issue with wood smoke, unless visibility is greatly impacted. For example, the residents of Smithers – who have visibility issues – understand the health concerns. While many people like the smell of wood smoke, it seems that if they can see it (it is visibly present), it is associated with negative health effects.

Exchange Dynamics and Benefits

A small percentage of the wood burners who contributed to the focus groups and the survey have considered exchanging their old stove, while many are satisfied with their current stove. People are more likely to choose a wood burning replacement for a current wood burning product, instead of switching to another fuel. **The main reasons for installing new appliances are: fuel efficiency, price and old equipment failure, while air quality ranks higher for future installations.** Old equipment and better performance are the most common reasons why exclusive old woodstove users might switch. But, regardless of the benefits, not many people are familiar with the idea of exchanges.

Environmental Concerns

Chimney smoke in general is not listed as a great concern. However, those that have a concern about chimney smoke also have a concern about air quality. The impact of chimney smoke on air quality can be a powerful message, but it is localized and needs to be a realistic statement. Senior government, industry, local government, environmental groups, regional health authorities and the public are all important audiences to involve when communicating these messages.

The Reasons for Change

The main reason people are considering an upgrade is because they have heard that new stoves are **efficient, heat quickly, are very warm and use one-third less wood.** Air quality is not a reason, in general. A program that advocates the elimination of heating with wood on a small (household) or large (community) level is not likely to be well received. However, recommending that people change in order to use less wood while fulfilling their heating needs is likely to be accepted.

Eliminating the use of wood is not a good recommendation, but recommending that people upgrade in order to use less wood and make stoves safer seems to be well received. The fact that many of the residents in the area are married, or could be seen as being in childbearing and child-rearing years, provides the opportunity for awareness about the positive or negative impacts on the health of children. Additionally, because of the high rate of homeownership and middle incomes, residents might place a high value on home safety and the protection of their home – which is to most a long-term investment.

Barriers for Replacement

While many people are open to the idea of changing over, the most common barrier to replacing an old woodstove is cost, with installation and upgrades to the home as key cost issues. For many, the perceived cost is too much to justify, as is the idea that someone might need to come into their home, which can cost more, or might open up an insurance issue. While many people love the idea of trading out, it is a major money issue. Incentives and buy back programs, or even tax refunds, are reported as being an interesting tool towards reducing the impact, but there is a huge need for greater assistance. People would also like inspectors to come out and give them advice on installation, house alterations and the size of the stove.

Size of the Incentive

The dollar value of incentives and what it will take, in general, for people to replace an old stove (whether \$250, \$400 or \$1,000) is a question that cannot be adequately answered with the data that is available.

However, data from the report indicates that an incentive as low as \$250 and as high as \$1,000 could be necessary to encourage exchanges. In past exchanges, incentives of between \$250 and \$500 have not proven to be overwhelmingly effective, though complete payment of stove exchanges in lower income communities has also presented problems.

Figuring out how specific incentives will be received by a given community will take further research. The research to date indicates that financial incentives are critical in some shape or form. An incentive does not encourage all wood burning users, but it will make a difference to those who are likely to replace their conventional appliance. (NOTE: The current stove exchange in Houston is creating favorable response. It includes a base \$250 Provincial incentive and a local district incentive of \$300 creating a \$550 incentive package.)

One interesting issue regarding stove exchanges is the idea of the resale of the old stoves. In order for an exchange program to be a success, the old stove needs to be removed from the marketplace. Because many old stoves seem to be resold if they are replaced, there appears to be a gap in understanding stove replacements. It is also important that the incentive for a replacement exceed the going rate for an old stove on the market. In the Pittsburgh program, the going rate for an old stove was around \$600 making it a profitable resale appliance.

An interesting barrier that many past exchanges have not considered is the perception that the new technology might not work. Some wood burners indicated a mistrust of the new technology and that repairs are often necessary because the stoves are more technical, and the obvious belief that their old stoves work just fine.

Target Audience Focus

The report highlights three potential segments of wood stove users: **hesitant**, who would like to upgrade but it is too expensive; **resistant**, who are not interested; and **unaware**, who have not heard of the new technology and aren't aware of the health risks.

