DECEMBER
2013

Growing the Opportunities:

British Columbia's HOME ENERGY PERFORMANCE INDUSTRY

STRATEGIC PLAN (2014-2019)

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PREFACE

In March 2013, GLOBE Advisors was commissioned by BC Hydro, FortisBC, and the BC Provincial Government (Ministry of Energy and Mines) to explore how government and utilities might better support the development of a sustainable home energy performance (HEP) industry in British Columbia.

PROJECT OBJECTIVES

The objectives of this project were to conduct research and consultation with industry stakeholders in order to:

- Document the opportunities and challenges for further developing the HEP industry and workforce in BC;
- Develop a definition for the HEP industry in BC that supports the interests of all stakeholders and generates buy-in for greater action;
- Undertake a supply-side economic analysis of HEP / weatherization services in BC;
- Work with program sponsors and key stakeholders to develop a vision and long-term strategic objectives / goals for HEP industry development in BC; and
- Identify approaches and tactics that BC utilities and the provincial government could take to influence and move toward a more self-sustaining industry over time.

PROJECT RESEARCH

Research for this project was carried out over a six-month period in 2013 and included:

- Extensive secondary research and data analysis, including a scan of HEP related policies, programs, financing initiatives, business models, workforce training and certification, and best practices (in BC and from across Canada, the United States, and Europe);
- Conducting more than 50 targeted, in-depth interviews with HEP industry leaders and key stakeholders in BC, across Canada, and in the United States;
- Undertaking a web-based industry survey with responses from more than 170 contractors (builders, renovators, trades, and installers), advisors (energy auditors, building science professionals, consultants, and realtors), and suppliers (manufacturers, distributors, and retailers); and
- Hosting two interactive webinars with more than 65 participants from industry in order to validate the research and explore in greater detail the identified opportunities and challenges for BC's HEP industry.

DEVELOPING THE STRATEGIC PLAN

This Strategic Plan was developed based on research and input from industry. The strategic planning process included:

- Performing comprehensive SWOT and GAP analyses based on the environmental scan performed during the project research phase;
- Establishing a clear vision and mission statement for BC's HEP industry;
- Developing goals, strategies, and action items in order to accelerate the growth of BC's HEP industry;
- Developing metrics to prioritize and classify different strategic actions in order to measure market transformation; and
- Developing different strategic options to help determine the best implementation plan.

ABOUT THIS STRATEGIC PLAN & SUPPORTING DOCUMENTS

This *Strategic Plan Document* was developed by GLOBE Advisors based on the extensive research and analysis that was undertaken as part of the BC HEP study. The *Strategic Plan* lays out a clear path for further developing and growing BC's HEP industry over the next five years (2014-2019) and beyond by providing a vision, a set of strategic goals, and a series of action plan items, performance indicators to measure success, and recommendations.

In addition, an accompanying *Research Report* provides a concise summary and analysis of information relevant to BC's HEP industry. It covers both the demand and supply sides of the HEP equation. On the demand side, the *Research Report* examines consumer perceptions and drivers; the various trigger points for action on HEP initiatives; and looks at best practices related to leveraging homeowner education and awareness. On the supply side, the *Research Report* examines the key industry players and their relationships with homeowners; the HEP market size and business case in BC; explores workforce development, as well as training and certification programs; and examines the importance of quality control, assurance, and professionalism within the industry. That report also provides insights on public policy, regulation, standards, and program design and implementation.

These documents have been prepared for GLOBE's project client (i.e., BC Hydro, FortisBC, and the BC government). As such, it is assumed that readers have a relatively strong baseline understanding and knowledge of the HEP industry and related energy efficiency and conservation initiatives in BC.

The diagram below is designed to serve as a tool to help readers navigate the documents and outlines their structure and content.

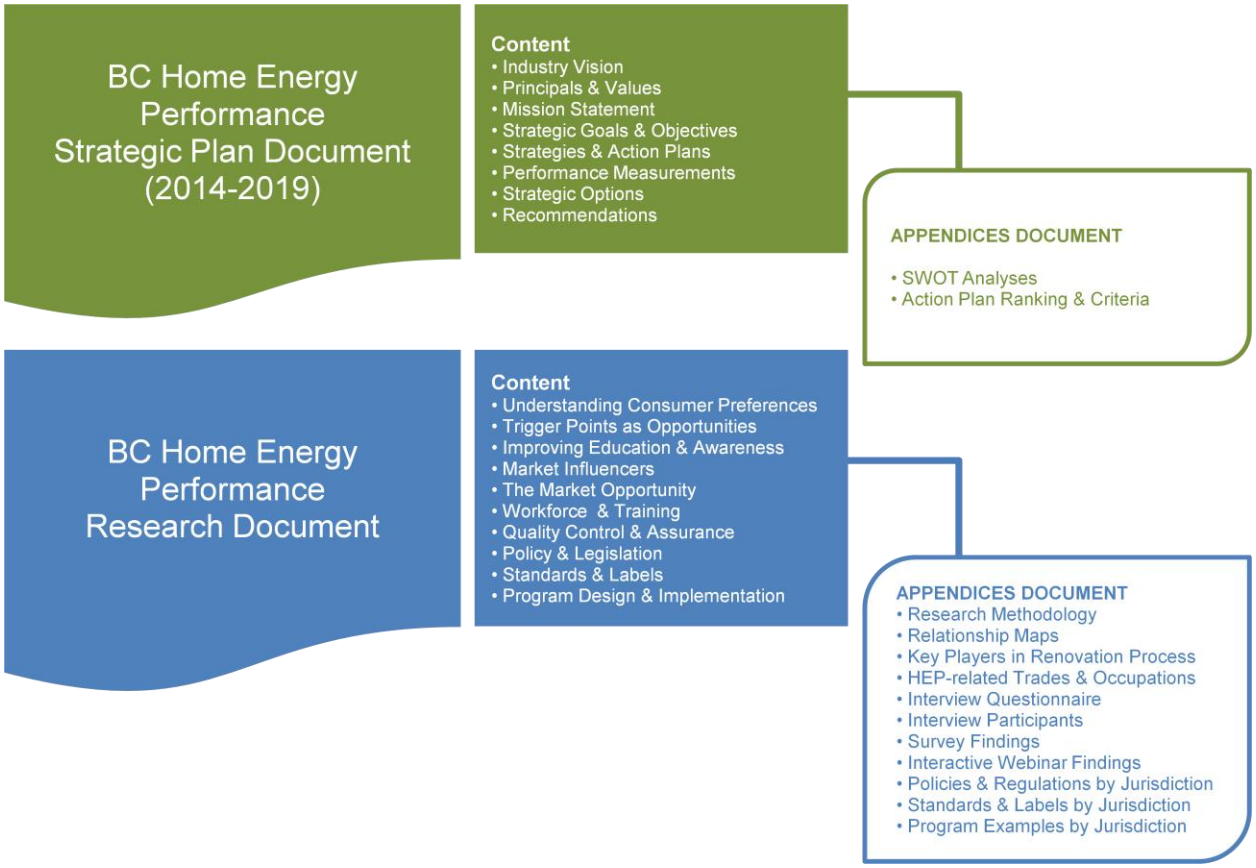


TABLE OF CONTENTS

EXECUTIVE SUMMARY

Home energy performance (HEP) is a comprehensive, whole-house approach to identifying and acting upon opportunities to improve energy efficiency and comfort in low-rise residential buildings in order to address efficient energy use, durability, occupant health and safety, and thermal comfort.

In British Columbia, the HEP industry has the potential to diversify the residential construction industry, add value to residential building stock, and create jobs. However, the extent to which these benefits can be realized depends upon raising awareness around the value and benefit of HEP activities with homeowners, engaging important industry stakeholders, creating a competitive market, establishing fair and supportive public policy and regulation, streamlining programs and processes, and lowering financial barriers.

Critical to the success of a sustainable HEP industry in BC are the following principles and values which were used to guide the development of the potential industry advancement strategies and solutions presented in this study.

- High product and service quality
- Industry growth, profitability, and sustainability
- Culture of innovation and investment
- Industry leadership following best practices
- Fostering an industry culture of excellence
- Strong industry representation and communication

The following goals and strategies for further developing BC's HEP industry were established from a comprehensive, nine-month, province-wide research and industry consultation process. Organized under five overarching goals, these first-step measures were identified as the key priorities to launching a self-sustaining industry that has, until now, largely existed in symbiosis with government and utility-based incentive programs.

Goal 1: Develop an organized body to represent BC's HEP industry and establish key industry baseline data and performance metrics.

Strategies:

- Coordinate involvement of various stakeholders across industry sectors via the creation and support of a HEP Leadership Committee.
- Develop and make available relevant HEP industry benchmarking tools, databases, and online resources for industry to allow long term tracking and reporting of industry development over time.

Goal 2: Develop a trained and qualified workforce that can competently and reliably deliver HEP related services in BC.

Strategies:

- Increase the level of support and resources available to supply-side stakeholders, in particular for Certified Energy Advisors and contractors.
- Support industry and training providers in the development, promotion, and delivery of "best in class" HEP industry training and certification programs for BC.
- Promote the uptake of HEP-related industry training and development through supportive program design, restricted eligibility of incentive programs to qualified contractors, and through the development of a "Trade Ally" program.

Goal 3: Implement robust quality control and assurance frameworks for HEP work.

Strategies:

- Develop an industry-driven quality assurance and oversight structure.
- Develop and promote industry work standardization (e.g., Standard Work Specifications) to support training and crate a quality management system to support the use of best practices and approaches on HEP projects.

Goal 4: Raise consumer awareness and demand for HEP improvements.

Strategy:

- Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources, such as a list of qualified HEP contractors and home energy labeling, and explore the feasibility of developing and piloting integrated Home Improvement Plans for consumers.

Goal 5: Implement supportive public policy, regulations, and programs to support industry development.

Strategies:

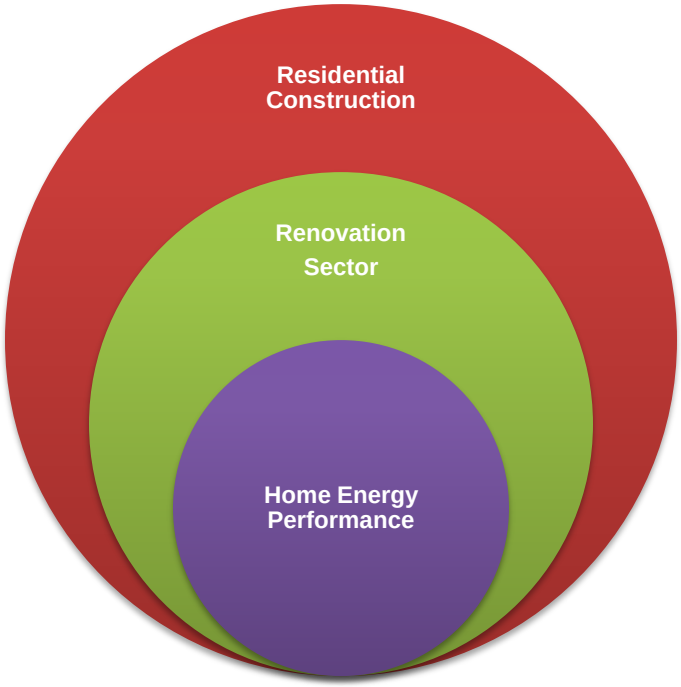
- Develop effective, long-term market tools in order to minimize the underground economy and promote market transformation.
- Increase the access to capital for homeowners via on-bill financing, lines of credit, remortgaging, loans, and other financial instruments to support deeper investment in HEP upgrades.

Growing the opportunities that exist within BC's HEP industry requires strong and decisive actions. A comprehensive approach to developing BC's HEP industry following this *Strategic Plan* allows for proper measurement and control, as well as a phased rollout of initiatives over the long-term. A comprehensive approach also creates an environment of predictability and certainty which encourages greater buy-in from industry.

INTRODUCTION

Home energy performance (HEP) improvements have been a priority focus of many jurisdictions around the world. Improving the performance of dwellings in British Columbia remains one of the most effective means for continuing to protect energy resources, reduce greenhouse gas (GHG) emissions, build greater resiliency within communities, and grow the economy while supporting well-paying jobs for BC residents.

As is well documented in GLOBE's accompanying *Research Report*, BC's HEP industry is one that has significant potential for growth. The industry is currently a subset of the larger residential construction and renovation sectors (see Figure 1). These different industry categorizations are not mutually exclusive opportunities but, in fact, complement each other with significant potential for the HEP industry to expand within and substitute for the larger renovation market within BC's residential construction sector.



Source: GLOBE Advisors, 2013

Figure 1: The niche markets within the larger residential construction industry in BC.

Fostering the growth of a sustainable, market-driven HEP industry in British Columbia is no easy task. It requires careful planning and strong leadership from all industry stakeholders and particularly government, utilities, and various industry associations in the province.

DEFINING THE HOME ENERGY PERFORMANCE INDUSTRY

Home energy performance (HEP) is a comprehensive, whole-house approach to identifying opportunities to improve energy efficiency and comfort in low-rise residential buildings (predominately simple structures admissible under Part 9 of the BC Building Code). HEP applies building science and "house-as-a-system" principles in order to address:

- Efficient energy use;
- Durability;
- Health and safety;
- Indoor air quality;
- Thermal comfort; and
- Moisture issues.

HEP improvements generally include upgrades to a home's outer skin or "building envelope" (insulation, air sealing, windows, doors, etc.) in concert with the utilization of energy efficient technologies and mechanical systems (heating / cooling systems, ventilation, hot water, etc.) in order to reduce overall energy consumption.

Improving the energy efficiency of a house may involve a number of different approaches and there may be a wide range of factors which influence a homeowner's decision to invest in energy efficiency improvements. How well a house works is also affected by occupant behavior, the climate, and other external factors.

Implementing effective HEP solutions involves collaboration between all stakeholders – including consumers / homeowners, governments, utilities, industry, and community organizations – in order to successfully implement successful and durable energy conservation and management techniques.

HOW TO READ THIS DOCUMENT

This *Strategic Plan* is a reflection of the many voices of a complex and multi-faceted industry in British Columbia. This *Strategic Plan* serves as a roadmap for industry development in the province over the next five years (from 2014-2019). The activities outlined in this document are designed to provide a way forward to help government, utilities, and industry identify and potentially overcome structural challenges and barriers in order to realize the opportunities and benefits.

Based on industry feedback and input from BC Hydro, FortisBC, and the BC provincial government, an industry definition, vision, and mission statement were established. Goals, strategies, and the resulting action plan were established based on GLOBE's comprehensive SWOT and gap analyses that are based on extensive secondary research and consultation with industry that identified international best practices for industry development, as well as for program design and implementation.

Careful consideration was used to prioritize the various strategies and action items by means of assessing the overall economic impacts and financial implications for implementation; the current availability of solutions, technologies, and qualified workers; and the impact of different strategies on government, utilities, industry, and consumers.

While response rates to this project's research initiatives were high suggesting that industry leaders are actively engaged and eager to build on the opportunities, the broader industry as a whole remains relatively fragmented with few affiliations to industry organizations and/or associations.[1] As such, it is difficult to measure the total market size and or the actual distribution of work being performed by affiliated and unaffiliated actors within BC's nascent HEP industry.

As described in the Preface, a comprehensive *Research Report* and a series of supporting appendices also exist as "companion documents" to this *Strategic Plan* and are intended to provide a more holistic overview of how the action plan and recommendations here within were developed.

ASSUMPTIONS

In preparing this *Strategic Plan*, assumptions were made in order to establish parameters in-line with the actionable items and recommendations. These assumptions are outlined below.

1) **Strategy Execution:** GLOBE has assumed that this *Strategic Plan* will be acted upon in its entirety as certain strategic actions require precedence before others can be executed. However, the strategy has been designed so that it can be developed, scaled, and deployed in phases based on budget.
2) **Financial Costs**: GLOBE has assumed that the execution of the entire strategy is financially feasible. This level of analysis presumes that financial impacts will be addressed at the project level.
3) **Timeframe:** GLOBE has assumed that the execution of this strategy will begin within the 2014 timeframe due to the time sensitivity of some of the recommendations and supporting research.
4) **Market Forces:** GLOBE has assumed that there will be no significant market shocks or economic events that will severely affect the natural development of BC's HEP industry.
5) **Workforce:** GLOBE has assumed that the workforce skills and industry requirements will not change significantly from those described in this document during the timeframe of this *Strategic Plan*.
6) **Market Substitution:** GLOBE has assumed that there will be no technologies, products, or solutions that could act as better substitutes for HEP activities during the timeframe of this *Strategic Plan*.
7) **Policy and Regulations:** GLOBE has assumed that there will be no significant policy and regulatory changes that will negatively affect BC's HEP industry.
8) **Commodity Prices:** GLOBE has assumed that current commodity prices, including electricity and natural gas, will experience only normal inflationary pressures during the timeframe of this *Strategic Plan*.

The following section of this *Strategic Plan* begins by outlining a vision, mission, and values for BC's HEP industry.

