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Case Study

Energy Transition in the Netherlands



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Introduction

Sustainable development aims toward "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland, 1987). Recently many governments have been attempting to some degree to alter the curve of development and to encourage sustainable development with a broad range of instruments. Sustainable development is a long-term goal and to achieve it, governments and the societies they serve need mechanisms that help to initiate wide-scale changes, which involve multiple players and extend over a long period of time.

Since it was adopted in the Netherlands in 2001, the **transition approach** has been a practice aimed at solving complex and persistent economic, societal and environmental problems, such as biodiversity, climate change, social and economic injustices and others (Loorbach, 2007: 12). To accomplish this, emphasis is being placed on: long-term transformational change, identification of a vision for the future, management of a portfolio of transitional experiments and assessment for learning and adaptation. In this approach, frontrunners are encouraged to become effectively involved and to set goals.

Through the mechanisms of the transition approach, next generation practices are introduced – practices going beyond current best practices and target system innovation. Next generation practices provide tools that go beyond the instruments and mechanisms traditionally used by governments, to encourage innovation, such as subsidies and financial contributions.

Focusing on horizontal collaboration, both at the interdepartmental level and through opportunities found in strong partnerships between the private sector and the public sector, these mechanisms enable structural transformation to take place with respect to governance, technological, economic, institutional and sociocultural systems. Moreover, these mechanisms are generally applicable for addressing persistent problems and can be used for fields as diverse as health, food, waste and many others. They have also been used in countries other than the Netherlands.

Within the framework of this study, we will be introducing the basics of the transition approach theory and focusing on the Dutch experience with the energy system. The Netherlands has adopted this practice and applied it on a large scale. With a budget of 438 million euros over four years (595 million Canadian), this program is now at a sufficiently advanced stage where it can be examined in detail. Finally, we will look at the possibilities of applying this approach or aspects of it, in the Canadian context.

Methodology

A picture of the transition approach and the Dutch experience is depicted based on a literature review on the progress of the Dutch Energy Transition and on presentations and discussions with researchers who have played a central role in shaping this approach. Papers by Kemp and Rotmans (2004), Loorbach (2007) as well as those by Meadowcroft and Morin (2009), helped to establish the basics. A series of presentations given by Loorbach and Rotmans, organized by the Policy Research Initiative (PRI), also supported this work. The study by Kern and Smith (2008) provided a more in-depth look at the practical aspects of transition. Van der Loo's work (2009) describes the evolution of the energy transition arena. The author of this case study also had the opportunity to engage in discussion with two key actors in the Dutch energy transition – one leading the government's implementation efforts and the other a leader within the private sector. ¹

The Transition Approach - Theory

The concept of the transition approach is derived from the theory of transition, which was based on analysis of historical experience (Kern and Smith, 2008: 1). According to this theory, transitions occur sporadically over the centuries, in a more or less slow fashion, following an S curve (see Table 1). This curve shows that whenever a new technology or emerging system crosses a critical line, it becomes viable and stabilizes, establishing a new dominant system. For

Highlights of the Transition Approach:

- Long-term visions, transition-paths
- Focus on long-term system-wide changes
- Climate-policy & Industry-policy
- Stakeholder-platforms (publicprivate)
- Focus on Frontrunners
- Innovation: not only technology and financing
- Interdepartmental collaboration
- Communication is important
- Learn from experience

example, the Industrial Revolution in the 19th century was in part made possible when coal replaced wood as the fuel used for heating homes and industries (Meadowcroft and Bregha, 2009: 10). The transition approach provides tools that can influence and accelerate , transitions while not attempting to control them (Kemp and Rotmans, 2004: 141).²

Implementing the transition approach can present challenges as it aims at holistic system change, not just incremental improvements.³ By nature, regime players resist innovations that might have a profound impact on the existing system. On the other hand, once innovation reaches a critical mass and provokes questioning of dominant practices, a change in mentality may take place within the regime and new practices can then be widely adopted (Kemp and Rotmans, 2004; 140). Although the classic 'S' curve (see Table 1 below) presents the ideal image of a transition, real transitions are complex and contested processes.