Unfortunately, message targeting is difficult as age and gender did not stand out as being a significant predictor of attitudes. Nor did demographics as it pertains to how people felt about the environment. A more likely way to provide parameters around the hesitant, resistant and unaware is by considering the factors that influence their awareness about burning such as where they live in relationship to town and their level of education. Adding in messages about their commitment to the community and their family's health are also factors that should be considered.

Based on these inputs, here's a rough breakdown of what these three categories might look like in terms of demographics, circle of influence and location within a community, although this is a variable picture:

Hesitant: More likely younger to middle age consumer that has a higher level of education, a family or is looking to grow his or her family, lives closer to town, and has strong ties to helping the community. This person is more likely open minded about how to change his or her behavior and probably participates in recycling activities.

Resistant: Older person that is mistrusting of technology and has a long history of wood burning. Probably someone more traditional who doesn't want to see his or her rights limited, and is probably more of a maverick when it comes to taking advice on his or her habits. They are also more likely to change behavior slowly and over a long period of time.

Unaware: This person more likely lives in a rural environment and not influenced by mass communications (or fliers from newspapers or television advertising). They are definitely less trusting about government and new technology than either the hesitant or resistant populations

and are fiercely independent. He or she does not tend to communicate with neighbors and less influenced by peer pressure.

Bylaws (Regulation)

While bylaws are seen as negative by many residents, they appear ultimately necessary to move people to exchange old stoves in the end. This assumption is based on a stove changeout program in Libby where there have been a number of incentives in place to help people make the replacement, but ultimately it has taken an impending regulation to increase the number of people engaged in replacement. In some U.S. regulations, such as the one in Libby, residents are unable to burn uncertified or old stoves after a certain date. Other regulations have included removal of an old stove when a home is sold, and then burning restrictions based on air quality levels, such as a burn ban on nights when the air is poor.

Based on the data, balancing regulation and education seems necessary, as does focusing on personal incentives and benefits over health impacts. Wood burners appear to be receptive to regulation with the appropriate education. An analysis of bylaws in Canada shows that they can vary, and that enforcement, communications and penalties all differ. By coupling bylaws with education and clarifying the process for exchange, wood burners might become more receptive.

Within the Highway 16 area, the reason that bylaws are not well received is that people see wood burning as integral to their daily lives. They also see bylaws as a lack of control by their community. Respecting these beliefs and addressing them in publications and public education efforts will make the education process more successful. Allowing time for people to absorb the need for personal change is also something to consider.

Messaging

People do not respond well to health messaging because the health messages are not deemed credible, except when visibility is an issue in a community such as in Smithers. The report highlights that most people indicated that a health message would not get them to change. However, when people seem to have more education, the health message becomes more credible.

Education about the overall impacts is essential, but it also takes years of effort. The most common way to spread the word is through newspapers, both daily and community. Newspapers are considered credible because they are a third party, neutral source of information. Yet, the most effective form of communication is demonstration. Wood burning demonstrations are important. In fact, the workshops implemented by the "Burn it Smart" program are very effective at achieving behavior change, but they can be time-intensive in their creation.

People are continually amazed by the new technology, especially seeing old wood stoves burning next to new stoves. It's hard not to believe the benefit of the new technology when they are burning side-by-side.

It seems important to define the portion of the air quality problem related to wood burning, and what the exchange process looks like. Educating through air quality warnings can help, as can responding to neighborhood complaints.

When it comes to spreading the word about exchanges, promotion of a stove changeout program is hard and even with a dynamic program, spreading the word can take great effort. Wood burners claim that the best way to communicate is through third party (or neutral) communication sources, whether that is publicity, discussion groups, workshops or town meetings, flyers, web sites, personal phone calls or newsletters. And, there are some important things to address through public education, such as what to do if wood is wet, what to do with garbage and a person's tolerance to wood burning.

Tangible Actions

It is clear that wood burners are receptive to tangible actions. People are open to hearing that if each person reduced emissions by a small amount, the community would be noticeably affected. For example, people can be reminded about how to avoid a smoky fire by not dampening down, not adding accelerants, not adding garbage or not burning during when air quality is degraded (within many B.C. communities a Pollution Prevention Order will be in effect, or an Air Quality Advisory will issued during these times).

