

**[INNOVATIVE PIPELINE STRATEGIES]**

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## **Executive Summary**

The oil and gas industry has recently come under increased scrutiny in Alberta as society becomes more engaged in the issues related to oil and gas use and development. Pipelines have become a focal point to voice concerns for stakeholders due to the effect that they potentially have on stakeholders and because of the importance of pipelines as infrastructure to support further growth of the oil and gas industry. Although the pipeline industry has been exposed to increased pressure to improve its environmental performance, the construction practices utilized by the majority of the industry have remained largely unchanged. Innovative Pipeline Strategies (IPS) represent an opportunity for the pipeline industry to change construction practices to reduce the overall environmental impact of pipeline construction. Through improvement of pipeline construction practices, the industry can position itself to respond to critics and improve its image to stakeholders. Building on these innovative practices will allow the industry to build social license and the respect of the impacted stakeholders.

IPS was adopted as standard operating procedure by Devon Canada and received recognition through an Emerald Award. Despite the success that IPS has had in the past few years, IPS has failed to be adopted broadly across the pipeline construction industry. The purpose of this project (and subsequent report) was to engage key stakeholders in the pipeline construction industry through a survey that (a) looked at developing a common understanding of what IPS is, (b) measured the level of agreement on the benefits of IPS, and (c) identified the barriers that IPS is facing when it comes to broad adoption. These survey results form the basis for this report, and they are analyzed in the context of stakeholder theory and corporate social responsibility stages. At the end of the report, there are three recommendations presented which will form the start of an implementation plan.

The three recommendations described in this report are: (1) strategic and systemic change management plan, (2) third party verification, and (3) building a task force all provide a framework for moving IPS practices to mainstream pipeline construction.

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## **Introduction**

The first recorded use of pipelines was to transport gases that were surfacing in mountains near coastal villages in China at around 500 BCE. These pipelines were made of bamboo and utilized natural pressures to move light hydrocarbons. The first oil pipeline in Canada dates back to 1853, when a 25 km cast-iron pipeline was constructed to move natural gas to Trois Rivières, QC.<sup>1</sup> By the mid-1950s, oil and natural gas supplies were discovered in Alberta, and a vast network of pipelines began to cross the landscape of Alberta to support the growing industry. Construction practices of the first pipelines were rudimentary at best; environmental regulatory standards were not well developed and concern for the impact of the construction practices was minimal. Land resources were not seen to be a limiting factor and, as such, conservation of topsoil, minimizing disturbance levels, and impacts to stakeholders were not well understood.

Pipelines are often accepted as a safe, economical, and efficient method of transporting liquids and gases long distances. Although this is somewhat true, the pipeline industry has come under increased scrutiny for both its operating practices as well as its construction practices. Increasing pressure from stakeholders has meant that the pipeline industry has begun to look for innovative ways to construct pipelines. Improving the environmental performance when constructing pipelines is not easy; pipeline construction requires disturbance of a linear pathway where large equipment and workforces can safely work to construct and operate pipelines.

## **Pipeline Construction Overview**

Pipeline construction is divided into three main stages: pipeline planning, pipeline construction, and post construction.

## **Pipeline Planning**

The typical pipeline construction sequence begins with the pipeline planning process. This process involves marrying a receipt point and a delivery point for the shipped products. In the pipeline planning process, the fact that “the shortest distance between two points is a straight line” cannot be understated. Planning the shortest route normally minimizes costs and disturbance levels. However, many times there are numerous obstacles between the line from point A to point B. Such constraints on linear disturbance routing can include environmentally sensitive areas, other resource or infrastructure developments, historical resources, terrain constraints, and communities. Pipeline planners must balance pipeline construction practices with the environment they traverse. That is, planners consider the benefits of constructing the pipeline and the potential environmental impacts of constructing and operating the pipeline.

Initial planning involves surveying and research of the pipeline corridor. Normally pipeline corridors are planned to run parallel to existing pipelines or other linear disturbances, such as roads or power transmission lines. This design provides the benefit of minimizing fragmentation of landscapes and ensuring operational efficiencies during the operating phase. Once a pipeline corridor is identified, the pipeline owner company begins what is called the regulatory application phase. During the regulatory application phase, the owner company identifies the need for the pipeline and also outlines its construction practices and how these practices are suited to the environments to be traversed. This planning process typically involves the adoption of construction best management practices in the form of an Environmental Protection Plan (EPP) for the project. Depending on the size of the pipeline project, and (usually) directly correlated to pipeline diameter and length, the regulatory

review process can involve input from stakeholders and reviews of routing and planning documents, which can take from months to years to complete.

### **Pipeline Construction**

Pipeline construction commences in the pre-construction phase with the surveying and staking of the pipeline route. This stage is when the final routing of the pipelines is identified in the field. The operation quickly moves in to preparing the construction right-of-way for work by specialized pipeline equipment and work forces. From an environmental protection standpoint, the work the front end crews perform, the crews that salvage topsoil and grade the right-of-way and workspaces, are instrumental for ensuring the environmental goals of the project are met.

The pipeline right-of-way is cleared of all vegetation to allow for soil moving equipment to start its work. This process may involve harvesting merchantable timber while cutting and piling non-merchantable timber and debris for burning or mulching this material. This process may also involve mowing of grass and other vegetation in agricultural settings.

Salvaging topsoil refers to the removal and stockpiling of the most valuable portion of the soil, which will later be replaced. Topsoil is valuable: it takes many years to develop through weathering and decomposition of organic matter, and it contains a vast quantity of biotic material that supports plant growth. The initial management of this topsoil is extremely important, and less handling and movement of topsoil allows for a quicker return of the natural vegetation that has historically been growing in the area. Minimizing the width of the construction right-of-way immediately reduces the size of the impact on the natural vegetation in the area, and it may also minimize the amount of topsoil that is disturbed. The next step is to lay the pipeline along the pipeline path.

The next important step in pipeline construction is excavating the trench. Once the pipeline right-of-way is leveled and access for equipment is developed, the trenching equipment can be brought in to excavate the trench to lay the pipeline in. This process involves excavating a uniform trench and storing the subsoil from the hole to the side to allow for the pipe to be laid in. The next step is to lay the pipeline alongside of the trench and weld it together to form a continuous pipeline. The pipeline is then lowered into the trench with specialized side-booms designed to move pipelines into the trench. From an environmental standpoint, the phase that follows lowering is an important one. This step is where the subsoil that was excavated from the trench is filled back into the trench over top of the pipeline. One key issue with backfilling is that when the trench was excavated the soil was compacted from years of geological processes. Now the pipeline construction crew must try to fit this bulked up soil back in to the trench, along with the pipeline which can take up a lot of space in the trench.

Once the pipeline is backfilled, the pipeline is pressure tested to ensure that there are no defects in the pipe from the manufacturer or anything caused during the construction process. Now the contractor completes the construction process by doing the final right of way clean up.

### **What is Innovative Pipeline Strategies (IPS)?<sup>2</sup>**

Innovative Pipelining Strategies (IPS) is a way of planning and constructing pipelines to reduce impact on the environment and stakeholders. IPS encourages the implementation of technologies that meet the objective of least impact, and it is inclusive of all installation methods, including open ditch excavation, plough-in, and directional drilling methods.

IPS involves the adoption of construction strategies that address the following 4 principles: (1) planning to conserve the natural environment, (2) Soil conservation,(3) Maximizing spoil replacement, and (4) Natural vegetation recovery. The IPS approach promotes collaboration, land stewardship, land conservation, and innovation.