The theory of the transition approach initially rejected the inclusion of players representing the regime.⁴ However, considering that the creation of protected spaces for new or emerging hubs is one of the characteristics of the transitional approach, it quickly became clear that regime players – including the government⁵ – had to play a role in creating these protected spaces, and also had to "legitimize, support and finance the process" (Kern and Smith, 2008: 4).



Table 1

Source: Thinking about the Future. A User's Guide. Dr. Peter Bishop. 2008.

These protected spaces must enable innovators and frontrunners to conduct all sorts of experiments (technological, social and governance-related) characterized by a high failure rate, but also a high degree of potential (Rotmans and Loorbach, 2009; 14).⁶ To come up with innovative solutions, it is crucial to select partners who are frontrunners rather than those in the ordinary ranks and those lagging behind, as governments traditionally tend to do (Brouwer, 2010) (see Table 2).

The transition approach is a learning process. In the coalition groups that are formed, the players – from private and public sectors, educational institutions and communities – must learn to work together and to think differently. The process first sets future visions and pathways, but must be subject to periodic internal and external evaluations so that objectives can be adjusted accordingly and lessons can be learned from past experiences. This assessment process is sometimes called adaptive management.





Source: Energy Transition: The Dutch Approach, Hugo Brouwer, 2010.

1. The Energy Transition in the Netherlands

In the Netherlands, the reasons behind the government's decision to implement the energy transition (ET) were: to deal effectively with climate change (a crucial issue for a country that lies below sea level), reduce dependency on energy imported from Russia, and remain globally competitive, particularly in light of China's rapid development (Brouwer, 2010). The Dutch have chosen to make their transition strategy one that is focused on inspiring optimism and hope for the future, and a key part of developing a strong and sustainable economy for the future.

In 2001, following the perception that the previous plans were too slow and focused on the environment without integrating other policy domains, the Dutch government decided to use the transitional approach by incorporating it into the Fourth National Environmental Policy Plan. This Plan underscores the importance of innovation and transition policies as tools required to achieve target goals with respect to reducing greenhouse gases, conserving energy and developing renewable energy.

The Dutch approach began on a small scale and took time to develop. In the first few years, the team working on ET was small and contained within the Ministry of Economic Affairs. In 2001, the budget allocated to ET was only \$200 000 euros (273 000 Canadian dollars) (Kern and Smith, 2004: 9). As of 2002, five projects were underway with themes such as biomass, new services using natural gas, modernization of the energy system chain, the Rijnmond R3 sustainable energy project and the introduction of new policies (van der Loo, 2009: 4). These projects led to second phase in 2005 which included the creation of six thematic platforms to focus efforts of the transition (see below), an institutionalized capacity to

coordinate the government's role across Ministries, and a funding envelope of $\notin 80$ million (\$109 million Cdn) (Kern and Smith, 2004: 9).

Through the joint efforts of the Energy Transition Taskforce (TFE) and the Interministerial Coordinating Directorate for Dutch Energy Transition (IPE) (see below), ET received strong support from the cabinet in 2007, when it agreed to include ET in the Cabinet's "Clean and Efficient" program. ET was allotted a budget of €438 million (\$595 million Cdn) for 2008-2012. The Energy Innovation Agenda – a government instrument although the Platforms have played a central role in its development – announced that out of this amount, €30 million (\$41 million Cdn) would be allotted to each of the platforms and the remaining €228 million euros (\$312 million Cdn) would be allotted in a more flexible manner to ensure a satisfactory distribution of resources; in other words, where they were most needed. Funding could also be provided for projects of common interest to two or more platforms (*Energy Innovation Agenda*, 2004: 78). In addition to the €438 million, more than €2 billion (\$2.7 billion Cdn) was invested in ET projects between 2004 and 2009. These subsidies were either from educational or research organizations – such as the Energy Research Strategy (EOS) and the Unique Opportunities Scheme (UKR) – or from the private sector (van der Loo, 2009: 8 and Energy Innovation Agenda, 2004: 112-113).