Partner Roles and Collaboration

All exchanges require partners that play key roles. Suppliers encourage retailer participation and level the economic playing field by participating retailers. Retailers promote the exchange program, new technologies and supply appliances. Local governments and organizations advocate the effort through existing channels, coordination, public education and participation. They can also supply administrative support and be an information source for the public. Additional partners make the operations more complex, but offer more promotional rewards. Fuel suppliers, chimney sweeps, local community partners and environmental and health organizations create a bigger opportunity. Finally, people in the community can put pressure on neighbors to make good choices.

Important Programmatic Needs

There are many elements that have been tried in other exchanges that provide good lessons. The following are a list of highlights:

- **Funding:** Have funding in place early on in the program.
- **Partners:** Develop a list of credible local partners.
- **Timing:** Work closely with local hearth retailers to try to run program as close to September or October as possible or from January to March (when consumers are thinking about stoves).
- **Appliance Variety:** Include all types of appliances in the exchange, certified wood burning, gas and pellet. Don't dissuade the installation of new wood burning appliances.
- **Vouchers:** Create a voucher system that gives homeowners the ability to shop at various retailers and get a discount. The voucher can be used when the family is ready to make a change, but needs to be dependent on a deadline.
- **No Wood Boilers:** Outdoor appliances allow people to burn wood for home heat but are currently being scrutinized for the large volume of smoke they produce. The EPA had just entered into agreements with many wood boiler manufacturers that encourage them to make their appliances cleaner burning, but most wood boilers are considered very dirty burning. Details about these appliances are available at www.woodheat.org.
- **All Audiences:** In addition to local urban and suburban audiences, include First Nations and mobile home residents.
- **Installation:** Consider waiving building permit costs for installation in order to remove a simple barrier.
- **Financing:** Work with local retailers or local banks to make low cost financing available.
- **Fuel Savings:** Calculate annual fuel savings and then provide concrete examples of how new technology will help offset costs, or the effort to collect firewood.
- **Communication:** Provide a toll free hotline for people to get more information.
- **Recycling:** Understand how old stoves will be recycled and communicate it in the program. Make sure all old stoves are tracked and destroyed, and proof of recycling is gathered from the retailers.

Marketing Recommendations

Considering the data, marketing a stove exchange requires some specific action. While the ideal incentive amount requires more research, there are some key steps that can help ensure this exchange has greater impact. Here are the top line recommendations with more detail:

- Develop a multi-year education program that supports the changeout.
- Speak positively about wood burning to residents, and shine the light on wood-to-wood replacements with other fuel sources as options.
- Use cost savings and the need to replace old appliances due to safety as primary messages and then reinforce with messages about air quality and health when people are engaged in the program.
- Demonstrate the right way to burn wood.
- Focus on individual, tangible actions, and give them a staged approach to cleaning up their behavior – first burn cleaner and then replace the old stove in the future.
- Demonstrate visibly how ineffective old wood stoves are burning wood, and the effectiveness of new technology stoves.
- Focus on health impacts in Smithers where visibility is an issue.
- Point out the benefits of replacement, instead of making people feel that they are not respected for their choice to burn wood.
- Develop an approach to educating residents that starts with many levels of government.
- Focus on the hesitant consumer.
- Continue on a path for promoting bylaws, and develop a communications program that helps residents clearly understand the benefits of bylaws.
- Create a program where all partners understand their roles and where the retail process does not create additional barriers.
- Continue research in each community to determine what incentives work in their market.

Focus on the Individual

Not only are clean burning freestanding stoves more efficient, better performing and more convenient, they have tremendous environmental benefits. How do the Highway 16 program coordinators take advantage of these green marketing benefits? The answer is to highlight personal benefits to the local resident while simultaneously applying tactics that foster community pressure on the individual to do the right thing. The primary focus of the exchange needs to be around value to the consumer. It's better to focus on how changing out benefits the person and then focus on how they can then help the community around them. For example, tier messaging so that the individual understands that new stoves are efficient and cost effective, but also produce better health and local air quality.