1 GLOBE Advisors. BC Residential Construction Industry Profile Study 2013. See: http://www.globeadvisors.ca/market-research/bc-residential-construction-industry-study.aspx

VISION, MISSION & VALUES

The following statements were developed in consultation with BC Hydro, FortisBC, the BC provincial government, and various industry stakeholders.

THE VISION

British Columbia's home energy performance (HEP) industry aspires to deliver exceptional services and solutions, priced at levels the market can bear, that support a long-term, sustainable market for HEP related activities and significantly reduce energy use in homes across the province while enhancing building durability, occupant comfort, and health.

THE MISSION

The above vision statement for BC's HEP industry will be realized through the following mission statement.

BC's HEP industry seeks to:

- Preserve and improve the quality and energy efficiency of BC's residential building stock;
- Support local and national energy efficiency and greenhouse gas emission reduction strategies;
- Support the development of a nationally recognized, sustainable HEP industry driven by long-term market opportunities;
- Develop industry driven approaches to support organization and further professionalization of BC's HEP industry;
- Provide economically compelling opportunities for industry, homeowners, and governments to invest in home energy retrofits in BC; and
- Earn and retain the trust and respect of BC residents and homeowners.

GUIDING PRINCIPLES & VALUES

The following points are a set of guiding principles and values that GLOBE Advisors has established as critical to the success of a sustainable HEP industry in BC. These principles and values were used to guide the development of potential strategies and solutions.

- High product and service quality
- Industry profitability and sustainability
- Culture of innovation and investment
- Industry leadership following best practices
- Fostering an industry culture of excellence
- Strong industry representation and communication

BC's Home Energy Performance Industry Snapshot

The following summary provides a very brief overview of the current state of the HEP industry in BC based on the extensive research conducted by GLOBE Advisors. For more detailed information and statistics on the current state of BC's HEP industry, as well as related best practices from other jurisdictions, please refer to the companion *Research Report* and *Appendices Document*.

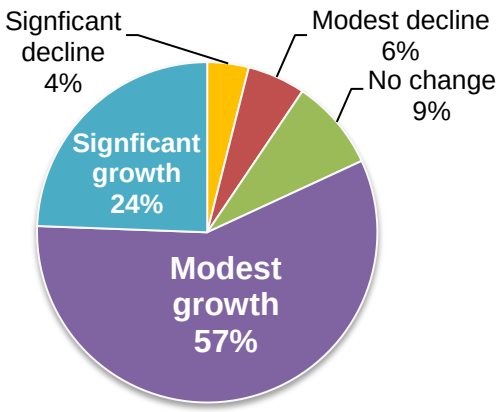
1. Market Size and Potential for HEP Work in BC

The market potential in BC is impressive if one considers the opportunities for HEP upgrades during any renovation and/or home improvement project. The home renovation and repair industry is not only a major contributor to the provincial economy – contributing $7.6 billion to BC's GDP in 2012 – it is also one of the largest employers in the province, generating 56,400 jobs and $3.2 billion in wages in 2012.[2]

According to the 2011 Census, there are 1,209,670 "ground-oriented" private dwellings in BC (i.e., single-family homes, row houses, and duplexes) comprising 69 per cent of all private dwellings in the province. The bulk of residential buildings in the province are now 30 to 60 years old and many are overdue for upgrades.

BC's relatively mild climate makes energy efficiency efforts more challenging and energy prices in BC on their own are not high enough to generate sufficient savings to affect purchase decisions, unless there are subsidies from government and/or utilities to stimulate the market in the short-term. While the industry has grown over the last several years, consultation with different industry stakeholders suggests that the industry is currently contracting due to recent changes to the LiveSmart BC and the disappearance of other incentive / rebate programs, which have had a negative impact on the market demand for HEP services and have caused many in industry, particularly energy advisors, to leave in search of work in other areas.

At the same time, three out of four (81 per cent) of those surveyed as part of this project who work in the industry are optimistic and predict growth of BC's HEP industry over the next five years(see Figure 2). Only 10 per cent predicted a decline.



Source: GLOBE Advisors, 2013 HEP Industry Survey

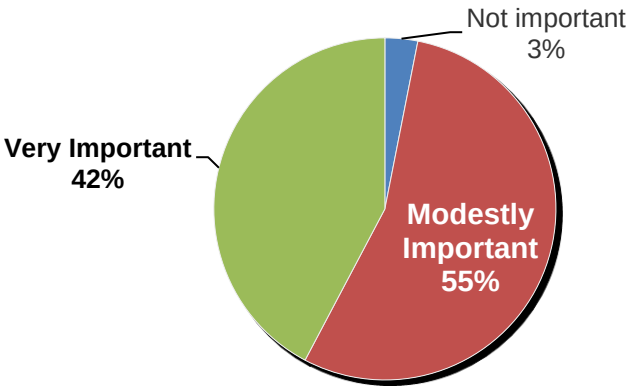
Figure 2: What are your expectations for the growth of BC's HEP industry over the next 5 years? (n=127)

[2] For more on the market potential of HEP services in BC, see Introduction section of the accompanying *Research Report*, pp.5-9.

Significant opportunities for expanding "house-as-a-system" best practices and HEP related activities that look to integrate the benefits of energy-efficiency as well as various non-energy benefits (i.e., comfort, health factors, asset value, etc.) into all renovation and home improvement projects as part of long-term "renovation plans" exist. Expanded business models that bundle services (in-house or through contractor / energy advisor networks) and incorporate a greater range of products could also help to grow the industry.

2. Demand for Home Energy Performance Products and Services

While GLOBE's industry survey suggests that homeowners consider energy efficiency to be at least modestly important when making decisions about their home improvement activities (see Figure 3), research shows that the reasons they choose to renovate or make improvements to their homes can vary widely – and energy efficiency is only a minor reason.[3]



Source: GLOBE Advisors, 2013 HEP Industry Survey

Figure 3: How important do you think energy efficiency is to homeowners making decisions about their home improvement activities? (n=97)

In addition, there has been considerable speculation and "flipping" within BC's housing market over the last several decades. As such, many investors in residential property lack the long-term view necessary to make optimal energy efficiency related investments, due to the longer pay back periods in the homes they are developing. When choices are owner-driven, there tends to be greater interest in making proper investments in HEP – of "buying once and buying well".

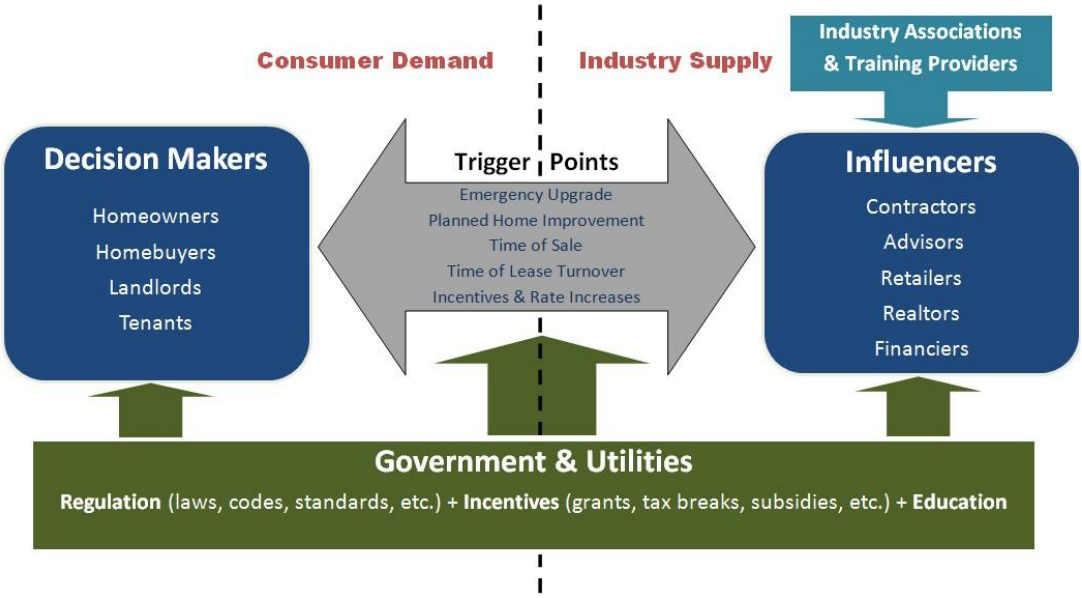
While energy prices in BC have remained relatively low, global trends are suggesting inevitable rises in energy prices, which will increase the importance of energy conservation and awareness building through comprehensive campaigns directed towards homeowners and businesses about the opportunities to reduce energy and save money.

Despite the reality that most of the contractors surveyed by GLOBE are optimistic about expanded business opportunities from HEP related activities, they all recognize the need for greater market demand through consumer education[4] and by removing barriers to action. Other challenges for growing market demand include the lack of consumer motivation to take action, a fragmented approach to HEP services, and financial barriers.[5]

[3] For more on consumer motivations, see *Research Report Section 1.1: Understanding Consumer Preferences*, pp.19-25.
[4] For more on consumer education, see *Research Report Section 1.3: Homeowner Awareness & Education*, pp.34-39.
[5] For more on consumer barriers to action, see *Research Report Section 1.1: Understanding Consumer Preferences*, pp.26-29.

3. Influencers Play a Key Role in Promoting HEP Activities

The market "influencers", outlined in Figure 4 below, play a critical role in helping consumer "decision makers" at the various "trigger points", or points in time that are opportunities for undertaking HEP improvements.



Source: GLOBE Advisors, 2013

Figure 4: Strategic framework for market transformation.

The table in Figure 5 outlines the various market influencers and other important stakeholder groups that have a role to play in driving BC's HEP market. In different capacities, market influencers are able to affect HEP decisions made by homeowners by providing information, home energy reviews, and home improvement related services, financing, and other relevant support services. Influencers also play a vital role with helping to guide decision makers with respect to the range of work to be undertaken and/or the products, technologies, and systems available.[6]

Primary Market Influencers	Other Important Industry Stakeholders
• Contractors / installers • Energy advisors • Retailers • Realtors • Financial institutions • Governments • Utilities	• Manufacturers and suppliers • Training providers • Industry associations and non-profit organizations

Source: GLOBE Advisors, 2013

Figure 5: Market influencers and other important HEP industry stakeholder groups.

[6] For more on the various market influences, see *Research Report Section 2.1: The Market Influencers*, pp.41-43.

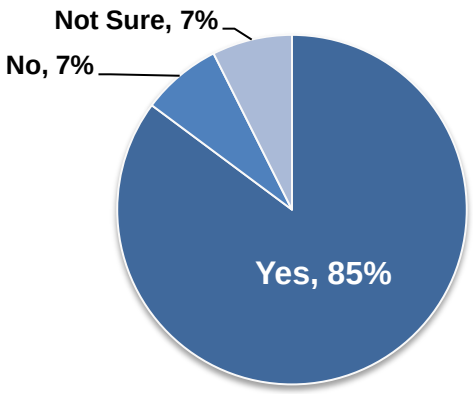
4. Industry Training, Workforce Development & Quality Assurance

Training, certification, and ongoing education are considered by many an essential element to ensuring that quality work is performed by service providers within the industry, as well as for developing the trust of homeowners. However, when it comes to construction trades in BC, there are few mandatory requirements for training (unlike in Europe and many US states), with the exception of a few trades that have certification requirements for safety reasons (i.e., plumbers, electricians, and gasfitters).

In addition, BC has no specific training currently available for the HEP and weatherization industry to the same degree as what is offered in the US (i.e., Building Performance Institute training). The training that is available in the province tends to be fragmented and inconsistent, with no broadly recognized credential behind it and very few regulatory requirements.

Industry organizations including the Canadian Home Builders Association of BC (CHBA BC) and the Thermal Environmental Comfort Association (TECA) have also developed a wide variety of training programs, seminars, and certification programs that support the HEP industry and related professional development in Canada. While such efforts exist, the availability of training is still relatively fragmented without a recognized and standardized credential in the province.[7]

GLOBE's research suggest that industry support exists for greater standards and regulatory requirements around training (see Figure 6), with many feeling that homeowners should be required to hire certified contractors in order to qualify for incentive programs in the future.[8]



Source: GLOBE Advisors, interactive webinar results

Figure 6: Do you think that to qualify for incentive programs in the future homeowners should be required to hire certified contractors (e.g., trained through BPI, TECA, etc.)? (n=54)

A more formalized structure could go a long way in terms of improving overall workforce quality within the industry and lowering the risk to homeowners, government, utilities, and other stakeholders. In the absence of a QA framework for the HEP industry in BC, the existing network of energy advisors and the post-retrofit energy assessment process could provide a vehicle for verifying the eligibility of products, as well as the quality of work and installation – although the risks that come from possible collusion between contractors and energy advisors must be considered.

[7] For more on the various challenges with respect to industry training in BC, see *Research Report Section 2.3: Industry Training & Workforce Development*, pp.78-82.
[8] For more on improving quality and professionalism within BC's HEP industry, see *Research Report Section 2.4: Quality & Professionalism*, pp.83-92.

5. Energy Efficiency Policy, Programs & Legislation

British Columbia has a long tradition of developing legislation and policies that promote energy efficiency and build greater climate resiliency. For example, the *Energy Efficient Buildings Strategy* is a tool that was developed to help the province reach its policy goal of reducing its GHG emissions by 33 per cent over 2007 levels by 2020. These efforts also included a number of initiatives relevant to supporting BC's HEP industry, including the development of the LiveSmart BC program in 2008 that has provided a single point of reference for a variety of incentives / rebates over the last several years.

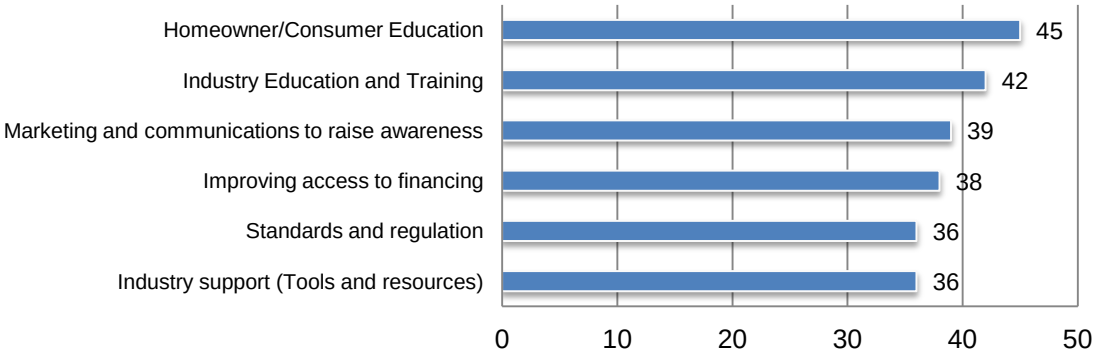
Other initiatives include the ongoing "greening" of the BC Building Code and the installation of smart meters for better measuring and managing household energy consumption. Many BC municipalities have also leveraged by-laws to create more stringent requirements, such as requiring all new homes to achieve EnerGuide 80 ratings. Others have successfully launched community-scale energy efficiency initiatives resulting in the growth of BC's HEP industry.[9]

At the same time, policies, legislation, and programming remain somewhat fragmented, piecemeal, and inconsistent, which creates a level of confusion for homeowners and discourages investment by industry. Examples include the "flip-flopping" HST and GST / PST tax regimes, as well as changes to government incentive programs such as the federal ecoENERGY and provincial LiveSmart, with little to no warning.

6. Support for the HEP Industry

Industry has indicated that financial rebates are effective tools for driving market demand for HEP services; however, there is a need for adopting more of a "whole house" approach when it comes to program design. GLOBE's research indicates that industry would like to see longer-term, proactive incentives that provide certainty for growing the HEP industry. Long-term incentives (potentially including a standing home renovation tax credit and, in the future, more performance-based incentives based on actual energy savings data) will be important for growing the industry.

GLOBE's research investigated ways that governments and utilities could best support industry in order to advance BC's HEP industry. The findings showed a strong preference for increased investment in homeowner education, industry training, and marketing support (see Figure 7).



Source: GLOBE Advisors, interactive webinar results

Figure 7: What investments by government / utilities would have the greatest impact for advancing the HEP industry? (n=46)

[9] For more on policies that have shaped BC's HEP industry, see *Research Report Section 3.1: Energy Efficiency Policy & Legislation*, pp.97-100.

SWOT ANALYSIS: BC'S HEP INDUSTRY

The list below is a summary of a strengths, weaknesses, opportunities, and threats (SWOT) analysis designed to help better understand the current state of BC's HEP industry. This list was created based on feedback from industry during consultation, as well as a comparison of best practices and opportunities identified from other jurisdictions through secondary research for this project.

A more comprehensive SWOT analysis by individual stakeholder groups relevant to BC's HEP industry is provided in Appendix A.

STRENGTHS

- Important stakeholder groups recognize a need for developing a strategy to grow BC's HEP industry.
- HEP is supported by a progressive provincial government, utilities, and significant municipal government leadership.
- There is strong history of demand-side management (DSM) programs run by provincial utilities in BC.
- HEP diagnostic systems and tools (such as HOT 2000 and EnerGuide) are well established and federally supported.