Platforms

The platforms are collaborative areas that bring together representatives from industry, civil society and government. There are currently seven thematic platforms in the energy transition:

- chain efficiency (production and consumption)
- bio-based raw materials
- new gas
- sustainable mobility
- sustainable electricity supply
- built environment
- greenhouses as an energy source

Platform members have the task of developing long-term visions and transition paths, which are defined strategies; projects that ensure that the vision is reached. They also set short and medium-term objectives. Nearly all the ideas that came from the Platform visions and transition paths were legitimized in the governmental policy when they were integrated in the *Energy Innovation Agenda*. Each platform contains a number of transition paths, with a total of 35 transition paths across the ET.

Collaborators from the public, private and community sectors, on each transition path are tasked with seeking and selecting frontrunners, and then providing them with protected spaces to conduct their experiments. These spaces may be created by exempting participants from certain regulations for a period of time, for instance. The frontrunners then launch various experiments. It is up to platform members to decide which experiments will go ahead and manage communication strategies. This year, it is expected that the number of experiments will increase from the current 400 to a total of 800-1000 for ET as a whole.

For clarification purposes, let's take the example of the new gas platform. The members of this platform come from different backgrounds: the natural gas industry (Gasunie, Eneco NetBeheer), the educational and research field, the energy and electricity production sector (Essent, Energy Valley), the public sector (Ministry of Economic Affairs) and environmental NGOs. This platform has five transition paths: decentralized production of electricity, clean natural gas (including carbon capture and storage), extraction of natural gas from biomass and hydrogen, reduction of energy use in the built-up environment and reduction of energy use in the agricultural sector (*Energy Innovation Agenda*, 2004: 42).

The goal of the transition path for clean natural gas is to remove carbon completely from the natural gas chain, taking the entire chain into consideration, from gas extraction to energy consumption. The goal is two-fold: achieve a net zero carbon footprint, while using gas more efficiently. The five following transition paths were chosen for their ability to meet the challenges of the long term vision: underground storage of carbon, development of new CO₂ separation techniques, fuel cells, addition of hydrogen to natural gas as carbon is extracted, and the transition from hydrocarbons to hydrogen (SenterNovem).

Interministerial Coordinating Directorate for Dutch Energy Transition (IPE)

In 2005, the movement began to grow as six ministries decided to collaborate to manage the transition as members of the Interministerial Coordinating Directorate for Dutch Energy Transition (IPE), overseen by the Ministry of Economic Affairs (see Table 3). The task of IPE leaders, who come from senior levels of the public service, is to ensure effective collaboration between ministries and to create a bridge between platforms and government leaders. Two interministerial advisory entities were also put in place. The first one, which includes the deputy ministers from the six ministries, has the task of approving the IPE work plan, which includes the annual allocation of financial resources for each project. The other entity, established at the manager level, makes decisions required on a day-to-day basis.

IPE also act as a bridging organization⁷ between markets and policy by bringing successful innovation to the attention of senior management that can in turn develop policy to help the marketing of the experiments. In addition, IPE includes a frontrunners desk that helps and small and medium-sized businesses to implement their innovative projects. The desk acts as an intermediary between the government and industry, helping business owners to overcome difficulties caused by system bureaucracy.



Table 3 – Energy Transition: Structure (Public – Private Method)

Source: Energy Transition: The Dutch Approach, Hugo Brouwer, 2010.