Emphasize What Is Working

When building a strong and effective woodstove exchange program in and around Highway 16, it will be important to highlight what is working when it comes to how the community members burn wood. It is important to emphasize what they are doing right and highlight resources available to help them to do it even better. Because of the loyalty and passion that people within the survey conveyed about wood burning, it would be a mistake to condemn them for doing something they believe is the right thing to do, both for the community and for their pocketbooks. The better route is to emphasize what is working and show them a path to an even better and more efficient fire. It is also important to distinguish between inefficient old wood stoves and efficient new wood stoves, and to show demonstrative evidence about what works best.

Create a Common Goal

We recommend highlighting a common goal for the community and building a program that teaches people to burn wood better and gives people accolades for doing the right thing and helping neighbors to

do the right thing. The structure and messaging of the program is critical, as is the type and length of outreach. We recommend creating a program that speaks to a varied tier of audiences, building messaging that resonates with each audience and then choosing carefully how to reach them. We do not recommend forcing people to make a change. Instead, give them the tools to do it right, and expect results over a period of time. More than anything, it would be to the advantage of the program to create a “bigger reason” for people to make a switch in order to ensure that their community is the best place to live in order to create more external pressure on behavior. Giving people ways to help prompt others will also be useful.

Ready to Make the Change

Due to probable limited resources, the program should focus on the hesitant consumer who is ready to make the change. This audience is most willing. They should be provided access to the incentives and given the technical resources.

Make Smaller Commitments

For those not ready to make a change, we advocate that they tackle a smaller commitment such as having their chimney cleaned or getting their current stove serviced. Or, provide vouchers for free or discounted chimney cleaning services.

Finally, for the people who don't think there is a problem with wood smoke in the community, we advocate letting them come to the table at their own speed. Based on the numbers, it looks like there is plenty of opportunity for exchanges from the “likely” to change out group. We don't recommend trying to change the world, just make a noticeable difference that benefits air quality.

Tiered Messaging

The overall message needs to be “replace your old stove to save you money, protect your home, but also to make the community a better place to live.” The individual benefits should focus around three ideas: cheaper heat (use of less wood), safer home, and ultimately cleaner air. We suggest highlighting the reasons with tangible and credible information and building a case for reducing wood smoke by demonstrating how all levels of the community are going to make a difference – government, environmental groups, wood stove users and more. We also advocate making it clear that it is perfectly acceptable to change from wood to cleaner burning wood appliances and to gas if it is available and wood is scarce.

The Importance of Bylaws

Being a good neighbor is a good aspiration, but because of human nature a program like the stove exchange needs leverage behind it. That's why it seems that exchanges should be **backed with a bylaw or a community regulation** to focus on burning with certified wood burning or clean burning appliances.

While we do not advocate curtailing wood burning, we do recommend highlighting and rewarding smart burning. (A staged burn ban has been a proven method for reducing wood smoke in the Seattle metro area. During the first stage, curtailing wood burning and using clean burning techniques is encouraged. During the second stage, no wood burning is allowed unless it is the only source of home heat.)

Implementing a bylaw gives teeth to what people need to do and provides context for people to understand what is required of them. There are instances where a bylaw was the impetus for large scale exchange, such as in Crested Butte (Colorado) and Libby (Montana), and the resulting number of stove exchanges increased dramatically. Most recently in Libby, a dramatic increase in the number of people interested in taking advantage of a major incentive increased exponentially as the deadline for when people could no longer use old wood stoves drew near.

When thinking of a bylaw, it is important to provide a rationale, focus on the education aspect, show the long term objective, explain how the bylaw will affect individual households, and explain how households are impacted by wood burning in general. Another important point is to make it illegal to sell an old stove.

Show the Visuals

While wood burning workshops can be time consuming when resources (money and people) are limited, it is evident that using visual opportunities to show old technology versus new is critical. We advocate finding visual ways to demonstrate the benefits of new technology, perhaps by using a burn trailer (available through manufacturers, retailers or representatives). These trailers have old and new technology and are mobile. They can be pulled from location to location with general ease, and provide an educational backdrop. These trailers, and their staff, can turn avid wood burners into converts in short order. If volunteers are available and eager to do workshops, there are examples of successful efforts through the “Burn it Smart” program.