### **Where can IPS be used?**

IPS was designed to be used for the construction and installation of small-diameter pipelines (3-12 inches) and has been successfully implemented across a variety of landforms in Alberta. IPS can be used on a wide range of challenging and sensitive rangelands, forested lands, and wetlands across Alberta.

### **What does IPS look like implemented?**

Every pipeline project is different, so the description of specific IPS strategies below should be balanced with the job's requirements, while keeping the principles of conservation in mind.

This document illustrates some examples of what can be done to meet the objective of least impact on the environment. Please note: the following examples do not identify all of the different ways pipelines can be installed, and consideration should be given to the variety of soil conditions, equipment, and clients' preferences.

### **IPS During the Planning Stage**

To ensure project success, the outcomes of the project (operational and environmental) should be communicated to everyone involved. Planning with the intent to reduce the amount of timber harvested, minimize grading, avoiding sensitive landscapes, and reducing

the amount of soil disturbed can lead to a significant reductions in right-of-way ROW width or length. The following considerations in the planning stage can help reduce ROW width:

**Timber Management Plan & Pipeline Routing Plan:** Plan to reduce the amount of timber harvested and identifying offsite storage options for timber and pipeline materials.

**Snow Management Plan:** Implementing a plan that manages the amount of snow stored on the ROW by having temporary storage options for snow on previously cleared areas, or managing snow by packing it or using it to level the travel lane.

**Right of Way Soil Salvage Plan:** Trench width, depth, and amount of spoil excavated will determine the topsoil and sub soil storage workspace requirements. If the plan is to plough the line in, then there may be no requirement to salvage topsoil except for tie-ins at road crossings, which would reduce the amount of space required to store topsoil and ditch-spoil.

### **Construction Execution of IPS**

**Right of Way Preparation in Forested Areas:** After merchantable timber is salvaged, operators grub the ditch-line only to minimize disturbance to the topsoil and not mix the leaf litter into to the topsoil. In the winter, snow may be used to create a level-driving surface.

**Minimize topsoil disturbance:** IPS encourages ditch-line only topsoil stripping when using an open ditch excavation method, with exceptions for graded areas and unstable soils. Operators are encouraged to leave topsoil in place on the spoil-side and work-side when possible.

**Minimize Excavated Spoil Volume:** IPS encourages the use of excavation technologies such as chain ditching, plough-in, or mainline trenchless installation methods. Ditch-spoil may be placed on topsoil where it can be accurately separated from topsoil during replacement.

**Ditch-line compaction techniques to enhance spoil replacement:** Ditch-line topsoil salvage is possible in areas with no grading by replacing all the spoil using compaction tools to prevent ditch line settlement. IPS involves shading the pipe with adequate cover (the recommended amount of soil before compacting) and then compacting the trench with compaction tools. Ditch spoil is replaced in lifts and compacted to ensure as much spoil as possible is returned to the trench. In the winter, mulching soil with a grinder prior to compaction will help ensure complete spoil replacement. Plough in or mainline trenchless installation methods would further reduce salvage requirements.

### **Why is considering a better way important?**

The oil and gas industry is facing increased scrutiny from all angles. Many pipeline projects today are subject to increased scrutiny from landowners, environmental non-government organizations, and the general public. The industry is at a stage where it needs to move from an industry of compliance to a strategic CSR-based industry. Oil and gas pipelines are seen as a target for opposition to the oil and gas industry as they are vital to allow further development of non-renewable hydrocarbon resources. With pipelines becoming the target of opposition to the growth and development of the oil and gas industry, the pipeline industry is under increased scrutiny in every aspect of business. The bottom line is that the pipeline industry must gain social license to operate. Social license cannot be gained solely by improving construction practices, but these improvements can be used to foster support from regulators and landowners by having less obtrusive construction practices. If the

pipeline industry can demonstrate that they are utilizing environmentally sound construction practices and continually reducing their environmental footprint, they will find new ways to gain support for their projects.

### **Common Issues in Pipeline Construction**

Some of the common issues in pipeline construction include re-vegetation of the disturbed area after pipeline construction, the total area of disturbance or the footprint of the project, fragmentation of the landscape, topsoil loss and degradation, and subsoil replacement.

One of the key principles required to minimize the impact of pipeline construction is returning the pipeline right-of-way back to pre-disturbance conditions, or reclaiming the pipeline right-of-way. This process is especially important in areas when the pipeline crosses through sensitive environmental areas, such as native prairie, riparian areas, and forested areas. Lessening the disturbance caused by the pipeline project allows natural processes, vegetation, and wildlife to return to the area. These considerations influence the overall impact of the pipeline construction project dramatically.

A key issue related to reclaiming the pipeline right-of-way is the total disturbance footprint of the project. The overall footprint of pipeline projects can be significant, since they open up a linear path from their origin to their delivery point. Minimizing the size of the disturbance right-of-way can have a direct impact on lessening the environmental impact of the project. Pipelines also have the effect of fragmenting the natural environment, which can potentially upset the natural balance of predator and prey relationships, and they also change the composition of habitats, thereby affecting natural ecosystem balances.

Typical pipeline construction impacts one of the key resources in the environment: topsoil. Topsoil is a precious commodity, since it supports the most basic life processes. Topsoil can

be degraded through poor construction practices such as admixing, compaction, and erosion.

Installing a pipeline in a soil trench means that there is excess soil remaining after the pipeline is placed in the trench. The ability of the pipeline construction contractor to replace as much subsoil in the trench as possible influences how much excess subsoil is remaining for spreading over the disturbed area. Poor compaction of subsoil often results in issues, such as settlement of soil over the trench line requiring the area to be reworked, which causes excess disturbance in another construction season.

### **IPS Addresses Common Pipeline Construction Challenges**

IPS has the ability to address some of the challenges resulting from pipeline construction. One of the primary methods is through minimizing the total footprint of pipeline construction. IPS focuses on utilizing all available space for pipeline construction. This approach requires additional planning during the development phase of a pipeline project, such as planning for snow storage, topsoil storage, minimizing graded areas by utilizing snow, and reduction of tree clearing in forested areas. Instead of disturbing the ground mat of stumps and vegetation, IPS minimizes disturbance of the vegetative layer by utilizing mulching equipment instead of dozers and excavators to clear the right of way, which results in less disturbance.

Much of the reason the area of disturbance can be reduced is that IPS methodology does not require full right-of-way stripping of topsoil. Soil storage requirements typically drive the amount of right-of-way required for construction, and therefore can be reduced to minimize the overall impact of the project. Reducing the amount of topsoil disturbance allows the majority of the pipeline construction right-of-way to regenerate with natural

vegetation immediately after construction (or even with natural vegetation remaining intact).

IPS utilizes specialized equipment to ensure that spoil or subsoil from the trench can be returned to the area from which it originated. Use of this equipment has a two-fold effect of ensuring that compaction of the soil around the pipeline is such that it does not need to be reworked in a subsequent season as well as reducing the subsoil left over to be feathered out over the right-of-way after construction. To aid in returning subsoil back to the trench, specialized equipment such as mulching equipment is utilized to ensure frozen clumps of soil are broken up to be replaced in to the trench, and compacting wheels are used to compact subsoil around the pipe without damaging it.