Energy Transition Board (ETB)

In parallel with the IPE, the government set up the Energy Transition Taskforce (TFE) in 2005, which became the Energy Transition Board in 2008, a more formal entity that together with IPE, acts as a bridge between the government and the market (see Table 3). It is made up of influential advisors–for the most part retired senior managers–and initially chaired by the CEO of Shell-Netherlands. It provides platforms with supervision and coordination (see below) and provides the government with impartial advice. In 2006, the Taskforce came up with an energy transition action plan that convinced high level leaders to support ET by emphasizing what a great opportunity it presented for making progress in society (van der Loo, 2009: 5). Platform presidents were eventually invited to attend ETB meetings to share their experiences and ideas.

SenterNovem

The Ministry of Economic Affairs (EZ) created SenterNovem, a semi-autonomous agency that draws its operational budget from public and private sources of funding. SenterNovem plays the role of facilitator in the energy transition and ensures that the platforms are supported by providing them with resources, information, contact networks and assistance in finding projects and partners (SenterNovem and Bio-Energy Trade). They aim at encouraging business investments in programs that are coherent with the ET vision and the work of every platform.

Interministerial Dynamics

The nature of both the energy system and the transitional approach requires the involvement and collaboration of several ministries. The IPE is the true driving force behind the energy transition, acting as both coordinator and motivator. By smoothing differences between the ministries, IPE fosters greater cooperation.

This is made possible by publicizing ET's existence and activities through the allotment of 20% of the budget toward marketing, and by obtaining the support of the ministries by giving them the opportunity to publicly announce the success of ET. The IPE is made up of thirty employees across six ministries, who do directorate work while maintaining close contact with their ministry, allowing a culture of collaboration to build gradually as the new thought paradigm emerges within the regime. In addition to horizontal collaboration, the IPE encourages the ministries to work directly with the private sector and communities, focusing on the long term.

Key ministries are appointed to take charge of each platform and most projects. For example, the Ministry of Transport (V&W) plays a major role in the sustainable mobility platform (*Energy Innovation Agenda*, 2004; 50) while the Ministry of Housing, Spatial Planning and the Environment (VROM) is more involved in the built environment platform. That being said, more than one ministry always work in collaboration on any given platform.

The development of a wind farm in the North Sea, a project initiated under the sustainable electricity platform, is a good example of this new cooperation and change in culture toward greater collaboration. The Ministry of Transport (V&W) is responsible for the North Sea while the Ministry of Economic Affairs (EZ) is interested in energy. The divergent interests of the two ministries (V&W interested in facilitating navigation and EZ interested in producing energy) created an impasse that lasted several years. However, after much effort, the transitional approach proved to be the best tools to open dialogue, which eventually led to the creation of an Offshore Wind-Farm Working Group (van der Loo, 2009: 26-27). This working group was just recently created and although we do not know the final results, we can see structural and cultural changes in the approach taken in this project, which had been at a standstill since 1999.

Public-Private Dynamics and System Innovation

As previously mentioned, a key element in the transition approach is horizontal collaboration. That implies not only collaboration between the different ministries, but also between the public sector, the private sector, communities and educational institutions.

As mentioned by Theo H. Walthie, current Chair of the ETB: "The only way this transition is possible, is when we put all our stakes on coalition formation." (*Energy Transition*, 2009: 8). The top goal of the IPE and the ETB is to encourage frontrunners to form coalitions through the platforms, which will help them to discover synergies between different sectors of the industry and to find system solutions.

The Paper Industry Transition House's Experiment

To fully understand the high degree of collaboration found in these coalitions, let's take a look at the Dutch paper industry's experiment. This industry's first wish, as can be said of the vast majority of industries world-wide, is to prosper and be competitive. By encouraging innovation, the transition approach is a good way to develop new economic activities, new markets, innovative technologies and discover synergies between sectors.

Through ET, the paper industry set an impressive objective: halving energy consumption per end product by 2020. When he visited Canada in February 2010, Gerrit Jan Koopman – Managing Director of the Royal Netherlands' Paper and Board Association – spoke of the difficulties encountered during negotiations with executive directors in the industry that he represents (Gerrit Jan Koopman, 2010: 4). Not everyone agreed to take part in the experiment. But then, given the high cost of energy and the fear of seeing the industry disappear due to fierce global competition, the majority finally agreed to make the effort to achieve the target objective.

