

**Green Decision Making by Organizations:  
Understanding Strategic Energy Choices**

by

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A thesis  
presented to the University of Waterloo  
in fulfillment of the  
thesis requirement for the degree of  
Doctor in Philosophy  
in  
Geography

Waterloo, Ontario, Canada, 2011

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## **Authors Declaration**

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners. I understand that my thesis may be made electronically available to the public.

## **Abstract**

There is a growing need to better understand environmental decision making in the context of climate change and limited renewable resources. This dissertation deepens our understanding of such decision making by focusing on strategic green decisions, which can be defined as the individual and collaborative green decisions within or between organizations that help organizations improve their operating position, adapt to changes in their external institutional environments, and simultaneously generate environmental benefits. The particular focus is on decisions related to energy in the North American context.

The research draws on and contributes to organizational theory with the aim of better understanding those factors that motivate and/or facilitate green decisions by organizations, especially social economy organizations—an area of only limited research to date. Two complementary empirical studies address the overarching research goal.

The first study focuses on understanding the nature and extent of the association between organizational attributes and those factors that motivate and/or facilitate a green energy decision. Insights are based on a bi-national survey of 212 organizations that voluntarily began to purchase green electricity between 1999 and 2008. Findings indicate that important influences are similar across organizational types. Survey results highlight the importance of organizational culture and internal champions—both individually and in combination—in making the initial decision to purchase green electricity, despite its relatively higher price. These two factors, as well as strategic benefits, emerge as the dominant explanations for why organizations expand their green energy purchases. The relative importance and particular roles of these factors vary across organizational and decision types.

The second empirical study extends our understanding of how organizations adapt to external changes while maintaining the capacity to innovate in order to address their core objectives. The focus is on the residential energy services market, and is based on 12 interviews with the executive directors of non-profit environmental service organizations (ESOs) that are part of a national network called Green Communities Canada. These organizations survived a funding shock by creating new services and diversifying funding sources with actions that collectively can be referred to as ‘green collaborative entrepreneurship’; collaborative because

it was facilitated by strategic partnerships with businesses and local governments, as well as the cross-national social capital network connecting the ESOs. The important motivating factors of green collaborative entrepreneurship were the green values and objectives that drive these organizations. The facilitating factors of green collaborative entrepreneurship included human capital, social capital and strategic partnerships, which acted as dynamic capabilities because of their flexibility to help increase the level of entrepreneurship when necessary for organizational survival, and yet, scale-up and deliver core programs during stable funding periods.

The dissertation provides important insights into broad questions related to green decisions, especially for organizations that are affected by political policy cycles. The findings highlight that organizations are able to be more environmentally sustainable while also improving their own strategic performance by making green decisions that either provide the capacity to adapt to exogenous change for survival, or to create endogenous change for competitive advantage. The research contributes to our understanding of societal transitions to sustainable development by highlighting two green decisions that are occurring in the social economy. The dissertation contributes to organizational theory and in particular the traditional corporate literature by including multiple organizational types. Sustainability researchers should focus on green decisions that both enhance organizational stability and ecological sustainability if they wish to better understand creative green solutions from organizations.

## **Acknowledgements**

I would like to thank everyone who has witnessed this journey of endless discovery. Sometimes the journey is more important than the destination and the skills and lessons I have learned during this process will be invaluable for me as I transition to future research endeavours. This dissertation is just the beginning of a lifelong learning process, one in which I am now better equipped to succeed.

The comprehensive list of thanks begins with my wife, Dr. Lisa Funnell, because when “every man who is high up loves to think that he has done it all himself; his wife smiles, and lets it go at that” (Sir James M. Barrie).

I also thank my parents, Arvit and Betty, my uncle ‘Uncle’, and my sisters Trista and Kayleigh for all your support over the journey that was. I would also like to express my gratitude to my father and mother-in-law Lorne and Mary, my brother-in-law Dave, sister-in-law Caren, and my niece and nephew Taylor and Harrison. You have all been instrumental in my success.

I would like to give a special thank you to my advisor Dr. Paul Parker, who somehow managed to transform a bumbling undergraduate student into a burgeoning scholar – a transformation that required more patience than any advisor should have to offer. It has been a long journey, Paul, and many times we saw the light at the end of the tunnel! As a result, we discovered that “a man of sense is never discouraged by difficulties; he redoubles his industry and his diligence, he perseveres, and infallibly prevails at last” (Lord Chesterfield).

I would also like to thank Dr. Jean Andrey, who provided key guidance at critical times during the dissertation process, which has helped me see not only the forest, but also the trees. Your persistent support has made me a better writer and researcher, and I now understand why every word counts!

I would like to thank my committee members Dr. Ian Rowlands and Dr. Dan Scott who provided continual support, encouragement and suggestions throughout the process.

I would like to thank my external examiner, Dr. Dan Shrubsole, for showing me that “great works are performed, not by strength, but by perseverance” (Samuel Johnson), and for demonstrating that Friedrich Nietzsche was right when he proclaimed: “that which does not kill me will make me stronger!”

And finally, I would like to thank Chrisa, Bin and Shane who have provided continual feedback and support throughout the dissertation process, showing all of us how to ask not what your friends can do for you, but rather, what you can do for your friends!

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## Acronyms and Significant Terms

CSR = corporate social responsibility

EcoLogo™ = independent third-party environmental certification system - Canada<sup>1</sup>

EGH = EnerGuide for Houses<sup>2</sup> residential energy efficiency program

ESO = environmental service organization

GE = green electricity

GHG = greenhouse gas

Green-e® = independent third-party environmental certification system – United States<sup>3</sup>

LEED® = Leadership in Energy and Environmental Design<sup>4</sup>

SME = small to medium size enterprise

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<sup>1</sup> Founded by Government of Canada in 1988; EcoLogo™ is an environmental standard and certification system designed to ensure that the environmental benefits customers pay for are actually generated (EcoLogo, 2010).

<sup>2</sup> Name registered by Natural Resources Canada.

<sup>3</sup> Third-party certification system in the United States for renewable energy and GHG emission reduction products; Green-e® is administered by the non-profit Center for Resource Solutions (Green-e, 2010).

<sup>4</sup> Leadership in Energy and Environmental Design (LEED®) Green Building Rating System™ is a “third-party certification program and internationally accepted benchmark for the design, construction and operation of high performance buildings” (Canada Green Building Council, 2009).

## Chapter 1: Introduction to Strategic Green Decisions by Organizations<sup>5</sup>

### 1.1 Introduction

Over the past three decades there has been growing interest in behaviours that can be characterized as pro-environmental (Bamberg and Möser, 2007; Kaiser and Gutscher, 2003; Kollmuss and Agyeman, 2002; Schultz and Zelezny, 1998; Steg and Vlek, 2009) or environmentally responsible (De Young, 2000; Dolnicar and Grun, 2009; Kaplan, 2000; Mobley, Vagias and DeWard, 2010). The impetus for much of the earlier work was the recognition of the need for 'sustainable development' as outlined by The Brundtland Commission Report entitled *Our Common Future* (1987), as well as the various 'limits to growth' theories that preceded it (Georgescu-Roegen, 1971; Meadows et al., 1972). More recently, concerns over global environmental change, especially climate change, have captured the attention of researchers and communities, as scientists have outlined a compelling case for why significant reductions in greenhouse gas (GHG) emissions are necessary (IPCC, 2007). Applying limits-to-growth thinking to climate change suggests that green technology development will not solve our environmental problems independent of wide-ranging behavioural changes in the direction of sustainability (McKibben, 2010).

Various disciplines are contributing to discussions and debate on what motivates or facilitates environmental behaviour. These disciplines include social psychology's focus on behavioural antecedents (Stern, 2000; Gardner and Stern, 2002; Steg and Vlek, 2009) and the relationship between social norms and environmental decisions (Göckeritz et al., forthcoming; Goldstein, Cialdini and Griskevicius, 2008; Nolan et al., 2008; Schultz et al., 2007); economists' exploration of influencing factors of environmental performance (Ambec and Lanoie, 2008; Esty and Porter, 2005; Porter and van der Linde, 1995) and fiscal and taxation policy responses to externalities (Daly and Farley, 2003; Harris, 2006); and geographers' contributions to environmental decisions through ecological modernization and regulation theory (Bridge, 2008; Gibbs, 2006) and resource and environmental management (Armitage, Berkes and Doubleday, 2007; Mitchell, 2005).

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<sup>5</sup> A number of publications have resulted from the two research projects conducted for this dissertation, and they are listed in Appendix A. Portions of these publications are included in this dissertation, but they have been modified from the original versions published as journal articles.

Geographers and economists tend to take a macro view of environmental decisions by looking at societal decision making processes within the context of institutional and market forces. Social psychologists look at micro decisions taken by individuals either within organizational settings or households.

The universe of possibilities for examining environmental behaviour includes different actor groups that range from individual purchasing decisions and day-to-day behavioural choices, to organizational decisions that can generate green benefits for society. Individuals, for example, may weigh many different criteria, which are influenced by their personal values as well as their economic situation, when deciding on the type of car to purchase (e.g., fuel economy, colour, safety, price, warranty, interior and exterior design, drivability, audio system). Individuals also choose whether or not to recycle plastic bottles, compost organic food waste, purchase local food, or walk to work. Much of the empirical work on environmental behaviour has been directed toward understanding this type of individual- or household-level decision making (Kennedy et al., 2009), including green consumption decisions (Peattie, 2010), transportation decisions (Hunecke et al., 2010; Walton and Sunseri, 2010), recycling behaviour (Castro et al., 2009; Nixon et al., 2009), energy efficiency and conservation (Parker, Rowlands and Scott, 2005; Whitmarsh, 2009; Wilson and Dowlatabadi, 2007), and green electricity adoption (Clark, Kotchen and Moore, 2003; Ozaki, 2011; Rowlands, Scott and Parker, 2003). Although studying these individual decisions could provide insights into motivations for environmental behaviour, these particular decisions are not expected to generate strategic benefits for an organization beyond the cost savings that can accrue to the individual making the decision. Furthermore, these decisions involve an individual choice that is largely independent of an organizational structural context.

In addition to individual and household decisions, researchers are increasingly interested in the behaviour of organizations of various types ranging from businesses to non-profits and across all of the public-sector institutions. Studies are focusing on corporate social responsibility (Bansal and Roth, 2000) and corporate sustainability (Montiel, 2008; Shrivastava, 1995). In particular, researchers are examining corporate social and environmental decisions in the context of institutional influences (Babiak and Trendafilova, 2011; Sharma, Pablo and Vredenburg, 1999), as well as the association

between corporate environmental decisions and economic performance (Lankoski, 2008; Sharma, 2000; Smith, 2007).

Numerous green decisions made by organizations could be studied to provide insights into environmental behaviour. For example, organizations choose to have their buildings certified by Leadership in Energy and Environmental Design (LEED), or their factories and production processes certified by ISO 14000. Although each of these decisions can lead to green benefits as well as strategic benefits in the form of cost savings, few businesses have participated in LEED certification and few governments or non-profit organizations have pursued ISO 14000 certification, making it difficult to find a comprehensive list of heterogeneous organizations that are making a common green decision. A similar challenge exists with respect to organizations that make energy efficiency decisions, as many do not publicize that decision, which also limits the potential for organizations to reap strategic benefits from this decision.

Understanding the pro-environmental behaviour of organizations is not a new endeavor, as it has been studied in various forms for more than half a century (Carroll, 1999). Much of the early corporate social responsibility literature focused on executive or top-management decisions, which involved philanthropic actions that go beyond regulatory compliance (Montiel, 2008). Organizational environmental behaviour was thus considered to represent a manifestation of the attitudes, values and knowledge of the principal decision maker (Kollmuss and Agyeman, 2002). Institutional theory has since pervaded the corporate social responsibility literature to enhance our understanding of the pro-environmental behaviour of firms in the context of emerging external pressures (Babiak and Trendafilova, 2011; Bansal and Roth, 2000; Chen et al., 2010; González-Benito and González-Benito, 2006; Tate et al., 2011). External explanations of organizational environmental behaviour are themselves incomplete, and many researchers are re-focusing their attention to the importance of the internal organizational context by looking at resources and capabilities as influencing factors in environmental decisions (Bansal, 2005; Hart, 1995; Lepoutre, 2008; Sharma and Vredenburg, 1998). These and other similar studies help explain how organizations are making green decisions aided by tangible organizational structures and measurement systems, which complement normative and

values-based explanations of organizational environmental behaviour (Berkhout and Rowlands, 2007).

Researchers studying corporations are increasingly interested in green decisions that also generate cost, reputation or differentiation advantages. Studies are examining the potential for environmental decisions taken by firms to contribute to 'strategic' corporate social responsibility (Orlitzky, Siegel and Waldman, 2011), which goes beyond philanthropic motivations to include actions that are expected to generate strategic as well as social and/or green benefits. In this context, strategic green decisions normally are decisions that enhance organizational goals, economic sustainability or competitiveness by improving the operating position of the organization as well as achieving broader green or environmental objectives. Delmas, Hoffmann and Kuss (2011) commented that most of the corporate research on motivations for strategic green decisions has "focused on the influence of external stakeholders such as regulators, customers, or environmental nongovernmental organizations, rather than on firm organizational capabilities" (p. 120). These 'capabilities' include social capital and structural capital, as well as the role of human capital in the form of individual actions and social connections, the latter of which has been identified as a catalyst for environmental decisions that achieve competitive advantages for organizations (Lynes and Andrachuk, 2008). Although researchers are beginning to investigate 'strategic' green decision making processes, "very few studies have looked at the relation between organizational capabilities, environmental proactivity, and competitive advantage" (Delmas et al., 2011, p. 120).

The two cases examined in Chapter 4 and Chapter 5 were selected because they represent examples of green decisions that have the potential to generate strategic benefits for the organization that makes the decision. Each case focuses on a group of organizations that are making a similar green decision that is not-mandated by government. This will provide insights into the motivations for this type of voluntary green decision, which is the most likely type of green decision to be made by organizations during times of economic recession and austerity measures that characterized North America during the time of this research. Each case also involved organizations that were publically listed on a central website so that an initial investigation could identify similarities and differences between these organizations. Heterogeneity between organizations is important to provide a

comparison between the relative contribution of external and internal factors to a single green decision.

Given that green decisions that have the potential to generate strategic benefits may be influenced by external or internal factors, and that those factors may differ depending on the context within which a particular organization operates, this type of examination requires a comprehensive conceptual framework. Numerous frameworks illustrate various external and internal factors that motivate and/or facilitate environmental behaviour of corporations (e.g., Ambec and Lanoie, 2008; Babiak and Trendafilova, 2011; Bansal, 2005; Bansal and Roth, 2000; Chen et al., 2010; González-Benito and González-Benito, 2006; López-Gamero et al., 2011; Lynes and Andrachuk, 2008). These frameworks are similar in their focus on corporations, but are different in that they explore diverse types of green behaviour in firms that operate in different sectors. While corporate frameworks identify many influencing factors that are important to green decisions, they fail to consider how a single green decision may differ across a variety of organizational types that are characterized by different attributes.

The overarching research goal in this dissertation is to provide a more comprehensive understanding of the external and internal factors that motivate and/or facilitate green decisions taken by organizations, across various organizational types, with a particular focus on social economy organizations. The approach taken is to investigate the extent and ways in which green decisions relate to organizational type and/or organizational attributes. Two bodies of literature have developed to offer differing explanations of the factors that motivate and facilitate green decisions in organizations, with the first focusing mainly on external motivating factors and the second focusing mainly on internal facilitating factors. Motivating factors are considered to help explain why organizations make green decisions in response to pressures or opportunities. In contrast, facilitating factors are capabilities and resources that help explain how organizations make green decisions.

The first body of literature addresses green decisions in corporations and is characterized as the 'homogenizing perspective', which focuses on how firms are influenced by external institutional factors to improve environmental performance towards a common and acceptable level (Bansal, 2005; Butler, 2011; Clemens and Douglas,



2006). The second is referred to as the 'heterogeneous perspective', which suggests that firms create and draw upon internal capacity and resources to respond to external factors by influencing green decisions as a source of competitive advantage (Aragón-Correa et al., 2008; Delmas et al., 2011; Hart, 1995; Lepoutre, 2008). A third body of literature that focuses on 'green entrepreneurship' is also reviewed because it has similarities to both of the aforementioned perspectives in that it focuses on external and internal motivations for green decisions. For instance, the green entrepreneurship literature generally views external environmental challenges as 'economic opportunities' for organizations, while considering internal capacity factors as important to realizing those opportunities; thus providing an integrated perspective on green decisions in organizations (Cook and Barclay, 2002; Hanson, 2005; Hartman and Stafford, 1997; Miles, Munilla and Darroch, 2009; Schaper, 2010; Walley, Taylor and Greig, 2010). These three areas of literature, which are particularly relevant to this investigation are introduced below and examined further in Chapter Two.