Sample Highway 16 Program

Exchange Goals

- **Goal #1** – Residents who heat their homes with wood, or use an uncertified wood burning device, utilize the exchange program to replace their old devices with new technology, whether gas, pellet or certified wood, or other cleaner heating alternatives in order to reduce wood smoke.
- **Goal #2** - Residents learn how to burn wood even more effectively in order to reduce the amount of wood smoke in their community.
- **Goal #3** – The community rallies around the idea of cleaner air quality and members influence each other to make a difference with their burning habits.

Timeline

- Three years, with the launch to take place in November 2007.

Program Basics

- Kick-off in Fall/Winter 2006.
- Use a voucher system that includes registering to get involved.
- Hearth products members provide an additional 15 percent discount for four weeks in March.
- Provide a retroactive rebate for turning in old stoves.
- Provide discounts for services such as chimney sweeping, stove service, firewood and firelogs.

Specific Objectives

- Utilize the resources to change out 400 or more appliances.
- Get people to improve their wood burning habits.

Target Audiences

- Hesitant consumers living within the Highway 16 corridor who burn wood in old wood stoves.

Messages

- Replace your old stove to save money, protect your home, and make the community a better place to live

Necessary Actions by Residents

- Replace old wood stoves with new technology stoves.
- Use their wood burning stoves or fireplace inserts correctly.
- Have old appliances destroyed or taken out of service.

Implementation Steps

- **Step #1 - Create a Community Goal**

We need to tighten the message regarding the air quality situation in Highway 16 and better define locally why it is important to burn clean by using technology that reduces the amount of smoke people produce. We recommend creating a rallying cry that builds on the pride residents have about their towns and focuses them on taking ownership of their actions as they pertain to their environment. One idea is to make Highway 16 towns a “Smart Home Heating Community” or a “Wood Smoke Reduction Community.”

At the same time, we think it is important to define a benchmark for when the community reaches its goals. We suggest that success be demonstrated through posters or bulletin boards or in the local woodstove exchange office. This rallying cry should be disseminated through all official communications put out by local town officials and hung on the doorknob of every home in the

metropolitan areas of the corridor. One way to disseminate the information is to develop a Power Point that can be utilized at council meetings and at local community meetings.

- **Step #2 - Create a Local Contact**

We recommend emphasizing one point of contact to answer questions about stove exchanges and conduct one-on-one follow-ups and proactive outreach. This local contact would be an approachable, friendly person who has equity in the community or is at least a local business person. This person would have local contact information and standard office hours. This local presence would provide technical assistance and would make sure that people have all the information they need to make a change.

- **Step #3 – Gather Demographic Information**

Using this information as a guide, review demographic data from the Census to locate exactly where people who are likely to exchange stoves live and shop. Determine the right communications tools (see below) based on their exact demographics and also outline the right medium with which to reach them via the media. This data can be gathered from the census as well as a local phone or mail survey. Also, gather contact information from people that express interest in the program so that follow-up research can be conducted.

- **Step #4 - Continue Barriers Research**

An important step is to utilize immediate and long-term barriers research to continue to refine solutions to the program implementation. We recommend continuously asking people about their responses to the program and why it might not work for them. Through observation, conversations and surveys implemented by the on-the-ground contact, determine the exact reasons why people do not support the effort. With the assistance of town personnel, create a list of people who are assumed wood burners and determine how to reach out to them – through the phone, grocery store surveys and/or town hall meetings. Then, calculate the results and continue to implement the program with any fine tuning.

- **Step #5 - Tailor the Tools for the Community**

Incentives

We recommend highlighting the available incentives and the upcoming 15 percent discount while also creating a community reward for encouraging people to reach toward a goal. Perhaps this could be an event that everyone can participate in, or a town accomplishment or community item that people have been wanting for a while (a new sign, etc.).