The new coalition formed a "transition house" (see Table 4) to coordinate the various experiments that would be undertaken. The transition house first introduced the concept of transition in competition – having two competing teams aiming for the same common goal – to discover new paths to achieve the targeted objective. One of the teams was made up of scientists and engineers while the other had consultants and representatives from educational institutions. The exercise helped the platform members to appreciate the immensity of the challenge and to become aware that the paper chain would need to be transformed completely and factory workers' education would need to be taken into consideration. From then on, the transition house began dialoguing with agri-food and chemical product sectors in search of unexploited potential (Kenniscentrum Papier en Karton, 2006: 8-9). By working closely with these sectors, the coalition discovered that certain innovations would help to reduce production costs in each sector. For example, the paper industry could use the fibres from certain food products, cutting the cost of food industry waste. This eventually led to the creation of the bio-based raw materials platform. This transition house's experiment helped to draw certain conclusions: fostering innovation - technological, social and cultural - from one end of the chain to the other, but also between each step in the chain, assists in discovering and incorporating new innovation opportunities and maximizing the efficiency of existing chains.

Continues...



As shown by the paper industry transition house's experiment (see Text Box above), members who collaborate within platforms come from the market, educational institutions and communities. In this example, it could be stated that investments from the private sector are far more significant than government contributions and that they could manage the transition themselves. However, these major players would have a hard time obtaining government support and influencing policies without the backing of the IPE, which acts as an intermediary between the platforms and the ministries. The backing could be financial support, or the resources required to organize the ET. By offering them organizational support and a business opportunity – since the transition also brings about financial gains (Energy Innovation Agenda, 2004: 25) – the IPE forces businesses to unite and collaborate to reach their goals. In addition to providing a protected space for platforms, which includes reduction of the congestion caused by the system, the IPE can also present ideas that emerge from platforms to decision makers who can, in turn, include them in policies (van der Loo, 2009: 10). This task is facilitated by the fact that IPE members are government representatives who have a close relationship with the platforms, when they are not platform members themselves. This helps bringing back the platforms' ideas within the ministries.

Complementing the IPE, and benefitting from their neutrality, the influential members of the ETB maintain regular contact with politicians and senior government officials to ensure their crucial ongoing support of the initiative (van der Loo, 2009: 11). For its part, in addition to determining long term visions for

each platform, the ETB steers the ET. The ETB oversees the platforms and attempts to establish links between the seven themes while ensuring that long term objectives are taken into account. The transition approach aims for system-wide changes, and connections betweens platforms must be taken into consideration to maximize potential gains: "No project must be considered in an isolated fashion." (*Energy Innovation Agenda*, 2004: 34). Moreover, as the platforms developed, it was noted that each of them had projects oriented toward industrial and residential heating, calling for further collaboration between the platforms. It was decided to create a joint working group – in effect adding an eighth theme, called the "interconnecting innovation theme" in which the heating issue was included, as well as climate-neutral suburbs, bio-based economy, infrastructural changes, decentralization (van der Loo, 2009: 13 and Energy Innovation Agenda, 2004: 61).

The platform process is monitored and evaluated regularly. In reporting information to the IPE, each of the platforms must continually verify whether projects comply with the established plan. Then, every two years (starting in 2010), the IPE evaluates the status of the transition in terms of systemic innovation. Any adjustments required will be made in accordance with these evaluations (*Energy Innovation Agenda*, 2004; 81).