The homogenizing perspective includes research focusing on corporate greening. Corporate greening studies have revealed that many large businesses improve environmental performance as a reaction to external regulatory or institutional changes, pressure from external stakeholders, as a means of reducing operating costs through efficiency gains, or as a strategy to meet the changing market demands from an environmentally conscious customer base. The empirical findings highlight the importance of various external factors to corporate greening decisions, which is the main focus of 'green institutional theory' (Clemens and Douglas, 2006).

While the homogenizing literature provides an understanding of the external motivations for corporate greening decisions, including policies, stakeholder and normative pressures, and economic shocks, it has four main limitations:

- (1) it cannot explain why some organizations take greening actions while other organizations within the same external environment do not;
- (2) it cannot explain why organizations would adopt or create green initiatives that are not mandated by government (e.g., initiatives that are not compliance-based);

- (3) there is a lack of understanding about how green decisions made by corporations in response to external changes could also generate strategic benefits for the firm;
- (4) there is a lack of understanding about how the homogenizing literature would explain the greening decisions of organizations characterized by other attributes including smaller size and social purpose.

The heterogeneous perspective attempts to address gaps one, two and three by considering internal organizational capacity and resources as a source of competitive advantage that can also facilitate organizational green decisions. Various articulations including the 'green resource-based view of the firm' and the 'dynamic capabilities' theories have emerged from this perspective. The heterogeneous perspective explains green decisions in businesses as being facilitated by flexible internal capacity factors, which can be drawn upon to enact change in response to external factors (Hart, 1995; Lepoutre, 2008).

Given that the homogenizing and heterogeneous literatures each offer only a partial view of green decisions by focusing on either external or internal influences, some researchers are combining insights from both strands into a more integrated perspective. Clemens and Douglas (2006) combined green institutional theory and the green resource-based view of the firm to provide an external and internal explanation for green decisions made by corporations in the steel industry. In another example, Bansal (2005) discovered that external institutional and internal resource-based factors were important motivators and facilitators of commitment to sustainable development by Canadian oil and gas, forestry, and mining firms, and that the factors that were important sometimes changed over time. These integrated studies are illustrative of much of the current corporate literature that is attempting to provide a more comprehensive view of green decisions in firms.

Studies to date using the combined perspective largely ignore small service-sector businesses and social economy organizations in favour of primary and secondary sector firms, which have established programs, structures and strategies to address organizational greening. This suggests that the corporate literature may lack a necessary framework for explaining green decisions in small businesses and non-profit organizations.

Although small businesses are generally thought to lack the necessary internal capacity and resources to make green decisions, they are characterized by different internal attributes than firms, including “shorter lines of communication and closer interaction, the presence of a founder’s vision, flexibility in managing external relationships, and an entrepreneurial orientation” (Aragón-Correa et al., 2008, p. 88), which could motivate or facilitate green decisions in different ways than large firms. Social economy organizations also lack ‘slack resources’ and capacity for green decisions, and tend to operate within complex decision making environments that include actors ranging from external funders to internal voluntary labour (Weerawardena, McDonald and Sullivan Mort, 2010).

The fourth gap is partially addressed by a key integrated study of green decisions, whereby Lepoutre (2008) combined external and internal factors to investigate how dynamic capabilities can drive and facilitate green decisions in small businesses. Two interrelated sets of dynamic capabilities, one external and the other internal, were identified as being critical to helping organizations create the resources and capacity to facilitate green decisions (Lepoutre, 2008). The dynamic capabilities were also found to enhance organizational survival through the development of sustainable competitive advantages, which Lepoutre (2008) equates to “the Schumpeterian rents that come with the constant renewal of the firm’s practices to cope with the changes in the environment” (p. 25). This suggests that the capacity provided by dynamic capabilities could help small organizations adapt to external shocks in addition to supporting the creation of environmental initiatives. Although Lepoutre’s (2008) analysis of external and internal dynamic capabilities for green decisions in small businesses provides a useful integrated perspective, as well as a recognition that many organizations could benefit from the same dynamic capability, the narrow focus on a single type of green initiative (e.g., horticulture) leaves room for further empirical investigation to provide an understanding of these processes for other types of green decisions including voluntary green electricity purchasing and green service creation. Further research is required to examine how the factors that motivate and facilitate green decisions may differ across organizational types characterized by different structural and cultural attributes, such as non-profit social purpose organizations.

One promising approach for explaining green decisions in small businesses and social economy organizations is green entrepreneurship, because it provides an integrative framework to examine green decisions that generate strategic benefits and lead to environmental sustainability performance improvements in either the organizations themselves or the broader community. Green entrepreneurship is considered to be the individual and collaborative green decisions within or between organizations that lead to the creation of new products, processes, strategies, or services that help the organization adapt to changes in its external institutional environment and simultaneously generate environmental and strategic benefits. Green entrepreneurship has another advantage in the context of the current study in that it is related to social entrepreneurship, a well-known concept to social economy researchers that is discussed further in Chapter Two. The green entrepreneurship literature draws insights from both the homogenizing and heterogeneous perspectives because green entrepreneurship processes can be influenced by external factors and/or facilitated by internal capabilities. The green entrepreneurship literature addresses some of the limitations of the two aforementioned perspectives by combining the role of agency with the importance of structures; by focusing on innovation as an organizational adaptation strategy to external changes; and by providing an understanding of why organizations make green decisions that have no apparent economic advantages (e.g., social entrepreneurship to address market failures).

This dissertation examines two green decisions involving the voluntary purchase of green electricity, and the creation and delivery of services to reduce household GHG emissions in a community. For the purposes of this research, green decisions taken by organizations are considered to be decisions made with the intention of improving the environmental sustainability performance of organizations or their communities. This research will provide important insights into broader questions related to the two green decision making contexts under examination, the green electricity market and the residential energy services market, both of which are typically reliant upon uncertain and turbulent political policy cycles. In the first case, it is imperative to understand why organizations purchase more expensive electricity and help a fledgling industry. Additionally, government financial and policy support for green electricity fluctuates over time and, even when such support exists, the potential green benefits are partially

neutralized by continuing fossil fuel subsidies. In relation to the second case, it is important to understand how environmental service organizations (ESOs) learn to survive funding shocks. The EnerGuide for Houses (EGH) program is typical of many other environmental programs that are funded by government and then cancelled as the political policy cycle evolves. Understanding the responses of such ESOs is thus valuable to inform other bottom-up and community-based green decisions. Both cases represent voluntary green decisions, which are entrepreneurial in nature as opposed to compliance-based decisions by organizations, so deciphering the factors that motivate and facilitate this type of decision is important for organizational management and citizen groups wishing to pressure an organization in their community to improve its environmental performance.

### **1.1.1 Strategic Green Decisions in the Social Economy**

This dissertation explores how social entrepreneurship and, by extension, green entrepreneurship, can help understand how social economy organizations make strategic green decisions in response to external changes. The rationale is that, unlike conventional entrepreneurs, “social entrepreneurs are more likely to pay attention to external resources and develop creative mechanisms to circumvent environmental barriers... social entrepreneurs rarely allow the external environment to determine whether or not they will launch an enterprise” (Dacin et al., 2010, p. 48). Social entrepreneurship is familiar to social economy researchers as an approach to organizational and community innovation (Helm and Andersson, 2010). Although social entrepreneurship has been shown to support clean technology development (Horwitch and Mulloth, 2010), technology entrepreneurship conducted by businesses and governments has been studied by innovation researchers and is not the focal point of this dissertation.

Social entrepreneurship as conceptualized in this dissertation is characterized by one or both of the following criteria: (1) it is social or collective in nature, drawing upon social capital networks and/or collaborative partnerships to mobilize resources and create something new, and (2) it is driven by social entrepreneurs who hold social, and sometimes by extension environmental values, and who aim to create outcomes that foster social and/or environmental benefits for society. Differences across social, conventional,

institutional and cultural entrepreneurs outlined by Dacin et al. (2010) and displayed in Figure 1.1 reveal that social entrepreneurs are primarily motivated by the desire to influence social changes and improvements to societal welfare. Social entrepreneurship can include individual entrepreneurship and collaborative entrepreneurship, if the former is driven by a social objective. For the purposes of this dissertation, social entrepreneurship is considered to encompass green collaborative entrepreneurship, as both deal with externalities to organizations and work to achieve socially beneficial goals. Individual green entrepreneurs and green collaborative entrepreneurs influence different kinds of green decisions in diverse organizations ranging from corporations to social economy organizations, and thus offer a cross-organizational perspective upon which comparisons of motivating and/or facilitating factors of green decisions can be made.

**Figure 1.1: Distinctions Across Types of Entrepreneurs**

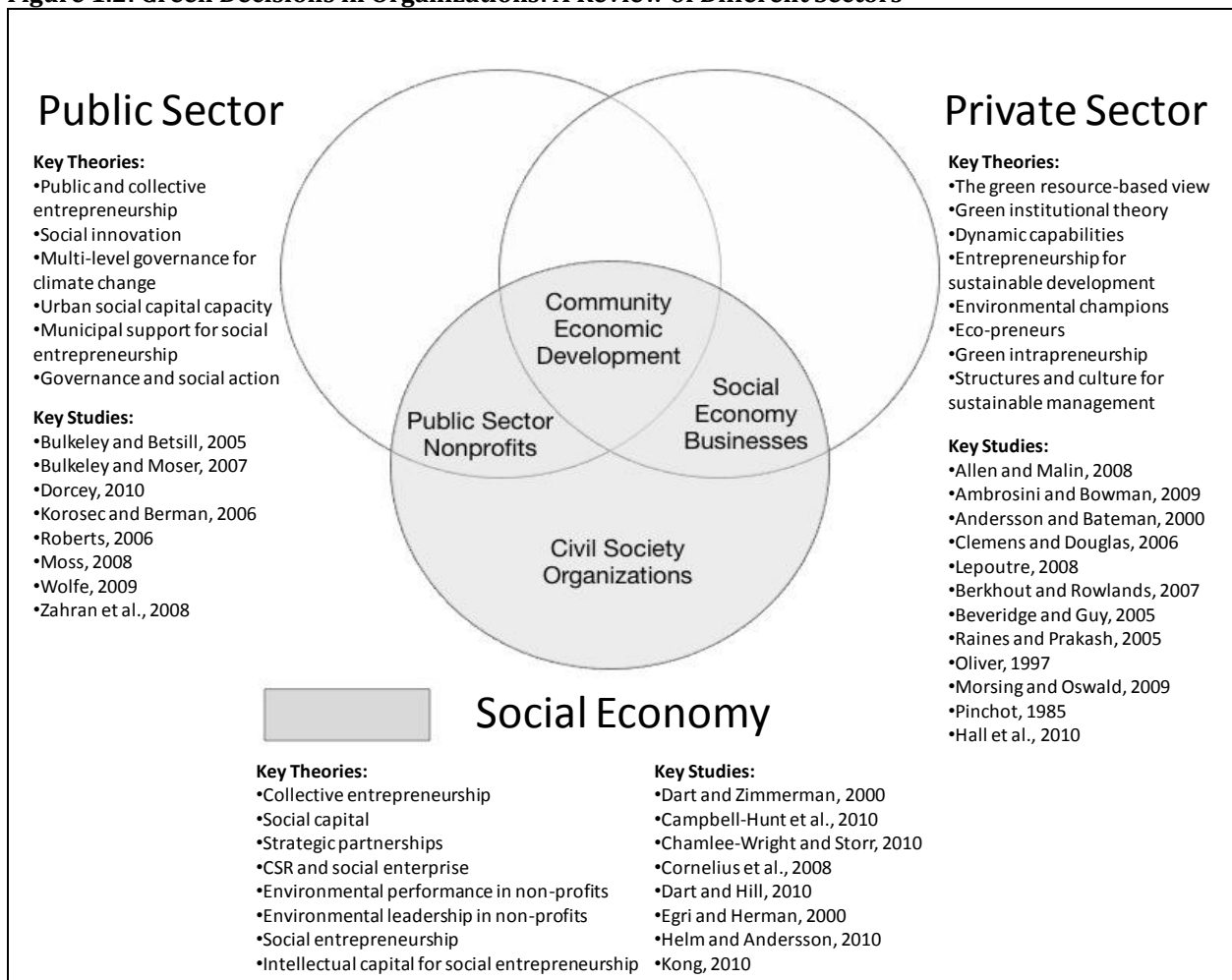
	<i>Conventional</i>	<i>Institutional</i>	<i>Cultural</i>	<i>Social</i>
<b>Definition</b>	An agent who enables or enacts a vision based on new ideas in order to create successful innovations. (Schumpeter, 1950)	An agent who can mobilize resources to influence or change institutional rules, in order to support or destroy an existing institution, or to establish a new one. (DiMaggio & Powell, 1983)	An individual who identifies an opportunity and acts upon it in order to create social, cultural, or economic value. (DiMaggio, 1982; Wilson & Stokes, 2004)	An actor who applies business principles to solving social problems.
<b>Wealth distribution</b>	Shareholder	Shareholder and/or stakeholder	Shareholder and/or stakeholder	Shareholder and/or stakeholder
<b>Predominant organizational form</b>	Profit	Profit	Nonprofit or profit	Nonprofit or profit
<b>Primary goal (or motives)</b>	Economic	Institutional reform/development	Cultural diffusion/enlightenment	Social change/well-being
<b>Product</b>	Create and/or distribute consumer product or service	Establish legitimacy	Establish new norms and values	Promote ideology/social change
<b>Tensions</b>	Growth versus survival	Resistance to change (isomorphism versus competitive advantage?)	Commercialization versus culture (authenticity)	Economic sustainability versus social mission

Source: Dacin et al. (2010, p. 44).

A key challenge for social entrepreneurs is to navigate the tension between maintaining the economic viability of the organization and achieving its social mission. Green entrepreneurship, including social and collaborative entrepreneurship, could potentially help organizations manage this tension given its similarities to Lepoutre's (2008) two interrelated sets of dynamic capabilities that operate within and between

organizations. Dynamic capabilities can provide the capacity to respond to external changes, enhance organizational economic sustainability, and simultaneously foster the creation of green initiatives (Lepoutre, 2008). The social and collaborative entrepreneurship sub-literatures provide a common theoretical basis from which to study green decisions in a wide variety of organizations characterized by different attributes. Social economy organizations are the primary focus of this dissertation, and key studies that relate to research in the social economy and organizational greening research more broadly, including green championship and collaborative entrepreneurship, are outlined in Figure 1.2.

**Figure 1.2: Green Decisions in Organizations: A Review of Different Sectors**



Source: Quarter et al. (2009) created the Venn diagram to differentiate the social economy from the public and private sectors, while also showing the overlap with those sectors. The author of this dissertation has added key studies and theories relating to each sector that inform the organizational greening and green entrepreneurship concepts.

Social economy organizations are defined as “organizations that have social objectives central to their mission and their practice, and either have explicit economic objectives or generate some economic value through the services they provide and purchases that they undertake” (Quarter et al., 2009, p. 3). Social economy organizations:

are not concerned with making a profit for distribution to individual capitalists and/or private shareholders of capital but with providing, directly or indirectly, socially useful goods and services, often explicitly in sustainable environmental ways, that would not otherwise be provided through the mainstream channels of markets or state (Hudson, 2009, p. 495).

Environmental NGOs are also driven by managers who generally hold stronger personal environmental values than their counterparts in the private sector (Egri and Herman, 2000); thus, these organizations may be characterized by a different form of organizational culture than businesses.

The different types of organizations outlined in the shaded area of Figure 1.2 form the social economy, which includes “co-operatives, mutuals and voluntary organizations, associations and foundations that engage in economic activity (traded or non-traded) with a social merit” (Smith, 2005, p. 276). The Canadian government defined the social economy as “a grass-roots entrepreneurial, not-for-profit sector, based on democratic values that seeks to enhance the social, economic, and environmental conditions of communities, often with a focus on their disadvantaged members” (HRSDC, 2005). Quarter (1992) provided a seminal definition of the Canadian social economy, arguing that it is based on a ‘vision of social transformation’ and composed of organizations that are:

- Designed to meet the needs of people and communities;
- Dependent on donations of time and money;
- Neither exclusively in the private nor government sectors;
- Able to generate revenues through commerce, membership fees, or funding from external sources;
- Based on the primacy of social objectives over strictly commercial ones; and
- Based on democratic ideals (p. 1-12).