WEAKNESSES

- The benefits of HEP activities are not clearly understood by most homeowners.
- BC homeowners lack trust for renovators, trade contractors, and installers.
- There is a lack of consumer and industry appreciation for "house-as-a-system" and the HEP process.
- There is a lack of connection between energy audit to actual work order in BC's existing HEP sales process.
- The focus tends to be on single solution measures as opposed to multi-component upgrade projects.
- There is a lack of quality control and quality assurance frameworks within BC's HEP industry.
- Government and utility programs and approaches tend to be fragmented and short-term in nature.
- There is a lack of provincial regulations requiring work be done by certified renovators and trades.

OPPORTUNITIES

- Demonstrating to homeowners the value proposition and real benefits associated with HEP improvements.
- Greater access to energy use information through new technologies to drive consumer demand for HEP.
- Increased regulation and long-term incentives at the provincial level to grow demand for BC's HEP industry and raise the bar for professionalism and quality within the industry.
- Strengthen building code requirements to incorporate renovation standards and best practices.
- Develop a BC "Trade Ally" program that supports qualified contractors and energy advisors.
- Remove barriers to the home energy audit process and leverage contractor-energy advisor-customer relationships.
- Develop quality assurance and quality control frameworks to raise the bar for work done in the field and in order to protect BC homeowners.
- Promote home improvement plans integrated with homeowner education, financing, and incentive programs.
- Implement community-based programs and work with BC Housing and BC Non-profit Housing Association to ensure benefits are realized by all BC residents.

THREATS

- Competing interests from non-HEP related home improvement options.
- Investments in public education, awareness, tools, and resources may not effectively drive market transformation.
- There is no "one-size-fits-all" solution that can be easily standardized and communicated.
- Lower cost of alternative, non-energy efficient substitute products and technologies.
- Market confusion due to numerous standards and competing labeling systems.
- A "wait and see" approach to investing in energy efficient products and services when incentive programs and tax schemes take an "on again, off again" approach.
- Persistent, low-cost of energy (electricity and natural gas) in BC.
- Shrinking government and utility budgets related to DSM and residential energy efficiency programs.
- Mixed messages from government on climate change and energy / environmental priorities.

GAP ANALYSIS: BC'S HEP INDUSTRY

The identified gaps listed below are based on the current state of BC's HEP industry when compared with developments and best practices in other North American jurisdictions identified as leaders in HEP market development. The strategic goals, strategies, and action plan outlined in the following section were designed to address the gaps identified in this analysis. For the more detailed gap analysis, refer to Appendix B.

Identified Gap	Current Situation	Benefit of Addressing the Gap
Policies, Programs & Regulations	A patchwork of local-level policies and programs causes confusion for industry and the public and may contradict the overall energy saving and/or GHG emission reduction objectives. In addition, Incentive programs are relatively short-term in nature and are unpredictable in size, scope, and duration.	Regulatory environment, supportive policies, and relevant programs need to measure and track effectiveness and ROI, and should be based on efficient use of resources and aligned priorities.
Consumer Education & Marketing	The value and benefits of HEP initiatives are not well understood by homeowners despite existing public resources and tools.	A coordinated effort to improve consumer education, the promotion of HEP opportunities, and to better understand consumer motivations is important for driving demand for HEP services and solutions.
Industry Definition & Representation	No widely recognized definition of HEP exists within BC industry and as such, there is limited appreciation for the benefits and value of HEP in the home renovation process. In addition, a coordinated industry voice or council that represents HEP and industry interests is lacking.	A better understanding amongst industry players for the opportunities around HEP and a coordinated voice to bring forward the needs and interests of industry are important.
Industry Training & Certification	There is no recognition of and requirements for training and industry certification for HEP in Canada. In addition, there are a limited number of available training programs and certification for HEP related work, as well as energy modeling, building science, and "house-as-a-system" training for contractors.	Supportive industry training, a recognized credential, and ongoing professional development is important for ensuring quality within the industry but comes second to stronger market demand for related HEP services.
Quality Control, Quality Assurance & Industry Professionalism	There are no established HEP quality assurance (QA) and control (QC) frameworks in BC. In addition, there is no recourse for the failure to achieve projected energy performance after installation.	An established QC / QA framework and related initiatives can help to raise professionalism within the HEP industry, limit homeowner liabilities, and improve overall trust within the industry.
Information & Reporting	Currently, the only way for homeowners to get energy use feedback is through their enhanced utility bills which are in different metrics and not amalgamated. In addition, energy assessment information is not readily available during the home sales process and not a requirement for listing on any databases (i.e., MLS).	Better access to energy data and information for homeowners and all industry stakeholders can help to improve demand for services and may lead to innovative new products.
Access to Financing & Capital	Financial institutions do not actively integrate energy efficiency into their lending decisions.	While access to financing on its own has not proven to be a major market driver, having a range of options that are well coordinated with the HEP process is important.
Culture of Innovation & Proactive Investment	The HEP industry is not supported by an innovative industry culture that includes supportive research to safely develop and test optimal systems and solutions.	As BC's HEP industry evolves, a greater need for innovation and research can help to improve actual energy performance.

OVERVIEW OF STRATEGIC GOALS & ACTIONS

In this section, GLOBE proposes five strategic goals that will enable the development of a more sustainable HEP industry in BC. These five key goals have been designed based on feedback from different industry stakeholders, combined with HEP industry best practices identified through research. The five goals that shape this strategy document are outlined below.

1. Develop an organized body to represent BC's HEP industry and establish key industry baseline data and performance metrics.
2. Develop a trained and qualified workforce that can competently and reliably deliver HEP related services in BC.
3. Implement robust quality control and assurance frameworks for HEP work.
4. Raise consumer awareness and demand for HEP improvements.
5. Implement supportive public policy, regulations, and programs to support industry development.

Associated with each of these goals are strategies and detailed action items that allow key decision-makers and implementers to prioritize and act upon these strategies. While the strategies provide the general direction for what needs to be done in order to grow the HEP industry, the action items provide specific and measurable tactics for achieving the strategies and overarching goals.

A total of 44 action items for advancing BC's HEP industry were identified as part of this strategy exercise. In total, 21 action items ranked as "High" priority, 13 "Medium" priority, and 10 "Low" priority. Only highly-ranked action items were included in the main body of this *Strategic Plan* document. For the complete list of action items, including those which ranked either as "Medium" or "Low", as well as the ranking process that was used, please refer to Appendix D.

GOAL #1: DEVELOP AN ORGANIZED BODY TO REPRESENT BC'S HEP INDUSTRY AND ESTABLISH KEY INDUSTRY BASELINE DATA AND PERFORMANCE METRICS.

Background: The interests of BC's nascent HEP industry are currently fragmented. While some stakeholders are represented to varying degrees by a number of industry and trade-based associations (including CHBA BC, TECA, HRAI, FEN-BC, and a few others), existing industry representation does not fully recognize the opportunities associated with HEP related activities.

A lack of a unified "voice" makes it difficult to grow a more robust HEP industry in BC that is able to fully identify and act on the opportunities. The lack of a formal governance structure for HEP professionals also hinders industry progression and the implementation of best practices and workforce quality. In addition, a more coordinated industry approach will allow for better sharing of information, best practices, and the use of performance-based metrics and related tools.

The establishment of a HEP Leadership Committee, composed of key industry stakeholders, government, and utility representatives, could help to coalesce the interests of players offering products and services related to HEP in the province.

Strategies & Actions

Strategy 1.1: Coordinate involvement of various stakeholders across industry sectors.

Highest Priority Action Item:

- **Action 1.1.1. Create a HEP Leadership Committee by engaging industry groups, associations, and HEP stakeholders.** The Committee could be responsible for research and developing tools and resources to support the business case for industry buy-in; collecting and processing industry feedback; lobbying government for policy, regulation, standards, and training / certification; and support the longer-term development of a more formalized HEP Council once the industry in BC is better established.

  Primary KPIs:
  - Establishment of a HEP Leadership Committee.
  - Fair representation of industry groups, associations, and HEP stakeholders engaged as part of the HEP Leadership Committee. (Measured by % of industry associations, governments, trade groups, NGOs, etc.).

  Contingencies & Risks:
  - Industry fragmentation, competing interests, and varying levels of engagement may result in uneven representation by those within the industry.
  - Small market size in BC and low critical mass may require a "grassroots approach to establishing an industry voice at first.

  Example/Best Practices:
  - In the US, industry bodies (e.g., Energy Councils and Efficiency First) represent the home performance workforce, including with training needs, lobbying government, and establishing QA/QC frameworks. [10, 11]

10 http://www.efficiencycouncil.org
11 http://www.efficiencyfirst.org/about/

Strategy 1.2: Develop and make available relevant HEP benchmarking tools, databases, and online resources for industry.

Highest Priority Action Items:

- **Action 1.2.1 Establish baseline industry performance metrics and baseline data** to allow for long-term tracking and reporting of industry development over time.

  Primary KPIs:
  - Number of HEP contractor businesses registered.
  - Number of energy advisor businesses registered.
  - Number employed in key occupations.

  Contingencies & Risks:
  - Metrics must be widely applicable, measurable, and understood by industry to be most effective.
  - Limitations around current statistical frameworks (e.g., NAICS and NOC codes) may create challenges for measuring actual work performed within "niche" sectors of BC's HEP industry.

  Example/Best Practices:
  - Establishment of an inventory of available HEP products and services in BC similar to what was done in the state of New York.

- **Action 1.2.2.** In cooperation with Natural Resources Canada, **identify, pilot, and deploy next generation EnerGuide software to provide enhanced accuracy of the HOT2000 model and audits**.

  Primary KPIs:
  - Number of industry professionals in BC using the new EnerGuide software.
  - Number of homes using the new modeling software.

  Contingencies & Risks:
  - A continued reliance on modeled energy savings may not deliver actual results with respect to home performance improvements.

  Example/Best Practices:
  - Ensure that software and related "plug-in" tools allow for easy interpretation of results using metrics that can be easily understood by industry and consumers.

GOAL #2: DEVELOP A TRAINED AND QUALIFIED WORKFORCE THAT CAN COMPETENTLY AND RELIABLY DELIVER HEP RELATED SERVICES IN BC.

Background: Industry training and certification are critical elements for building a qualified workforce and a successful, self-sustaining HEP industry in BC. Having an industry that is properly trained and certified increases the quality of work performed, as well as homeowner confidence in the industry, while at the same time minimizing inherent risks and liabilities, not only to homeowners but to all stakeholders.

While many construction apprenticeship and other trades training programs in BC offered by post-secondary institutions, training providers, and industry associations (e.g., CHBA BC, TECA Quality First, etc.) cover some elements of house-as-a-system training and HEP best practices, none are comprehensive in scope or contain the level of detail required for "whole" home performance activities. In addition, there is no weatherization training in the province or recognized industry credential (e.g., BPI) in BC.

In addition, while ongoing training programs, workshops, and seminars are effective tools for improving the up-to-date knowledge and expertise of contractors, installers, and energy advisors, demand by industry for relevant training remains low due to the lack of regulatory requirements to undertake continuing professional development.

The current lack of a clear certification and training framework for HEP in BC bars interested candidates from entering the industry and limits the ability for industry to set quality control and assurance frameworks. Addressing many of these concerns comes down to regulatory action, although government and utilities can ease in voluntary training requirements linked to incentive and other programs (e.g., Trade Ally) and, eventually, mandate that all industry have a level of relevant training / certification in order to qualify for these programs in the future once such a certification is in place.

Strategies & Actions

Strategy 2.1: Increase the level of support and resources available to supply-side stakeholders.

Highest Priority Action Items:

- **Action 2.1.1. Develop resources, incentives, and education programs that will encourage contractors, building science experts, and CEAs to work together** to jointly form recommendations during initial home assessments and throughout the HEP process.

  Primary KPIs:
  - Number of resources, incentives, and education programs dedicated to facilitating professional collaboration.

  Contingencies & Risks:
  - Requires a strong QC / QA frameworks be in place in order to protect the homeowner from fraud and collusion.

  Example/Best Practices:
  - The dominant home performance business model in the US has the contractor also acting as the energy advisor for a more streamlined and successful approach.[12]

- **Action 2.1.2. Develop educational tools for contractors to help with the consultative sales process for HEP activities.** Provide short-term financial incentives for contractors to take sales courses and to invest in marketing/education to their clients (consider integrating into a "Trade Ally" program). Include information about the volatility of the energy market and possible in-home mitigation strategies to overcome these risks. Provide tools and resources for contractors to help them effectively inform consumers on the benefits of HEP.

  Primary KPIs:
  - Number of consultative sales training programs for contractors.
  - Number of BC companies adding house-as-a-system home improvement products/ services to their marketing material as a result of training.

  Contingencies & Risks:
  - With no requirement for ongoing education/ training, there is a risk that contractors will not take advantage of resources that are offered.

  Example/Best Practices:
  - Trade Ally programs in the US (e.g., Energy Trust of Oregon) provide a “business development” allowance that can be used to cover courses in consultative sales.[13]
  - Provide tools and resources to relevant supply-side stakeholders and market influencers to help them promote HEP upgrades at each of the various consumer trigger points (i.e., emergency, planned renovation, time of sale, and time of lease).

[12] For more on the contractor-led business model, see *Research Report Section 2.2: The Market Opportunity for Industry*, pp.63-65.
[13] For more on the Energy Trust of Oregon’s Trade Ally program, see *Research Report Section 2.4 Quality & Professionalism*, p.85.

Strategy 2.2: Develop HEP industry training and certification programs for BC.

Highest Priority Action Items:

- **Action 2.2.1. Support industry and training providers in developing, promoting, and delivering adequate weatherization training and programming in BC.** Establish industry recognition and support for credentialing programs.

  Primary KPIs:
  - Number of new HEP and weatherization training and programs created.
  - Number of students participating/ graduating from HEP and weatherization training programs.

  Contingencies & Risks:
  - Adequate market demand must exist before industry will register for relevant courses / training.

  Example/Best Practices:
  - Base requirements on Standards of Practice Guides such as the recently completed "Guide to Insulation and Air Sealing".

- **Action 2.2.2. Research and evaluate the best HEP industry training credential and approach.** Evaluate this credential / approach based on industry feedback, available training provider / credentialing options, proficiency of specific skills training, and quality assurance considerations. Also evaluate how a HEP contractor qualification could be incorporated into national credentialing programs such as Building Performance Institute (BPI). Test via pilot project and roll-out credential program province-wide.

  Primary KPIs:
  - The recognition and promotion of a HEP industry credential.
  - Number of educational programs in BC that lead to the credential.

  Contingencies & Risks:
  - Adequate market demand must exist before industry will register for relevant courses / training.

  Example/Best Practices:
  - In the US, BPI and HERS are two very well-established training credentials for the home performance industry.[14]

[14] For more on BPI and HERS training in the US, see *Research Report Section 2.3: Industry Training & Workforce Development*, pp.70-71.

Strategy 2.3: Promote the uptake of HEP-related industry training and continuing professional development through supportive program design.

Highest Priority Action Items:

- **Action 2.3.1. Ensure that homeowner rebate and incentive programs are only applicable to work done by contractors that have completed recognized HEP training programs** and that will eventually align with recognized industry credentials.

  Primary KPIs:
  - Number of contractors undergoing recognized HEP training programs
  - Number of homeowners applying for incentives with minimum contractor training requirements

  Contingencies & Risks:
  - Adequate training courses and/or credentials must first exist in the marketplace and be recognized by industry.
  - Risk that requiring training will decrease supply of those capable of delivering services, create industry "push-back", increase costs, and/or drive work "under the table".

  Example / Best Practices:
  - Currently, homeowners looking to qualify for on-bill utility financing must hire contractors that have taken approved courses by TECA, HRAI, or ASTTBC.[15]

- **Action 2.3.2. Develop a "Trade Ally" program that is based on a list of qualified contractors, and provides training and marketing resources for contractors** (e.g., a business development and/or training allowance). Evaluate a tiered model for contractors that participate in the program that provides incentives to contractors based on their level of professionalism and engagement in the program.

  Primary KPIs:
  - Establishment of a Trade Ally program in BC.
  - Number of individuals listed on the qualified contractor list.

  Contingencies & Risks:
  - Must ensure that industry has a clear understanding of the criteria for the levels of engagement.

  Example / Best Practices:
  - The tiered "Trade Ally" program delivered by the Energy Trust of Oregon.[16]

[15] For more on minimum training requirements in BC, see *Research Report Section 2.4: Quality & Professionalism*, pp.90-92.
[16] For more on the Energy Trust of Oregon's Trade Ally program, see *Research Report Section 2.4: Quality & Professionalism*, p.85.

GOAL #3: IMPLEMENT ROBUST QUALITY CONTROL AND ASSURANCE FRAMEWORKS FOR HEP WORK.

Background: Quality control (QC) and quality assurance (QA) are critical aspects of the HEP industry. Currently, there is a lack of industry accountability and an unrealistic reliance on consumers to understand HEP related products and services they are purchasing.