Vivid Prompts

Another idea is to create dynamic visuals (graphics in full color with pictures) that can be positioned within the communities to communicate the passionate reasons why people need to protect the Highway 16 environment. These can include:

- Sign when you enter a town that indicates a “Smart Home Heating Community” or a “Woodsmoke Reduction Community”
- Sign in towns’ offices that demonstrate progress in reaching its goal
- Posters for all businesses
- T-shirts for students and town leadership
- Copy for newsletters and reader boards

Education

We recommend using reminders, or prompts, to ensure that people remember what to do when using their woodstove or to guarantee that people know how to replace their stove through the program:

- Bill stuffers for businesses and utilities (electric)
- Flyer for people to hand out in businesses
- Mailers for retail and hardware store circulars
- Ads in local newspapers or newsletters (**NOTE: These are proving effective in the pilot efforts for Highway 16.**)
- Home energy audits

Leadership

It would be valuable to develop leadership messages from the mayor(s) and provide routine updates to the community about the progress of the effort. In these updates, the mayor(s) can refer back to the chart in the office and remind everyone about why the community is working together to achieve this goal. These messages can be delivered by other town leaders at town meetings or in group settings, like school events.

Home Visits

Another strong tool would be to have the local contact work with town officials to determine how to make visits to people's homes to discuss exchanges, clean home heating and perhaps energy efficiency when appropriate. The home visits can be an opportunity to create dialogue about the program and begin to move people to change. Perhaps these can be done in conjunction with a local school science club.

Commitment Cards

Create a commitment card for people in town to sign that encourages them to take clean home heating steps for themselves and their neighbors. Give these cards out in the local woodstove exchange office or at local community meetings. Anyone who signs the commitment card can be eligible to win a monthly prize.

Events / Burn Trailer

Take the burn trailer around to different community events and demonstrate the benefit of burning with a certified woodstove or gas appliance. We don't recommend creating new events, but instead attaching program messaging to an already existing event. The purpose of this trailer movement is to demonstrate good wood burning and provide information to people who have questions. Within these clinics, we advocate also providing information about the new technology and its reliability.

Pressure Tools

A fun idea would be to create a window cling sticker that people could put on their home or car windows. This sticker would make it easy for people to see who has replaced their stove and would create momentum of peer pressure.

Peer Communications

The local contact can provide cards to the people who have already participated in the program and ask them to spread the word to their neighbors or friends. This will help make these people official stewards of the program. To give people motivation to hand out the cards, we can provide them with fuel rewards (discounts on fuel for every person they refer). Create an action item on the card that encourages a free home visit or another item that is free (firestarters or a tool).

"How-To Clinics"

We recommend creating a series of "how-to" clinics around the towns that are free and provide wood burning training for people with either old stoves or even new Canadian certified appliances. A local hearth retailer could give these presentations and they could be held at routine times at the fire department with the local contact person in attendance (not a one time event). The clinics could be an opportunity for a town meeting as well (provide coffee and cookies), and a place to present information on the program (in a low key approach).

News Bureau

Develop a proactive media relations effort where the program officials are continually updating the local media with stats and information about air quality and the exchange program. Additionally, officials can provide a meaningful flow of information that highlights the environmental challenges and offers input on ongoing barriers. Finally, pitching unique media stories that include people could also be a beneficial approach.

Step #4 – Simplify the Program Structure

We think it is important to examine the program's forms and materials to ensure they are as simple as possible and do not impede participation in the program. Perhaps limit the amount of information they have to gather to utilize for the voucher.

Step #5– Installation Tracking / Evaluation

Finally, we suggest tracking all potential and in-process installations to ensure that everything is working smoothly and the process is meeting the needs of the household. This opportunity could be used to conduct follow-up research. NOTE: We advocate that more emphasis be placed on program evaluation. In fact, it would be wise for the Ministry of Environment, Environment Canada and the EPA stove exchange program to discuss an evaluation framework with the HPBA. This type of evaluation module would be helpful for program coordinators to check off as they evaluate CBSM strategies.

Addendum – Author Background

Erika Schmidt of The Frause Group was hired by Environment Canada to review the NRG research report, research materials from woodstove exchange research projects and past exchanges within Canadian provinces, as well as exchanges within communities in the U.S., and present recommendations to create success with the Highway 16 woodstove exchange program.

Schmidt and the team at The Frause Group have more than a decade of special expertise working within the hearth industry and with local, regional and national air pollution control officials on wood smoke issues, in particular residential wood smoke. The firm has been involved in multiple exchanges in past years, and most recently is one of the consultant teams to the EPA and HPBA's Great American Woodstove Changeout,

The Frause Group team offers a realistic and real world perspective on the complexity of exchanges. While there are many variables that come into play with exchanges, the data analysis presented in this document reinforces the key elements that should be in place for a successful outcome. Details at www.frause.com.