The Importance of Communities

According to the Director of the IPE, Hugo Brouwer (Brouwer, 2010), ET did not make immediate contact with communities, i.e. municipalities and groups of citizens. However, the importance and frontrunner nature of most communities soon became apparent, since they often display energy, innovation and enthusiasm, which are essential to the survival of ET, in addition to having a culture of collaboration. Mr. Brouwer said that communities now contribute considerable support and creativity and, to ensure that they do not stop, the IPE now includes them as key players in the energy transition. (Brouwer, 2010: 21). The IPE approaches communities to find out about their visions and projects and asks how they can help them.

Now well integrated into ET, regional and local governments play a key role in ensuring the success of the transition to more sustainable sources of energy. Communities are very active in the built environment and sustainable mobility platforms (*Energy Innovation Agenda*, 2004: 26). Communities can also play a key role in building public awareness and support for transition efforts.

For example, the Rotterdam Climate Initiative, which is aiming for a reduction of 50% in CO_2 emissions by 2025, was one of the first large-scale projects to associate with ET (Rotterdam Climate Initiative). For its part, the City of Haye implemented a geothermal heating development project in several neighbourhoods (SenterNovem).

Achieving Necessary Institutional Culture Change

The built environment platform has had exemplary leadership and enthusiasm. However, many obstacles had to be overcome before the platform could achieve success. The path that led to the creation of this platform is quite representative of the challenges and opportunities inherent in change.

As of 2001 and the publication of the Fourth National Environmental Policy Plan, the Directorate General for Environmental Protection of the Ministry of Housing, Spatial Planning and the Environment saw the potential that lay in the built environment if it could be incorporated into the energy transition. However, administration of this platform falls under the mandate of their sister Directorate General for Housing, Communities and Integration. At that time, the objectives of the Housing Directorate were only remotely connected to energy and the culture within the group was one of isolation (van der Loo, 2009: 17). Initial efforts to establish a built environment platform led nowhere.

A number of factors contributed to changing this. A senior Housing official was appointed Deputy Director of IPE, which strengthened the ties between the government organizations. At the same time, increasing external pressure to create a built environment platform was coming from other platforms like the production-consumption chain efficiency platform and the Energy Transition Board. A high level meeting between the different Directorates, the IPE and the Board resulted in a common understanding of the importance of the energy transition for the Netherlands, the potential of the built environment to contribute to this effort and the benefits of a collaborative effort. The Housing Directorate energy team were appointed as the lead architects of the transition, reinforcing their commitment to the platform as part of the broader ET, and bringing their expertise and numerous networks in the housing and construction sector into the process (van der Loo, 2009: 18).

Although the built environment platform was the last to be put in place (late 2006), it now ranks second in terms of the number of experiments in progress, just behind the new gas platform (Brouwer, 2010: 9). Addressing innovation, regulations and existing buildings, they have adopted an aggressive objective to achieve a zero carbon footprint – in other words, no greenhouse gas emissions from the consumption of energy or other sources – in any new building constructed after 2020. Existing buildings must reduce their demand by at least 30%. To achieve this, 80 pilot projects – from a single family dwelling to an entire neighbourhood – must be completed by 2012 (SenterNovem).

This example shows the change in culture that is gradually taking place within ministries thanks to the efforts of the IPE, a change that is necessary for the transitional process to be a success. Within a few years, the Housing Directorate shifted from a culture of isolation to one of collaboration and openness, which enabled the creation of a number of horizontal projects in the built environment platform.

Moreover, the above example illustrates the difference between the transition approach theory and practice. The built environment platform and everything that it accomplishes will have been made possible thanks to the regime players. Contrary to the usual TM bottom-up approach, this platform took root in the upper circles of government institutions. The ideas, and even some of the experiments, already existed in the private sector and in communities, but they were too fragmented to force the government to take action and create a platform (van der Loo, 2009: 20). This shows that there are several pathways to a transitional approach and that the government has a key role to play.

2. Addressing Common Challenges to Transition

ET has already achieved success in many areas, such as the change in culture within the ministries, greater collaboration between the public and private sectors, and strong government support. Despite the progress made to date, many challenges lie ahead for the Netherlands.