Contractors are currently not held accountable for the work that they have performed and with a lack of regulatory consequence and responsibility to the homeowner, significant, long-term, structural challenges and liabilities exist and inhibit the implementation of industry best practices. Some industry associations in BC, including CHBA BC, FEN-BC, and TECA, provide some oversight for ensuring quality amongst their membership, but it is still relatively limited in size, scope, and in terms of broader industry recognition.

Without a proper framework in place, industry best practices cannot be developed, implemented, and enforced. The current lack of such framework certainly does not help build consumer confidence in the industry leaving many being hesitant about the actual benefits of HEP improvements. In addition, work that is not done to intended standards and specifications also results in significant challenge in delivering both modeled and actual energy savings.

Strategies & Actions

Strategy 3.1: Develop an industry-driven quality assurance and oversight structure.

Highest Priority Action Items:

- **Action 3.1.1. Research programmatic and regulatory approaches to providing independent oversight on contractor installation quality.** This could include looking at delivery approaches (industry, government, third party), funding mechanisms (industry, consumer, program), and market / industry support.

  Primary KPIs:
  - Quality evaluation of at least 5% of work done on projects receiving incentive funding

  Contingencies & Risks:
  - There is a potential added cost to program delivery with the implementation of an embedded QA framework.

  Example / Best Practices:
  - Requiring mandatory inspections of 5-15% of HEP projects that are approved for incentive program funding (e.g., The HPwES program in the US requires a minimum of 5% inspection on all projects qualifying for rebates).[17]
  - City of Toronto and State of California require licensing of all contractors and trades working on existing homes.[18]

[17] For more on mandatory inspections and QA, see *Research Report Section 2.4: Quality & Professionalism*, pp.84-87.
[18] For more on contractor licensing, see *Research Report Section 2.4: Quality & Professionalism*, p.83.

Strategy 3.2: Promote industry work standardization to support training and quality of work performed on HEP projects.

Highest Priority Action Items:

- **Action 3.2.1. Work with key stakeholders and industry to develop and implement Standard Work Specifications for HEP work in BC.** Part of this should also include quality installation guidelines and control procedures for HEP equipment and assemblies.

  Primary KPIs:
  - The establishment of a quality management systems framework.
  - Deployment of Standard Work Specifications.
  - Percentage of contractors making use of the Standard Work Specifications.

  Contingencies & Risks:
  - Cost for developing this resource, including promotional and educational costs, with the risk that adoption rates will be low.

  Example / Best Practices:
  - The US DOE and NRCan are developing Standard Work Specifications which could be leveraged in BC.[19]
  - Recently developed installation guidelines for air sealing and insulation, as well as windows and doors, by RDH.

- **Action 3.2.2. Work with industry / contractors to develop a quality management system tools for contractors** to support use of best practices and approaches in the field.

  Primary KPIs:
  - The establishment of a quality management systems framework.
  - Development and deployment of online tools, checklists, and resources.
  - Percentage of contractors making use of the available online tools, checklists, and resources.

  Contingencies & Risks:
  - Cost for developing these resources, including promotional and educational costs, with the risk that adoption rates will be low.

  Example / Best Practices:
  - Mobile applications that provide easy access to Standard Work Specifications, visual resources / tools, checklists, etc.
  - Develop visually supported handbooks and guidelines (e.g., for air sealing and insulation, window and door installation) accessible to the contractor community.
  - CSA S478-95 (R2007) "Guidelines on Durability in Buildings" exists for larger structures.[20] A similar guideline should be developed for homes and small structures.
  - Energy Trust of Oregon is experimenting with a quality management system that incorporates the use of Standard Work Specifications and contractor “checklists” to improve the work done onsite by their approved contractors within its Trade Ally network.[21]

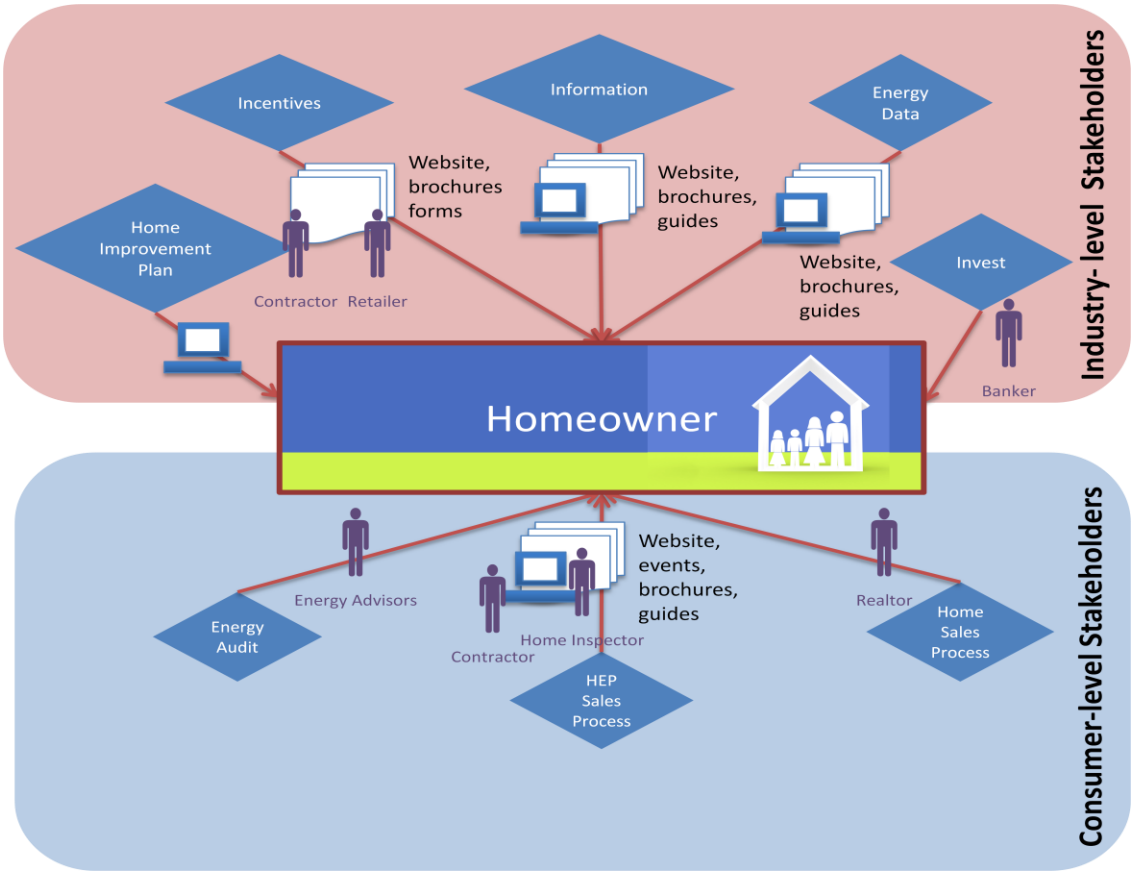
[19] For more on Standard Work Specifications, see *Research Report Section 2.4: Quality & Professionalism*, p.88.
[20] See: http://shop.csa.ca/en/canada/structures/s478-95-r2007/invt/27002521995
[21] For more on quality management system development and QC measures, see *Research Report Section 2.4: Quality & Professionalism*, pp.88-89.

GOAL #4: RAISE CONSUMER AWARENESS AND DEMAND FOR HEP IMPROVEMENTS.

Background: One of the fundamental questions that homeowners struggle to appreciate is the value and benefit delivered by HEP related products and services. Addressing this issue requires that consumers be educated on the opportunities and serviced by qualified professionals they can trust.

The fragmented nature of the industry, tools, resources, and related messaging has made it difficult for consumers to fully understand the financial, comfort, health, and environmental benefits of pursuing HEP improvements. Furthermore, industry participants recognize the opportunities associated with HEP but the sale of such services has been difficult due to the lack of a clear and communicable value proposition for homeowners.

Homeowners need to have the necessary information and tools at their fingertips to take action on HEP related improvements at the various trigger points for action. Home improvement activities should be identified and prioritized by homeowners, in consultation with energy advisors, contractors, and home inspectors who can help homeowners determine the best course of action at the various trigger points – with the idea of minimizing "emergency" situations from the failure of short-term building assets and equipment and maximizing the asset value of an individual's home over time in a strategic fashion (see Figure 9).



Source: GLOBE Advisors, 2013

Figure 9: The various touch points that can help homeowners make informed HEP decisions.

Without proper education and awareness, HEP will only be seen as a niche subset of the overall renovation market, rather than as an integral part of every home improvement project. “House-as-a-system” principles will also need to be promoted with homeowners and related influencers from industry as a way to preserve or increase the asset value of a home. In the long-term, the goal would be to have an educated consumer / homeowner who can differentiate in terms of quality and recognizes the value and benefits that can be realized when HEP upgrades are considered as part of every renovation and equipment replacement initiative.

With the implementation of the new EnerGuide home energy labels being rolled out in 2014, there is an opportunity for the BC provincial government, utilities, and industry stakeholders to work with the public using improved metrics (e.g., Energy Use Intensity) and parameters that will help form a better understanding of the energy performance of homes. In addition, with an increase in prevalence for new metrics and resources linked to the 2014 EnerGuide and “Next Generation” software, as well as to digital / mobile applications and utility platforms such as “MyHydro”, consumers will be better equipped to understand and interpret this information.

Strategy & Actions

Strategy 4.1: Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.

Highest Priority Action Items:

- **Action 4.1.1. Create and promote a variety of HEP resources, tools, and educational materials for consumers (in a range of formats and languages),** which describe the HEP industry and related improvement activities and may help to encourage home performance at the various trigger points. Develop tools to amalgamate utility consumption data and enable homeowners to better understand the business case and benefits for undertaking HEP activities.

  Primary KPIs:
  - Number of online resources, public education materials, and energy measurement tools available to homeowners.
  - Number of utility customers actively using “MyHydro” tools (site click-through, pages visited, duration of stay on site, etc.
  - Number of applications and tools that support the “Next Generation” EnerGuide software.

  Contingencies & Risks:
  - Risk of investing heavily in consumer education initiatives without significant market transformation and/or action from homeowners.

  Example / Best Practices:
  - Leverage online tools such as “MyHydro” and “Next Generation” EnerGuide software applications and tools for homeowners.
  - Benchmarked energy use report cards (e.g., those used in Nova Scotia).[22]
  - Include information on how to interpret Energy Use Intensity (EUI) measurements that will part of the 2014 EnerGuide labels.
  - Promote whole home real-time energy use amalgamators (web-based, apps, etc.)
  - Provide "do-it-yourself” resources for HEP measures at retailer point of sale.

22 See: http://www.efficiencyns.ca/energy-solutions/home-energy-report/?user-type=4

- **Action 4.1.2. Develop the criteria for and support the creation of a list of qualified HEP contractors to help consumers make informed decisions when selecting a contractor.** Design and produce education and marketing materials to support HEP consumers make informed decisions about how to retain a legitimate contractor and the benefits of receiving a bill of sales / receipt for all work completed.

  Primary KPIs:
  - Set criteria for establishing list of qualified HEP contractors.
  - Number of qualified contractors meeting these requirements.
  - Establishment of a list of qualified contractors.
  - Number of CEAs recommending contractors from this list.
  - Number of educational and marketing material referencing the HomeStar.com website.

  Contingencies & Risks:
  - Need to ensure that criteria is introduced in a way that does not severely limit the supply of contractors able to provide HEP related services while still raising the bar on overall quality.

  Example / Best Practices:
  - Promote the existing "HomeStars.com" website to help homeowners make more informed decisions when choosing a reputable contractor.
  - Criteria may include factors such as licensing, bonding, liability insurance, training / certification, continuing education, and service warranties.

- **Action 4.1.3. Investigate the value and feasibility of developing and piloting and integrated Home Improvement Plans for consumers** (i.e. home service record leveraging existing software tool applications, asset lifecycle, financing, ideal housing archetype, etc.). Identify and evaluate the potential target market for a pilot project and test with relevant industry stakeholders including contractors, utilities, energy advisors, property inspectors, and realtors to make sure that such a plan is easy to use and actionable. Include private financial institutions in discussions on how a proposed Home Improvement Plan can help homeowners a) see their property as an asset b) develop a saving/ investment plan to increase the value of their homes c) integrate different financial tools into this plan.

  Primary KPIs:
  - Number of homeowners participating in the Home Improvement Plan pilot project.
  - Number of homeowners scheduling HEP improvements as a result of the Home Improvement Plan.
  - Aggregate energy savings (GJs) through participants in the Home Improvement Plan pilot project.

  Contingencies & Risks:
  - The concept for such a plan must be easy to understand and flexible to accommodate various homeowner needs and evolving priorities.
  - The plan must engage industry and promote collaboration between players to be successful.

  Example / Best Practices:
  - Consider BC Hydro's "Home Energy Coach" program as a potential starting place.
  - Integrate "Next Generation" EnerGuide software tools and plug-ins where possible.

GOAL #5: IMPLEMENT SUPPORTIVE PUBLIC POLICY, REGULATIONS, AND PROGRAMS TO SUPPORT INDUSTRY DEVELOPMENT.

Background: While GLOBE's research suggests that many homeowners in BC are undertaking home improvement projects using their own savings, having access to sensible financing options is critical for helping homeowners take on and pay for HEP improvements. This is particularly the case for homeowners who do not have easy access to capital and would not otherwise chose to take on such projects but may benefit most from the resulting energy cost savings.

While the provincial government and utilities have, in the past, offered generous incentives (grants, rebates, and tax credits) designed to stimulate market transformation. Financial incentives remain critical for motivating BC homeowners to take action, particularly given the province's mild climate which results in longer payback periods on energy savings. When designed properly, BC's incentive programs have proven effective at motivating homeowner action.

The biggest weakness so far with rebate programs in BC has been their prescriptive and short-term nature, which has confused the market and deterred industry from investing fully into HEP activities. The current opinion of many from industry is that a strong incentive program offering is required in the immediate term in order to motivate consumers, drive HEP related activities, and maintain workforce capacity.

Strategies & Actions

Strategy 5.1: Develop effective, long-term market tools in order to promote HEP market transformation in BC.

Highest Priority Action Items:

- **Action 5.1.1. Conduct a comprehensive review of HEP related programs, policies, and regulatory mechanisms to determine the best approaches to support long-term market transformation goals.** Conduct research to better understand the ideal incentive / rebate program structure for creating continuous market demand and assess the feasibility and options for longer term HEP market incentives and supporting policies. Consider establishing a "structure committee" between government and utilities.

  Primary KPIs:
  - Review of financial incentive programs.
  - Energy savings per project receiving incentives.

  Contingencies & Risks:
  - Successful elements of HEP programs in jurisdictions may not be applicable in BC.

  Example / Best Practices:
  - Longer-term, regressive incentives were used very successful for growing California's solar industry, with large incentives for early adopters that decreased over a 10-year period.[23]

[23] For more on incentive program best practices, see *Research Report Section 3.3: Program Design & Implementation*, pp.110-115.

- **Action 5.1.2. Design and rollout HEP incentive programs and initiatives, based on the review.** Ensure that the resulting suite of programs is well coordinated, easy to understand, promoted within industry and to homeowners, transparent, and equitable.

  Primary KPIs:
  - Financial incentives deployed after review.
  - GST/ PST revenue increase from contractors registering for a GST/PST number compared to 2014 as a baseline.
  - Number of professionals working in the industry over a set period following rollout of programs and initiatives.

  Contingencies & Risks:
  - A continued reliance on incentive programs may impact industry's investment and its ability to become self-sufficient.

  Example / Best Practices:
  - Efficiency New Brunswick Residential Energy Efficiency program has no published "end date", which reduces seasonality and "spikes" within the industry.[24]

- **Action 5.1.3. Minimize the underground economy by requiring that all homeowners submit a bill of sale from a legitimate contractor** (with a PST/GST number) in order to qualify for incentive programs, including tax credits for homeowners.

  Primary KPIs:
  - GST/ PST revenue increase from contractors registering for a GST/PST number.
  - Taxes collected that previously would have gone to the cash-based underground economy.

  Contingencies & Risks:
  - May generate resistance from industry and/or homeowners and could potentially have a negative impact the overall HEP related activities.

  Example / Best Practices:
  - Develop a standing provincial home improvement tax credit (e.g., 2%) on selected activities to encourage HEP projects and require "bill of sale" to legitimize work done in the field.[25]

- **Action 5.1.4. Evaluate the most effective means of delivering long-term, sustainable HEP demand and supply side programs and financial incentives across government and utility partners.** The objective would be to deliver continuous programs and services and minimize market disruption in spite of the varying funding cycles and constraints of supporting partners.

  Primary KPIs:
  - Evaluation of HEP delivery models.

[24] See: http://www.efficiencynb.ca/residential/reep-existinghomes.html
[25] For more on a provincial home improvement tax credit, see *Research Report Section 3.3: Program Design & Implementation*, p.119.