### **Pipeline Industry & Stage of Learning**

According to Simon Zadek, there is a tool one can use to assess key stakeholders to better understand the stages of learning an organization goes through when adopting changes in the context of corporate social responsibility. The results of the survey indicate that the pipeline industry is in the stage of learning that is described as compliant or “we’ll just do as much as we have to.”<sup>3</sup>

This assertion is supported by the survey that indicated that different parts of industry were waiting for the other stakeholder groups to step up and take the lead, rather than taking the initiative and moving it forward themselves. The pipeline contractors and companies were waiting for the regulator to make IPS practices regulation, while the regulators were expecting the companies to take the initiative to implement these practices on their own. However, it is promising that some of the survey respondents (which is juxtaposed with the industry itself) could be described as more strategic in their level of learning, which means

that they recognize that IPS gives them a “competitive edge.”<sup>4</sup> For example, one survey respondent commented how *“Industry is currently stuck in doing what it take to meet regulatory commitments, however, best practices are slowly improving to minimize disturbance on the land base and lower reclamation costs and effort.”* As the IPS stakeholders move up through the stages of learning they will enter the zone described on the chart in Appendix 1 as the “Higher Opportunity Green Zone.”<sup>5</sup>

When looking at assessing the maturity of the issue as it relates to pipeline construction, and specifically IPS, it appears that the issue maturity level is beyond emerging and moving towards “consolidating” (See Appendix 1). To move through to consolidation, the next stages of further research into the benefits of IPS are needed in order to see a wholesale adoption of voluntary practices by the industry and to shift the practices to becoming institutionalized by the industry. This outcome will require the leaders of the industry to begin or to continue implementing the IPS practices, so the real benefits can be understood and developed as industry standards. One note of interest is that the core group of people that have developed and promoted IPS to the industry had recognized many years ago that they needed to shift their focus from meeting minimal standards to something they described as “excellence.” Excellence to the developers of IPS meant that people were working together as partners and collaborating to address tough challenges with innovative solutions that exceeded minimum standards and approached excellence as it relates to environmental, social, and economic outcomes. The key challenge of IPS supporters is to inspire and show others how to shift their focus from what they have to do to what they can do to be better. A diagram showing the focus of IPS is located in Appendix 2.

## Benefits of IPS

There were a number of questions in the survey to assess whether participants had agreement on the perceived benefits of IPS. Considering the benefits of IPS is an important step in facilitating the adoption of IPS in pipeline construction. The reasons it is important to highlight benefits to potential stakeholders can be considered in the context of Community Based Social Marketing (CBSM)<sup>6</sup>. CBSM is a collection of strategies that include:

- Identifying the leaders in the target group and influencing these leaders
- Identification of barriers or constraints and the benefits (both real and perceived) of the target action (in this case, IPS adoption)
- Addressing these barriers by developing tools, resources, prompts and incentives
- Communicating social norms (these last three are known as community based social marketing)
- Highlighting the benefits with which the target audience would identify

The survey results indicate that IPS increases social license to operate. Social license is about access to the land from stakeholders to build pipelines and 61% of survey participants agree or strongly agree that IPS

*“IPS is an absolute solution to building our social acceptance of the pipeline industry.”* Survey Respondent

increases access to land. As Marc LaBerg from Devon Canada states, “If we don’t have access to land, we literally can’t do business.”<sup>7</sup> In pipeline construction, stakeholders can be the general public as a whole, individual private citizens, or different groups, depending on who has property rights, and they can facilitate access or put up roadblocks as the preceding quote alludes to. A large majority (i.e., 70% agree/strongly agree) of survey respondents rated IPS as increasing landowner support. However, this level of agreement was not as strong (i.e., 55% agree/strongly agree) when respondents were asked to rate whether IPS increases access from non-governmental organizations (NGOs) or first nations groups (26% neither disagree/agree; 35% somewhat agree; 32% agree/strongly agree). Based on these

survey results, one can conclude that if property owners know and understand the benefits of IPS, then they are more likely to give access to land. However, it appears that more work could be done to build awareness, understanding, and support for IPS with NGOs and especially with First Nations, Metis, and Inuit.

Benefits of IPS extend beyond increasing access to land or social license. The survey respondents indicated a significant level of agreement on the environmental benefits of IPS, including maximizing topsoil conservation, reducing right of way width and the number of trees cut down, reducing erosion, and ditch line settlement. However, these benefits require proper execution of IPS, which is reinforced by a comment from one survey respondent:

Like all activities, IPS strategies can minimize impacts to the environment when done correctly. However, acknowledgement of what implementation requires (e.g., delayed in-service dates due to wet weather) is often not accounted for. In these cases IPS practices can be poorly implemented and result in greater impacts.

This comment reinforces the description of IPS indicated at the start of this report: IPS is **not a one-size-fits-all strategy**. It requires careful planning and collaboration at the planning stage, and as one survey respondent said, IPS “also needs to be considered at the bid stage when jobs go out at the request for proposal stage.” When considering the benefits of IPS, it appears that there is some level of agreement on IPS, and this common ground could be leveraged to start an inquiry process into proving the benefits to demonstrate that they are more than just claims. This evidence will likely increase the perception of non-supporters of IPS that IPS is worth considering.

## Barriers

In the context of facilitating the move along the spectrum of awareness of an issue, solution identification, and finally adoption of a new behavior or practice, it is important to identify the possible roadblocks or barriers to the target behavior and address these barriers by reducing them. As previously stated, this strategy is part of Community Based Social Marketing. In the context of IPS, there appears to be a number of barriers that were identified by the survey respondents. For the purposes of this project, these barriers were further categorized in the context of stakeholder theory and evaluated for the degree of “power, legitimacy, and/or urgency”<sup>8</sup> that the supporters of IPS have in the pipeline industry. One could argue that it is important to have all three of these attributes to be able to effect change, and if there are gaps it is likely that adoption of new practices will be slow.<sup>9</sup> Let us now consider what each attribute means.

Quotes from survey respondents:

*“An ideology (IPS) that needs wholesale government acceptance and enforcement to thrive”*

“The reclamation industry is huge and there is a strong resistance by the consultants and contractors to maintain the status quo. It is more profitable to do things twice. Industry is waiting to be told what to do and is awaiting for mandatory IPS.”

Legitimacy is the “generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate.”<sup>10</sup> What this means in the context of IPS, is whether or not IPS strategies and practices are deemed as a legitimate way of pipeline construction in the industry, since “legitimacy gains rights through power and voice through urgency.”<sup>11</sup> Thus, it is important to consider power in the context of these two other attributes. Power relates to the ability of IPS supporters to effect change in the industry or influence them to change their practices.<sup>12</sup> There are different kinds of power—coercive, utilitarian, and normative power,<sup>13</sup> which will be discussed later. Finally, legitimacy and power without

urgency fails to meet the definition of a stakeholder group that can effect change. Urgency in this context means “the degree to which stakeholder claims call for immediate attention.”<sup>14</sup> With this broad understanding of what the terms legitimacy, power, and urgency mean in the context of assessing the ability of IPS promoters to effect change, the next three sections will describe this assessment in the context of the barriers that IPS is facing when it comes to broad-based implementation of IPS in the field.

### **Barriers: Legitimacy**

According to the survey respondents, there are a number of areas that need to be addressed to influence whether IPS is judged as a legitimate practice for the industry. The survey results indicate that there is a gap in legitimacy in a number of areas. The first area pertains to whether IPS can be used on large diameter pipelines. The survey results show a dichotomy in this area: some respondents indicate that IPS will absolutely work on large diameter pipelines and others vehemently argue against it.