Addendum – Report Data Recap

Woodstove Change-over Focus Groups and Survey- Draft Report, NRG Research, July 25th, 2006

- A community-based social marketing approach is being used in the Bulkley Valley Lakes District and Terrace to determine how to improve exchange programs throughout the region.
- First step in doing this was to form six discussion groups which were conducted by NRG (a research group) in Burns Lake, Terrace and Smithers. A public questionnaire was implemented by B.C. Conservation Corps and Ministry within Smithers.
- The purpose of this report is to consider the results of these studies.

Wood Burning Focus Groups, GPC Research, March 5th, 2001

- Report presented to the Wood Burning Steering Committee.
- Focus groups enlisted to help government, industry and not-for-profit representatives understand how people felt about wood, how wood is currently used as fuel, what would motivate people to fuel differently or cut/purchase wood differently, and what would motivate a switch out.

Skeena – Blvd Wood Stove Exchange Program, Footprint Environmental Strategies, December 14th, 2004

- Report presented to the B.C. Lung Association was funded by the B.C. Ministry of Water, Land and Air Protection.
- Report aimed to gauge success of recent wood stove exchange program conducted in the Skeena Region of B.C.
- Report also offered suggestions on ways to improve the cost-effectiveness of future programs.

Residential Wood Burning in British Columbia- Public Behavior and Opinion, May 2006

- Prepared by The British Columbia Ministry of Environment Protection , Environmental Protection Division, Water, Air and Climate Change Branch, and the Air Protection Section.
- In B.C. outside the Canadian Lower Fraser Valley, residential wood heating accounts for 16 percent of overall PM2.5 emissions.
- This report further analyzes a telephone survey from 2003 which studied public opinion and emission estimation from older, non-EPA approved technologies.
- This report was conducted to gain more knowledge on household energy consumption patterns, future consumption and anticipated switches, burning practices, attitudes and opinions, knowledge and awareness of air quality, and actions to reduce emissions.

The Eastern Ontario Burn it Smart Workshop Survey, Final Report, The Wood Heat Organization Inc., May, 2004

- Eleven workshops were produced in conjunction with a campaign called Burn it Smart! which aimed to reduce emissions from wood heat. This project, along with this report, was produced by the Wood Heat Organization Inc., located in eastern Ontario.
- Surveys were conducted at these workshops, and this report looks at the responses, as well as some over-arching themes found throughout the workshops.

Stegmeir, Paul. "Mission Almost Accomplished," Hearth and Home, December 2006, pp. 9-12

- Looked at the effects of the wood smoke on the region, and thus the reason for the change out.
- Article focused on the Libby, Montana changeout, and that most people are "scurrying" to meet the changeout deadline.

Woodstove Changeout Implementation Plan for the Sunshine Coast, Jane Hofweber, Ministry of Water, Land and Air Protection, October 2004

- Produced by the Ministry of Water, Land and Air Protection in B.C.
- This report was compiled to determine what a woodstove changeout program would look like for the area.

- Begins by identifying goals, strategies of the program, then lists 5 key elements of a program, finally outlines the roles, contributions of participating interest groups.
- Report also includes a model work plan for a March 2005 changeout.

District of Houston Bylaw No. 947, Council of the District of Houston, June 20th, 2006

- This bylaw sets requirements for:
 - No use of wood burning appliance when an air quality advisory is in effect (except when sole source of heat)
 - No wood burning appliance operation if could cause injury to health, plant or animal life, or enjoyment of life or property.
 - No replacement of wood burning appliance unless meets Canadian or US standard.
 - Fuel restrictions – only wood to be burned
 - Authorization to establish a removal program
 - Any appliance removed is to be rendered inoperable
 - **All non-certified appliances to be removed or made permanently inoperable by Dec 31, 2010**
 - Prior to sale or transfer of property on or after Dec 31, 2010 all existing non-certified wood appliances to be removed.
- The above points are a summary only a copy of the actual bylaw is available at: <http://www.hpbacanada.org/947%20Burning%20%20Air%20Quality%20Bylaw.pdf>