The tension between the traditional attribute of being dependent on donations and the more entrepreneurial attribute of being able to generate revenues through commerce and fees is at the core of the debate on entrepreneurship in the social economy (Weerawardena et al., 2010). McMurtry (2004) made a distinction between the contemporary view of the social economy, as defined by the previous sources, and the original foundations of the social economy based on a transformative political movement, suggesting that the modern-day social economy may have to reincorporate a 'transformative' political tone if it wants to avoid being "used by government as the low-or no-cost alternative to state-funded social welfare" (p. 868). In contrast, Westlund (2003) argued that the social economy and the commercial economy should be viewed as 'parts of a continuous spectrum' rather than as distant extremes, and Westlund's approach is adopted here as a premise for exploration. For the purposes of this dissertation, the social economy is defined as a collection of 'third sector' non-profit organizations providing socially beneficial products or services. Social benefits are defined broadly to include environmental benefits, which are usually externalities to firms.

Individuals have long been identified as drivers of change within organizations (Carrier, 1996; Pinchot, 1985). Numerous studies have emphasized the importance of 'corporate social entrepreneurs' (Hemingway, 2005), 'intrapreneurs' (Hostager et al., 1998), 'green policy entrepreneurs' (Raines and Prakash, 2005), or 'environmental champions' (Andersson and Bateman, 2000; Banerjee, 2002; Barkusky and Lorne, 2006; Branzei et al., 2004; Clemens and Douglas, 2006; Cordano and Frieze, 2000; Gattiker and Carter, 2010; Juravle and Lewis, 2009; Lober, 1998; Lynes, 2004; Ramus and Stager, 2000; Sharma, 2000; Sweet, Roome, and Sweet, 2003; Visser and Crane, 2010; Walley and Stubbs, 1999) as agents of green decision making within organizations. The literature focusing on individual agents as green decision makers has mainly examined how external environmental 'opportunities' can be turned into profitable products or services (e.g., Hostager et al., 1998), rather than how individuals could help organizations respond to external changes by facilitating the adoption or creation of green initiatives that do not generate a profit or reduce costs. Four models that outline the various roles of individual agents as green decision makers are reviewed in Chapter Two in order to identify the key motivating and facilitating factors of green championship: Andersson and Bateman's

(2000) framework for championing natural environmental issues; Juravle and Lewis' (2009) championship strategies to overcome impediments to sustainable investment; Lynes and Andrachuk's (2008) model of influencers, motivators and catalysts of corporate social and environmental responsibility; and Visser and Crane's (2010) typology of sustainability coordinators.

In contrast to individual green decisions made within organizations, collaborative entrepreneurship has long been considered a means for creating social value, and numerous studies have examined different variations: 'collective entrepreneurship' (Comeche and Loras, 2010; Roberts, 2006); 'social entrepreneurship' (Alvord, Brown and Letts, 2004; Catford, 1998; Korosec and Berman, 2006; Helm and Andersson, 2010; Leadbeater, 1997; Mair and Marti, 2006; Roper and Cheney, 2005; Sharir and Lerner, 2006; Spear, 2006; Thompson, 2002; Weerawardena and Sullivan Mort, 2006; Weerawardena et al., 2010); 'social capital and entrepreneurship' (Liao and Welsch, 2005; Totterman and Sten, 2005); and 'social norms and entrepreneurship' (Meek, Pacheco and York, 2010). While collaborative entrepreneurship studies that are motivated by social objectives have focused mainly on social economy organizations (Weerawardena et al., 2010), Weerawardena and Sullivan Mort (2006) discovered that some researchers are examining socially motivated collaborative entrepreneurship in businesses and public sector organizations. This supports the assertion that collaborative entrepreneurship could potentially be used as a strategic management tool (Short et al., 2009) to help organizations adapt to external institutional changes. The primary focus on social rather than environmental objectives suggests that research is required to examine the nature and extent that socially motivated collaborative entrepreneurship can facilitate organizational adaptation to external economic challenges as well as generate 'environmental value'. In this dissertation, green collaborative entrepreneurship is defined as the collective ability to mobilize resources, through social capital networks and strategic partnerships, to provide products or services that achieve environmental rather than profit-maximizing goals. The central role of social capital in this definition requires that this study broaden the focus of many entrepreneurial studies beyond the individual and financial capital to explicitly recognize social capital as a valuable input. Four models of collaborative entrepreneurship are reviewed in Chapter Two in order to identify the key motivators and facilitators of this

process: Kong's (2010) intellectual capital framework for innovation processes in social enterprises; Roberts' (2006) collective entrepreneurship process; Weerawardena and Sullivan Mort's (2006) bounded multidimensional model of social entrepreneurship; and Yujico's (2008) capabilities approach to social entrepreneurship.

## **1.2 Social Science Approach to Decision Making and Societal Change**

Social scientists examine decision making and societal change in a variety of ways. Social science theories suggest that green decisions may be influenced by external or internal structural and agency factors depending on the context. Some contemporary theories focus on the ability of institutions to structure individual decisions, and others place more significance on individual choice and values. The distinction between internal (to an organization or individual) and external (to an organization or individual) motivating factors can be seen in Rotter's (1954) concept of locus of control, as well as Giddens' (1979, 1984) influential structure-agency theory. Rotter's theory, as applied in psychology, sociology and organizational behaviour studies, suggests that individuals can be influenced to make decisions by internal (e.g., personal values) or external (e.g., pressure from social groups) motivations, or by a combination of both. In contrast to this individual perspective, Giddens' structure-agency theory (1979; 1984; 2009) elaborates on societal-level decisions, suggesting that both agency (the autonomous acts of individuals) and structures (the constraining and shaping forces of institutions and norms) are important in collaborative decisions. Agents can also influence changes to structures, which in turn can constrain or influence individual decisions. Many social scientists have drawn upon Giddens' ideas, with applications in sustainable development (Grin, Rotmans and Schot, 2010a; 2010b), dynamic capabilities (Ambrosini and Bowman, 2009), and green entrepreneurship (Walley et al., 2010) theories. Walley et al. (2010) for example used Giddens' (1984) structure and agency conception of societal decision making to argue that green entrepreneurship:

emerges from the mutually producing relationship between action and organization (social structure)...structure shapes the action of the green entrepreneur, and

ecopreneurial action in turn shapes structure... in other words, green entrepreneurs do not operate in isolation, but will be influenced by the evolving economic and social structures around them and, in turn, are influencing those structures (p. 63).

Consistent with organizational studies, this dissertation examines the importance of both external and internal factors to green decisions, why different types of organizations pursue green decisions, as well as how green decisions are facilitated. The homogenizing perspective, including institutional theory, is reviewed to help identify external factors that could motivate organizations to make green decisions. The core argument of this perspective is that an external pressure will force many organizations to make similar green decisions, such as pursuing green entrepreneurship to create green services or improving their environmental performance up to a common level through the purchase of green electricity. In contrast, the heterogeneous perspective, including the resource-based view of the firm and dynamic capabilities theory, is considered to offer a means of understanding the internal motivating and facilitating factors of green decisions. The heterogeneous theories have become important for explaining organizational change and innovation given the argument that decision making in organizations is strongly influenced by internal organizational factors (Pitelis, 2007).

Green decision making in organizations can be studied in two main ways. The first takes the form of a process where the researcher examines an issue in depth over a long period of time. This is common when examining policy-making processes in government agencies and departments; the end goal of which is to influence the behaviour of social actors. The second option, which is employed in this dissertation, focuses on identifying important motivating and/or facilitating factors of a green decision at a particular point in time for a cross-section of organizations. This is a common approach to study green decisions in the organizational and corporate literatures in general, as well as the specific social and green entrepreneurship literatures discussed in Chapter Two. The general research objective of the dissertation is to provide a better understanding of green decisions in organizations, where a specific green decision is considered to be an outcome of a green decision making process. Green decisions are characterized by three key features: the creation or adoption of something new in response to an external change,

green benefits to the organization and surrounding community, and the green motivations of the individual decision makers themselves.

Researchers employ different procedures to investigate the use of strategic green decisions for organizational innovation and adaptation to natural environmental and institutional changes that help to move the behaviour of the organization toward sustainability:

- employ a temporal perspective to examine how patterns and trends in the green decision making process change over time;
- use participatory action research to both influence and observe the green decision making process;
- look for differences in the level of green entrepreneurship in different institutional environments;
- examine how structures, shocks and windows of opportunity affect the green decision making process;
- examine how individuals within organizations or connections between groups could motivate and/or facilitate green decisions including green entrepreneurship;
- contrast the factors that influence green decision making between organizations characterized by different attributes.

The latter three options were selected for this dissertation. With respect to the first of the three options, a funding withdrawal provided the context to study the impact of external motivating factors on green decisions. The second option was selected in order to expand the organizational literature beyond the focus on individual decisions to include collaborative decisions that lead to green and strategic benefits. The final option was important for the green electricity study given the variety of organizations that operate in different institutional environments and that are characterized by different attributes, and yet make a common green purchase decision.

### 1.3 Research Gap and Objectives

A research gap was identified for improved understanding of green decisions, especially strategic green decisions in social economy organizations. Although green technology entrepreneurship and green venture entrepreneurship have been well studied and are motivated by economic market opportunities (Hall et al., 2010), other forms of strategic green decisions that occur in the social economy have received less attention because they occur less frequently and are difficult for researchers to examine. Two empirical studies focusing on social economy organizations are employed in this dissertation to address this research gap. Each study focuses on a different form of green decision in order to provide a better understanding of how championship (e.g., achieving change within the organization) and collaborative entrepreneurship (e.g., achieving change with the support of different organizations) can help organizations adapt to external changes and simultaneously green the organization. Each study has its own core research objectives and approach. The green energy purchase decision project employs a comparative approach between social economy organizations and public and private sector organizations. The green collaborative entrepreneurship project examines social economy organizations exclusively.

Differences across organizational types are expected given the differing motives, methods, goals and key stakeholders of social enterprises in relation to commercial businesses (Figure 1.3), as well as the empirical finding that “earned income is not a necessary output of entrepreneurship in the non-profit sector” (Helm and Andersson, 2010, p. 273). Dart and Hill (2010)’s first known application of a corporate model of environmental performance to social economy organizations also implies that green decisions in non-profit organizations may be motivated and facilitated by different factors than for businesses. For example, Dart and Hill’s (2010) first and second propositions, that competitiveness driven by ‘revenue generation’ or ‘cost saving opportunities’ will not be a major motivator of environmental performance in non-profit organizations, runs counter to much of the corporate greening literature. Dart and Hill’s (2010) third proposition, that ‘seeking legitimacy’ from external stakeholders will not be a major motivator of environmental performance in non-profit organizations, contradicts green institutional

theory as has been applied to explain green decisions in firms. Dart and Hill (2010) also proposed that ‘social responsibility’ will not be a major motivator of environmental performance in non-profit organizations, despite considerable empirical and theoretical evidence that many corporations consider sustainability initiatives as part of corporate social responsibility. Dart and Hill (2010) suggested two additional conditions unique to social economy organizations that may have an effect on green decisions: the motivating and facilitating role of ‘funders and funding’, and the ‘core pro-social values’ of non-profit organizations that may crowd out environmental issues and constrain green decisions.

**Figure 1.3: The Social Enterprise Spectrum**

		← Purely philanthropic	Social enterprises	Purely commercial →
<b>Motives</b>		Appeal to good-will	Mixed motives	Appeal to self-interest
<b>Methods</b>		Mission-driven	Mission- and market-driven	Market-driven
<b>Goals</b>		Social value	Social and economic value	Economic value
<b>Key stakeholders</b>	<b>Beneficiaries</b>	Pay nothing	Subsidized rates, or mix of full payers and those who pay nothing	Market-rate prices
	<b>Capital</b>	Donations and grants	Below-market capital, or mix of donations and market-rate capital	Market-rate capital
	<b>Workforces</b>	Volunteers	Below-market wages, or mix of volunteers and fully paid staff	Market-rate compensation
	<b>Suppliers</b>	Make in-kind donations	Special discounts, or mix of in-kind and full-price donations	Market-rate prices

Source: Kong (2010, p. 161); adapted from Dees (1998, p. 60).

Various methodological approaches could be used to examine the research gap, ranging from a narrow focus on a particular organization that adopted a green innovation with the use of in-depth interviews with multiple employees, to interviews with the top manager of many similar organizations that are in the process of creating different green innovations, to a broader survey of different types and sizes of organizations that have taken a common action to transform themselves toward sustainability. Electronic surveys were selected for the green energy purchase decision project because of the need for an approach that was appropriate for a relatively large sample size of organizations that are widely dispersed geographically. Additionally, previous studies have found that self-reported data in the context of individual environmental championship has proven to be valid (Andersson and Bateman, 2000). Interviews with executive directors were conducted

for the green collaborative entrepreneurship project because interviews are important for exploratory research and few studies had examined environmental entrepreneurship in the social economy.

Two types of strategic green decisions are studied with the following core research objectives:

### **Project #1: Green Energy Purchase Decision**

- (1) What are the motivating and facilitating factors that influence a green energy purchase decision and how do these vary according to organizational attributes?

### **Project #2: Green Collaborative Entrepreneurship**

- (2) What is the character and scope of the association between organizational attributes, and the factors that motivate and facilitate green collaborative entrepreneurship in not-for-profit organizations providing green services?

## **1.4 Introduction to Research Project One: Green Energy Purchase Decision**

The research project outlined in Chapter Four examines one purchase decision that many organizations employ as a step toward sustainability. The voluntary purchase of green electricity is an example of a green decision that can be made by a variety of organizations. Organizations purchase green electricity generated by solar photovoltaic, wind, or small and low-impact hydro sources that have less social and environmental externalities than standard grid electricity (EPA, 2009). The voluntary green electricity market in North America has developed rapidly since its inception in the late 1990s. This project studies green electricity purchasing under two distinct institutional frameworks, one operating in the United States and the other in Canada, as an example of a voluntary green decision in businesses, social economy organizations, and government agencies.

The voluntary green electricity purchasing market in the United States emerged in the late 90's, and has since expanded to offer green electricity options in most states.



Municipal utility programs such as 'Greenergy' from the Sacramento Municipal Utility District, 'Windsorce' from Xcel Energy, 'GreenChoice' from Austin Energy, and the 'Wellspring Renewable Wind Energy Program' offered by Great River Energy were initiated in 1997 and offered residential or commercial customers the opportunity to purchase green electricity for a premium price. The 'Evergreen Renewable Energy Program' delivered by the Dairyland Power Cooperative also began in 1997 and continues to sell green electricity at a premium price per kWh. The 'Energy for Tomorrow' program from We Energies in Wisconsin preceded the aforementioned programs, as it started offering green electricity from landfill gas, photovoltaic, hydro and wind to customers in 1996 (US Department of Energy, 2010). Green electricity is now available for purchase from public and private utility companies in most states, and the green electricity market has grown rapidly with the development of the EPA Green Power Partnership Program. This program provides expertise and resources to help organizations locate third-party green electricity suppliers, and estimate the environmental and economic costs and benefits of purchasing green electricity (EPA, 2009). The EPA is an independent agency of the United States Federal government that is tasked with "protecting human health and to safeguard the natural environment – air, water, and land – upon which life depends" (EPA, 2010). The Green Power Partnership program publically displays the names of organizations that purchase green electricity, as well as the size of purchase, and regularly holds competitions for top purchasers in various categories (e.g., universities, local governments). A 100 per cent club is reserved for organizations that purchase all electricity as green electricity. One estimate by the Center for Resource Solutions suggested that the commercial market for certified green electricity purchases exceeded 20,000 organizations in 2008, which equated to 13 million MWh, with an annual growth rate of nearly 50 per cent (CRS, 2010). As of 2009, dozens of businesses, government agencies and non-profit organizations purchased 100 per cent of their electricity as green electricity, and the largest single annual purchaser exceeded 1.3 million MWh (EPA, 2009).