The second gap in legitimacy relates to third party verification of the environmental savings and claims that an investment in IPS will save money in the long run because of a reduction in reclamation costs. Survey respondents reported that IPS needs more input/refinement from industry leaders (45% agree/strongly agree; 42% somewhat agree) and a majority also reported that IPS needs to be independently verified by a reputable audit for cost and environmental impact (67% of Survey respondents said Agree/Strongly Agree; 12% strongly disagreed). Assessing environmental impact in the context of pipeline integrity is likely a relatively straightforward assessment; however, looking at costing methodologies for IPS will likely be more complicated because of the way the pipeline industry is structured. The construction and the reclamation departments are completely separate, which means that using a whole cost accounting approach is challenging because the benefit is not

immediately tangible to the construction department. In addition to this challenge to assessing cost and potential savings of IPS, it is difficult to put a tangible dollar figure to abstract concepts such as *social license to operate* (i.e., or access to land, which certainly effects the bottom line).

The third gap in legitimacy relates whether or not the respondents perceive regulators as supporting IPS. When respondents were asked to rate their agreement with the statement that “using IPS increases the ease of getting regulator support,” the response varied from 31% neutral; 24% somewhat agree; 40% agree/strongly agree. This gap in legitimacy is also related to the other area previously mentioned: power, and in this case coercive power or the ability to use sanctions to gain compliance.<sup>15</sup> There were a number of comments made by survey respondents related to what kind of support from regulators would be needed.

Some examples of these include:

- *“It needs strong regulatory support.”*
- *“The only way it will be endorsed is if the regulator makes it mandatory.”*
- *“IPS needs to be a standard requirement set out by the Crown.”*
- *“It would need to be included in an AER Directive on pipeline planning, construction and abandonment.”*
- *“The IPS method of construction must become provincially certifiable and recognized as a QC/QA IPS Environmental Code of Practice and have a place within the provincial guidelines for pipeline construction. It would be very similar to our industries COR program.”*

If IPS is to be viewed as a more legitimate practice for the entire industry to adopt, it is recommended that these previously mentioned barriers are addressed.

### **Barriers: Power**

There are gaps in IPS proponents’ abilities to advance these concepts in the industry and to influence or have the power to affect the industry. These gaps in power are related to three areas that survey respondents identified, which are:

1) IPS has not been able to influence the entire system that contractors operate in to be successful at integrating IPS in the proposal or bid stage for pipeline

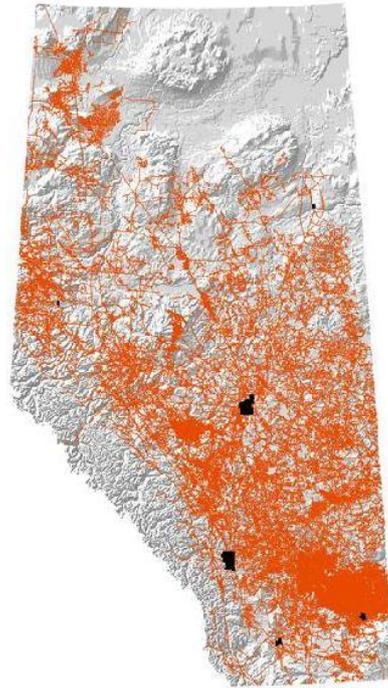
**“The training, technology, and resources to implement IPS are readily available to contractors who seek to do good work. The Owner's are not wanting to pay for it. Contracts are usually awarded to the lowest bidders, who then cut corners to make even a small margin of profit.” Survey Respondent**

projects. For example, if the owner companies required IPS on their jobs, then contractors would all be bidding on an even playing field while competing for jobs. If IPS was integrated into the system of pipeline construction, survey respondents reported that this would mean that there was a realistic construction schedule, a feasibility study for each project, pre-planning to implement IPS, and considering IPS in the context of pipeline integrity requirements. This gap is related to the lack of utilitarian power or being able to grant “material rewards [consisting] of goods and services” (p. 865).

2) Gaps in strong industry norms related to IPS. While survey respondents reported a relatively high awareness of IPS, an assertion that there is a low awareness of IPS in the field generally is likely correct. Moreover, IPS does not appear to be the norm or perceived as something everyone is doing (i.e., a bandwagon effect). Survey respondents reported their level of agreement with the statement that “if they saw their industry peers using IPS, they would be more likely to adopt it” as 36% neutral; 20% somewhat agree; 30% agree/strongly agree. This gap is related to the IPS supporters lacking normative power or the ability to use “social symbols” to effect change.<sup>16</sup>

3) The survey indicated that there might be a gap related to people having the tools or education to implement IPS. Survey respondents indicated some agreement with the statement that they had access to tools to implement IPS (i.e., 44% somewhat agreed/agreed/strongly agreed that they had access to tools to implement IPS; 32%

indicated neutral on this question). There was a spread in responses whether specialized equipment is necessary for IPS, with 32% of survey respondents stating they somewhat disagreed/disagreed and 45% somewhat agreed/agreed. And, finally, 68% somewhat agreed/agreed and 12% strongly agreed that “Experienced and qualified training and supervision is not available in the industry.”



For IPS to advance to industry standard, these gaps in power will likely need to be addressed in the context of legitimacy.

### **Barriers: Urgency**

According to Mitchell, Agle, and Wood, urgency must meet the following criteria:

“Urgency, with synonyms including ‘compelling,’ ‘driving,’ and ‘imperative,’ exists only when two conditions are met: (1) when a relationship or claim is of a time-sensitive nature and (2) when that relationship or claims is important or critical to the stakeholder.”<sup>17</sup>

When looking to assess whether or not IPS supporters can capitalize on urgency to advance their practices, it is difficult to say based on the survey results. However, one survey respondent noted: “We cannot continue to do pipeline construction the way we’ve been doing it and expect to earn social acceptance.” Likely, more investigation needs to be done to measure the level of urgency. However, in the context of the pressure and intense media scrutiny on the pipeline industry and some major recent projects, it appears that the issue

of pipeline construction is on the radar of the public, regulators, and the industry. As shown by the above diagram of Alberta from ALCES<sup>18</sup>, pipelines literally crisscross our province with astounding frequency and overlap. This in itself elevates this issue to one that people should be noting. However, it is important to note that urgency on its own does not make a stakeholders claim salient: it needs to be combined with the other factors of legitimacy and power.<sup>19</sup>

Mitchell, Agle, and Wood explain how urgency works together with legitimacy and power: “Specifically, in combination with legitimacy, urgency promotes access to decision-making channels, and in combination with power, it encourages one-sided stakeholder action. In combination with both, urgency triggers reciprocal acknowledgement and action between stakeholders and managers.”<sup>20</sup>

One thing that IPS really has in its favor is that the pipeline issue is considered top of mind and quite urgent. However, with some of the other gaps noted in legitimacy and power, it is not likely that IPS can advance just on the sense of urgency alone.

When stepping back and assessing the degree of legitimacy, power, and urgency of IPS claims, it could be argued that that they have some degree of urgency, are perceived by a small minority as legitimate (initial results of IPS are promising), but have very little power to effect change. Based on this assessment, Mitchell, Agle, and Wood would classify them as a “dependent stakeholder,”<sup>21</sup> which means that IPS currently needs “to rely on advocacy of other, powerful stakeholders or on the benevolence and voluntarism of the firm’s management.”<sup>22</sup> The other option would be to increase address gaps in legitimacy and to leverage strategies to gain more power, which will be discussed in the final section on recommendations.

## Recommendations

The intent of this report was to share the survey results gathered from IPS' stakeholders, to begin to analyze the results of the survey, and to share some initial recommendations based on these

“Bottom line: IPS is a series of protocols that should be built into the backdrop of all pipeline projects in Alberta.”