- **Action 5.1.5. Consider mandatory home energy auditing at time-of-sale through provincial regulation.** Assess the industry acceptance for and feasibility of implementing mandatory home energy labeling (e.g., EnerGuide labels) at time-of-sale in a future update of the BC Building Code. Engage stakeholders to address any identified concerns or barriers and engage them to be part of the final solution to enable mandatory home labeling.

  Primary KPIs:
  - Number of homes audited at time-of-sale between 2016 -2019.
  - Provincial regulations on mandatory home labeling by 2016.

  Contingencies & Risks:
  - Potential resistance from homeowners and/or realtor community.
  - Requires support at a provincial level to be most effective.

  Example / Best Practices:
  - Energy labeling on homes should be user-friendly and intuitive in nature. Energy labels can be logically ranked on a scale and color-coded for ease of interpretation (e.g., European Energy Performance Certificates).[26]
  - Make energy audit information available for informed home sales process similar to San Francisco's requirement for commercial buildings (i.e., MLS, government database).27

Strategy 5.2: Increase the access to capital for homeowners to support deeper investment in HEP upgrades.

Highest Priority Action Item:

- **Action 5.2.1. Engage private financial institutions in the development of viable investment products for HEP upgrades,** including on-bill financing, lines of credit, remortgaging, loans, and other financial instruments.

  Primary KPIs:
  - Number of financial institutions offering HEP investment products.
  - Number of dedicated HEP financial instruments offered by financial institutions in BC.
  - Amount of capital deployed by financial institutions in BC for HEP related improvement projects.

  Contingencies & Risks:
  - Financial institutions may not want to develop HEP specific products that directly compete with other financial offerings in their portfolios.
  - Financial products developed to support HEP activities in BC may not have low market demand resulting in frustration and losses for institutions that develop them (e.g., similar to Vancity's Home Energy Loan Program).

  Example / Best Practices:
  - In the US, contractors have the ability to access and offer financing to their clients through partnerships with financial institutions.
  - Could be linked in with the suggested Home Improvement Plan pilot.

[26] For more on EPCs, see *Research Report Section 3.2: Energy Efficiency Standards & Labels*, pp.102, 105.
[27] See: http://www.environmentalleader.com/2011/02/14/san-francisco-passes-energy-audit-mandate/

STRATEGIC OPTIONS

The strategy and highest priority action plan items outlined in the previous section provide a framework for developing a more self-sustaining HEP industry in BC. Alternative approaches or scenarios are outlined below, together with the identified risks associated and respective contingencies with each.

Status Quo Approach for HEP Industry Development – The option to let industry develop at its own pace is one approach to developing BC's HEP industry. However, gradual increasing pressures on energy and housing prices, a deteriorating building stock in BC, and changes in consumer lifestyle preferences pose potential up and downside risks.

Potential Risks	Contingencies
• Market driven industry growth outpaces regulatory and policy frameworks in BC. • Marginalization of businesses involved in the HEP improvement business. • Reduced resiliency of BC homes and homeowners to environmental, resource, and economic-related shocks. • Increased externality costs to government and utilities. • Increased energy efficiency program delivery costs as a result of decreasing home performance due to wear and tear.	• Continually monitor industry development trends. • Obtain feedback from companies performing HEP improvements and work to provide them with support. • Strengthen the province's existing environmental risk management response programs. • Evaluate means for balancing program cost savings with increased externality costs for government and utilities.

Moderate Approach for HEP Industry Development – A moderate approach to change would allow for certain short-term measures to be adopted. However, a moderate approach that adopts only a select number of improvements could limit the full realization of this *Strategic Plan*'s long-term vision.

Potential Risks	Contingencies
• Disconnect between individual actions and industry vision / strategic objectives. • Inability to leverage strategic synergies through a cohesive action plan rollout. • Increased long-term strategy deployment costs due to activity overlaps. • Inability to properly measure and quantify the overall industry impact of piecemeal actions.	• Determine possible synergies between actions that are being evaluated for deployment. • Select actions that have the potential for greatest impact and alignment with the vision and overall strategy outlined in this document.

Comprehensive Approach to HEP Industry Development – A comprehensive approach to developing BC's HEP industry following this *Strategic Plan* allows for proper measurement and control, as well as a phased rollout of initiatives over the long-term. A comprehensive approach also creates an environment of predictability and certainty which encourages greater buy-in from industry.

Potential Risks	Contingencies
• Short- to medium-term increases in program delivery budget. • Unforeseen market changes leading to reduced relevancy of a HEP industry in BC. • Potentially over investing in only one aspect of the larger energy security issue. • Short-term increase in bureaucracy and government / utility involvement in industry development.	• Review prioritized action plan to determine best timeframe for the cost effective strategy roll-out. • Continually monitor and track market trends within BC, nationally, and internationally. • Systematically evaluate other industries that could be developed and could leverage on synergies emerging from BC's HEP industry. • Work with industry to develop industry-led initiatives to gradually reduce the role of government and utilities.

OTHER STRATEGIC CONSIDERATIONS

The following risks and contingencies are additional considerations for the implementation of this *Strategic Plan*.

Effectiveness of Delivering Actual Energy Savings in BC

Potential Risks	Contingencies
• Over investment into developing the HEP market without clear targets for measuring actual energy savings.	• Balance energy savings metrics to the financial considerations of HEP program delivery.

Choosing the Least Expensive Actions

Potential Risks	Contingencies
• Lowest cost actions without appreciation of a cost-benefit analysis may result in ineffective deployment of invested capital. • Potential synergies between the deployments of different actions may be minimized. • Inability to realize the true potential of BC's HEP industry by use a cost-based decision making approach.	• Conduct cost-benefit and conduct action specific discounted cash flow (DCF) analysis to determine best return on investment. • Evaluate all related actions together based on outcome rather than individual actions.

Full Consideration of Time Sensitive Actions

Potential Risks	Contingencies
• Changing market conditions minimize the energy savings impact of some of the actions. • Normal economic inflation renders certain actions financially infeasible. • Minimization of synergies with other associated actions and strategies. • Actions being deferred to future years become ineffective.	• Conduct periodic review of the strategic plan to identify implementation gaps and attempt to accelerate the deployment of non-time sensitive actions to increase energy savings targets. • Closely monitor cost inflations and ensure an adequate contingency fund to mitigate financial risks associated with the implementation of the strategic plan. • Factor synergy benefits from actions instead of only leveraging individual actions.

PERFORMANCE & MONITORING FRAMEWORK

Performance and monitoring are core features of this *Strategic Plan* and are built into the strategy with specific actions that deal with quality control and assurance. Below is a list of some of the most important Key Performance Indicators (KPIs) that can be used to measure the successful growth of the HEP industry in British Columbia.

- The number of HEP-specific training programs
- The number of HEP qualified contractors
- The number and depth of HEP related upgrades
- The number of programs and initiatives supporting / requiring HEP qualified contractors
- The number of jobs created within the HEP industry
- The amount of incentives paid out and tax revenues collected from HEP related projects
- The overall awareness levels for energy consumption amongst BC homeowners
- The number of energy audits and their effectiveness (conversion rates, etc.)
- The number of HEP industry QA / QC frameworks, tools and resources

Proper strategy performance monitoring must be developed in order to mitigate risks associated with strategy implementation. GLOBE recommends that these performance metrics be measured independently by a third-party consulting firm (budget allowing) with experience in strategy and program implementation and evaluation.

In addition to monitoring the above KPIs, a formal feedback mechanism should be established in order to input from different stakeholders involved in the HEP industry. It is important for industry stakeholders to be aware of where they are able to provide input and influence the industry development process.

RECOMMENDATIONS

Below is a list of recommended highest priority actions for utilities, government, and industry leaders designed to further develop a sustainable HEP industry in British Columbia.

1. **Support the development of a HEP Leadership Committee** that would invite stakeholders from existing businesses, industry associations, governments, and utilities to participate in order to promote the business case for HEP and bring forward policy, regulatory, and program support.

2. **Identify the appropriate approach for a provincially-recognized HEP industry credential** in-line with new and existing curriculum that considers "house-as-a-system" approaches, home performance, building science, and weatherization best practices.

3. **Develop a supportive Trade Ally program** to foster contractor engagement, education / training, and workforce development related to HEP work.

4. **Support the development of Standard Work Specifications** for all HEP related work in BC as a foundation for training / credential programs and as a framework for Quality Assurance / Quality Control in the field.

5. **Develop HEP related educational tools and resources for consumers and contractors**, leveraging off new and existing tools and technologies such as the Next Generation EnerGuide software, the "MyHydro" platform, and smart meter data to help homeowners better understand ways of reducing their home energy consumption.

6. **Develop stable programs and policies that provide consistent and predictable economic incentives** for consumers to invest in HEP upgrades and encourage market transformation.

NEXT STEPS

Growing the opportunities that exist within BC's HEP industry requires strong and decisive actions in the immediate term. How the future of the industry develops over the next decade relies on raising awareness around the value and benefit of HEP with homeowners, engaging important industry stakeholders, creating a competitive market, establishing a fair and supportive policy and regulatory structure, streamling programs and processes, and decreasing financial barriers to action (either through better access to capital and/or predictable, long-term incentives).

Next steps could include:

- Making the *Strategic Plan*, supporting documents, and/or an appropriate summary document publicly available in order to facilitate further industry action and raise awareness in the broader residential construction / renovation community.
- Developing a priority implementation list based on the proposed action plan and assign resources accordingly.
- Convene a follow-up meeting with key industry leaders who supported the development of this *Strategic Plan* in order to formally present the final document and facilitate a discussion with respect to the roles of utilities, government, and industry in implementing the recommendations.
- Additional research to further establish the business case (e.g., investment opportunities, business models, etc.) and market demand (e.g., consumer surveys, etc.) for HEP products, services, and solutions.

APPENDICES

APPENDIX A: BC HOME ENERGY PERFORMANCE SWOT ANALYSIS

Strengths	Weakness
Demand-Side Stakeholders • The HEP industry provides tangible benefits to homeowners / investors. **Supply-Side Stakeholders** • Important stakeholder groups recognize a need for developing a strategy to grow BC's HEP industry. • Some financial institutions in BC recognize the benefits of investing in energy efficiency initiatives. **Government & Regulations** • HEP is supported by a progressive provincial government, utilities, and significant municipal government leadership. • There is a collaborative approach to public policy development between the provincial government and provincial utilities. • There is strong history of demand-side management (DSM) programs run by provincial utilities in BC. • HEP diagnostic systems and tools (such as HOT 2000 and EnerGuide) are well established and federally supported.	**Demand-Side Stakeholders** • BC has a relatively smaller population and HEP market compared with some other North American jurisdictions with successful HEP industries. • While HEP provides benefits to homeowners / investors, they are not clearly understood by most. • In general, BC homeowners lack trust for renovators, trade contractors, and installers. • The upfront costs for HEP improvements tend to be expensive and do not lend themselves to easy decision-making. It requires significant homeowner investment in the decision-making process in terms of research and education. • There is a lack of consumer understanding for how their homes function (i.e. "house-as-a-system") and for the HEP process. • There is a lack of energy criteria as part of the home sales process. **Supply-Side Stakeholders** • There is a lack of uptake by industry for HEP related education, training, and certification programs. • There is a lack of quality control and quality assurance frameworks within BC's HEP industry. • There is a lack of connection between energy audit to actual work order in BC's existing HEP sales process. • Focus tends to be on single solution measures as opposed to multi-component upgrade projects. **Government & Regulations** • Government and utility programs and approaches tend to be fragmented and short-term in nature. • Current incentive programs are focused on encouraging equipment upgrades rather than rewarding actual energy savings or overall home performance. • The provincial building code does not favour performance-based construction practices for existing buildings at this time. • There are few provincial regulations for requiring certified and qualified builders / renovators and trades.

Opportunities	Threats
Demand-Side Stakeholders • Develop tools, resources, and consumer-facing educational materials to raise awareness of HEP improvement opportunities with different kinds of consumers. • Demonstrate to homeowners the value proposition and real benefits associated with HEP improvements. **Supply-Side Stakeholders** • Large established markets exist in BC (i.e., BC's home improvement and renovation market is worth more than $7 billion annually).[28] • Greater access to energy use information by means of new technologies (e.g., smart meters, benchmarked energy report cards, energy monitoring devices, etc.) could help to drive consumer demand for HEP. • Creation of a dedicated BC-based R&D / testing centre for HEP technologies, assemblies, best practices, and solutions could help improve innovation. • Opportunities exist to work with financial institutions in BC for investing in energy efficiency initiatives. **Government & Regulations** • Increased regulation and long-term incentives at the provincial level can help to grow demand for BC's HEP industry and raise the bar for professionalism and quality within the industry. • Benchmarking energy prices to average current prices in North America can help to drive market demand for energy conservation initiatives tied to HEP. • Strengthening building code requirements to incorporate renovation standards and best practices could help drive market demand for HEP initiatives. • Developing a BC "Trade Ally" program that supports qualified contractors and energy advisors could help build homeowner trust and industry buy-in for HEP initiatives. • Removing barriers to the home energy audit process and leveraging contractor-energy advisor-customer relationships can help to better promote HEP initiatives and improve uptake. • Developing quality assurance and quality control frameworks can help to raise the bar in terms of HEP related work performed in the field and protect BC homeowners in the process. • Promoting home improvement plans integrated with financing, incentives, and workforce development. • Implement community-based programs (e.g., community ambassador programs, Energy Diets, etc.) and work with BC Housing and BC Non-profit Housing Association to ensure benefits are realized by all BC residents.	**Demand-Side Stakeholders** • Competing interests from non-HEP related home improvement options. • Investments in public education, awareness, tools, and resources may not effectively drive market transformation. • Economic inflation leading to an increased cost perception of HEP improvements. **Supply-Side Stakeholders** • Every HEP project is different and there is no "one-size-fits-all" solution that can be easily standardized and communicated. As such, every home requires its own "prescription". • Lagging economic recovery leading to decreased availability of financing. • Lower cost of alternative, non-energy efficient substitute products and technologies. • Market confusion due to numerous standards and competing labeling systems. • A "wait and see" approach to investing in energy efficient products and services when incentive programs and tax schemes take an "on again, off again" approach. **Government** • Persistent low cost of energy (electricity and natural gas) in BC. • Policies and regulations focus on developing energy-specific policies and solutions rather than holistic home improvement. • Shrinking government budgets and austerity measures. • Mixed messages from government on climate change and energy/environmental priorities.

28 http://www.marketwire.com/press-release/canada-mortgage-and-housing-corporation-renovation-spending-approaches-7-billion-761095.htm

APPENDIX B: BC HOME ENERGY PERFORMANCE GAP ANALYSIS

The gap analysis below is based on the current state of BC's HEP industry when compared with developments and best practices in other North American jurisdictions identified as leaders in HEP market development. The gaps were qualitatively assessed based on the criteria outlined in the table below.

Criteria	Minor Gap (1)	Moderate Gap (2)	Significant Gap (3)
A. Relationships Exist Between Relevant Stakeholders	High relationship	Moderate relationship	Low relationship
B. Effort Required for Market Shifts and Transformation	Low effort required	Moderate effort required	Significant effort required
C. Level of Anticipated Resistance to Change	Low resistance	Moderate resistance	High resistance
D. Capital Investment Required	Limited investment required	Moderate investment required	Significant investment required

The items described within each identified gap are listed in descending order in terms of their relative importance (i.e., the most critical gaps are listed closer to the top). With respect to the HEP industry best practices, the items marked with an asterisk (*) are identified as upcoming industry best practices based on GLOBE's research, although these items have yet to be fully piloted and proven in practice.