In Canada, the voluntary market was slower to develop but gained momentum with the availability of Pembina Wind Energy Credits for residential and corporate customers in 2003. Pembina Wind Energy Credits were preceded by two small-scale green electricity credit programs in Canada. The first program was the 'EarthWise Clean Power Program'

offered by Cambridge and North Dumfries Hydro in Ontario in 2001. Residential and business customers could purchase premium-priced green electricity powered by small hydro, a wind turbine in the Bruce Peninsula, and a municipal waste-to-energy project in Waterloo. The second program called 'EcoPack' was delivered by EPCOR Energy Services in Alberta in 1999. EcoPack offered premium-priced green electricity fueled by biomass collected from sawmills, as well as small hydro installations and a small solar photovoltaic system (US Department of Energy, 2010). The Canadian market expanded rapidly with the emergence of Bullfrog Power offering green electricity as a premium electricity option in late 2005. Bullfrog Power now sells green electricity to organizations and households in Ontario, Alberta, British Columbia, Nova Scotia, New Brunswick and Prince Edward Island, with the largest purchasing organizations exceeding 20,000 MWh per year (Bullfrog, 2009). Bullfrog is a private business that partners with green electricity generation companies to commission the development of new renewable energy capacity to ensure that the energy its customers purchase is generated by wind and low-impact hydro. Organizations keep their electricity provider and pay Bullfrog the premium difference, which is calculated as a price per kWh. In Ontario and British Columbia, the Bullfrog supply mix is 80 per cent certified low-impact hydro, and 20 per cent wind; while in Alberta Bullfrog uses 100 per cent wind. This contrasts with the standard generation mix in Ontario and Alberta, largely based on nuclear and fossil-fuel sources, respectively (Bullfrog, 2009).

Organizations in both the United States and Canada can choose to purchase 100 per cent green electricity, or smaller percentages. At the time of the study (2008), more than 500 organizations in either Ontario or Alberta purchased green electricity from Bullfrog Power, and 1000 organizations were part of the EPA Green Power Partnership program in the United States. These organizations range from small businesses with fewer than 20 employees that are part of the service-sector; to large, primary- and secondary-sector energy demanding corporations with annual revenues in the billions of dollars; to social purpose organizations that work to achieve social or environmental objectives rather than making a profit; and finally, to governments at all levels. The high level and scope of participation suggests that voluntary green electricity purchasing is a green decision that has broad-ranging appeal to many organizations. What remains unclear is whether the factors that influence organizations to make a voluntary purchase, as well as the factors

that convince some organizations to purchase a larger percentage of green electricity, differ across organizational types.

This project analyses 212 responses to an electronic survey of North American organizations that voluntarily purchase green electricity. The goal is to provide a better understanding of how organizations characterized by different attributes adopt a green innovation that was created by external organizations, i.e., Bullfrog Power in Canada and various suppliers in the United States. There are three sub-objectives for the project presented in Chapter Four:

- (1) To identify important factors that influence the voluntary decision to purchase green electricity, as well as establish if relative differences in importance are evident across organizational types, in order to provide a better understanding of the complexity of these kinds of decisions;
- (2) To ascertain if green champions or environmental coordinating structures are important to a greater percentage of social economy organizations than small businesses, government agencies and corporations, in order to expand the green agency-structure literature to include other organizational types;
- (3) To investigate the factors that influence organizations to increase the size of green electricity purchase over time for the purpose of offering green strategy recommendations to organizations.

### **1.5 Introduction to Research Project Two: Green Collaborative Entrepreneurship**

Organizations can contribute simultaneously to ecological sustainability as well as their own survival by creating and delivering green services to households in communities. Green Communities Canada and its member environmental service organizations (ESOs) delivered a variety of green services including the EnerGuide for Houses Program (EGH), which along with the objectives of these organizations, are outlined in Table 1.1. Green Communities Canada was a successful EGH provider since 1998, and EGH was the largest program and revenue source for many green community organizations across Canada.

**Table 1.1: Profile of Green Communities Canada, ESOs and Core Programs Delivered Across Canada**

<b>Green Communities Canada and Member ESOs</b>	
<b>Who is Green Communities Canada?</b> A network of non-profit environmental organizations (ESOs) across Canada	<b>What do ESOs do?</b> Deliver environmental programs/ services with measurable results for sustainable resource use; clean air, water, soil; healthy ecosystems
<b>How do ESOs succeed?</b> By building partnerships with municipalities, utilities, community organizations, businesses, media, foundations, governments, faith groups, schools, First Nations	<b>Why do ESOs exist?</b> To help communities reduce energy and water use; to lower the environmental impacts of transportation; to reduce waste and preserve biological diversity and ecological integrity
<b>Core Programs that ESOs Deliver</b>	
<b>(1) EnerGuide for Houses/ecoENERGY</b>	<b>(2) Pesticide Free Naturally</b>
Partnered with Federal/Provincial governments to encourage and engage citizens in reducing GHG emissions, energy use, and air pollution in the residential sector	Educates communities about health/environmental impacts of pesticide use; provide citizens with information about non-toxic alternatives; make reducing pesticide use a source of community pride
<u>Website:</u> <a href="http://www.ecoaction.gc.ca/ECOENERGY-ECOENERGIE/index-eng.cfm">http://www.ecoaction.gc.ca/ECOENERGY-ECOENERGIE/index-eng.cfm</a>	<u>Website:</u> <a href="http://greencommunitiescanada.org/pages/PesticideFreeNaturally.php">http://greencommunitiescanada.org/pages/PesticideFreeNaturally.php</a>
<b>(3) Active and Safe Routes to School</b>	<b>(4) Well Aware</b>
Helps communities facilitate safe, walkable neighbourhoods; promotes active, safe and efficient transportation to school	Encourages Ontario's residential well owners to protect their wells and common groundwater supplies
<u>Website:</u> <a href="http://www.saferoutestoschool.ca/">http://www.saferoutestoschool.ca/</a>	<u>Website:</u> <a href="http://www.wellaware.ca/">http://www.wellaware.ca/</a>

Source: GCC, 2008

The EGH program used an assessment protocol known as the Canadian Home Energy Rating System developed in the 1990s by Natural Resources Canada and the Canadian Mortgage and Housing Corporation and administered by the Office of Energy Efficiency. It involved a scientific energy audit of houses by a certified energy advisor to assess areas for improvement, including potential heat loss reduction in the attic, foundation, main walls, windows and doors, as well as the space and water heating systems. Building envelop and heating system specifications were entered into a computer program, and a customized report including prioritized recommendations for improving energy efficiency was created and delivered to the homeowner. Pre- and post-retrofit audits measured the expected reduction in energy consumption and GHG emissions (Parker et al., 2003), and homeowners who improved their energy performance were eligible for Federal grants. Additionally, the Federal government reduced the cost of the evaluations to citizens by purchasing the residential data files for \$120-\$150. Both the grants and the reduced cost of the evaluation supported the market for residential energy

evaluations and by extension the ESOs, which were dependent on this funding for their continued operation.

In 2005, the EGH program was expanded and additional Federal government support was made available for residential retrofit improvements that led to a reduction in energy demand. As a result, the number of initial and follow-up evaluations increased, along with the environmental benefits in the form of reduced GHG emissions. A new Federal government was elected in January 2006, and in May of the same year the EGH program was cancelled. A one day notice was given for the green community organizations to stop delivering initial evaluations, and clients who had already had an initial evaluation were given 12 months to conclude retrofit work and have a follow-up evaluation (Parker and Rowlands, 2007). The EGH program remained the largest activity of many ESOs when the program was suddenly cancelled in 2006 (Parker and Rowlands, 2007).

The research project detailed in Chapter Five examines how the network of community-based environmental service organizations responded to this funding shock in order to continue to help green the surrounding community through service creation and delivery. Entrepreneurship in social economy organizations is less well understood than it is in businesses (Helm and Andersson, 2010), where entrepreneurship has long been identified as the means to successfully navigate the dynamic process of creative destruction (Schumpeter, 1950). This study investigates ESOs to see if non-profit organizations also demonstrate entrepreneurial responses to overcome a threat to their survival. It is worth noting that the social economy is also in a state of flux with the survival of its organizations continually threatened by funding uncertainty and market and policy dynamics (Valentinov, 2009; Weerawardena et al., 2010).

Motivating and facilitating factors of green collaborative entrepreneurship are identified and examined to better understand their role in adaptation and innovation in social economy organizations. Interviews with the executive directors of 12 ESOs are undertaken to interpret how green collaborative entrepreneurship works, and to identify the most prominent factors that drive and facilitate the process in the social economy. The sub-objectives for the research project outlined in Chapter Five are:

- (1) to investigate the magnitude of impact of the external funding shock on demand for the main service delivered by ESOs, the EGH energy audit;
- (2) to discover and categorize the breadth and depth of creative responses by ESOs;
- (3) to provide insight into the factors and processes that ESO managers described as most important to overcoming the funding shock in order to provide recommendations to NGOs operating in turbulent and uncertain environments; and
- (4) to ascertain and contrast the level of green entrepreneurship in a period of funding stability as compared to the post-shock period.

Chapter Six discusses the extent that the dissertation objectives were achieved. The important motivating and facilitating factors of the two green decisions under examination are reviewed in the context of their contribution to theory and practice. Several areas for future study are outlined that will further contribute to our understanding of the environmental behaviour of organizations.

## **Chapter 2: Theory to Inform Strategic Green Decisions by Organizations**

The concepts and theories introduced in Chapter One are reviewed here to provide a more comprehensive understanding of the factors that motivate and/or facilitate green decisions in organizations. The homogenizing and heterogeneous perspectives including the corporate greening and organizational capabilities literature are first reviewed, with a particular focus on human capital capabilities in the form of environmental champions. The concept of green entrepreneurship is then reviewed in order to understand its relation to the aforementioned literatures, as well as to recognize its various forms as developed in the social economy and social entrepreneurship literatures. One sub-form of green entrepreneurship, green collaborative entrepreneurship, is discussed and its conceptual frameworks reviewed in order to identify potential factors that motivate and/or facilitate strategic green decisions. Combining the homogenizing perspective and the heterogeneous perspective with insights from the green entrepreneurship literature provides an integrated framework to examine organizational green decisions with strategic benefits that can be motivated by external and/or internal factors, as well as facilitated by external and/or internal capabilities.

### **2.1 Homogenizing Perspective**

#### **2.1.1 Institutional Theory**

Institutional theory suggests that businesses respond to external structures, norms, and social pressures in order to make decisions including enacting innovation (Butler, 2011; DiMaggio and Powell, 1983; Oliver, 1997). Institutional factors are also important in decision making and innovation within social economy organizations and government departments (Dart and Hill, 2010; Kearney et al., 2008; Lee, Ginn and Naylor, 2009; Scott, 2008; Scott and Meyer, 1991; Tudor, Barr and Gilg, 2008; Valentinov, 2009). Institutional theorists view structures as “ongoing contexts within which action transpires, but are themselves reproduced or changed by the understandings and choices made by knowledgeable, purposive, reflexive actors” (Scott, 2008, p. 438). Institutional theory

implies that regulative, normative or cultural pressures will influence organizations to respond, and in doing so, to make similar internal decisions to other organizations in the same context (Butler, 2011).

One off-shoot of institutional theory is Donaldson's (1995) 'structural contingency theory', which was designed to help explain differences in performance between organizations. Donaldson (1995) argued that "organizational performance is affected by the fit or misfit between structures and contingency factors" (p. 33). Contingency factors include organizational size, technology or diversification strategy. These factors change over time in response to external environmental factors, and organizations can 'purposefully' adapt their structures to contingency factors in an attempt to improve performance (Donaldson, 2001). The development of structural contingency theory and institutional theory were influenced by Giddens' (1979; 1984) structuration theory (Scott, 2008). Structuration theory has similarities to geographic realism, which views structures as forces that constrain individual decisions (Cloke et al., 1992; Scott, 2008); as well as to the political economy perspective of human geography (Peet and Thrift, 1989), where individuals make decisions within structural frameworks of influence (Kitchin and Tate, 2000).

The relevance of Giddens' structuration theory to green decisions is that organizations can be influenced by external institutional pressures to implement programs, technologies or services that enhance green performance, but also can themselves influence changes to external structures and norms that impact the green performance of other actors in the community. Organizations of various sizes may make different decisions to improve environmental performance if they are employing different technological or market differentiation strategies. The specific decisions made may change over time in response to changing external environmental variables and corresponding internal contingency factors. Individuals and strategic structures can thus each potentially motivate and/or facilitate organizational green decisions in response to a changing external institutional context (Butler, 2011; Scott, 2008).

External institutional factors may influence organizations to make green decisions either as a response to actual or perceived threats to the organization, or to embrace an opportunity to enhance organizational competitiveness or green performance. External



drivers of environmental decisions include cohesive forces (e.g., government regulations), institutionalized norms, values or standards (e.g., LEED certification), 'mimetic' pressures to follow what innovative organizations are doing (e.g., competition), and stakeholder pressure (e.g., media, consumers, non-governmental organizations, customers, suppliers) (Bansal and Roth, 2000; Clemens and Douglas, 2006; González-Benito and González-Benito, 2006; Henriques and Sadorsky, 2007; Miles et al., 2009; Pinkse, 2007; Rothenberg, 2007). Numerous studies have demonstrated that government policies have the ability to influence environmental product and process innovation in organizations (Beise and Rennings, 2005; Jaffe, Newell and Stavins, 2005; Massimiliano and Zoboli, 2006; Rehfeld, Rennings and Ziegler, 2007; Rennings et al., 2006), and green decisions can even be driven by the desire to pre-empt imminent legislation (Clemens, Bamford and Douglas, 2008; Raines and Prakash, 2005).

In contrast to external institutional factors that may influence organizations to make green decisions, internal factors may encourage individuals within organizations to pursue green initiatives. Agents within organizations can learn to take advantage of formal and norm-based structures (DiMaggio, 1988; Lounsbury and Crumley, 2007), as well as learn how to navigate intra-organizational institutions, defined as "beliefs that arise within and across organizational groups...including departments, teams, subunits, offices, divisions, and norms" (Elsbach, 2002, p. 37). Clegg (2010) suggested that 'institutional entrepreneurs' can draw upon organizational culture and core objectives to interpret and translate messages from external structures (e.g., external partnerships, institutions) into support for organizational change initiatives. Individuals within organizations can act as champions of green initiatives in response to external pressures, or as an autonomous act based on personal values or perceived intra-organizational supporting factors. These internal factors are examined as resources and capabilities that can support innovation and green decision making by the resource-based view of the firm.

## **2.2 Heterogeneous Perspective**

### **2.2.1 The Resource-Based View of the Firm**

The resource-based view of the firm describes the processes that allow organizations to acquire, develop or connect valuable and rare resources and capabilities that facilitate innovation and attain competitive advantage (Oliver, 1997; Wernerfelt, 1984). Competitive advantage can be achieved through the development of human capital capabilities (Sarkis, Gonzalez-Torre and Adenso-Diaz, 2010), social capital (e.g., ethical and social commitments, partnerships and networks, and consistency of behaviour to enhance trust) (Meehan, Meehan and Richards, 2006), or environmental management capabilities (Hart, 1995). Hart (1995) suggested that natural resource and environmental challenges can influence firms to develop internal resources (e.g., technological, financial, human and social capital stocks), and capabilities, or 'bundles' of resources (e.g., just-in-time production, ISO 14001, environmental benchmarking and metrics), which could generate sustained competitive advantage. While resource-based scholars have focused mainly on firms, some studies suggest that social economy organizations and government agencies can also develop and utilize internal strategic resources to attain competitive advantage (Kearney, Hisrich and Roche, 2008; Weerawardena et al., 2010).

Consistent with the resource-based view of the firm, green decisions can be motivated and/or facilitated by internal organizational factors. Motivating factors include 'managerial incentives', 'organizational identity', 'organizational self-monitoring' (Howard-Grenville, Nash and Coglianesi, 2008), long-term competitiveness goals (Rondinelli and Berry, 2000), altruism and the desire to improve employee morale (Wiser et al., 2001), internal employee pressure (Henriques and Sadorsky, 2007), and organizational values and context (Berkhout and Rowlands, 2007). Perron et al. (2006) discovered that environmental education programmes aimed at managers will only contribute to the voluntary adoption of environmental initiatives if accompanied by "some level of change in the companies' values and culture to permeate the organizations' activities" (p. 559). Other factors that can motivate green decisions include an organization's past environmental record and strategy (Henriques and Sadorsky, 2007), competitive position and

organizational structure (Delmas and Toffel, 2004), and organizational size (Lepoutre and Heene, 2006).