**Survey Respondent**

results. The following three recommendations will help advance IPS to become mainstream. A full implementation plan would need to be developed, which is beyond the scope of this project.

However, here is an overview of the three recommendations:

### **Recommendation 1: Facilitating Change Management**

IPS represents a significant shift for the industry. This change is possible if strategies for successful change management are applied in a way that matches the scope of the change. Prosci, a leader in helping people navigate change, describes change management as “application of a structured process and a set of tools for leading the people side of change to achieve a desired outcome.”<sup>23</sup> If

one were to take the preceding

definition and view it as a simplified

equation, it would illustrate the

building blocks of the start of a

successful change management

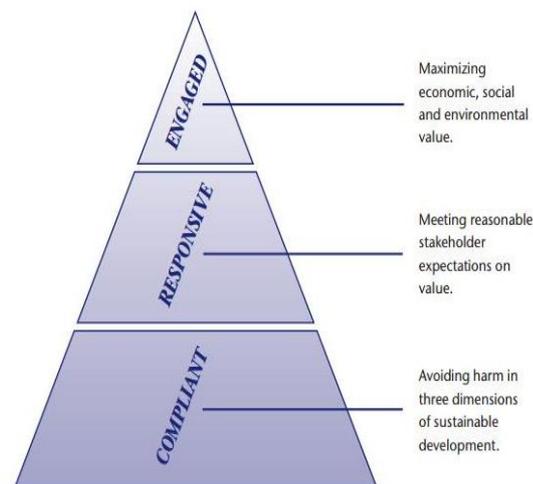
strategy, as outlined below:

**Awareness + Understanding &  
Knowledge + Behaviour Change +  
Changes to Systems & Processes =  
Adoption of IPS**

It is recommended that the supporters

of IPS take on a coordinated and

systematic approach to change management. Some resources are footnoted for easy reference



Svendsen, A., Boutilier, R., Abbott, R., & Wheeler, D. *Measuring the Business Value of Stakeholder Relationships, Part One*, retrieved from: <http://www.cim.sfu.ca/folders/research/1%20-%20Measuring%20social%20capital%20-%201.pdf> November 15, 2016, page 6.

related to this.<sup>24</sup> However, recommended next steps would involve putting together a change management plan. This plan would have many essential elements; however, as it relates to the survey results, the plan would need to address the barriers that were identified related to power and legitimacy.<sup>25</sup> The change management plan would also need to use strategies that were previously identified in the report as Community Based Social Marketing (CBSM).<sup>26</sup> This approach would include highlighting the benefits and effecting social norms. CBSM strategies can be characterized by the word “nudge.”<sup>27</sup> However, it will also be important to consider strategies that effect regulations and engage people in deliberative dialogue and solution-building (these strategies can be described as “shove” and “think” strategies and are described in Appendix 3).<sup>28</sup>

### **Recommendation 2: Third party verification**

It is essential that the coordinators of IPS move forward by obtaining outside verification of the IPS system and processes by recognized leaders in the pipeline industry. While this specific strategy would be part of any sound change management plan (recommendation #1), it is so important that it is worth describing on its own. Third party verification will prove that the claims related to environmental and cost savings that IPS proponents make are sound and legitimate. There has been significant work done in this area to date by Devon Canada demonstrating environmental and monetary cost savings (See Appendix 4). It will also help address barriers related to understanding the costing methodologies (or savings) from IPS. An important part of the third party verification will be juxtaposing IPS against baseline performance of traditional pipeline construction practices.

### **Recommendation 3: Joint Task Force: Regulator & Industry**

To date, IPS has experienced success through a bottom-up approach to change. However, to achieve industry adoption of IPS, it is important that the stakeholders involved begin sharing the responsibility (and solutions) for the challenges that the pipeline construction industry faces. As demonstrated by the survey results, it is clear that that there would need to be systemic changes to the way the pipeline industry works and that this process involves multiple stakeholders. The only way to achieve that kind of change is to have a process or system to encourage and promote collaboration and innovation. This recommendation would help move the industry from being either focused on compliance or just reacting to issues to becoming “Engaged, [which means] maximizing economic, social and environmental value,”<sup>29</sup> as described by the diagram on page 30.

To achieve this level of coordination and collaboration, it is recommended that a task force be set up to address pipeline construction challenges. Some important characteristics of this taskforce would be the following: it would need to be co-chaired by a leader in the pipeline industry (i.e., an Owner Company) and the Alberta Energy Regulator. Representatives on this task force should be strategically chosen, based on their networks and level of influence. Moreover, the task force’s performance should be tied to strategic initiatives, such as the Alberta Energy Regulator’s Best In Class Project<sup>30</sup> and the members’ performance. One of the main purposes of the task force would be to “promote broad based industry participation in corporate responsibility”<sup>31</sup> in the context of integrating better practices for pipeline construction across the industry and developing green technology to move away from the extraction of gas and oil (See Appendix 1).

Part of this Task Force’s work should be to address and to oversee third party certification

(as previously described in recommendation 2). In addition to this important work, the task force should seek to prove and to build understanding about how stakeholder relationships and competitive advantage are linked. This linkage is manifested in four main ways: (1) Poor relationships lead to increased “shareholder risk,”<sup>32</sup> (2) Good relationships lay the foundation for people collaborating and working together, which fosters innovation, (3) “new markets and opportunity,”<sup>33</sup> and (4) strong relationships help form a positive “reputation and enhanced brand value.”<sup>34</sup>

In addition to linking stakeholder relationships and being competitive in the marketplace, it is recommended that the coordinators of

IPS investigate non-financial performance measures in the context of IPS. This metric is important because many of the claims that IPS makes in relation to benefits are difficult to measure (e.g., social license to operate). Nevertheless, quantifying these

“Social capital consists of the stock of active connections among people: the trust, mutual understanding, and shared values and behaviors that bind the members of human networks and communities and make cooperative action possible.”<sup>38</sup>

factors will be important in addressing the barriers or blocks to IPS becoming mainstream.

Non-financial performance measures could include a measurement system to assess the “quality of relationships”<sup>35</sup> through the concept of social capital, as described in the text box above.<sup>36</sup>

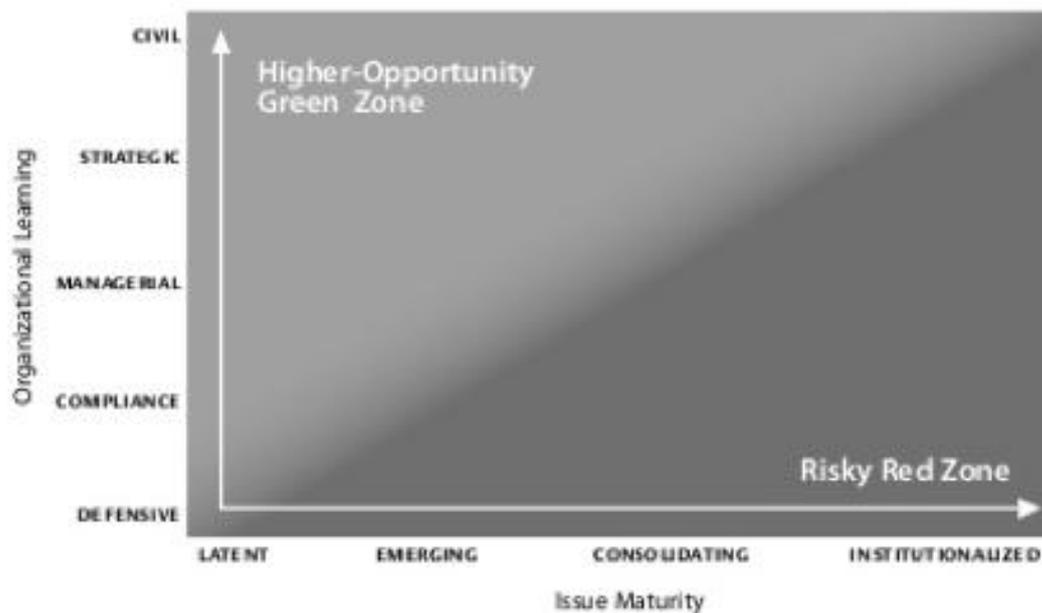
The three recommendations described in this report: (1) strategic and systemic change management plan, (2) third party verification, and (3) building a task force all provide a framework for moving IPS practices to mainstream pipeline construction. It is noteworthy that the coordinators of IPS have already accomplished a great deal. This is in part because