First of all, some researchers criticize ET, saying that it is a "slave" to the regime, which could prevent the creation of experiments that could truly transform the current energy system. Some would prefer that the ET focus all of its attention on the frontrunners, with less stress on regime players (Kern and Smith, 2008: 16). However, as demonstrated by the Dutch experience, when influential people decide to support ET, momentum is gathered and it is easier to get the support of regime players. The regime players must bear in mind, however, that they are simply acting as facilitators.

Secondly, while it is true that ET has many policies and strategies, genuine systemic innovation has yet to occur and it is important that ET does not become a mere comfort zone or new regime for innovative experiments. As van der Loo (van der Loo, 2009: 33) puts it:

It is important that the Innovation Agenda does not also become just another niche areas for innovative projects. However, when jumping to a real system innovation, the new system will undoubtedly be more in competition with the existing system. There is bound to be some resistance. There is bound to be some resistance.

The transition is a long term process and innovation, just like the snake sheds its skins, needs to be continuous along the pathways in order to achieve it.

Thirdly, to maintain the support of the majority of players, the transition must include short-term objectives that also contribute to long-term objectives. According to a study by Kern and Smith, short-term objectives can weaken the chances of achieving long-term goals since as they often require risk-free strategies. (Kern and Smith, 2008: 15) Experimentation for innovation and adaptive learning implies some risk, as by their very nature, some experiments will fail. The transition approach, by design, offers a strategy for managing risk and encouraging innovation.

Fourthly, pursuing the greatest number of transition paths possible is both fair and logical; it is a matter of not putting all the eggs in one basket. However, this can lead to a degree of uncertainty for investors, who hesitate to invest their funds in a technology for which the future is uncertain and for which there are many competitors (Kern and Smith, 2008: 16). Collectively setting a clear and inspiring vision of the future helps to address this issue.

Finally, getting the public on board remains one of the greatest hurdles for system wide transition. It is impossible to create new markets when the demand for new products fails to increase, due to public uncertainty or resistance to change. (*Energy Innovation Agenda*, 2004, 88) Low public support can diminish political leadership for change. A key element, therefore, of a transition strategy is around communications and engagement to increase public awareness of the long term objectives, implications and support. Hugo Brouwer, Director of the IEP, indicated the importance of investing in communications is a lesson learned from their private sector partners. As a result, a surprisingly high 20% of the IPE budget is directed toward communications, awareness raising and engagement of stakeholders.

3. A Canadian Transitions Approach

Can the Dutch approach to complex systemic transitions be applied to Canada? Can we come up with a shared, long term vision that will inspire partnerships across sectors to manage transitional approaches? Can we learn from the Dutch model and build a culture of change and collaboration within our public and private institutions? Who are the Canadian equivalents of Shell's former CEO, who was able to bring visibility and expertise to ET? In Canada, would a regional approach be more appropriate? What role would be played by the federal, provincial and municipal governments? What balance would need to be kept between regime players and frontrunners to achieve the level of innovation required for systemic change?

All of these questions need to be asked, since there are clearly many differences between Canada and the Netherlands. Nevertheless, the concepts and theory of complex systems change that lie behind the transition approach are principles can be applied broadly and in most spheres of society facing persistent problems. There are other ways of bringing about system-wide change including natural evolution, system shocks or top-down directive change. The right combination of instruments and processes need to be context specific, reflecting the socioeconomic, political, environmental and cultural circumstances of the jurisdiction in question. This could be assisted through the complementary role played by a variety of bridging organizations such as those involved in the ET. The IPE, the ETB, the Frontrunner desk, the Transition House and SenterNovem have all in effect been successful in promoting tailored and integrated collaboration. Further exploration of the areas where Canada could begin a transition effort would be worthwhile in this regard. First, there is a need to identify the bridging organizations in Canada. Also, there are a number of innovative initiatives currently in progress throughout Canada, including many that are community based, which could present an opportunity to strengthen connections between efforts to share knowledge, expertise and inspiration and to scale up promising innovations more quickly. A few examples are provided below.