Internal environmental structures (e.g., metrics and benchmarking) and superior environmental strategies (e.g., energy efficiency programs) can motivate green decisions and help to create strategic differences or ‘firm heterogeneity’ (Oliver, 1997). González-Benito and González-Benito’s (2006) model of environmental decisions in organizations implied that green decisions are influenced by internal environmental structures, and that a high value is placed on disseminating the green decision and its outcome through publicly displayed metrics and marketing. Internal environmental structures and strategies are considered ‘superior firm resources’ if they provide a competitive advantage (Clemens and Douglas, 2006), and measuring and displaying environmental performance can represent a strategic resource by achieving differentiation benefits (Porter, 1985). Environmental decisions can help firms gain a competitive advantage if they complement existing internal assets (Christmann, 2000), link environmental strategies with business strategies (Banerjee, 2002), and rely on champions “to legitimate environmental issues as an integral part of the corporate identity” (Sharma, 2000, p. 691).

Prior evidence from large businesses in Ontario (Berkhout and Rowlands, 2007), Alberta (Gliedt et al., 2010), and the United States (Wiser, Fowlie and Holt, 2001) suggested that the voluntary decision to purchase green electricity is motivated by environmental structures (e.g., metrics and benchmarking) and green organizational culture and values, and facilitated by environmental champions. These studies considered the environmental strategy development process of large firms, and the factors that influenced the process to enact a voluntary environmental initiative. Wiser et al. (2001) found that altruism (organizational values, civic responsibility) and the desire to improve employee morale are more important drivers of green decisions than the desire to improve efficiency, mitigate the impact of impending environmental regulation, utilise green marketing, or improve corporate image. Wiser et al. (2001) also discovered that larger firms, firms with environmentally conscious customers, and firms that view purchasing green electricity as a ‘strategic’ benefit, placed a higher value on corporate image and green marketing. Finally, the percentage of ‘renewable energy’ contained in the green electricity contract, the desire for the premium being paid to support ‘new renewable facilities’, and the ‘type of

renewable energy' powering the green electricity were more important criteria in a firm's decision to purchase green electricity than price (Wiser et al., 2001).

Berkhout and Rowlands (2007) found that organizations were more likely to voluntarily purchase green electricity if they are driven by internal values that place a greater or additional significance on environmental performance improvements above and beyond short-term financial benefits (e.g., sustaining, altruistic, or proactive values). Firms driven by internal values consistent with neoclassical economic imperatives (e.g., cost and/or efficiency values), on the other hand, were less likely to voluntarily purchase green electricity. Firms tend to voluntarily purchase green electricity if they utilise industry best-practices and corporate environmental performance metrics, and if their environmental performance improvements are reported to the public. Berkhout and Rowlands (2007) demonstrated that tangible organizational structures (best practice, metrics, public reporting of environmental performance, integrated decision making, full-time environmental manager positions) allowed the green electricity adopter firms to bridge the gap between stated culture and the actions taken by organizational agents. The environmental champion of this green decision played a key role as catalyst connecting culture to organizational strategy in order to influence the purchase of green electricity (Gliedt et al., 2010). Environmental champions are considered agents of change who work within the confines of the organization to pursue individual goals; thus, human capital represents a flexible capability that can be drawn upon for different strategic and/or green decisions over time.

### **2.2.2 Individual Agents of Strategic Green Decisions: Human Capital Capabilities**

Individuals can motivate and/or facilitate green decisions from within organizations either as part of collaborative entrepreneurial responses to external challenges, or as autonomous acts of championship based on personal values. Individuals within organizations can contribute to creating products, processes, structures, programs or services that enhance the resilience of the organization and simultaneously generate environmental benefits. Environmental champions can influence organizations to make green decisions independent of institutional constraints or external pressure given their

ability to act as drivers of change within organizations (Carrier, 1996; Pinchot, 1985). Many studies have examined the role of individuals in socially and environmentally beneficial decisions: 'corporate social entrepreneurs' (Hemingway, 2005), 'intrapreneurs' (Hostager et al., 1998), 'green policy entrepreneurs' (Raines and Prakash, 2005), 'sustainability coordinators' (Visser and Crane, 2010), and 'environmental champions' (Andersson and Bateman, 2000; Banerjee, 2002; Barkusky and Lorne, 2006; Branzei et al., 2004; Clemens and Douglas, 2006; Cordano and Frieze, 2000; Gattiker and Carter, 2010; Juravle and Lewis, 2009; Lober, 1998; Lynes, 2004; Lynes and Andrachuk, 2008; Ramus and Stager, 2000; Sharma, 2000; Sweet, Roome, and Sweet, 2003; Walley and Stubbs, 1999). Although individuals often create new services or products within an organization for delivery to an external market, they can also gather support for new policies or programs that benefit the organization.

The following sub-sections critically review different conceptions of green championship in order to identify the factors that motivate and facilitate individual green decisions that can generate strategic benefits for the organization. Key models include Visser and Crane's (2010) typology of sustainability coordinators; Andersson and Bateman's (2000) framework for championing natural environmental issues; Juravle and Lewis' (2009) championship strategies to overcome impediments to sustainable investment; Hostager et al.'s (1998) green intrapreneurship process; and Lynes and Andrachuk's (2008) model of influencers, motivators and catalysts of corporate social and environmental responsibility.

### **2.2.3 Sustainability Coordinators**

Sustainability coordinators may become green champions because they often hold a key position (e.g., vice president) that includes the responsibility for environmental decisions. Visser and Crane (2010, p. 11-15) demonstrated that green champions who are also sustainability coordinators differ in their level of concern, motivations, skills and knowledge; and can be categorized as experts, facilitators, catalysts or activists:

- (1) Expert – derive motivation from engaging with projects or systems, giving expert input, focusing on technical excellence, seeking uniqueness through specialisation, and deriving pride from their problem solving abilities;
- (2) Facilitator - derive motivation from transferring knowledge and skills, focusing on people development, creating opportunities for staff, changing the attitudes or perceptions of individuals, and paying attention to team building;
- (3) Catalyst - motivation is associated with initiating change, giving strategic direction, influencing leadership, tracking organizational performance, and having a big-picture perspective;
- (4) Activist - motivation comes from being aware of broader social and environmental issues, feeling part of the community, making a contribution to poverty eradication, fighting for a just cause, and leaving a legacy of improved conditions in society.

These categorizations of sustainability coordinators suggest that a broad range of techniques could be used by green champions to gain acceptance of a personal environmental initiative within an organization. The choice of techniques may differ depending on the type of organization, level of influence they possess, or the specific green initiative they are interested in pursuing. An individual champion can gain support from others through the use of legitimate (authority), referent (persuasive personality), or expert power (Hellriegel and Slocum, 2007). Sustainability coordinators may become a green champion by exercising expert power to gather support for their initiative. Sustainability coordinators could also facilitate the creation of structural and resource capacity for other individuals to be able to achieve green initiatives from the bottom-up rather than simply attempting to force the innovation through top-down strategic planning or structural tools (Dougherty, 2008). Structural changes can help incentivize and reward desired outcomes through bottom-up social power (Dowding, 1996). Sustainability coordinators could therefore champion environmentally beneficial changes from the top-down, or create the conditions for green championship to occur from the bottom-up.

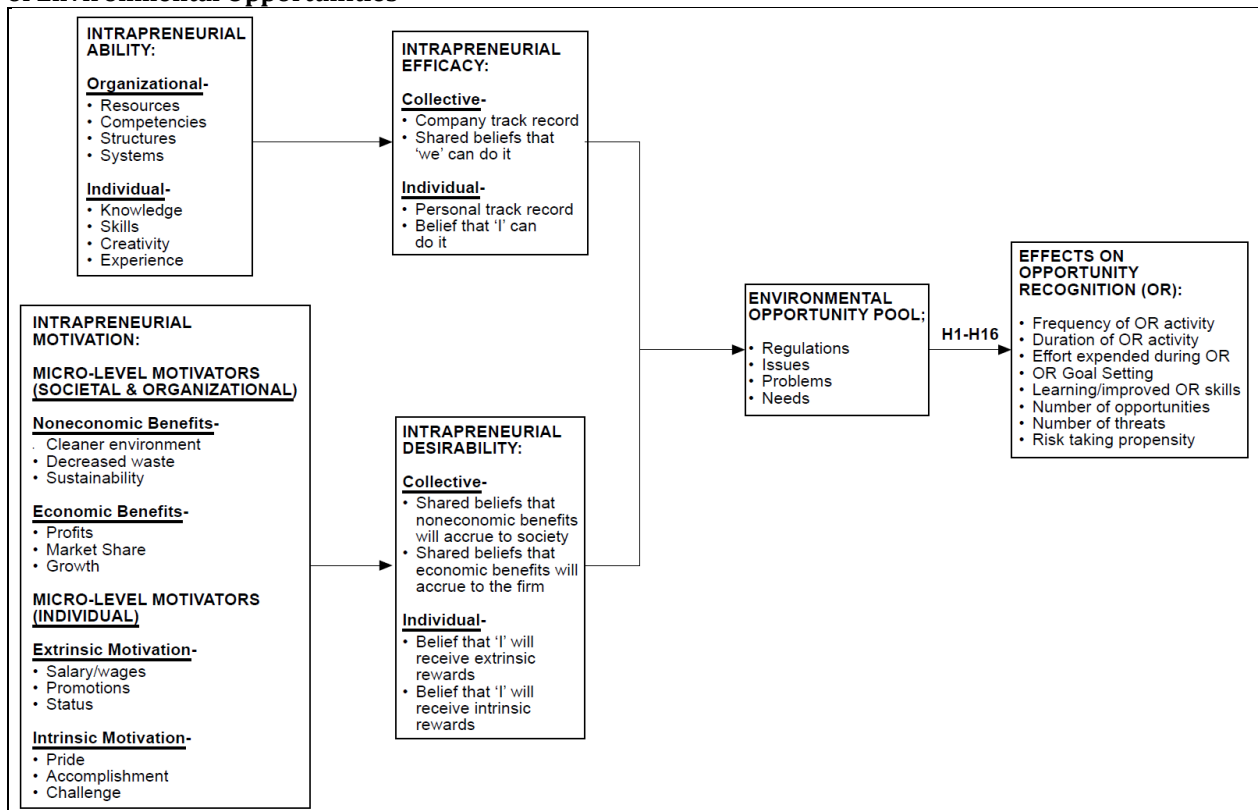
#### **2.2.4 Green Intrapreneurs**

Green intrapreneurship was first defined by Hostager et al. (1998) as “individuals and groups working within the corporation to (1) identify ideas for new products or services that reflect a concern for the environment; and (2) turn these ideas into profitable products and services” (p. 12). Entrepreneurs and intrapreneurs differ based on their objectives and process. The objective of entrepreneurs is to create innovations that generate benefits for themselves either by new venture creation or new intellectual capital creation, while the objective of intrapreneurs is to create innovations that provide benefits to their organization (Carrier, 1996). Similarly, the process employed by entrepreneurs involves mobilizing resources and capital from the external environment, while the intrapreneurship process focuses on creating or drawing upon capabilities from within the organization. While this suggests that larger organizations may be more likely to foster the development of intrapreneurs, Carrier (1996) found that small and medium sized businesses also displayed intrapreneurship processes.

Hostager et al. (1998) outlined reasons why individuals within organizations may become green intrapreneurs, including salary or bonuses, promotions, status, pride and a sense of accomplishment, or simply for the challenge (Figure 2.1). Organizational motivations for supporting green intrapreneurship include the desire for a cleaner environment, a reduction in process waste, as well as the potential for increased profits or market share. Carrier (1996) identified additional motivating and facilitating factors affecting the level of intrapreneurship in small businesses, including personal aptitudes and reward-seeking; organizational culture, structure, management practices and organizational rewards for intrapreneurship; and the management perception of the external environment, strategic objectives, and attitudes among other owners and managers. Carrier (1996) concluded that owners as well as organizational structure and cultural factors can act as catalysts or inhibitors of the intrapreneurship process. Hostager et al. (1998) argued similarly that key organizational and individual ‘abilities’ are important to green intrapreneurship including supportive resources, capabilities, structures and management systems, as well as individual knowledge, skills, creativity and experience.

Individuals who become green intrapreneurs are able to self-identify intrapreneurship abilities, as well as recognize the perceived benefits for themselves and the organization (Hostager et al., 1998). The ability of intrapreneurs to identify potential benefits prior to taking intrapreneurial actions provides a filter to help organizations pursue only the most 'feasible and desirable' environmental opportunities (Hostager et al., 1998). Opportunities are deemed feasible when intrapreneurs "believe that they and the firm have the proper abilities to develop and profit from the idea"; and desirable when intrapreneurs "believe that sufficient economic and non-economic benefits will accrue to themselves and to the firm" (Hostager et al., 1998, p. 21).

**Figure 2.1: Effects of Intrapreneurial Ability, Efficacy, Motivation and Desirability on the Recognition of Environmental Opportunities**



Source: Hostager et al. (1998, p. 13)

In contrast to sustainability coordinators who act to help others within the organization to create green initiatives, and green intrapreneurs who are influenced at least partially by personal economic objectives, environmental champions work to gain organizational support for personal green initiatives that are motivated by green



objectives, which may generate secondary economic and/or competitive benefits for the organization.

### **2.2.5 Environmental Champions<sup>6</sup>**

Environmental champions are defined as individuals or small teams “who, through formal organizational roles and/or personal activism, attempt to introduce or create change in a product, process, or method within an organization” (Andersson and Bateman, 2000, p. 549). Champions discover and advocate novel ideas or procedures in an attempt to attain approval from upper-management (Roberts and Fuschfeld, 1981). Environmental champions influence voluntary environmental initiatives in firms by ‘managing complexity’ and facilitating the integration of diverse ‘information processing and decision making styles’ (Sweet et al., 2003). Successful champions frame their efforts as an opportunity for the company to become a leader in its field, increase profits, or improve image (Andersson and Bateman, 2000). Champions possess strong environmental beliefs and are motivated by a desire to project those beliefs onto the firm (Barkusky and Lorne, 2006; Branzei et al., 2004).

Techniques of champions include scanning the external milieu for potential energy management initiatives, framing the chosen initiative as urgent, gathering support from other employees, and selling it to decision makers (Andersson and Bateman, 2000). Other championship strategies include business case framing, strategic internal coalition forming, external industry networking, and professionalization (Juravle and Lewis, 2009). Environmental champions use these techniques to harness institutional and technical pressures to influence environmental actions in organizations (Rothenberg, 2007). Champions take action because of personal sustainability values, and often respond to external factors such as regulatory changes, industry initiatives, and institutional pressure

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<sup>6</sup> This section contains portions from previously published manuscripts, and Inderscience retains the copyright to the original papers:

Gliedt T, Berkhout T, Parker P, Doucet J, 2010, “Voluntary environmental decision making in firms: Green electricity purchases and the role of champions” *International Journal of Business Environment* **3**(3) 308-328

Gliedt T, Parker P, 2010, “Dynamic capabilities for strategic green advantage: Green electricity purchasing in North American firms, SMEs, NGOs and agencies” *Global Business and Economics Review* **12**(3) 171-195

for sustainability initiatives (Juravle and Lewis, 2009). Gliedt et al. (2010) found that champions of the voluntary decision to purchase green electricity in large corporations in Alberta, Canada, scanned the external environment for energy management ideas, gathered support for the green electricity initiative, framed the need to purchase green electricity as 'urgent' because of climate change, and sold it to the appropriate decision maker at the correct time (e.g., when the electricity contract was up for renewal).

Champions can use structures to further their personal environmental agenda, while the same structures can influence the development of environmental champions. For example, champions linked green organizational culture to the business strategy of corporations through the use of internal environmental structures (Gliedt et al., 2010). While organizational sustainability culture supports the development of champions (Juravle and Lewis, 2009), champions can be successful within firms not characterized by an environmental culture if they frame the initiative as having a reasonable chance of generating strategic benefits (Juravle and Lewis, 2009). Organizations that provide information to employees about environmental impacts and industry best practices can influence environmental behaviour (Sharma, 2009) and may encourage the development of lower level champions. Conversely, internal social and environmental reporting disseminated through coordinating structures can help convince employees to 'buy-in' to environmental initiatives created by top management (Spence, 2009). Therefore, coordinating environmental structures are a landscape for bottom-up and top-down championing activity and serve as both "a product of and context for action" (Scott, 2008, p. 438).

Champions may perform two key roles in voluntary environmental initiatives that have been largely ignored by institutional and resource-based studies. First, champions who are upper managers create and modify internal environmental coordinating structures. Second, upper, lower or middle level champions use those same structures to disseminate information, frame, sell and gather support for their environmental initiatives. This dissertation questions whether champions play similar roles in small businesses, which lack a hierarchical organizational structure (Parker et al., 2009); social economy organizations, which often make collaborative decisions through consensus building (Quarter, Mook and Armstrong, 2009; Social Economy Centre, 2010); and government

agencies, where structured decision making and political forces may limit the power of individual action (Kearney et al., 2008; Kingdon, 2003).