of their commitment to each other and focusing on the best possible outcome, rather than on minimum standards. IPS developers have used regulatory standards as a jumping off point, rather than a starting point for action. This mindset and philosophy means that they embody many of the qualities that describe people and organizations that are successful in embedding corporate social responsibility into industries. Despite this success, their challenge moving forward will be developing a coordinated approach to change that leverages networks of people to facilitate action. Passion got IPS started—now it is time for strategic coordination across stakeholder groups.

## Appendix 1: Stages of Learning

References for the pictures/diagrams: Zadek, Simon. 2004. "The Path to Corporate Responsibility", Harvard Business Review 82, no.12: 125-132. Business Source Complete, EBSCO host (accessed December 9, 2014). Page numbers listed below:

- High Opportunity Green Zone and Risky Red Zone chart, page 129.
- The Four Stages of Issues Maturity, page 128.
- The Five Stages of Organizational Learning, page 127.



### The Four Stages of Issue Maturity

Pharmaceutical company Novo Nordisk created a scale to measure the maturity of societal issues and the public's expectations around the issues. An adaptation of the scale appears below and can be used by any company facing any number of societal issues.

STAGE	CHARACTERISTICS
<b>LATENT</b>	<ul style="list-style-type: none"> <li>- Activist communities and NGOs are aware of the societal issue.</li> <li>- There is weak scientific or other hard evidence.</li> <li>- The issue is largely ignored or dismissed by the business community.</li> </ul>
<b>EMERGING</b>	<ul style="list-style-type: none"> <li>- There is political and media awareness of the societal issue.</li> <li>- There is an emerging body of research, but data are still weak.</li> <li>- Leading businesses experiment with approaches to dealing with the issue.</li> </ul>
<b>CONSOLIDATING</b>	<ul style="list-style-type: none"> <li>- There is an emerging body of business practices around the societal issue.</li> <li>- Sectorwide and issue-based voluntary initiatives are established.</li> <li>- There is litigation and an increasing view of the need for legislation.</li> <li>- Voluntary standards are developed, and collective action occurs.</li> </ul>
<b>INSTITUTIONALIZED</b>	<ul style="list-style-type: none"> <li>- Legislation or business norms are established.</li> <li>- The embedded practices become a normal part of a business-excellence model.</li> </ul>

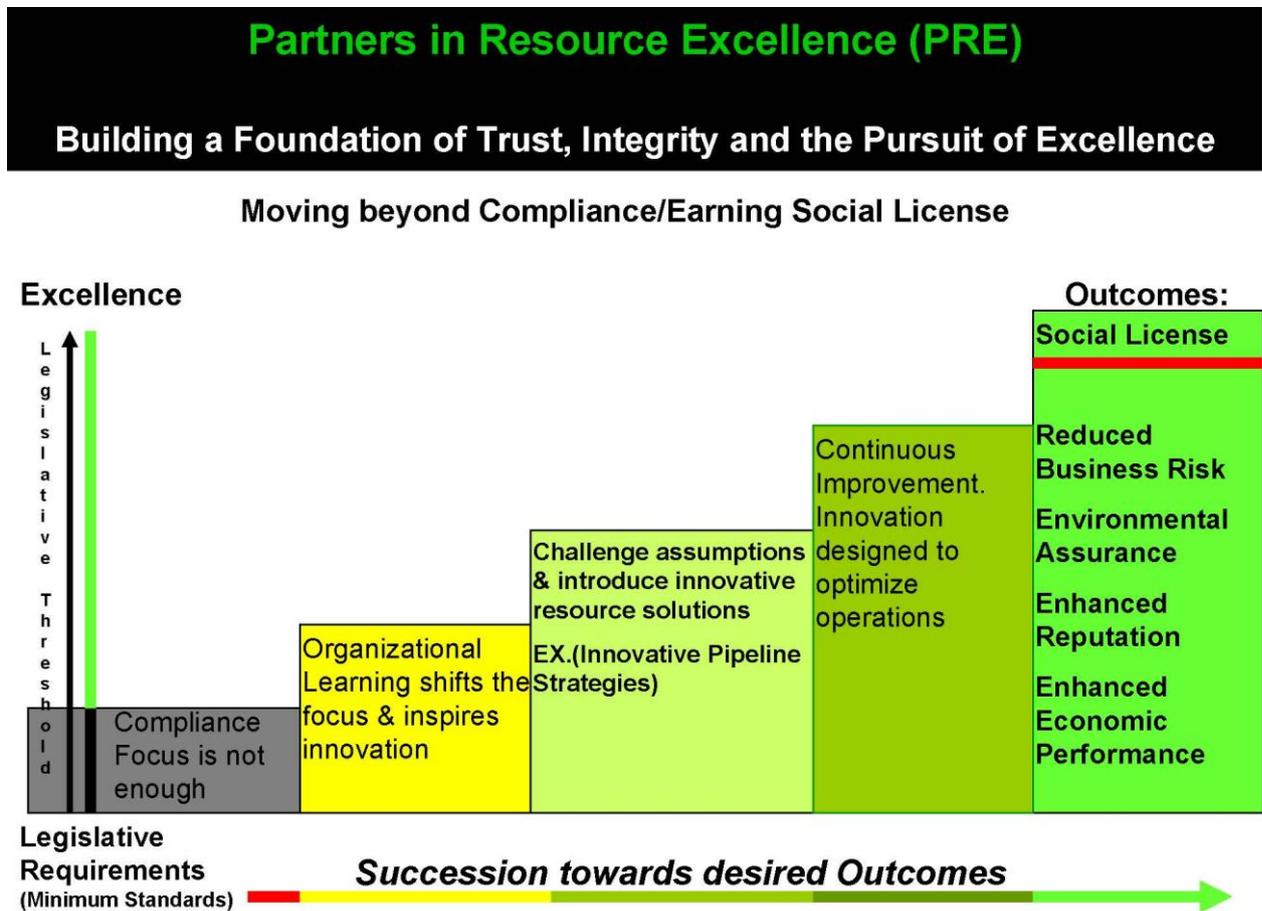
### The Five Stages of Organizational Learning

When it comes to developing a sense of corporate responsibility, organizations typically go through five stages as they move along the learning curve.