Identified Gap	Current BC Situation	Gap Severity				Overall Gap (L, M, H)	HEP Industry Best Practices
		Relationships	Effort	Resistance	Investment		
Consumer Education & Marketing *A coordinated effort to improve consumer education, the promotion of HEP opportunities, and to better understand consumer motivations is important for driving demand for HEP services and solutions.*	• The value and benefits of HEP initiatives are not well understood by homeowners despite existing public resources and tools (e.g., "MyHydro"), available through LiveSmart BC, Power Smart, and Power Sense programs.	2	3	2	3	**High**	• Energy efficiency resources provided by utilities recognize that contractors are the front line sales force for HEP improvements and are designed to increase HEP improvement work being completed. Use of contractor partnerships to achieve these goals (e.g., Energy Trust of Oregon Trade Ally Program). • Energy labeling on homes is user-friendly and intuitive in nature. Energy labels are logically ranked on a scale and color coded for ease of understanding (e.g., European Energy Performance Certificates). • Tools and resources to calculate pay-back, return on investment (ROI), energy savings, and other metrics are readily available for homeowners online and/or through energy efficiency program delivery agents.*
	• The lack of consistent and sustained messaging and accepted industry definition amongst stakeholders has resulted in market confusion.	2	3	2	2	**Medium**	
	• There is insufficient information at time-of-sale for buyers.	3	2	3	2	**Medium**	

Identified Gap	Current BC Situation	Gap Severity				Overall Gap (L, M, H)	HEP Industry Best Practices
		Relationships	Effort	Resistance	Investment		
Quality Control, Quality Assurance & Industry Professionalism *An established QC / QA framework and related initiatives can help to raise professionalism within the HEP industry, limit homeowner liabilities, and improve overall trust within the industry.*	• There are no established HEP quality assurance (QA) and control (QC) frameworks in BC.	2	3	2	2	**High**	• CSA S478-95 (R2007) "Guidelines on Durability in Buildings" exists for larger structures.[29] A similar guideline needs to be developed for homes and small structures. • Increased collaboration between energy auditors and contractors when providing energy assessments during the HEP improvement process. • Approved list of qualified contractors and CEAs who can support homeowners throughout the HEP improvement process. • Establishment and implementation of Standard Work Specifications, “best practice” guidelines, and checklists to be followed before, during, and after the work is completed in order to minimize a homeowner’s exposure to poor quality work and installations. • An industry “watchdog” or third-party agency responsible for overseeing and enforcing regulations and industry standards in order to protect homeowners. • Recognition of a holistic “house-as-a system” building approach and promotion of renovation plans rather than piecemeal retrofits. • The establishment of home service records to understand replacement cycles, upgrade timelines, the different quality measures of comfort, durability, and energy use.*
	• There is no single organization or individual responsible for the entire HEP improvement process from beginning to end. Responsibilities are distributed amongst different industry associations, utilities, and governmental departments.	2	3	2	2	**Medium**	
	• There is no recourse for the failure to achieve projected energy performance after installation.	1	3	2	2	**Medium**	
	• There is a current lack of appreciation for the condition of a house and a lack of contracting / service providers with multi-discipline solutions in BC. Currently, home conditions are assessed by means of a checklist rather than comprehensive reporting.	2	3	2	2	**Medium**	
	• Systems are not in place to easily track upgrades and design service records.	2	3	2	2	**Medium**	
Policies, Programs & Regulations *Regulatory environment, supportive policies, and relevant programs need to measure and track effectiveness and ROI, and should be based on efficient use of resources and aligned priorities.*	• Incentive programs are relatively short-term in nature and are unpredictable in size, scope, and duration.	1	2	3	2	**High**	• Establishment and enforcement of strong building code/ renovation codes and qualification standards (e.g., City of Vancouver building bylaw requires Energuide 80 and specifies permissible air tightness standards. City of Toronto and State of California require licensing of all contractors and trades working on existing homes). • Provide ongoing training for municipal inspectors to understand HEP implications during the building inspection process. • Regressive, long-term financial incentives offered by energy efficiency programs. • Performance-based incentive programs that are based on actual energy saved rather than modeled energy saved.*
	• Patchwork of local-level policies and programs causes confusion for industry and the public and may contradict the overall energy saving and/or GHG emission reduction objectives.	1	3	2	2	**Medium**	
	• Rebate-based programs are prescriptive in nature and lack a “whole house” approach.	1	2	2	2	**Low**	

[29] See: http://shop.csa.ca/en/canada/structures/s478-95-r2007/invt/27002521995

Identified Gap	Current BC Situation	Gap Severity				Overall Gap (L, M, H)	HEP Industry Best Practices
		Relationships	Effort	Resistance	Investment		
Industry Definition & Representation *A better understanding amongst industry players for the opportunities around HEP and a coordinated voice to bring forward the needs and interests of industry are important.*	• No widely recognized definition of HEP exists within BC industry and therefore there is no appreciation for the benefits and value of HEP in the home renovation process.	2	3	2	1	**Medium**	• Strong recognition of HEP and the industry by government, utilities, and different industry groups and associations. • Established regional/ jurisdictional energy efficiency councils and industry associations (i.e. California Energy Efficiency Industry Council, and Efficiency First) that represent the business needs of contractors, energy auditors / raters, and other building professionals in the HEP industry. • Energy efficiency councils provide an effective voice for the industry and lobby government by commenting on utility and government policies, processes, and regulations.
	• A coordinated industry voice or council that represents HEP and industry interests is lacking in BC. Much of the existing representation is through a wide number of industry and trade associations.	3	3	2	2	**Medium**	
	• Very low representation or "voice" for the energy advisor. BC's CEA community lives and dies based on the presence of government incentive programs.	3	2	1	2	**Low**	
Industry Training & Certification *Supportive industry training, a recognized credential, and ongoing professional development is important for ensuring quality within the industry but comes second to stronger market demand for related HEP services.*	• No recognition of and requirements for training and industry certification for HEP in Canada.	2	3	2	2	**High**	• Embedding building science and energy modeling curriculum within residential construction related apprenticeship and trades training programs, as well as developing accessible, online learning modules. • The adoption of a recognized industry certification and training program such as the Building Performance Institute (BPI)[30] program, which is widely used and recognized in the United States. • Completion of certain training and certification programs is a prerequisite for access government/ utility incentive programs, as are other criteria including contractor licensing and liability insurance. • HEP program administrators / sponsors / utilities offer "Trade Ally" programs which provide opportunities for co-marketing and training workshops / seminars to help contractors improve their HEP projects and better support their clients. • Industry requirements for CPD for contractors and energy auditors working in the HEP industry.
	• Lack of appreciation of the value of ongoing education and continuing professional development (CPD) within the residential contractor / trade / installer, CEA, and property inspector communities at large.	3	3	3	2	**High**	
	• There are a limited number of available training programs and certification for HEP related work, as well as energy modeling, building science, and "house-as-a-system" training for contractors.	1	2	2	2	**Medium**	
	• While some organizations (e.g. CHBA BC) offer business management and sales training for contractors, there is a lack of customized HEP-focused consultative sales and customer service training related to HEP products and services.	2	2	2	2	**Medium**	

30 http://www.bpi.org

Identified Gap	Current BC Situation	Gap Severity				Overall Gap (L, M, H)	HEP Industry Best Practices
		Relationships	Effort	Resistance	Investment		
Information & Reporting *Better access to energy data and information for homeowners and all industry stakeholders can help to improve demand for services and may lead to innovative new products.*	• Currently, the only way for homeowners to get energy use feedback is through their enhanced utility bills which are in different metrics and not amalgamated.	1	3	2	3	**Medium**	• Benchmarked energy use report cards (e.g., those used in Nova Scotia).[31] • Promotion of smart meter data monitoring within the home through web-based tools and smart-meter connected energy monitoring devices. • Promote whole home real-time energy use amalgamators (web-based, apps, etc.) • Drive public familiarity of HEP metrics (e.g., kWh/m2/yr) • Make energy audit information available for informed home sales process similar to San Francisco's requirement for commercial buildings (i.e., MLS, government database).[32] • Required listing of energy audit information on large real estate databases such as MLS.
	• Energy assessment information is not readily available during the home sales process and not a requirement for listing on any databases (i.e., MLS).	3	3	3	2	**Medium**	
	• Home energy assessments by CEAs are based on national energy assessment models such as HOT 2000 and lack regional specificity.	2	2	2	3	**Low**	
Access to Financing & Capital *While access to financing on its own has not proven to be a major market driver, having a range of options that are well coordinated with the HEP process is important.*	• Financial institutions do not actively integrate energy efficiency into their lending decisions.	2	2	2	2	**High**	• Contractors have the ability to access and offer financing to their clients through partnerships with financial institutions.
	• There is a lack of flexibility and choice in available financing options to support HEP industry activities.	2	2	2	2	**Medium**	
Culture of Innovation & Proactive Investment *As BC's HEP industry evolves, a greater need for innovation and research can help to improve actual energy performance.*	• The HEP industry is not supported by an innovative industry culture that includes supportive research to safely develop and test optimal systems and solutions.	3	2	2	3	**Medium**	• Establishment of an inventory of available HEP products and services in BC. • Establishment of a HEP product testing facility / lab (e.g., a Canadian Centre for Housing Technology BC branch).
	• A regulatory and financial safety net for HEP and energy efficiency innovation related activities is lacking in BC.	2	3	2	2	**Medium**	

31 http://www.efficiencyns.ca/energy-solutions/home-energy-report/?user-type=4
32 http://www.environmentalleader.com/2011/02/14/san-francisco-passes-energy-audit-mandate/

APPENDIX C: SITUATIONAL CONTEXT BY GOAL

GOAL #1: DEVELOP AN ORGANIZED BODY TO REPRESENT BC'S HEP INDUSTRY AND ESTABLISH KEY INDUSTRY BASELINE DATA AND PERFORMANCE METRICS.

Situational Context: The interests of BC's nascent HEP industry are currently fragmented. While some stakeholders are represented to varying degrees by a number of industry and trade-based associations (including CHBA BC, TECA, HRAI, FEN-BC, and a few others), the existing available representation does not fully recognize the opportunities associated specifically with HEP related activities. In addition, other industry stakeholders including government, utilities, financial institutions, realtors, and retailers have not differentiated the HEP industry from the larger residential construction and renovation industry as a result of the current state of fragmentation and a poorly recognized "voice".

In addition, a more coordinated industry approach will allow for better sharing of information, best practices, and consistent measurement / tracking using performance-based metrics and related tools. Much emphasis to date in the HEP industry has been on energy savings as they are predicted by models and estimates by energy advisors and, occasionally, contractors. However, these models often do not accurately capture the actual energy savings delivered by an HEP related project. Currently, the emphasis on modeled energy savings performed by CEAs in BC does not provide adequate accountability and long-term evaluation of the success of HEP improvements, which is a risk to incentive providers.

Scale of the Challenge: A lack of a unified industry voice makes it difficult to grow a more robust HEP industry in BC that is able to fully identify and act on the opportunities. The lack of a unified body to promote the interests of the industry and lobby government also limits the ability for industry to establish and enforce best practices that should be adhered to by all industry professionals active in the marketplace. The lack of a formal governance structure for HEP professionals also hinders industry progression and the implementation of best practices, agreement on performance-based metrics, and workforce quality.

Application of Relevant Best Practices: Throughout the United States, bodies that represent the interests of the HEP industry are prevalent and found at the state, regional, and national levels. The *California Energy Efficiency Council* for example not only represents companies that provide energy efficiency and home performance related products and services, but also actively lobbies government and provides commentary on state policies and regulations that impact its membership.[33] *Efficiency First* is another organization that represents the workforce and training needs of the home performance contractor community.[34] *Efficiency First* not only offers training for its members, but also advocates for quality assurance frameworks and other policies that will foster a sustainable and scalable home performance market.

As such, the establishment of a HEP Leadership Committee, composed of key industry stakeholders, government, and utility representatives, could help to coalesce the interests of players offering products and services related to HEP in the province. The development of a HEP Leadership Committee that can act as a strong and coordinated voice for industry in BC and as a governing body for improving quality is an essential first step.

[33] http://www.efficiencycouncil.org
34 http://www.efficiencyfirst.org/about/

GOAL #2: DEVELOP A TRAINED AND QUALIFIED WORKFORCE THAT CAN COMPETENTLY AND RELIABLY DELIVER HEP RELATED SERVICES IN BC.

Situational Context: Industry training and certification are critical elements for building a qualified workforce and a successful, self-sustaining HEP industry in BC. Having an industry that is properly trained and certified increases the quality of work performed, as well as homeowner confidence in the industry, while at the same time minimizing inherent risks and liabilities, not only to homeowners but to all stakeholders.

In BC, energy advisors are required to be certified by Natural Resources Canada in order to submit energy modeling results using HOT2000 and qualify for many incentive programs. However, within the construction / renovation trades, the availability and access to proper HEP related training is currently lacking in BC. While many construction apprenticeship and other trades training programs offered by post-secondary institutions, training providers, and industry associations (e.g., CHBA BC, TECA Quality First, etc.) cover some elements of house-as-a-system training and HEP best practices, none are comprehensive in scope or contain the level of detail required for "whole" home performance activities. In addition, there is no weatherization training in the province or recognized industry credential (e.g., BPI) in BC. The current lack of a clear certification and training framework for HEP in BC bars interested candidates from entering the industry and limits the ability for industry to set quality control and assurance frameworks.

Furthermore, there are few requirements for trades training in the residential construction / renovation industry in BC, apart from gasfitters, electricians, and plumbers. And while ongoing training programs, workshops, and seminars were identified by industry as effective tools for improving the up-to-date knowledge and expertise of contractors, installers, and energy advisors, demand by industry for relevant training remains low due to the lack of regulatory requirements to undertake continuing professional development.

Scale of Challenge: The lack of a focused and coordinated training pathway and recognized HEP certification severely impairs the overall quality of work being completed by industry in BC. The current fragmentation of available training also severely undermines consumer confidence with contractors working in the industry, as well as the assurance that the work completed is to a set standard and at a reliable cost / quote.

Addressing many of these concerns comes down to regulatory issues, although government and utilities can ease in voluntary training requirements linked to incentive and other programs (e.g., Trade Ally) and, eventually, mandate that all industry have a level of relevant training / certification in order to qualify for these programs in the future once such a certification is in place.

Application of Relevant Best Practices: In the United States, training, certification, and quality assurance are often linked to government and utility incentive programs. Often in the US, contractors are required to attain a certain level of training that results in certification. The Building Professionals Institute (BPI) certification is one of the most recognized credentials for the HEP industry in the United States.[35] Establishing a similar training framework in BC will be essential for laying the foundation of a sustainable HEP industry that places a high value on quality products and services.

[35] www.bpi.org

GOAL #3: IMPLEMENT ROBUST QUALITY CONTROL AND ASSURANCE FRAMEWORKS FOR HEP WORK.

Situational Context: Quality control (QC) and quality assurance (QA) are critical aspects of the HEP industry. Currently, there is a lack of industry accountability and an unrealistic reliance on consumers to understand HEP related products and services they are purchasing. This disparity between industry and consumer expectations has caused many to be hesitant in trusting work performed by contractors. Contractors are currently not held accountable for the work that they have performed and with a lack of regulatory consequence and responsibility to the homeowner, significant, long-term, structural challenges and liabilities exist and inhibit the implementation of industry best practices. Some industry associations in BC, including CHBA BC, FEN-BC, and TECA, provide some oversight for ensuring quality amongst their membership, but it is still relatively limited in size, scope, and in terms of broader industry recognition.

Scale of Challenge: Quality control and assurance is a significant industry challenge. Without a proper framework in place, industry best practices cannot be developed, implemented, and enforced. The current lack of such framework certainly does not help build consumer confidence in the industry leaving many being hesitant about the actual benefits of HEP improvements. The lack of a QC/QA framework inhibits the ability for the industry to adequately monitor actual energy saved as a result of HEP work. Work that is not done to intended standards and specifications also results in significant challenge in delivering both modeled and actual energy savings.

Application of Best Practice: Many jurisdictions in North America also have either strict regulatory oversight over HEP work or industry bodies that govern professionals working in the HEP industry. For example, in order to qualify for the Home Performance with ENERGY STAR (HPwES) program in the US, program sponsors must establish a QA framework that can monitor a minimum of 5 per cent of all projects qualifying for incentives.

In some US states, including Oregon and Wisconsin, energy efficiency program delivery agents often work closely with contractors via “Trade Ally” programs to cooperatively promote the value of HEP improvements with homeowners and oversee work done in the field. In addition, various Trade Ally programs provide business development funds for their qualified contractors to undertake business, consultative sales, and customer service related training.

However, there is now a greater emphasis within industry being placed on QC. With a proper set of standards and regulation in place, government and utilities can work with industry to develop effective QC measures – where work is performed correctly the first time and deficiencies are identified and corrected on the spot so that the customer / homeowner never gets exposed to bad work.

The US DOE is also working with several of their HPwES sponsors to pilot quality management systems (QMS), which are designed to incorporate quality throughout the entire process, from the owner and senior management down to technicians and contractor staff in the field, following a set of customer-oriented criteria that defines what a successful job looks like. The idea is that whatever an individual’s role is within the supply chain of a project, they are personally responsible for ensuring that that piece of the project meets the set criteria before it gets passed on to the next step.

In the state of Oregon, the Energy Trust is experimenting with a QMS that incorporates the use of Standard Work Specifications and contractor “checklists” to improve the work done onsite by their approved contractors, also known as “Trade Allies”. The Energy Trust is making these various tools accessible on mobile devices and developing user-friendly language, photos, and other techniques to improve results.

GOAL #4: RAISE CONSUMER AWARENESS AND DEMAND FOR HEP IMPROVEMENTS.

Situational Context: One of the fundamental questions that homeowners struggle to appreciate is the value and benefit delivered by HEP related products and services. Addressing this issue requires that consumers be educated on the opportunities and serviced by qualified professionals they can trust. However, the fragmented nature of the industry, tools, resources, and related messaging has made it difficult for consumers to fully understand the financial, comfort, health, and environmental benefits of pursuing HEP improvements. Industry participants recognize the opportunities associated with HEP but the sale of such services has been difficult due to the lack of a clear and communicable value proposition for homeowners.

Homeowners need to have the necessary information and tools at their fingertips to take action on HEP related improvements at the various trigger points described earlier in this document. Often, homeowners are faced with difficult decisions and life events that compete with the investment dollars that could be targeted for HEP improvements. Without a proper understanding of the actual benefits of HEP, the homeowner's motivation for taking on HEP related activities tends to be low.