Town of Smithers Wood Burning Appliance Smoke Control Bylaw No. 1520, The Town Council of Smithers, July 11th, 2006

- Similar to Houston Bylaw except:
 - For new construction the building shall contain an alternate form or heating (other than wood)
 - Central wood heating systems (outdoor boilers) are exempt if very low emissions are demonstrated (<20% of the standard)
 - December 31, 2010 is a target removal date
 - Prior to sale or transfer date is Jan 1, 2007.
- The above points are a summary only a copy of the actual bylaw is available at: http://www.town.smithers.bc.ca/pdfs/bylaws/bl1454_current/BL%201520%20WOOD%20BURNING%20APPLIANCE%20SMOKE%20CONTROL.pdf

Model Municipal By-Law for Regulating Wood Burning Appliances, Environment Canada, 2006

- Created by Environment Canada in collaboration with representatives from the industry, municipalities, provincial/territorial governments, under the intergovernmental working group on residential wood combustion.
- Report is intended to serve as a tool for municipalities where air quality problems from wood smoke are present, and who wish to enact a law to regulate wood burning appliances.
- Also presents strategies and options for control of smoke that may be adopted.

ADDENDUM – HIGHWAY 16 CENSUS Data for Report

Canadian Communities-2001	Population (total)	Population ages 25-74	Largest demographic	Largest Demographic based on marital status	Most prominent language	20-64 with University certificate, diploma or degree	Median household income \$	Percent of "owned dwellings"	Percent of "rented dwellings."	Percent of "other"	Most prominent industry
Kitimat-Stikine	43,876	55%	Ages 25-44, 30%	Married, 50%	English only, 82%	12.00%	52,091	72%	25%	3%	Manufacturing and Construction 25%
Bulkley-Nechako	40,856	58%	Ages 25-44, 30%	Married, 53%	English only, 87%	13.00%	50,632	74%	22%	4%	Manufacturing and Construction 27%
Terrace	19,980	60%	Ages 25-44, 31%	Married, 50%	English only, 86%	13%	51,683	72%	27%	1%	Health and Education, 19%
New Hazelton	750	58%	Ages 25-44, 32%	Married, 48%	English only, 87%	10%	35,259	51%	49%	0	Manufacturing and Construction, 17%
Hazelton	345	61%	Ages 25-44, 32%	Single, 42%	English only, 87%	30%	58,444	73%	27%	0	Agriculture and other resource-based industries 22%
Houston	3,577	59%	Ages 25-44, 32%	Married, 55%	English only, 86%	12%	57,810	78%	22%	0	Manufacturing and Construction, 37%
Burns Lake	1,942	54%	Ages 25-44, 30%	Married, 47%	English only, 91%	15%	43,671	55%	46%	0	Other services, 27%
Smithers	5,414	57%	Ages 25-44, 31%	Married, 48%	English only, 88%	17%	62,115	67%	33%	0%	Other services, 23%

ADDENDUM – U.S. CENSUS Data for Great American Woodstove Changeout Pilots

US Communities-2000	Population (total)	Population ages 25-74	Largest demographic	Largest Demographic based on marital status	Most prominent language	Population 25 years or older with college diploma or higher	Median household income \$	Percent of "owned dwellings"	Percent of "rented dwellings."	Percent of "other"	Most prominent industry for occupation
Libby, Montana	2,626	66%	Ages 45-54, 14%	Married, 51%	English only, 96%	10%	\$24,276	57%	43%	0	Health and Education 25.4%
Pittsburgh	334,563	57%	Ages 25-34, 15%	Single "never married", 40%	English only, 91%	26.20%	28,588	52%	48%	0	Educational services, and health care, and social assistance, 30%
Dayton	166,179	61%	Ages 35-44, 15%	Single "never married", 39%	English only, 90%	14.40%	\$27,423.00	53%	47%	0	Educational, health and social services, 23%
Sacramento	407,018	56%	Ages 25-34, 16%	Married, 45%	English only, 67%	23.90%	37,049	50%	50%	0	Educational, health and social services, 19%