### **2.2.6 The Green Championship Process**

The championship process is composed of three successive steps: identifying/generating an issue/idea, packaging it as attractive, and selling it to decision makers (Andersson and Bateman, 2000, p. 549). In order to convince decision makers to approve a voluntary environmental program that may increase short-term costs to the firm, champions must employ creative techniques to frame the benefits of their initiative from a non-financial perspective. Most champions do not use cost-benefit analysis when 'selling' decision makers on the merits of a voluntary environmental initiative (Raines and Prakash, 2005). Instead, successful champions frame issues as urgent opportunities rather than threats (Andersson and Bateman, 2000; Sharma, 2000), engage in significant background research through scanning, sell issues at the appropriate time, build coalitions (Andersson and Bateman, 2000), and use external and internal social capital networks (Howell and Shea, 2001; Walley and Stubbs, 1999). Champions frame voluntary initiatives as solutions to market and non-market challenges (Raines and Prakash, 2005), and emphasise 'soft benefits' such as firm reputation, improved relationship with stakeholders, and the pre-emption of regulations (Raines and Prakash, 2005). Successful champions combine these techniques with their behavioural traits in order to cooperate with, motivate, include and empower other employees and managers in the championing process (Branzei et al., 2004).

While "champions may be influential at multiple stages" (Howell and Shea, 2001, p. 24) of the development of green initiatives, three contextual factors may moderate the success of a champion: the position of the champion within the firm, existing environmental practices, and the organizational structure. Branzei et al. (2004) argued that champions are more effective as upper managers because such positions are able to shape the beliefs, goals, actions and direction of employees, organizational strategy, and resource allocations. Battilana (2006) proposed that "the higher in the organizational hierarchy individuals are, the more likely they are to conduct divergent organizational change" (p. 666). Top management in organizations may therefore be more likely to champion green

actions or create environmental structures that change the culture and norms of the organization. Given that top management often attempts to preserve the status quo when threatened with adversity, an act uncommon among champions (Howell and Boies, 2004), middle managers may be more effective due to their hybrid collection of characteristics combining the abilities of operations management and upper management (Howell and Boies, 2004). Despite lacking access to the people or resources needed to be a champion, Branzei et al. (2004) acknowledged that operative level championing events may become more significant over time as “environmental issues gain legitimacy, become more complex and multifaceted, and overwhelm top management’s scanning and interpretation capacity” (p. 1089).

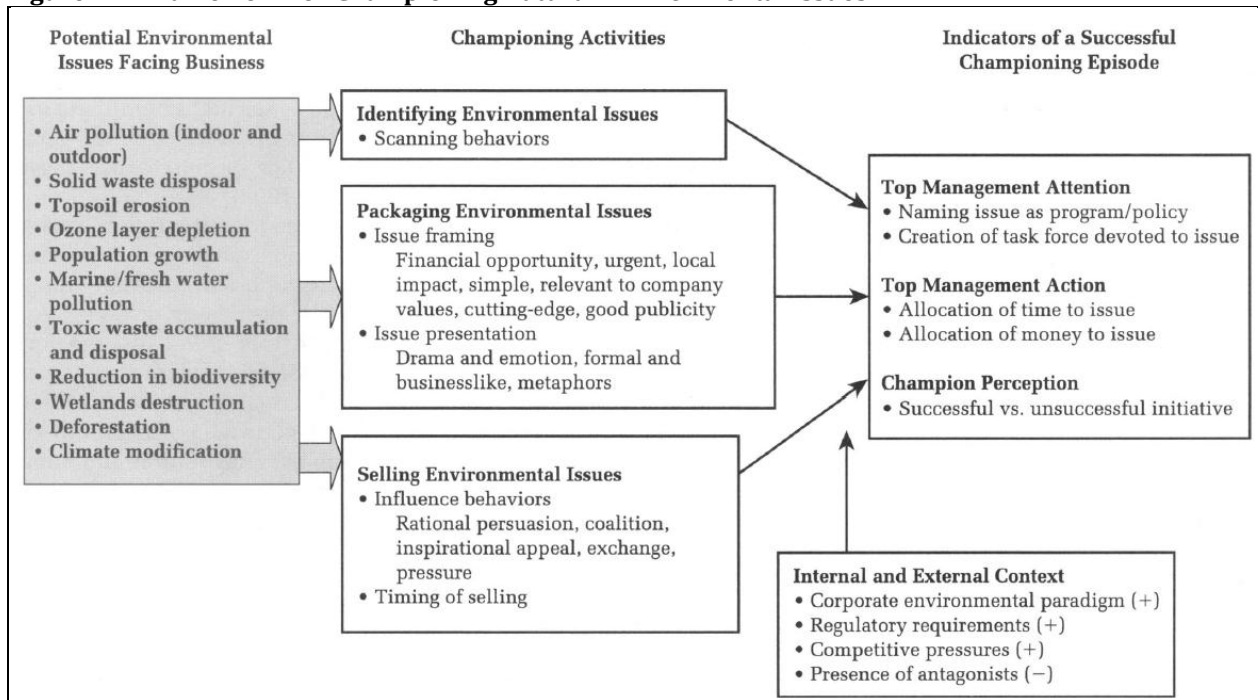
Organizations with ‘superior’ environmental strategies may be more likely to foster the development of champions (Clemens and Douglas, 2006). Firms with ‘convincing’ environmental policies, and that employ managers who encourage environmental innovation, competence building and open communication, are considered ideal breeding grounds for environmental champions (Ramus and Steger, 2000). Branzei et al. (2004) contend that a firm can guide the behaviours of its employees by setting goals and formally embedding practices within the company. They found that institutionalising environmental issues gives champions a positive feeling of self-efficacy, increasing the probability of success in subsequent decisions, and furthering the champion’s commitment. Conversely, the presence of champions has been found to promote energy conservation programmes and the subsequent institutionalisation of environmental issues within a company (Goitein, 1989).

Organizational structure and strategy development process can support or inhibit the development of champions. For example, communication barriers (Cordano and Frieze, 2000) or structural impediments (Mantere, 2005) may limit the ability of managers to champion voluntary environmental initiatives. In contrast, structures that foster “strong signals of organizational and supervisory encouragement” are likely to promote environmental innovations (Ramus and Steger, 2000, p. 622). Some champions may thrive within a structured and restrictive framework, while others may prefer a less formal environment with increased freedoms and flexibility. Mantere (2005) analysed the degree to which adaptive and structured environments encourage or discourage championing

activity. Adaptive environments foster communication, encourage creativity, provide access to social networks, and allow champions to freely express ideas to create a feeling of ownership about their work (Mantere, 2005). This form of flexible environment is characterised by incremental, participative or entrepreneurial decision making processes. Conversely, structured environments encourage communication between superiors and subordinates through top-down information dissemination practices such as internal bulletins, CEO speeches, and the intranet (Mantere, 2005). Although providing feedback channels and stability to champions, this type of rigid environment is characterised by planning or command and control strategy development processes. Therefore, the type of strategy development process employed by an organization may inhibit or facilitate the ability of champions to convince decision makers to adopt green initiatives.

Andersson and Bateman (2000) summarized the environmental challenges that champions address, as well as the various techniques used by champions, and the indicators of a successful championship episode (Figure 2.2). Champions use scanning, framing and selling techniques to gain support from managers for a personal environmental initiative such as voluntary green electricity purchasing. The degree of success of championship events can range from the creation of a task force or committee to study the issue, including the allocation of time and funding, to management creating a policy or program to fully implement the champion's suggestion. According to Andersson and Bateman (2000), external drivers such as "impending regulation and industry competition... enhance a champion's ability to frame an issue as urgent" (p. 564). Conversely, Branzei et al. (2004) believe that "champions may have greater leverage when their actions are voluntary and lower leverage when their actions simply respond to external pressures" (p. 1088). Therefore, the degree to which external or internal factors support champions is contentious, and may depend on the specific techniques employed by environmental champions.

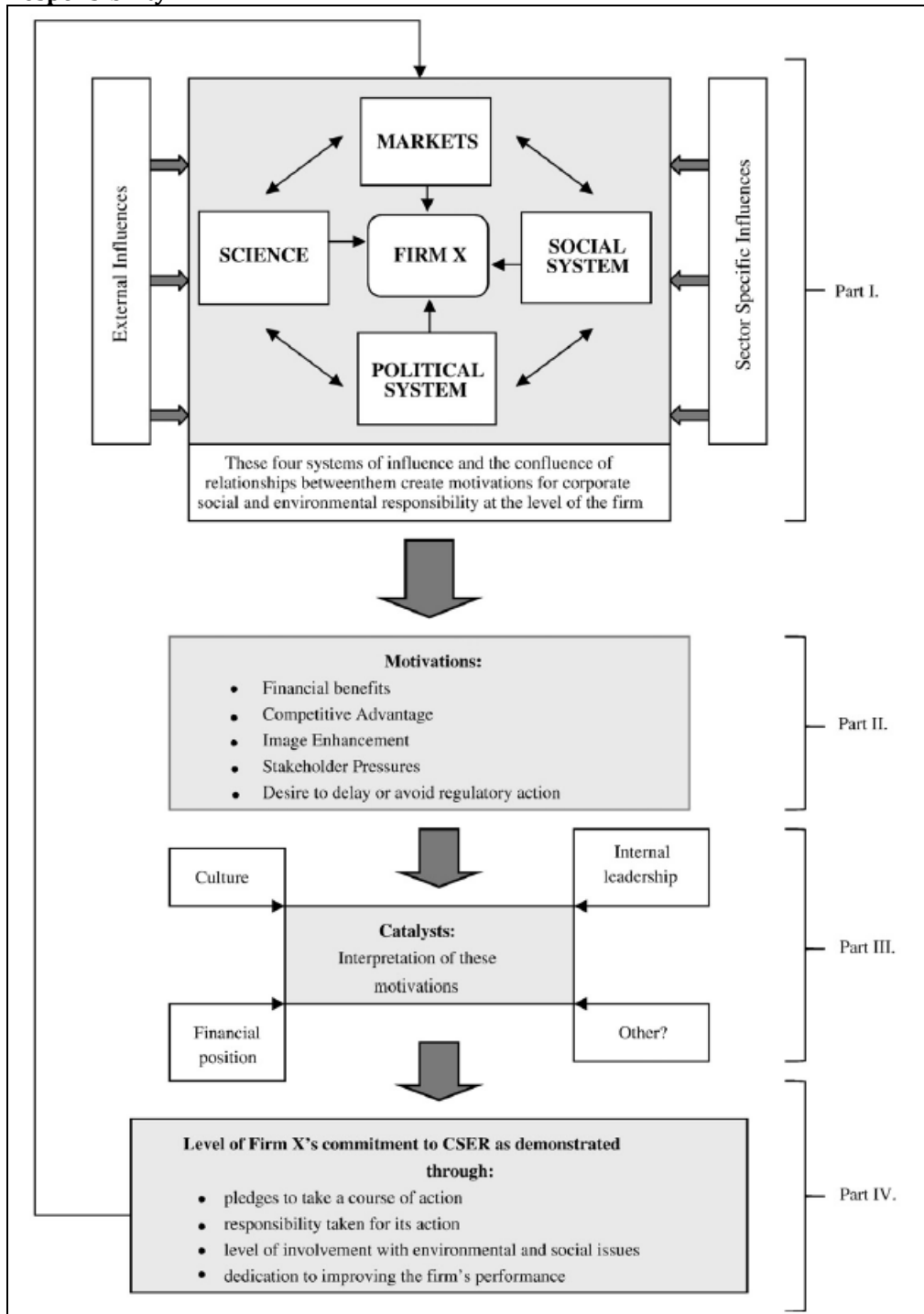
**Figure 2.2: Framework for Championing Natural Environmental Issues**



Source: Andersson and Bateman (2000, p. 565)

Lynes and Andrachuk (2008) found empirical support for environmental champions in a case study of organizational greening at Scandinavian Airlines. Environmental champions acted as catalysts that helped turn ‘motivations’ for environmental action (e.g., competitive advantage, financial considerations, green image benefits, stakeholder pressures, desire to avoid impending regulations) into actual ‘commitments’ to environmental decisions (e.g., formal sustainability structures and policies, environmental managers, environmental departments, publically displayed environmental metrics or benchmarks) (Figure 2.3). Champions played a key role in linking organizational motivations for environmental management to organizational culture in order to respond to changing market, science, political and social threats and opportunities. Individual champions thus represent human capital capabilities that both carry out the day-to-day operations of the organization, and simultaneously, work to influence the behaviour of the organization in the direction of sustainability. These human capital capabilities are dynamic in that they change over time to help the organization respond to external changes that could either threaten organizational survival or provide an opportunity for competitive advantage.

**Figure 2.3: Influencers, Motivators and Catalysts of Corporate Social and Environmental Responsibility**



Source: Lynes and Andrachuk (2008)

### **2.2.7 Collaboration for Strategic Green Decisions: Green Entrepreneurship**

Green entrepreneurship has similarities to the capabilities approach discussed in the previous section in that both examine green decisions that can generate strategic benefits for organizations, which are often made in response to external factors. Different conceptions of green entrepreneurship are reviewed in order to define and differentiate it from other forms of organizational greening, corporate social responsibility and environmental management that have been thoroughly studied in the business and organizational literatures. Green entrepreneurship will also be compared and contrasted with traditional market-based entrepreneurship (Schumpeter, 1950), as well as adaptive forms of entrepreneurship (Schultz, 1975). The green decisions examined by the empirical studies in this dissertation are then discussed in further detail to uncover the potential motivating and/or facilitating factors and overall context within which green championship and green collaborative entrepreneurship occur.

Green entrepreneurship has been defined differently by business and sustainable development scholars depending on the objectives and outcomes that characterize the particular case under examination. Schaper (2010) provided a set of three key criteria that characterize green entrepreneurship. First, green entrepreneurs take high-risk actions to address identified market opportunities (or market failures), and in order to overcome that risk, will gather support and mobilize resources to implement their idea into a new service, product or process. Second, green entrepreneurship must generate a 'net positive' benefit to the natural environment and make a positive contribution to the societal transition toward sustainable development. Third, green entrepreneurship is driven by green entrepreneurs who 'intentionally' take action due to some degree of personal environmental values. Although those values may be secondary or equal to economic motivations, Schaper (2010) stresses that it is the 'intention' of creating an environmental innovation rather than accidentally stumbling upon it through normal business operations that sets green entrepreneurs apart from traditional entrepreneurs. Emerging empirical evidence supports the notion that start-up 'ecopreneurs' are motivated by their personal green values, a market gap that they identified for a new green service or product, the



desire to make a living and be their own boss, and a passion to see their idea through to fruition (Kirkwood and Walton, 2010). The sole difference between ecopreneurs and standard entrepreneurs was the personal environmental values of the ecopreneurs.

Green entrepreneurship has also been conceptualized in more general terms by Beveridge and Guy (2005), who define ecopreneurship as the study of “the roles and impacts of individuals and organizations as agents of positive change” (p. 667). Shepherd and Patzelt (2011) expand this view to suggest that sustainable entrepreneurship:

is focused on the preservation of nature, life support, and community in the pursuit of perceived opportunities to bring into existence future products, processes, and services for gain, where gain is broadly construed to include economic and non-economic gains to individuals, the economy, and society” (p. 142).