STAGE	WHAT ORGANIZATIONS DO	WHY THEY DO IT
<b>DEFENSIVE</b>	Deny practices, outcomes, or responsibilities	To defend against attacks to their reputation that in the short term could affect sales, recruitment, productivity, and the brand
<b>COMPLIANCE</b>	Adopt a policy-based compliance approach as a cost of doing business	To mitigate the erosion of economic value in the medium term because of ongoing reputation and litigation risks
<b>MANAGERIAL</b>	Embed the societal issue in their core management processes	To mitigate the erosion of economic value in the medium term and to achieve longer-term gains by integrating responsible business practices into their daily operations
<b>STRATEGIC</b>	Integrate the societal issue into their core business strategies	To enhance economic value in the long term and to gain first-mover advantage by aligning strategy and process innovations with the societal issue
<b>CIVIL</b>	Promote broad industry participation in corporate responsibility	To enhance long-term economic value by overcoming any first-mover disadvantages and to realize gains through collective action

## Appendix 2: Focus on Excellence through PRE

A Diagram developed by Doug Kulba with Alberta Environment describing the Partners in Resource Excellence (PRE) process. PRE is a process of building relationship with partners and key stakeholders. After a strong relationship is built, people work together to focus on the meeting outcomes that go beyond minimum standards (compliance) and focus on excellence. Diagram below courtesy of Alberta Environment, Doug Kulba, personal correspondence, November 2014.



### **Appendix 3: Nudge, Think, or Shove-a Quick Overview**

This article is inserted here as a resource from the Office of Sustainability, University of Alberta, Backgrounder Documents for projects, November 2014. It's included here as we think that the coordinators of IPS would benefit from its consideration.

#### **Nudge, Think, or Shove? Shifting values and attitudes towards sustainability**

Where does 'nudge' work well?

'Nudge' has been shown to work well in certain public policy settings (John and Stoker, 2010) where government or another institution has a specific, limited objective for behaviour change. For example feedback in the form of 'smiley faces' led to a 6% increase in household food recycling. Social marketing approaches have the added advantage that they can be relatively cheap, and are seen to "go with the grain of human nature."

'Nudge' has some limitations though. Like other social marketing approaches, it does not seek to engage or influence people's values and attitudes. Social marketing involves segmenting the public and working with existing values. However, "sustainability...is absolutely shot through with debates around values". Indeed there is evidence that social marketing may embed precisely the sorts of values that prevent us making progress towards sustainability.

Where is 'think' more valuable?

In contrast to 'nudge', 'think' approaches are relatively unproven within the sustainability field. Amongst small groups, deliberative engagement can strongly influence values and attitudes as well as behaviour, but we have not yet found a way to scale up deliberative engagement effectively. Nevertheless, discussions at the round table make clear that 'think' can be a valuable complement to 'nudge' in at least three ways:

1. Deliberative engagement offers the prospect of "bridging the gap between the actions that are currently attractive and easy, and the actions we need to take" to achieve our climate, biodiversity or social justice goals. Moving towards sustainability requires us to achieve a transformational change in society; consciously engaging people in the challenges and opportunities we face may be able to achieve that change where social marketing cannot. In particular participants at the round table suggested that pursuing sustainability requires a social shift towards more intrinsic values, rather than relying on 'nudge':

...could we have ended slavery by nudging people towards it? Could we have got votes for women by nudging people towards it, by running a marketing campaign?

Deliberative engagement can encourage a shift towards intrinsic values (Hogg, 2010), whereas social marketing may embed and activate values that oppose sustainability (Crompton, 2010).

2. People take ownership of sustainability when engaged deliberatively. Participants argued that the drawback of unconscious 'nudging' is that a person's behaviour only shifts for the duration of an intervention; if the 'nudge' no longer exists, the person is likely to revert to the less sustainable behaviour, unless the new behaviour has become habitual. By contrast, deliberative engagement helps a person to learn more about sustainability and offers the prospect of engaging them emotionally in the need to change. This makes it more likely that the person's shift in behaviour is long-lasting and more pervasive, because they have also shifted their attitudes and/or values.

3. Deliberative engagement avoids patronising people. Participants argued that when people feel patronised many of the levers for influencing behaviour disappear:

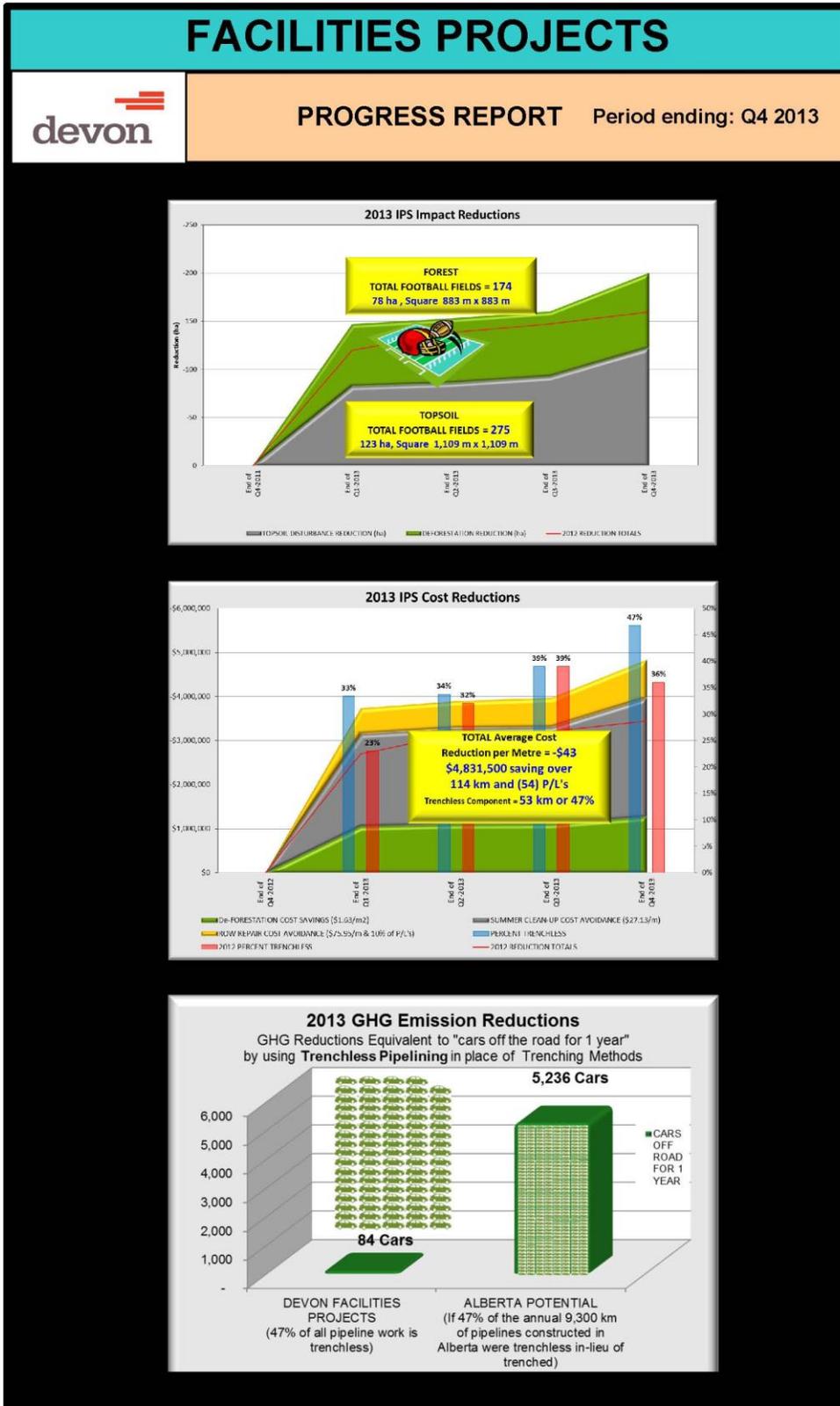
...levels of trust that citizens have of government are decreasing and what that means is that they resist shove and they're actually less willing to accept changes in regulation...and they distrust nudge, they begin to see through the messages that they see in nudge...