- The <u>City of Vancouver</u> has set a goal of becoming the world's greenest city by 2020.
- Quebec City's <u>"Cité Verte"</u> project is a combined public-private sector initiative aimed at building a sustainable neighbourhood.
- The <u>University of British Colombia</u> has received federal and provincial investments of 68 million dollars to renovate facilities, incorporating the latest sustainable features and energy-efficient systems.
- The <u>Federation of Canadian Municipalities</u> manages the Green Municipal Fund, which offers communities grants for initiatives that benefit the environment, local economies and quality of life.
- There is also <u>QUEST</u> (Quality Urban Energy System of Tomorrow), a network of representatives from public and private sectors, academia and communities across the country. Its goal is to make Canada a world leader in urban integrated energy systems.

Despite the impressive level of effort that goes much further than the few examples given, these initiatives remain, for the most part, disconnected from each other. A deliberate approach that catalyzes and facilitates collaboration across these innovative thinkers, governments, the market, communities and research organizations, and helps them work together toward a common longterm vision could benefit all of them. Using this approach, they could share their knowledge and best practices and discover new opportunities for collaboration and innovation which would help to improve their performance. There is a real opportunity for governments at all levels to act in a coordinated manner as facilitators, assist local and regional initiatives in overcoming barriers to innovation, increase intergovernmental and cross-sectoral collaboration, enable connections between research in universities and transition experiments, facilitate the promotion of new technologies and accelerate the speed at which transitions occur.

Many of the community based efforts already have established partnerships across sectors, and some, like the FCM, provide nation-wide networks of municipal governments who hold many of the levers and instruments, including proximity to the public and engagement methods, that are needed to support comprehensive system change. In the Dutch case, the energy transition architects came to understand the importance of communities as hubs for innovation and horizontal integration between platforms and political circles. Canadian communities offer the same opportunity to drive the transition we are currently in, and position Canada well to address the economic, environmental and social challenges we currently face.

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Notes

³ For further details on the different phases of practicing the transition approach, see: Kemp and Loorbach, 149-151; *Energy Innovation Agenda*, 2004: 86.

⁴ Term that refers to current practices, rules and logic governing a field, an institution.

⁵ For more information on the role of government in the transition approach, see: Kern and Smith, 4, Kemp and Rotmans, 143-147.

⁶ Jan Rotmans and Derk Lorbach are academics that have played a role in thinking the concept of transition management. These individuals gave numerous presentations to diverse audiences in Ottawa in October 2009, at events organized by PRI. Copies of their presentations and a summary of key messages from the different events are available at: <u>PRI</u>

⁷ A bridging organization, is also referred to as intermediary, boundary, and brokering organizations, work at the interface of science, policy and community. Bridging organizations enable co-production and innovation between different social worlds by: (1) creating or using an entity of mutual interest known as boundary objects (e.g. standardized packages, computer models, indicators); (2) engaging participants of all involved parties, and professionals that play the role of mediators; and, (3) having different forms of accountability to accommodate the particular requirements of each social world (Guston, 2001).

Bridging organizations 'come and go, depending on the need to facilitate interactions between science, policy and society' (Swart et al., 2009: 78). They are flexible and adaptable, thus responsive to the evolving needs of the interaction between different social worlds (ibid).

¹ Hugo Brouwer is Director of the Interdepartmental Programme on the Energy Transition and Gerrit Jan Koopman is the Managing Director of the Royal Netherlands' Paper and Board Association (VNP). These individuals gave numerous presentations to diverse audiences in Ottawa in February 2010, at events organized by PRI. Copies of their presentations and a summary of key messages from the different events are available at: <u>PRI</u>

² For more information on the principles of the transition approach, see: Meadowcroft and Bregha, 2009, p. 4; Kemp and Rotmans, 2004 p. 145.