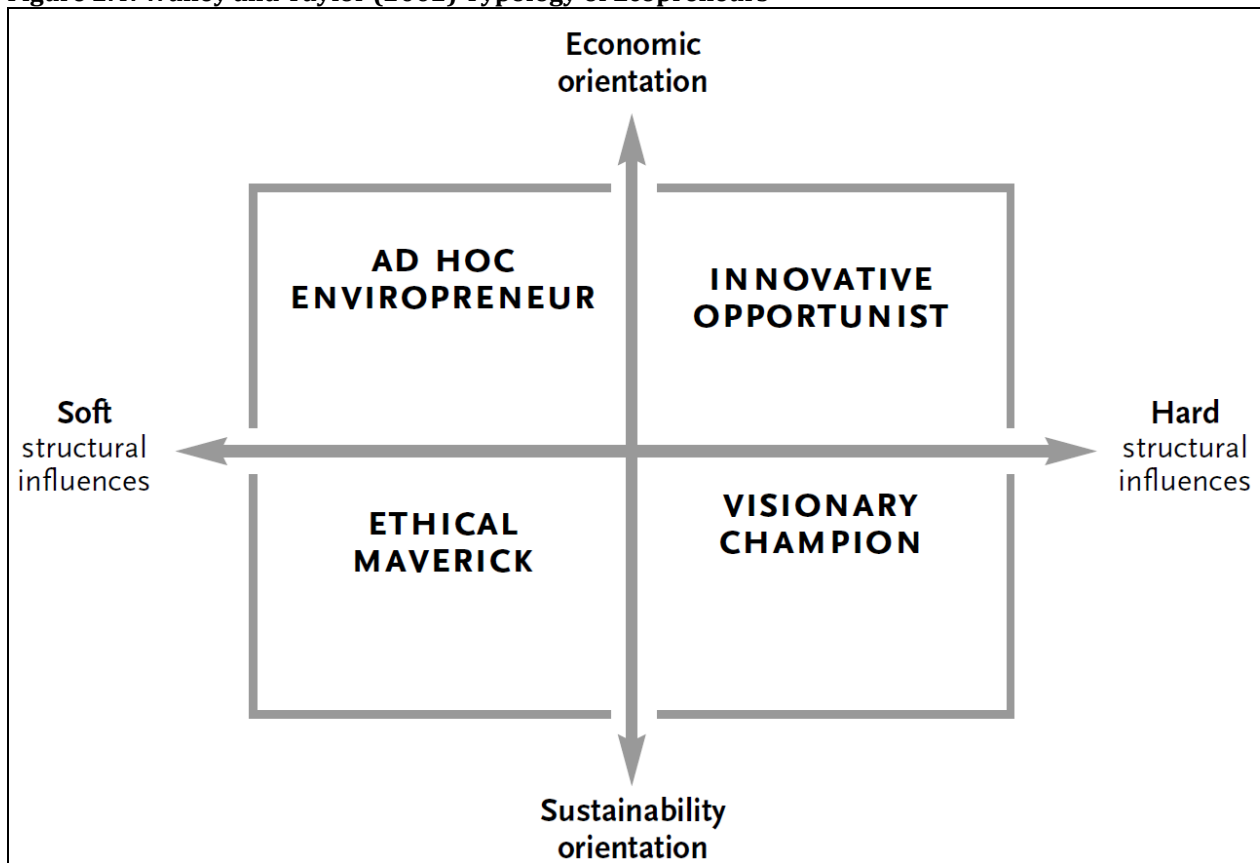
Green entrepreneurship can therefore lead to the creation of green innovations including products and services (Pujari, Wright and Peattie, 2003; Smith, 2001), as well as organizational structure, process, or procurement changes in the direction of sustainability (Haveman and Dorfman, 1999; Hui et al., 2001; Manring and Moore, 2006). Rennings (2000) argued that green innovations:

- Can be developed by firms or non-profit organizations;
- Can be traded on markets or not;
- Can be technological, organizational, social, or institutional in nature; and
- Must in some way contribute to sustainable development.

This comprehensive view of green innovation includes social entrepreneurship as discussed in the social economy literature, as well as green championship as analyzed in the organizational literature, which may differ in their primary motivation (e.g., social, environmental, economic) or their processes (e.g., individual or collective; within an organization or between organizations). Collaborative entrepreneurship and championship are therefore considered different processes that could enable green innovation in social economy organizations.

Green entrepreneurs can be classified based on the extent they are motivated by economic or green objectives (Horwitch and Mulloth, 2010; Walley and Taylor, 2002). Many businesses are motivated by economic objectives when pursuing strategies designed to capture a growing market for environmentally sustainable products and services by treating environmental challenges as a business opportunity (Aulisi et al., 2004; Cook and Barclay, 2002; Hanson, 2005), while simultaneously greening their operations (Meek et al., 2010). As Hartman and Stafford (1997) pointed out, “being green is not a cost of doing business, but a catalyst for innovation, new market opportunities and wealth creation” (p. 187). Walley and Taylor (2002) categorized green entrepreneurs motivated by economic objectives who innovate in response to ‘soft’ structural influences such as friends, networks and past experiences as ‘ad hoc enviropreneurs’, while green entrepreneurs motivated by economic objectives who innovate in response to hard structural influences including regulations and formal institutions are called ‘innovative opportunists’ (Figure 2.4).

**Figure 2.4: Walley and Taylor (2002) Typology of Ecopreneurs**



Source: Walley and Taylor (2002, p. 40)

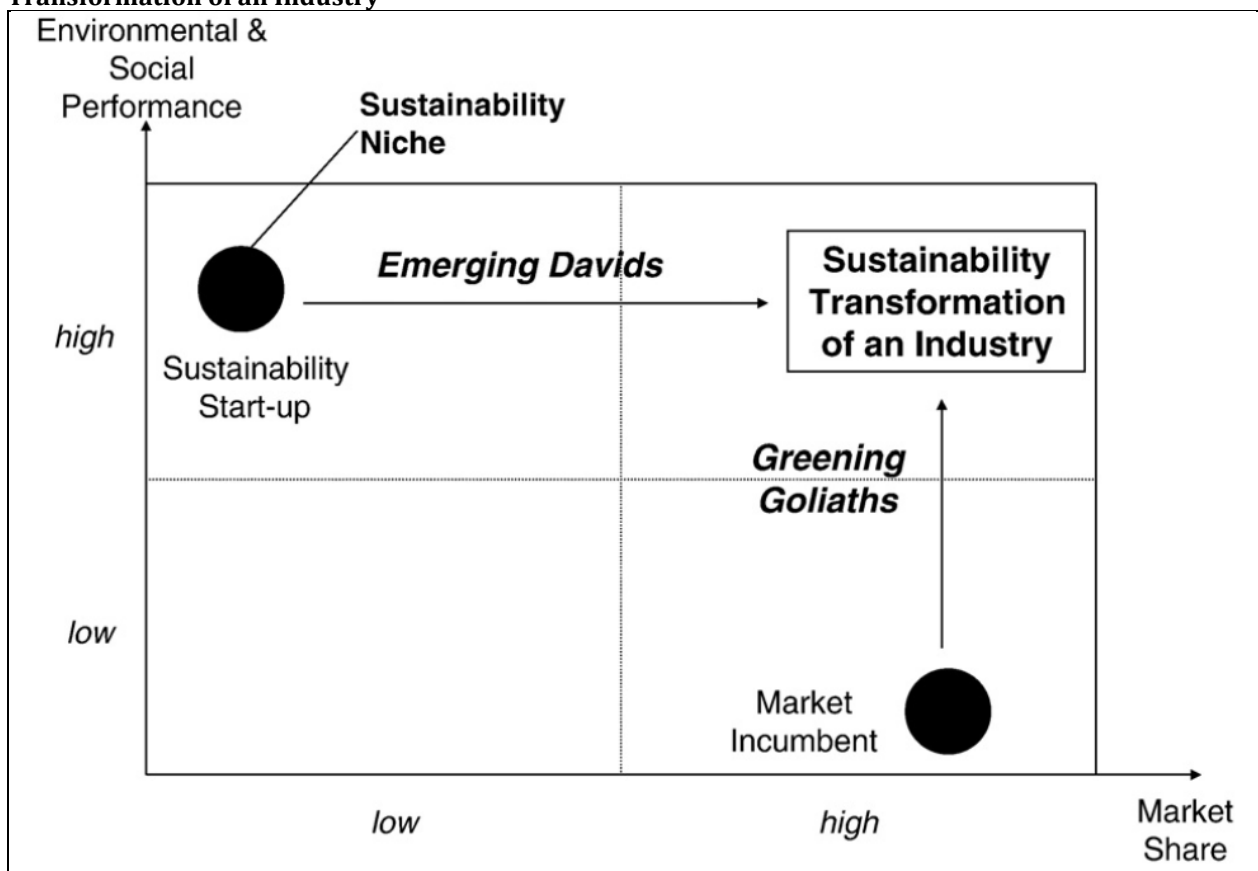
Ad-hoc enviropreneurs and innovative opportunists could include green technology start-up entrepreneurs such as wind farms and solar energy production companies who are motivated primarily by achieving a return-on-investment or other economic criteria. The external and internal influences and personal values and skills of green entrepreneurs outlined by Walley and Taylor (2002) in Figure 2.4 were further deconstructed by Walley et al. (2010) to specify external environmental pressure groups, regulators, green consumers and the market as hard structural influences, while personal networks, education, family and friends and past experiences are soft structural influences. The skills, beliefs, business ethos, knowledge and personality of the green entrepreneur represent the internal factors.

In addition to individual and organizational economic benefits, green entrepreneurship can also contribute to broader societal changes. Hockerts and Wüstenhagen (2010) defined transformational green entrepreneurship as “the discovery and exploitation of economic opportunities through the generation of market disequilibria that initiate the transformation of a sector towards an environmentally and socially more sustainable state” (p. 482). Transformational green entrepreneurship can be driven by small start-up ventures termed ‘Emerging Davids’ that focus on radical innovation within a new sustainability niche, or by large market incumbents termed ‘Greening Goliaths’ that use incremental innovation to transform an industry in the direction of sustainability (Figure 2.5). Hockerts and Wüstenhagen (2010) conclude that both Emerging Davids and Greening Goliaths are necessary to transform an industry towards sustainability given their differing but complementary resource capacities and objectives:

Our analysis has resulted in a dynamic view of industry transformation, where the initial phase is characterized by sustainability initiatives of idealistic ‘Davids’. In a second phase, some pioneering ‘Goliaths’, for example retailers with a higher quality positioning, mimic some of the David initiatives and try to bring them into their mainstream distribution channels. In isolation, neither of these two developments would necessarily lead to sustainable transformation of mainstream markets, because Davids tend to get stuck in their high-quality, low-market penetration niche, while Goliaths have an inherent tendency to react to cost pressures by lowering the sustainability quality of their offerings. However, we see increasing evidence for a next stage of development on both paths. As for ‘Emerging Davids’,

firms such as Wholefoods, Green Mountain Energy, Vestas or Ben&Jerry's have found ways to scale up their sustainable innovations without unduly compromising on their sustainability ambitions. On the other hand, in the 'Greening Goliaths' camp, there are examples of large firms such as Walmart, General Electric, Kraft or Toyota who have taken on the challenge of building sustainability into their mainstream business. Arguably, the success of emerging Davids, which can also be seen as a potential competitive threat, has been instrumental for some of these Goliaths to embark on the level of sustainable entrepreneurship that they did. Therefore, we would argue that the sustainable transformation of industries is not going to be brought about by either Davids or Goliaths alone, but instead that their interaction is essential (p. 489).

**Figure 2.5: Co-evolution of Sustainability Start-Ups and Market Incumbents towards the Sustainability Transformation of an Industry**



Source: Hockerts and Wüstenhagen, 2010, p. 488

In contrast to the Davids and Goliaths, which are motivated primarily by economic objectives and therefore considered 'innovative opportunists' or 'ad hoc enviropreneurs', green entrepreneurship can also be driven by 'visionary champions' or 'ethical mavericks' who are motivated primarily by green objectives (Figure 2.4). These green entrepreneurs

work to influence organizational or community changes in the direction of sustainability, with visionary champions driven to take actions by hard influences and ethical mavericks motivated by soft influences (Walley and Taylor, 2002). Visionary champions and ethical mavericks are therefore likely to represent green entrepreneurs in the social economy where a lack of profit motive suggests that the primary motivation may be green objectives. Revenue motives are likely important in the social economy, however, because a lack of revenue can make organizational operation and survival difficult.

Linnanen (2010) introduced a similar typology of green entrepreneurs based on two dimensions that range from a high to low desire to change the world on one axis, and from a high to low desire to make money on the second. This leads to four types of green entrepreneurs. The first is the opportunist who has a high desire to make money but low desire to change the world. The second is the successful idealist who has a high desire to make money and a high desire to change the world. The third is the self-employer who has a low desire to change the world and a low desire to make money. The fourth is the non-profit business which has a low desire to make money and a high desire to change the world. Although Linnanen's typology includes non-profit organizations, it is based solely on the degree to which a green entrepreneur is motivated by economic factors or environmental values and is therefore not as comprehensive as Walley and Taylor (2002) or Walley et al. (2010).

This dissertation hypothesizes that green entrepreneurship in social economy organizations could be located in any quadrant of Figure 2.5. Although ESOs are driven primarily by social and environmental objectives, the extent that these objectives can be met may depend on the market share for services, which fluctuates with changes in government funding and partner support. Although little is known about green entrepreneurship in the social economy, related concepts have been well developed including social entrepreneurship (Alvord et al., 2004; Catford, 1998; Korosec and Berman, 2006; Leadbeater, 1997; Mair and Marti, 2006; Roper and Cheney, 2005; Sharir and Lerner, 2006; Spear, 2006; Thompson, 2002; Weerawardena and Sullivan Mort, 2006; Weerawardena et al., 2010); social capital and entrepreneurship (Liao and Welsch, 2005; Totterman and Sten, 2005); and social norms and entrepreneurship (Meek, Pacheco and York, 2010). It is likely that the motivating and/or facilitating factors of social

entrepreneurship will be similar to green entrepreneurship because both are concerned with addressing market failures in the form of externalities that are not accounted for in the market economy. Similarly, green entrepreneurship in the social economy could emerge in response to government regulation or policy changes, as a demonstration of social activism, as an ethical action to meet social responsibility goals, or as an operational strategy to reduce costs or increase revenues (York and Venkataraman, 2010).

The most challenging environmental issues such as climate change, which have the highest level of uncertainty, may provide the greatest opportunity for green entrepreneurship (York and Venkataraman, 2010). Uncertainty is a well-known motivation for action in the social economy, where non-profit organizations operate in an environment characterized by political and funding uncertainty. The ability to adapt to uncertainty is recognized as a driver of social entrepreneurship by Weerawardena and Sullivan Mort (2006). Risk management is one of three capabilities for facilitating and influencing social entrepreneurship along with innovativeness and proactiveness, although each capability is moderated and sometimes constrained by the organizational drive to achieve its 'social mission', the influence of various 'external environmental factors', and the necessity of maintaining 'operational sustainability' (Weerawardena and Sullivan Mort, 2006).

Dart and Zimmerman (2000) provided examples of social economy organizations that used entrepreneurship in response to government funding uncertainty. A counseling organization and an environmental organization both initiated commercial activities to generate revenues when funding cuts occurred in the mid-1990s. Dart and Zimmerman's (2000) case study described one of many environmental organizations that lost their core funding when a Provincial government changed in 1995, illustrating part of the history of green community organizations in Canada. In the early 1990's, the Ontario Provincial government financially supported the formation of green communities. However, a change in government resulted in a loss of funding and some ESOs failed to adapt and ceased operation. The ESO described by Dart and Zimmerman (2000) relied on partnerships with local utility companies and municipal governments to facilitate entrepreneurship and continued service delivery, including EnerGuide for Houses audits, which became a principal activity for many ESOs. In May 2006, funding for EnerGuide for Houses was cut by the Federal government (Parker and Rowlands, 2007) and the ESOs were faced with

another destructive financial challenge. This dissertation postulates that the ESOs will respond to government funding cuts with collaborative entrepreneurship in a similar manner to past adaptation experience (Dart and Zimmerman, 2000).

### **2.2.8 Green Collaborative Entrepreneurship**

Green collaborative entrepreneurship is considered analogous to collaborative social entrepreneurship for the purposes of this dissertation because both address market failures and aim to achieve outcomes that benefit society. These forms of collaborative entrepreneurship differ, however, in that there is an established literature concerning collaborative social entrepreneurship, which will be drawn upon to identify motivating and/or facilitating factors of collaborative organizational decisions that foster social value. These factors are assumed to be similar for collaborative organizational decisions that generate environmental value, and are thus discussed in this dissertation as motivating and/or facilitating factors of green collaborative entrepreneurship.

Social entrepreneurship differs from conventional market-based entrepreneurship in three fundamental ways:

- (1) An emphasis on 'social goals' as opposed to economic gains;
- (2) A social activist role played by the social entrepreneur;
- (3) Creating and using economic profit as a means to solve the social problem rather than as an end in itself (Trivedi, 2010, p. 68).

Collaborative social entrepreneurship (CONSCISE, 2003; Roberts, 2006) involves individuals working together who possess hybrid social-entrepreneurial characteristics, including:

the ability to mobilize under-utilized resources to meet unmet needs, being motivated by a 'mission' rather than profits, the ability to create new services and organizations, which are social in nature, and the ability to leverage social capital (relationships, networks, trust and co-operation) (Leadbeater, 1997, p. 11).