Scale of the Challenge: GLOBE's interactive webinar results show that participants from BC's HEP industry felt that investments in homeowner and consumer education by government and utilities could have the greatest impact for advancing the industry. While the BC government and utilities in the province have demonstrated significant leadership with respect to promoting energy efficiency and environmental stewardship over the last several years, homeowners continue to be unaware of the opportunities that HEP can provide; and the lack of a clear marketable value proposition limits the growth potential of the industry.

Without proper education and awareness, HEP will only be seen as a niche subset of the overall renovation market, rather than as an integral part of every home improvement project. "House-as-a-system" principles will also need to be promoted with homeowners and related influencers from industry as a way to preserve or increase the asset value of a home. In the long-term, the goal would be to have an educated consumer / homeowner who can differentiate in terms of quality and recognizes the value and benefits that can be realized when HEP upgrades are considered as part of every renovation and equipment replacement initiative. Getting to this place, however, is a costly, timely, and long-term undertaking.

Application of Relevant Best Practices: In many jurisdictions, homeowners are now able to leverage technology such as smart meters, energy consumption hardware / software tools, and energy-use report cards to access critical data for making informed decisions around how to improve the energy efficiency of their homes. By monitoring actual energy usage and savings, governments and utilities can transition prescribed rebates towards more performance-based incentive programs and reward both homeowners and service providers accordingly.

The US Department of Energy, in partnership with a variety of state-level and non-governmental organizations across the US, also provides a wide variety of tools, resources, and training programs designed to increase consumer awareness and engagement on HEP improvement opportunities. Many of these tools and resources have been made available online and accessible through many state-level energy efficiency incentive delivery agencies including NYSERDA, Wisconsin's Focus on Energy, etc. Many existing weatherization programs in North America are also linked to social welfare agendas and, as such, significant opportunities exist to leverage on the success of energy efficiency programming for low-income housing to deploy wider-scale HEP initiatives across the province.

Some jurisdictions (e.g., Nova Scotia) have begun to promote the use of home energy report cards. These allow homeowners to obtain information on their own energy use, benchmarked to other homes within the community, as a means for motivating action to reduce energy consumption. In California, Pacific Gas and Electric (PG&E) allows homeowners to access their smart meter data online and use mobile apps to assess energy use in real-time and promote behavioural changes in order to minimize energy consumption and costs. Technology has also been developed in BC to provide similar information to homeowners and could be enhanced to motivate local consumers / homeowners.

With the implementation of the new 2014 EnerGuide home energy labels being rolled out next year, there is also an opportunity for the provincial government, utilities, and industry stakeholders to work with the public using improved metrics (e.g., Energy Use Intensity) and parameters that will help form a better understanding of the energy performance of homes. In addition, with an increase in prevalence for new metrics and resources linked to the 2014 EnerGuide and "Next Generation" software, as well as to digital / mobile applications and utility platforms such as "MyHydro", consumers will be better equipped to understand and interpret this information.

Working with contractors to help homeowners understand the value of "house-as-a-system" concepts by promoting "home improvement plans" rather than individual, piecemeal retrofit and equipment upgrade activities can encourage homeowners to think strategically about their properties as appreciable assets and to take smart actions at the various trigger points. Providing tools to help contractors sell and bundle HEP solutions, rather than individual products, as well as providing them with the tools needed for better communicating the value of HEP to homeowners, has been proven as an effective tactic in the US. Community-based programs such as community ambassador programs, Energy Diets, and others are also effective tactics to engage the public in undertaking HEP projects.

Service records and regular maintenance schedules, commonly applied in the automotive industry, tend to lack in the residential home market, despite these assets being significantly more complex and valuable. As such, developing "home improvement plans" could help homeowners better understand the opportunities for HEP improvements, plan for and prioritize improvements over 5-10 year timeframes, and integrate the financial support mechanisms throughout the process as an easy-to-use planning tool and reference.

GOAL #5: IMPLEMENT SUPPORTIVE PUBLIC POLICY, REGULATIONS, AND PROGRAMS TO SUPPORT INDUSTRY DEVELOPMENT.

Situational Context: Homeowners are often faced with many competing factors for their financial resources. HEP related improvements are rarely afforded high priority with homeowners, who often end up addressing them as a side activity to an existing project or many times, during emergency situations when a building asset fails (e.g., broken furnace, leaking hot water tank, broken window, etc.). Planning for upgrades may require homeowners to undergo projects that endure many months and require significant financial investment.

While GLOBE's research suggests that many homeowners in BC are undertaking home improvement projects using their own savings, having access to sensible financing options is critical for helping homeowners take on and pay for HEP improvements. This is particularly the case for homeowners who do not have easy access to capital and would not otherwise chose to take on such projects but may benefit most from the resulting energy cost savings.

In terms of the availability of private financing, there is currently a limited amount of financing options specifically designed to support HEP related activities in BC. While some banks have developed "green" loans, lines of credit, and other resources that provide favourable terms for energy efficiency-related projects, these options are not large scale and, as such, are considered "niche" products by the institutions that offer them and therefore do not receive large marketing and promotional budgets. Innovative financing options for HEP improvements, such as on-bill financing that is being rolled out in the province through pilots by BC Hydro and FortisBC, have seen very limited uptake so far, due to a variety of reasons described in more detail in the *Research Document*.

While the provincial government and utilities have, in the past, offered generous incentives (grants, rebates, and tax credits) designed to stimulate market transformation. Financial incentives remain critical for motivating BC homeowners to take action, particularly given the province's mild climate which results in longer payback periods on energy savings. When designed properly, BC's incentive programs have proven effective at motivating homeowner action. However, the biggest weakness so far with rebate programs in BC has been their prescriptive and short-term nature, which has confused the market and deterred industry from investing fully into HEP activities. The current opinion of many from industry is that a strong incentive program offering is required in the immediate term in order to motivate consumers and drive HEP related activities.

Scale of Challenge: Many in industry feel that the current incentive and rebate programs in BC are not effective enough to drive market demand for HEP services. As such, there is fear within the industry that a great deal of BC's capacity in HEP related expertise is currently being lost as service professionals in the HEP space move out in search of work in other areas. Many feel that industry may need to completely rebuild itself if the situation is not reversed in the near future through a reinstatement of effective incentives and a targeted marketing effort designed to increase market demand.

Application of Best Practice: In New Brunswick, the Efficiency NB Residential Energy Efficiency program allows participants 18 months to complete renovations and have their post-retrofit audits in order to qualify for the rebates.[36] However, there is no program end date which, in turn, addresses some of the seasonality and cyclical nature of the home improvement industry and reduces "spikes" due to short-term program end dates.

[36] See: http://www.efficiencynb.ca/residential/reep-existinghomes.html

In the US, HEP programs in some states have moved toward more “performance-based” programs in order to encourage market transformation through the adoption of a whole-house approach as opposed to more prescriptive rebates on equipment. While performance-based programs provide rewards for energy savings, it requires a mature HEP industry that can deliver more “holistic” services and homeowners that recognize the benefits of this approach.

BC can begin the transformation to this model by providing longer-term regressive incentives. This approach was used very successful for growing California’s solar industry, where programs provided very large incentives for early adopters and then decreased on a set schedule over a 10-year period. The solar industry in California has now moved into the mainstream as a result.Many other effective incentive delivery models have been explored across North America.

APPENDIX D: COMPREHENSIVE STRATEGIC ACTION PLAN WITH RANKINGS

To assist with prioritizing the various action items, a set of criteria were developed and a qualitative assessment was undertaken on each action item. The criteria included an assessment of the:

1. Amount of regulatory barriers that may exist for implementing the particular action;
2. Relative amount of financing required from project partners to execute the action;
3. Capacity for the evaluated action to advance HEP industry development and market growth;
4. Capacity for the evaluated action to directly create energy savings;
5. Level of industry support for the particular action according to primary and secondary research on domestic and global best practices; and
6. Timeframe required to implement the individual action items, including whether or not another action must proceed it.

Each action item is assessed against these six criteria and is ranked as either being critical, primary, supportive, or non-supportive based on the prioritization matrix in the table below.

Prioritization matrix for assessing individual action items within the Strategic Action Plan:

Criteria	Urgent / Critical	Primary	Supportive	Not supportive
Regulatory barriers	None	Low	Medium	High
Investment / financing requirements	None	Low	Medium	High
Capacity to advance industry / grow HEP market	Critical	High	Medium	Low
Capacity to directly create energy savings	Very High	High	Medium	Low
Industry support (from interviews, survey, etc.)	Very High	High	Medium	Low
Timeframe to implementation	Immediate (<1 yr)	Short (1-2yrs)	Medium (3-5yrs)	Long (> 5yrs)
Score	**3**	**2**	**1**	**0**

Each of the various action items were then assessed against each criterion and assigned a numerical rank (from 0 to 3). The total aggregated "score" for an individual action item assisted in its prioritization and ranking of importance in relation to other action items. Actions were prioritized as "High", "Medium", or "Low" depending on the aggregated value from the assessment. The final rank for each action item was determined by adding up the scores for its seven criteria. The final ranking of each action item indicates its relative importance and feasibility against other action items and is designed to help program managers prioritize and implement the Action Plan accordingly. The higher the score indicates greater feasibility, importance, and/or impact potential of the action item while lower scores indicate lower impact and/or more resources are required. While the ranking provides program managers the ability to prioritize actions, it is important to recognize that developing a self-sustainable HEP industry requires solid commitment by all industry stakeholders with significant leadership by the provincial government and utilities.

Scoring range used to rank and prioritize individual action items within the Strategic Action Plan:

Ranking	Range
Low	7 and lower
Medium	8 to 9
High	10 and higher

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
1. DEVELOP AN ORGANIZED BODY TO REPRESENT BC'S HEP INDUSTRY AND ESTABLISH KEY INDUSTRY BASELINE DATA AND PERFORMANCE METRICS.	Develop and make available relevant HEP benchmarking tools, databases, and online resources for industry.	Establish baseline industry performance metrics and baseline data to allow for long-term tracking and reporting of industry development over time.	H	2014/2015	None	Low	Medium	Medium	High	Short	**11**
	Develop and make available relevant HEP benchmarking tools, databases, and online resources for industry.	In cooperation with Natural Resources Canada, identify, pilot, and deploy next generation EnerGuide software to provide enhanced accuracy of the HOT2000 model and audits.	H	2014/2015	Low	Low	Medium	High	High	Short	**11**
	Coordinate involvement of various stakeholders across industry sectors.	Create a HEP Leadership Committee by engaging industry groups, associations, and HEP stakeholders. The Committee could be responsible for research and developing tools and resources to support the business case for industry buy-in; collecting and processing industry feedback; lobbying government for policy, regulation, standards, and training / certification; and support the longer-term development of a more formalized HEP Council once the industry in BC is better established.	H	2014/2015	None	Low	Medium	Low	High	Short	**10**
	Coordinate involvement of various stakeholders across industry sectors.	Obtain seed funding from public and private sector partners in order to establish the HEP Council. Coordinate the development of industry consensus of a clear mandate and governance structure for the organization. Ensure that the organization has the ability to solicit private sector financial support over long-run to sustain operations.	M	2016	None	Medium	Medium	Low	High	Medium	**8**
	Develop and make available relevant HEP benchmarking tools, databases, and online resources for industry.	Inventory and make available a database of energy efficiency technologies and products available in the BC marketplace similar to database being developed in New York State. Evaluate how BC's HEP industry can leverage existing R&D centres (such as the Ottawa-based Canadian Centre for Housing Technology) to assess and test innovative products, best practices, and solutions to identify suitability of HEP technology in the province.	L	2016	Low	Medium	Medium	Medium	Medium	Medium	**7**
	Develop and make available relevant HEP benchmarking tools, databases, and online resources for industry.	Monitor US and international HEP programs and various pilot programs (i.e. data measurement, incentive program structures, gaming issues, etc.). Evaluate the effectiveness of these programs for potential applications in BC to further grow BC's HEP industry.	L	2014/2015	Low	Low	Low	Low	Medium	Short	**7**

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
2. DEVELOP A TRAINED AND QUALIFIED WORKFORCE THAT CAN COMPETENTLY AND RELIABLY DELIVER HEP RELATED SERVICES IN BC.	Increase the level of support and resources available to supply-side stakeholders.	Develop resources, incentives, and education programs that will encourage contractors, building science experts, and CEAs to work together to jointly form recommendations during initial home assessments and throughout the HEP process.	H	2014/2015	Low	Medium	High	High	V High	Short	**12**
	Develop HEP industry training and certification programs for BC.	Support industry and training providers in developing, promoting, and delivering adequate weatherization training and programming in BC.	H	2014/2015	Low	Low	High	High	High	Short	**12**
	Promote the uptake of HEP-related industry training and continuing professional development through supportive program design.	Develop a "Trade Ally" program that is based on a list of qualified contractors, and provides training and marketing resources for contractors (e.g. a business development and training allowance). Evaluate a tiered model for contractors that participate in the program that provides incentives to contractors based on their level of professionalism and engagement in the program.	H	2014/2015	Medium	Medium	V High	High	V High	Short	**12**
	Develop HEP industry training and certification programs for BC.	Research and evaluate the best HEP industry training credential and approach. Evaluate this credential / approach based on industry feedback, available training provider / credentialing options, proficiency of specific skills training, and quality assurance considerations. Also evaluate how a HEP contractor qualification could be incorporated into national credentialing programs such as Building Performance Institute (BPI). Test via pilot project and roll-out credential program province-wide.	H	2014/2015	Low	Medium	High	High	High	Short	**11**
	Increase the level of support and resources available to supply-side stakeholders.	Develop educational tools for contractors to help with the consultative sales process for HEP activities. Provide short-term financial incentives for contractors to take sales courses and to invest in marketing/education to their clients (consider integrating into a "Trade Ally" program). Include information about the volatility of the energy market and possible in-home mitigation strategies to overcome these risks. Provide tools and resources for contractors to help them effectively inform consumers on the benefits of HEP.	H	2016	Low	Medium	High	High	High	Medium	**10**

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
2. DEVELOP A TRAINED AND QUALIFIED WORKFORCE THAT CAN COMPETENTLY AND RELIABLY DELIVER HEP RELATED SERVICES IN BC.	Promote the uptake of HEP-related industry training and continuing professional development through	Ensure that homeowner rebate and incentive programs are only applicable to work done by contractors that have completed recognized HEP training programs and that will eventually have recognized industry credentials.	H	2015/2016	Medium	Low	High	High	High	Medium	**10**
	Increase the level of support and resources available to supply-side stakeholders.	Provide workshops to educate realtors and home inspectors on the benefits of HEP and how to communicate HEP information to buyers and sellers (e.g. inputting EnerGuide ratings for a home into MLS database and how to use this tool to their advantage). Help the property assessment industry better appreciate the value of HEP improvements by developing a series of case studies and educational seminars.	M	2015	Low	Medium	Medium	Medium	Medium	Short	**8**
	Develop HEP industry training and certification programs for BC.	Review HEP training curriculum every 2-3 years to ensure curriculum remains relevant to the needs of BC's HEP industry. Leverage the proposed HEP Leadership Committee to provide continuous feedback to the education system on essential skills and techniques that are in-line with demand and industry best practices.	M	2016	Low	Low	Medium	Medium	Medium	Medium	**8**
	Increase the level of support and resources available to supply-side stakeholders.	Provide training workshops for contractors so they are familiar with EnerGuide 2014 outputs including how to interpret Energy Use Intensity (EUI). Ensure incentive programs accept only models prepared using the most current version of modeling software. Evaluate CPD to ensure CEAs are using the most up-to-date tools correctly.	M	2014/2015	Medium	Medium	Medium	High	Medium	Short	**8**
	Increase the level of support and resources available to supply-side stakeholders.	Develop calculators, measurement tools, and other scenario-based planning and sales tools for contractors, realtors, home inspectors and CEAs to illustrate the Net Present Value/ Return on Investment for bundling various HEP activities for homeowners. Provide workshops to teach contractors how to effectively use these tools and resources and leverage the next generation EnerGuide Rating System wherever possible.	M	2015/2016	Low	Medium	Medium	Medium	High	Medium	**8**

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
2. DEVELOP A TRAINED AND QUALIFIED WORKFORCE THAT CAN COMPETENTLY AND RELIABLY DELIVER HEP RELATED SERVICES IN BC.	Promote the uptake of HEP-related industry training and continuing professional development through supportive program design.	Develop strong industry recognition of certification by linking contractor qualifications to regulatory measures such as building permits.	M	2018/2019	High	Low	High	High	Medium	Long	**8**
	Increase the level of support and resources available to supply-side stakeholders.	Support the development, promotion, and delivery of up-to-date education and continuous training for building inspectors and assessors by leveraging and promoting existing training programs being offered by industry associations, and public/ private post-secondary institutions.	L	2015	Low	Medium	Low	Medium	Medium	Short	**7**
	Increase the level of support and resources available to supply-side stakeholders.	Invite HEP leaders in other jurisdictions to share their experiences in BC to help grow the local industry (through workshops, conferences, webinar series, case studies etc.). Make these resources publicly available to industry players across the province.	L	2015	None	Medium	Low	Low	Medium	Short	**7**
	Promote the uptake of HEP-related industry training and continuing professional development through supportive program design.	Generate industry awareness by developing HEP-focused awards and other recognition schemes (e.g., Georgie Awards). Actively promote leaders to establish a clear culture of best practice within BC's HEP industry.	L	2015/2016	None	Low	Low	Low	Medium	Medium	**7**
	Develop HEP industry training and certification programs for BC.	Work with manufacturers to integrate whole-house and house-as-a-system training into their existing product-line training curriculum.	L	2015/2016	Low	Medium	Medium	Medium	Medium	Medium	**7**