Many participants at the round table argued that traditional communications, social marketing approaches and legislation relating to sustainability can serve to patronise because many people perceive that there is a "big gap between the size of the problem and the size of the solutions" that they are offered through these approaches. The advantage of a 'think' approach is that it allows an open, honest discussion of the scale of change needed to pursue sustainability, and does not require the government or civil society institutions to imply they have the solution.

For these reasons 'think' can be a valuable complement to 'nudge', and in some cases can be a more effective alternative. However, 'think' suffers from a significant challenge around its cost and political feasibility (Hogg, 2010). Promising approaches are emerging around the concept of 'distributed dialogue', which proposes using existing structures and networks to create opportunities for effective, low-cost deliberative engagement (Andersson, Burall, Fennell, 2010). However, these approaches are likely to remain "under the radar" until the government and civil society has more money available and sustainability becomes a higher political priority.

Involve. 2010. "Nudge, think, or shove? Shifting values and attitudes towards sustainability." Retrieved April 2012. <http://www.involve.org.uk/wp-content/uploads/2011/03/Nudge-think-or-shove.pdf>

# Appendix 4: IPS Successes at Devon Canada



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<sup>1</sup> Canadian Energy Pipeline Association. History of Pipelines retrieved from: <http://www.cepa.com/about-pipelines/history-of-pipelines-December-9>, 2013.

<sup>2</sup> The section on What is IPS? has major contributions from Doug Kulba, Alberta Environment & Sustainable Resource Development. The section would be impossible to write without his input. This description of IPS was also a compilation of various written descriptions; it was modified for the purposes of this report and also presented in the introduction of the survey for participant to review before they commenced filling out the survey.

<sup>3</sup> Zadek, Simon. 2004. "The Path to Corporate Responsibility", *Harvard Business Review* 82, no.12: 125-132. Business Source Complete, EBSCO host (accessed December 9, 2014), p. 126.

<sup>4</sup> Zadek, Simon. 2004. "The Path to Corporate Responsibility", *Harvard Business Review* 82, no.12: 125-132. Business Source Complete, EBSCO host (accessed December 9, 2014), p. 126.

<sup>5</sup> Zadek, Simon. 2004. "The Path to Corporate Responsibility", *Harvard Business Review* 82, no.12: 125-132. Business Source Complete, EBSCO host (accessed December 9, 2014), p. 129.

<sup>6</sup> McKenzie-Mohr, D. & Smith, W. *Fostering Sustainable Behaviour An Introduction to Community Based Social Marketing*, 1999, New Society Publishers, Gabriola Island, BC.

<sup>7</sup> Personal correspondence from Marc LaBerge from Devon Canada, 2010.

<sup>8</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 864.

<sup>9</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 879.

<sup>10</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 869.

<sup>11</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 870.

<sup>12</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 869.

<sup>13</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 865.

<sup>14</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 869.

<sup>15</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 865.

<sup>16</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 865.

<sup>17</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 867.

<sup>18</sup> ALCES Sustainable Landscapes, Sustainable Futures. Retrieved from: [http://www.alces.ca/img/Maps/376/light\\_pipelines.gif](http://www.alces.ca/img/Maps/376/light_pipelines.gif) November 15, 2014.

<sup>19</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 870.

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<sup>20</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 870.

<sup>21</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 877.

<sup>22</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>, page 877.

<sup>23</sup> Prosci, "Anchoring "what is change management" to what your audience cares about," retrieved from: <http://www.change-management.com/tutorial-what-is-cm.htm> on November 17, 2014.

<sup>24</sup> Excellent resources for change management: Kotter, John. *Leading Change Why Transformation Efforts Fail*, Harvard Business Review, October 2005, page 100.

Washington, M., Hacker, S., & Hacker, M., Ed. By Carpenter, M. (2011). *Successful Organizational Transformation The Five Critical Elements*, New York, NY: Business Expert Press, LLC, 2011

<sup>25</sup> Mitchell, R., Agle, B., & Wood, D., Toward a Theory of Stakeholder Identification and Saliences: Defining the Principle of Who and What Really Counts. *The Academy of Management Review*, Vol. 22, No. 4 (Oct., 1997), stable URL: <http://www.jstor.org/stable/259247>.

<sup>26</sup> McKenzie-Mohr, D. & Smith, W. *Fostering Sustainable Behaviour An Introduction to Community Based Social Marketing*, 1999, New Society Publishers, Gabriola Island, BC.

<sup>27</sup> Involve. 2010. "Nudge, think, or shove? Shifting values and attitudes towards sustainability." Retrieved April 2012. <http://www.involve.org.uk/wp-content/uploads/2011/03/Nudge-think-or-shove.pdf>

<sup>28</sup> Involve. 2010. "Nudge, think, or shove? Shifting values and attitudes towards sustainability." Retrieved April 2012. <http://www.involve.org.uk/wp-content/uploads/2011/03/Nudge-think-or-shove.pdf>

<sup>29</sup> Svendsen, A., Boutilier, R., Abbott, R., & Wheeler, D. *Measuring the Business Value of Stakeholder Relationships, Part One*, retrieved from: <http://www.cim.sfu.ca/folders/research/1%20-%20Measuring%20social%20capital%20-%201.pdf> November 15, 2014, page 5.

<sup>30</sup> Alberta Energy Regulator, News Release: AER announces best-in-class project. November 12, 2014 retrieved from: <http://www.aer.ca/documents/news-releases/AERNR2014-21.pdf>

<sup>31</sup> Zadek, Simon. 2004. "The Path to Corporate Responsibility", *Harvard Business Review* 82, no.12: 125-132. Business Source Complete, EBSCO host (accessed December 9, 2014), page 127.

<sup>32</sup> Svendsen, A., Boutilier, R., Abbott, R., & Wheeler, D. *Measuring the Business Value of Stakeholder Relationships, Part One*, retrieved from: <http://www.cim.sfu.ca/folders/research/1%20-%20Measuring%20social%20capital%20-%201.pdf> November 15, 2014, page 9.

<sup>33</sup> Svendsen, A., Boutilier, R., Abbott, R., & Wheeler, D. *Measuring the Business Value of Stakeholder Relationships, Part One*, retrieved from: <http://www.cim.sfu.ca/folders/research/1%20-%20Measuring%20social%20capital%20-%201.pdf> November 15, 2014, page 9.

<sup>34</sup> Svendsen, A., Boutilier, R., Abbott, R., & Wheeler, D. *Measuring the Business Value of Stakeholder Relationships, Part One*, retrieved from: <http://www.cim.sfu.ca/folders/research/1%20-%20Measuring%20social%20capital%20-%201.pdf> November 15, 2014, page 9.

<sup>35</sup> Svendsen, A., Boutilier, R., Abbott, R., & Wheeler, D. *Measuring the Business Value of Stakeholder Relationships, Part One*, retrieved from: <http://www.cim.sfu.ca/folders/research/1%20-%20Measuring%20social%20capital%20-%201.pdf> November 15, 2014, page 20.

<sup>36</sup> Svendsen, A., Boutilier, R., Abbott, R., & Wheeler, D. *Measuring the Business Value of Stakeholder Relationships, Part One*, retrieved from: <http://www.cim.sfu.ca/folders/research/1%20-%20Measuring%20social%20capital%20-%201.pdf> November 15, 2014, page 21.