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
3. IMPLEMENT ROBUST QUALITY CONTROL AND ASSURANCE FRAMEWORKS FOR HEP WORK.	Promote industry work standardization to support training and quality of work performed on HEP projects.	Work with key stakeholders and industry to develop and implement Standard Work Specifications for HEP work in BC. Part of this should also include quality installation guidelines and control procedures for HEP equipment and assemblies.	H	2014/2015	Medium	Medium	V High	High	V High	Short	**12**
	Promote industry work standardization to support training and quality of work performed on HEP projects.	Work with industry / contractors to develop a quality management system tools for contractors to support use of best practices and approaches in the field.	H	2015/2016	Medium	Medium	V High	V High	V High	Medium	**12**
	Develop an industry-driven quality assurance and oversight structure.	Research programmatic and regulatory approaches to providing independent oversight on contractor installation quality. This could include looking at delivery approaches (industry, government, third party), funding mechanisms (industry, consumer, program), and market / industry support.	H	2014/2015	Medium	Medium	High	High	High	Short	**10**
	Promote industry work standardization to support training and quality of work performed on HEP projects.	Work with municipal governments to explore HEP requirements tied to building codes/ bylaws, at time-of-sale and potentially time-of-renovation (similar to the way City of Vancouver is moving). Link code requirements tied to renovation with established industry best practices and activities leading to actual energy savings.	M	2015/2016	High	Low	High	High	Medium	Medium	**8**
	Promote industry work standardization to support training and quality of work performed on HEP projects.	Create durability guideline standards for homes (and smaller buildings) which defines optimal service life for buildings, assemblies, and components (similar to CSA S478-95 "Guidelines on Durability in Buildings.")	L	2016	Medium	Medium	Medium	Medium	Medium	Medium	**7**

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
4. RAISE CONSUMER AWARENESS AND DEMAND FOR HEP IMPROVEMENTS.	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Investigate the value and feasibility of developing and piloting and integrated Home Improvement Plans for consumers (i.e. home service record leveraging existing software tool applications, asset lifecycle, financing, ideal housing archetype, etc.). Identify and evaluate the potential target market for a pilot project and test with relevant industry stakeholders including contractors, utilities, energy advisors, property inspectors, and realtors to make sure that such a plan is easy to use and actionable. Include private financial institutions in discussions on how a proposed Home Improvement Plan can help homeowners a) see their property as an asset b) develop a saving/ investment plan to increase the value of their homes c) integrate different financial tools into this plan.	H	2014/2015	Medium	Medium	V High	High	High	Short	**11**
	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Create and promote a variety of HEP resources, tools, and educational materials for consumers (in a range of formats and languages), which describe the HEP industry and related improvement activities and may help to encourage home performance at the various trigger points. Develop tools to amalgamate utility consumption data and enable homeowners to better understand the business case and benefits for undertaking HEP activities.	H	2014/2015	None	Medium	High	Medium	High	Short	**11**
	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Develop the criteria for and support the creation of a list of qualified HEP contractors to help consumers make informed decisions when selecting a contractor. Design and produce education and marketing materials to support HEP consumers make informed decisions about how to retain a legitimate contractor and the benefits of receiving a bill of sales / receipt for all work completed.	H	2015	Low	Low	Medium	Medium	High	Short	**10**
	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Review existing external / 3rd party energy efficiency public education initiatives and work with program agencies to align key messaging for HEP promotion (e.g. GVHBA homeowner seminars). Where possible, promote success stories and case studies.	M	2014	None	Low	Low	Low	Medium	Immediate	**9**

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
4. RAISE CONSUMER AWARENESS AND DEMAND FOR HEP IMPROVEMENTS.	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Generate public awareness through media, public awards, competitions and other recognition schemes. Develop recognition / awards programs and promotional material designed to specifically integrate HEP into BC's renovation and remodeling market.	M	2015	None	Low	Low	Low	Medium	Short	**8**
	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Develop province-wide (face-to-face and online) homeowner workshops and house-as-a-system seminars to inform homeowners of the benefits of HEP and promote different energy efficiency products (ENERGY STAR rated). Provide rewards to homeowners who attend seminars (such as "green" home cleaning supplies, rebated energy assessments, etc.).	L	2016	None	High	Medium	Medium	Medium	Medium	**7**
	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Pilot thermal imaging and blower door demonstrations across the province and use these projects as case studies to educate homeowners, realtors, property inspectors and contractors on HEP and assessment process. Follow up with profiled homeowners on case studies to demonstrate improvements and benefits.	L	2016	Medium	High	Medium	Medium	Medium	Medium	**5**

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
5. IMPLEMENT SUPPORTIVE PUBLIC POLICY, REGULATIONS, AND PROGRAMS TO SUPPORT INDUSTRY DEVELOPMENT.	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Conduct a comprehensive review of HEP related programs, policies, and regulatory mechanisms to determine the best approaches to support long-term market transformation goals. Conduct research to better understand the ideal incentive / rebate program structure for creating continuous market demand and assess the feasibility and options for longer term HEP market incentives and supporting policies. Consider establishing a "structure committee" between government and utilities.	H	2014	Low	Low	High	Low	V High	Immediate	**12**
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Design and rollout HEP incentive programs and initiatives, based on the review. Ensure that the resulting suite of programs is well coordinated, easy to understand, promoted within industry and to homeowners, transparent, and equitable.	H	2015	Medium	Medium	V High	High	V High	Short	**12**
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Evaluate the most effective means of delivering long-term, sustainable HEP demand and supply side programs and financial incentives across government and utility partners. The objective would be to deliver continuous programs and services and minimize market disruption in spite of the varying funding cycles and constraints of supporting partners.	H	2014/2015	Medium	Low	High	High	High	Short	**11**
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Minimize the underground economy by requiring that all homeowners submit a bill of sale from a legitimate contractor (with a PST/GST number) in order to qualify for incentive programs, including tax credits for homeowners.	H	2015	Medium	Low	High	High	Medium	Short	**10**
	Increase the access to capital for homeowners to support deeper investment in HEP upgrades.	Engage private financial institutions in the development of viable investment products for HEP upgrades, including on-bill financing, lines of credit, remortgaging, loans, and other financial instruments.	H	2016	Low	Low	High	High	Medium	Medium	**10**
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Consider mandatory home energy auditing at time-of-sale through provincial regulation. Assess the industry acceptance for and feasibility of implementing mandatory home energy labeling (e.g., EnerGuide labels) at time-of-sale in a future update of the BC Building Code. Engage stakeholders to address any identified concerns or barriers and engage them to be part of the final solution to enable mandatory home labeling.	H	2015/2016	High	Medium	V High	High	V High	Medium	**10**

Strategic Goals	Strategies	Actions	Priority	Start Date	Regulatory barriers	Investment / financing requirements	Capacity to advance industry / grow HEP market	Capacity to directly create energy savings	Industry support (from interviews, survey, etc.)	Timeframe to implementation	Ranking: Total
5. IMPLEMENT SUPPORTIVE PUBLIC POLICY, REGULATIONS, AND PROGRAMS TO SUPPORT INDUSTRY DEVELOPMENT.	Increase the access to capital for homeowners to support deeper investment in HEP upgrades.	Conduct a comprehensive financial review of current HEP related credit-based financial schemes (i.e. compare on-bill financing cost of capital to alternative lines of credit through financial institutions).	M	2015	None	Low	Medium	Low	Medium	Short	**9**
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Establish voluntary labeling standards for new and existing homes in-line with the 2014 EnerGuide labeling system. Continue to work with Natural Resources Canada and other relevant stakeholders to transform the EnerGuide rating to be more user-friendly.	M	2014/2015	Low	Low	Medium	Medium	Medium	Short	**9**
	Develop effective, long-term financial incentives in order to promote HEP market transformation in BC.	Develop an incentive scheme that rewards homeowners and realtors for voluntary disclosure of HEP information in the MLS database during the home sales process.	M	2016	Low	Medium	High	Medium	Medium	Medium	**8**
	Develop effective, long-term financial incentives in order to promote HEP market transformation in BC.	Investigate the benefits, challenges, and logistics of moving toward a performance-based incentive program that rewards homeowners based on actual energy savings. Monitor best practices evolving in other jurisdictions, including California and other US states. Reward activities that integrate whole house and "house-as-a-system" approaches and have potential for market transformation.	M	2018/2019	Medium	Medium	High	V High	Medium	Long	**8**
	Increase the access to capital for contractors.	Encourage industry to work with financial institutions to offer contractor financing options (e.g., some HEP service providers are currently working with TD bank to provide lines of credit for potential clients).	L	2015	Low	Low	Low	Low	Medium	Short	**7**

APPENDIX E: ACTION PLAN TIMELINE

The action plan timeline below displays the time required for planning (orange), implementation (solid green), and industry hand-off period (dotted-green) for each of the "high" priority action items from each of the six strategic goals.

Strategic Goal	Strategy	Action Item	Start	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
1. DEVELOP AN ORGANIZED BODY TO REPRESENT BC'S HEP INDUSTRY AND ESTABLISH KEY INDUSTRY BASELINE DATA AND PERFORMANCE METRICS.	Coordinate involvement of various stakeholders across industry sectors.	Engage industry groups, associations, and HEP stakeholders to create a HEP Leadership Committee responsible for research and developing tools and resources to support the business case for industry buy-in; collecting and processing industry feedback; lobbying government for policy, regulation, standards, and training / certification; and support the longer-term development of a more formalized HEP Council once the industry in BC is better established.	2014/2015											
	Develop and make available relevant HEP benchmarking tools, databases, and online resources for industry.	In cooperation with Natural Resources Canada, identify, pilot, and deploy next generation EnerGuide software to provide enhanced accuracy of the HOT2000 model and audits.	2014/2015											
	Develop and make available relevant HEP benchmarking tools, databases, and online resources for industry.	Establish baseline industry performance metrics and baseline data to allow for long-term tracking and reporting of industry development over time.	2014/2015											

Design and development (also includes re-design and update)
Initial Implementation Stage
Ongoing Implementation

Strategic Goal	Strategy	Action Item	Start	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
2. DEVELOP A TRAINED AND QUALIFIED WORKFORCE THAT CAN COMPETENTLY AND RELIABLY DELIVER HEP RELATED SERVICES IN BC.	Develop HEP industry training and certification programs for BC.	Support industry and training providers in developing, promoting, and delivering adequate weatherization training and programming in BC.	2014/2015											
	Develop HEP industry training and certification programs for BC.	Research and evaluate the best HEP industry training credential and approach. Evaluate this credential / approach based on industry feedback, available training provider / credentialing options, proficiency of specific skills training, and quality assurance considerations. Also evaluate how a HEP contractor qualification could be incorporated into national credentialing programs such as Building Performance Institute (BPI). Test via pilot project and roll-out credential program province-wide.	2014/2015											
	Increase the level of support and resources available to supply-side stakeholders.	Develop resources, incentives, and education programs that will encourage contractors, building science experts, and CEAs to work together to jointly form recommendations during initial home assessments and throughout the HEP process.	2014/2015											
	Increase the level of support and resources available to supply-side stakeholders.	Develop educational tools for contractors to help with the consultative sales process for HEP activities. Provide short-term financial incentives for contractors to take sales courses and to invest in marketing/education to their clients (consider integrating into a "Trade Ally" program). Include information about the volatility of the energy market and possible in-home mitigation strategies to overcome these risks. Provide tools and resources for contractors to help them effectively inform consumers on the benefits of HEP.	2016											
	Promote the uptake of HEP-related industry training and continuing professional development through supportive program design.	Develop a "Trade Ally" program that is based on a list of qualified contractors, and provides training and marketing resources for contractors (e.g. a business development and training allowance). Evaluate a tiered model for contractors that participate in the program that provides incentives to contractors based on their level of professionalism and engagement in the program.	2014/2015											
	Promote the uptake of HEP-related industry training and continuing professional development through supportive program design.	Ensure that homeowner rebate and incentive programs are only applicable to work done by contractors that have completed recognized HEP training programs and that will eventually have recognized industry credentials.	2015/2016											

Design and development (also includes re-design and update)
Initial Implementation Stage
Ongoing Implementation

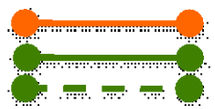
Strategic Goal	Strategy	Action Item	Start	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
3. IMPLEMENT ROBUST QUALITY CONTROL AND ASSURANCE FRAMEWORKS FOR HEP WORK.	Promote industry work standardization to support training and quality of work performed on HEP projects.	Work with key stakeholders and industry to develop and implement Standard Work Specifications for HEP work in BC. Part of this should also include quality installation guidelines and control procedures for HEP equipment and assemblies.	2014/2015											
	Promote industry work standardization to support training and quality of work performed on HEP projects.	Work with industry / contractors to develop a quality management system tools for contractors to support use of best practices and approaches in the field.	2015/2016											
	Develop an industry-driven quality assurance and oversight structure.	Research programmatic and regulatory approaches to providing independent oversight on contractor installation quality. This could include looking at delivery approaches (industry, government, third party), funding mechanisms (industry, consumer, program), and market / industry support.	2014/2015											
4. RAISE CONSUMER AWARENESS AND DEMAND FOR HEP IMPROVEMENTS.	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Investigate the value and feasibility of developing and piloting and integrated Home Improvement Plans for consumers (i.e. home service record leveraging existing software tool applications, asset lifecycle, financing, ideal housing archetype, etc.). Identify and evaluate the potential target market for a pilot project and test with relevant industry stakeholders including contractors, utilities, energy advisors, property inspectors, and realtors to make sure that such a plan is easy to use and actionable. Include private	2014/2015											
	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Create and promote a variety of HEP resources, tools, and educational materials for consumers (in a range of formats and languages), which describe the HEP industry and related improvement activities and may help to encourage home performance at the various trigger points. Develop tools to amalgamate utility consumption data and enable homeowners to better understand the business case and benefits for undertaking HEP activities.	2014/2015											
	Improve public awareness of HEP benefits and opportunities through the development and deployment of relevant tools and resources.	Develop the criteria for and support the creation of a list of qualified HEP contractors to help consumers make informed decisions when selecting a contractor. Design and produce education and marketing materials to support HEP consumers make informed decisions about how to retain a legitimate contractor and the benefits of receiving a bill of sales / receipt for all work completed.	2015											

Design and development (also includes re-design and update)

Initial Implementation Stage

Ongoing Implementation

Strategic Goal	Strategy	Action Item	Start	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
5. IMPLEMENT SUPPORTIVE PUBLIC POLICY, REGULATIONS, AND PROGRAMS TO SUPPORT INDUSTRY DEVELOPMENT.	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Conduct a comprehensive review of HEP related programs, policies, and regulatory mechanisms to determine the best approaches to support long-term market transformation goals. Conduct research to better understand the ideal incentive / rebate program structure for creating continuous market demand and assess the feasibility and options for longer term HEP market incentives and supporting policies. Consider establishing a "structure committee" between government and utilities.	2014											
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Design and rollout HEP incentive programs and initiatives, based on the review. Ensure that the resulting suite of programs is well coordinated, easy to understand, promoted within industry and to homeowners, transparent, and equitable.	2015											
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Evaluate the most effective means of delivering long-term, sustainable HEP demand and supply side programs and financial incentives across government and utility partners. The objective would be to deliver continuous programs and services and minimize market disruption in spite of the varying funding cycles and constraints of supporting partners.	2014/2015											
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Minimize the underground economy by requiring that all homeowners submit a bill of sale from a legitimate contractor (with a PST/GST number) in order to qualify for incentive programs, including tax credits for homeowners.	2015											
	Increase the access to capital for homeowners to support deeper investment in HEP upgrades.	Engage private financial institutions in the development of viable investment products for HEP upgrades including on-bill financing, lines of credit, remortgaging, loans, and other financial instruments.	2016											
	Develop effective, long-term market tools in order to promote HEP market transformation in BC.	Consider mandatory home energy auditing at time-of-sale through provincial regulation. Assess the industry acceptance for and feasibility of implementing mandatory home energy labeling (e.g., EnerGuide labels) at time-of-sale in a future update of the BC Building Code. Engage stakeholders to address any identified concerns or barriers and engage them to be part of the final solution to enable mandatory home labeling.	2015/2016											



Design and development (also includes re-design and update)
Initial Implementation Stage
Ongoing Implementation