The executive director of the Canadian Centre for Social Entrepreneurship defined social entrepreneurship as a process that “strives to combine the heart of business with the heart of the community through the creativity of the individual” (McPherson, 2007). Similarly, Catford (1998) defined social entrepreneurs as individuals who are “often at the heart of community-based initiatives, finding innovative solutions to problems that face the most impoverished and marginalized communities” (p. 96). Social entrepreneurs may collaborate to develop a social enterprise that “advances its social mission through entrepreneurial, earned income strategies” (Social Enterprise Alliance, 2007).

Yujuico (2008) suggested that the fundamental goal of social entrepreneurs is to “remove the hindrances that prevent others from living lives that are fully human” (p. 503). ‘Fully human’ was characterized by ten human capabilities or rights to “having a normal life span, good health, nourishment, shelter, personal security, use of the senses, emotional development, practical reasoning, affiliation, respect, living with nature, opportunities for recreation, and political and material control” (p. 504). In order to remove the barriers to the individual and community ability to actualize those capabilities, Yujuico (2008) argued that social entrepreneurs “create suitable interventions in consideration of both a persons’ internal capabilities and the external conditions necessary to produce combined or central human capabilities, which in turn give them the ability to function in a truly human way” (p. 504). In other words, social entrepreneurs are able to identify situations where people are being deprived of one or more of the human capabilities, and then create solutions that remove barriers or facilitate the creation of capacity to support an individual’s ability to realize the human capabilities. Yujuico’s (2008) approach suggests that social entrepreneurs work to improve human well being by creating products or services that fill a gap not met by markets or governments. This is similar to Pastakia’s (1998) conception of green entrepreneurship as a pre-emptive approach to incorporating environmental externalities. Collaborative social entrepreneurship can work to address market failures by generating environmental benefits for communities and helping equip citizens with the necessary capabilities to actualize their access to a natural and clean environment.

Collaborative social entrepreneurship is fostered by social networks and social capital (CONSCISE, 2003). Collaborative entrepreneurship can involve multiple individuals working together within or between organizations to transform an idea into an innovation.



Roberts (2006) argued that “the single-minded focus on the individual entrepreneur obscures the vast range of entrepreneurial behaviour that is collective in nature” (p. 596). The connection between social capital and business entrepreneurship has been carefully studied (Liao and Welsch, 2005; Totterman and Sten, 2005), as has the relationship between social capital, the social economy and local development (Kay, 2006). Collaborative entrepreneurship has also been demonstrated to be instrumental in driving innovation within small businesses (Comeche and Loras, 2010). Additionally, Horwitch and Mulloth (2010) argued that green technology entrepreneurs can draw upon social entrepreneurs and grassroots environmental networks to gather support for their environmental objectives in a form of collaborative entrepreneurship.

Strategic partnerships are also important facilitating factors in collaborative entrepreneurship. Cook and Barclay (2002) argued that strategic partnerships are critical for organizations that wish to “create value through sustainable development strategies” (p. 338); while Spear (2006) described ‘external support’ and ‘social capital’ as two key ingredients in the collaborative entrepreneurship process. The Community Environmental Council, a non-profit ESO in California, is demonstrating the importance of strategic partnerships to creating solutions to climate change. They partnered with businesses and governments to create a plan to eliminate Santa Barbara County’s use of fossil fuels. The plan involves conservation, efficiency, and renewable energy development and deployment, and is designed to help mitigate climate change while reducing dependence on oil. The Community Environmental Council also uses partnerships to create and deliver services including a green business program, and to influence changes in local government policies to improve the efficiency of new and existing homes (Community Environmental Council, 2007; Hunt, 2008).

Roberts (2006, p. 600) described two sub-forms of collaborative entrepreneurship as ‘team’ entrepreneurship and ‘functional’ entrepreneurship:

Team entrepreneurship occurs when multiple entrepreneurs join forces and work together to push an idea through all phases of the innovation process... although each person is an entrepreneur in their own right, all decide it is more advantageous to pool their resources and act in concert with other entrepreneurs.

Functional entrepreneurship occurs without the presence of a single entrepreneur... it occurs when experts from different functional areas of expertise coordinate their efforts and resources in order to push a new idea into practice.

Both forms of collaborative entrepreneurship rely on social capital and relationships that can be drawn upon to provide resources and capabilities from between or within organizations. Human capital is also important because each individual brings different experiences, knowledge and expertise to the collaborative process. Collaborative entrepreneurship has similarities to Kong's (2010) social enterprise innovation framework outlined in Figure 2.6. This framework suggests that social enterprises draw upon relational capital, human capital and structural capital to reconcile commercial objectives with the social mission through external and internal innovation processes. Kong's framework draws heavily on external social capital and partnerships for the creation and renewal of intellectual capital, which will help the organization create products or services that meet client's needs as well as organizational objectives. The combination of these two objectives can provide a strategic advantage to the social economy organization.

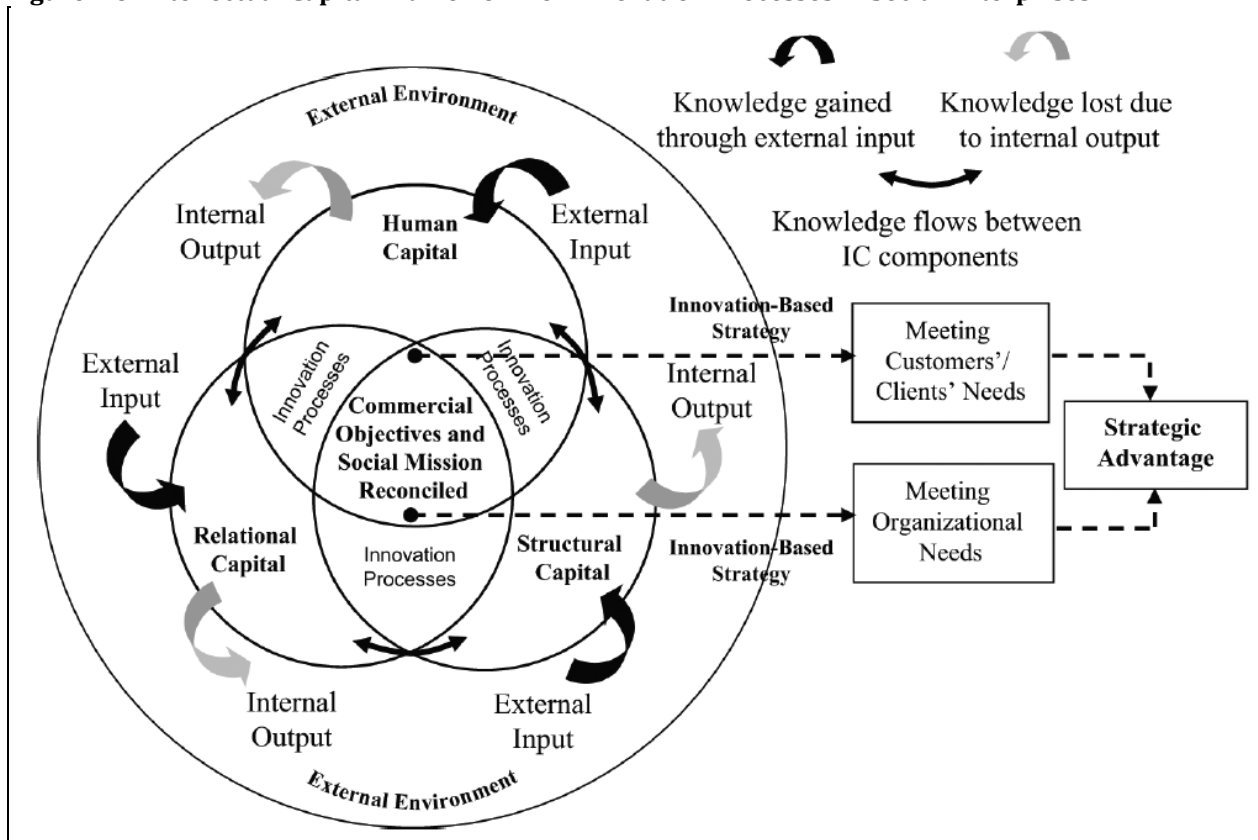
To uncover the difference that 'collaborative' makes in entrepreneurship processes, Burrell and Cook (2009) reviewed the entrepreneurship literature and suggested that collaborative most frequently refers to:

- (1) multiple parties engaged in entrepreneurship;
- (2) the type of economic good generated by the entrepreneurial process; and
- (3) asset ownership (p. 5).

These points are likely to characterize entrepreneurship in the social economy. In the first case, social enterprises tend to engage multiple parties in entrepreneurship through the use of relational capital (Kong, 2010). The second point refers to the collective public benefits accrued to society that are generated by the entrepreneurship process, which Yujuico (2008) argued represent the main objective of social entrepreneurship. The third point highlights the importance of collective ownership of assets and intellectual capital that characterizes social economy organizations (Mook, Quarter and Ryan, 2010; Quarter et al., 2009). This dissertation focuses mainly on the first point, with collaborative

entrepreneurship referring to multiple parties engaged in an entrepreneurship process aiming to create new green services. A primary outcome of these green services is environmental benefits in the form of cleaner air and water, which represent collective public goods similar to the second definition of collaborative entrepreneurship.

**Figure 2.6: Intellectual Capital Framework for Innovation Processes in Social Enterprises**



Source: Kong (2010, p. 167).

Green entrepreneurship processes may occur to differing degrees over time in response to changes in the association between external and internal structures, organizational culture and values, and individual actions. These interactions allow organizations to refresh their resources and capabilities in order to survive external shocks and thrive amongst competition by maintaining strategic advantages. The goal of many entrepreneurship decisions is to help organizations attain competitive advantage, survive shocks and improve environmental performance. Therefore, green entrepreneurship may be facilitated by dynamic capabilities such as human, social and structural capital, and can be drawn upon when needed in response to a changing external context.

### **2.2.9 Dynamic Capabilities for Strategic Green Decisions**

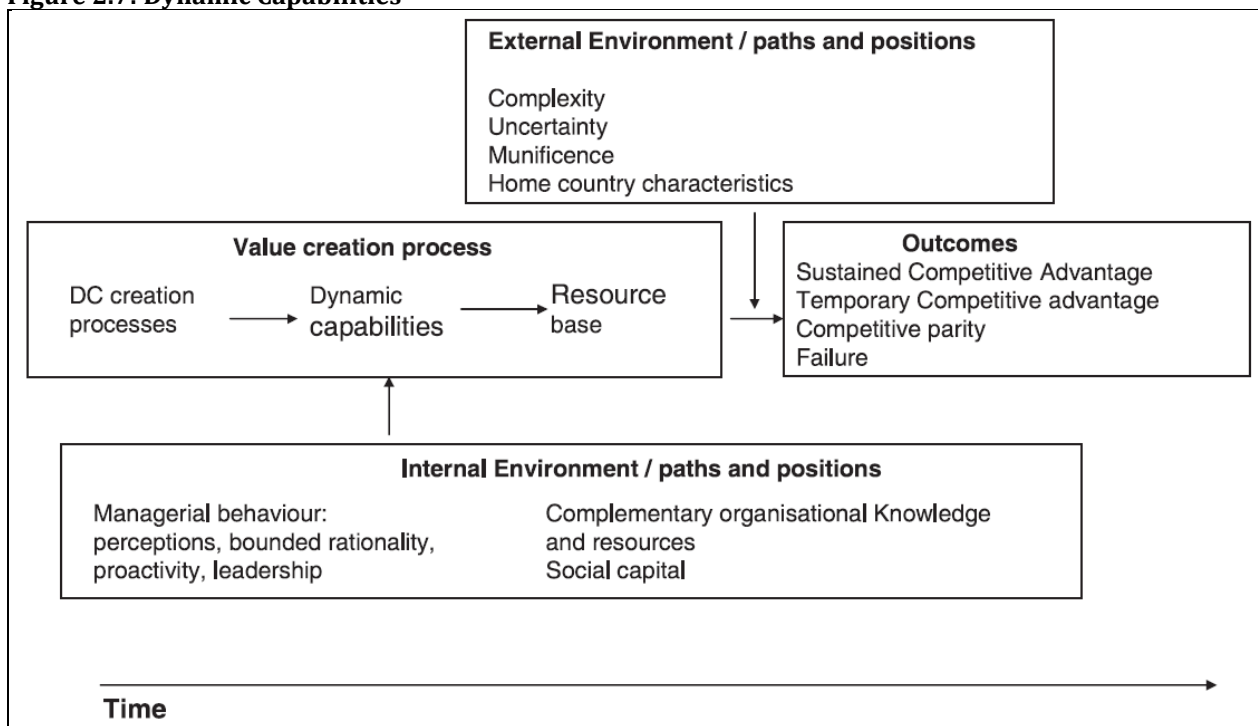
Strategic green decisions including green championship and green collaborative entrepreneurship can be motivated and/or facilitated by dynamic capabilities (Ambrosini and Bowman, 2009). Dynamic capabilities are defined as “processes that act directly to re-shape and refresh the resources of the firm to enable it to sustain advantage in changing environments” (Ambrosini and Bowman, 2009, p. 35). Dynamic capabilities including human, social and structural capital can represent the underlying factors that motivate and/or facilitate green decisions that generate strategic benefits. Witcher, Chau and Harding (2008) differentiated between: (1) higher level dynamic capabilities, where top management use techniques to renew and develop superior resources (e.g., environmental programs and structures); and (2) operations level dynamic capabilities, which are functional competencies including entrepreneurship processes, internal co-ordination and communication structures, and knowledge generation mechanisms. Higher-level dynamic capabilities can involve managerial environmental champions creating superior environmental strategies, while operations level ‘green core competence’ capabilities, defined by Chen (2008) as the “collective learning and capabilities about green innovation and environmental management in an organization” (p. 533), can influence green decisions that generate strategic benefits.

Dynamic capabilities can help organizations respond to external complexity and uncertainty that results from changing regulations and institutional pressures. They can be influenced by managerial behaviour, complementary organizational resources and social capital (Figure 2.7). Ambrosini and Bowman (2009) proposed that if dynamic capabilities remain ‘dormant’ until they are required:

then we should expect the organization to be in a continual state of change or ‘becoming’. Maybe some dynamic capabilities can be ‘stored’, e.g., the ability to reconfigure, whereas others must continually be performed, e.g., R&D. This also suggests that, although a dynamic capability could exist in a stored or potential state, its effectiveness may degrade if the time lags between its deployments mean that the firm context is so altered that what was effective in the past is less effective in the present, even though the dynamic capability itself might be unchanged (p. 40).

This suggests that flexible organizational resources such as social capital networks and strategic partnerships can act as dynamic capabilities. Social capital has also been identified as a key factor in the deployment of dynamic capabilities (Blyler and Coff, 2003). Human capital can act as dynamic capabilities by carrying out normal day-to-day organizational activities until an external change provides the opportunity or need for a champion to help the organization respond. Champions can act as the ‘micro foundations’ of dynamic capabilities (Teece, 2007) if their techniques alter dynamic capabilities to help organizations acquire, modify and create superior resources including environmental strategies (Hart, 1995), which can help the organization adapt to external changes. Given that “dynamic capabilities do not appear as a fully formed capability, but rather, are typically the outcome of experience and learning within the organization” (Ambrosini and Bowman, 2009, p. 43), social capital, strategic partnerships and human capital represent dynamic capabilities because these factors help create and refresh the organizational capacity necessary to adapt to external changes.

**Figure 2.7: Dynamic Capabilities**



Source: Ambrosini and Bowman (2009, p. 43)

Collaborative entrepreneurship and championship can represent dynamic capabilities by helping organizations adapt to external changes while generating green and/or strategic benefits. In this sense, green entrepreneurship and environmental championship have similarities to Schultz's (1975) conception of entrepreneurship as "the ability to adjust or reallocate resources in response to changing circumstances" (Klein and Cook, 2006, p. 347). The two forms of green decisions discussed in this dissertation have similarities to Lepoutre's (2008) external and internal dynamic capabilities that were found to facilitate green initiatives in small businesses. The external dynamic capabilities were found to involve three functions carried out by organizational agents operating between the organization and other organizations:

- (1) The building and attracting of networks rich with existing complementary resources and capabilities;
- (2) Collaborating for the joint development of lacking external resource and institutional capital; and
- (3) The institutional agency to create an institutional enabling context (p. xxi).

The internal dynamic capabilities were found to comprise three key functions that were carried out by internal agents:

- (1) Bootstrapping - the ability to find and create pockets of resources in the organization;
- (2) Focused adaptability - the ability to flexibly integrate emerging solutions to persistently realize set objectives; and
- (3) Disciplined scrutiny - the ability to critically collect and assess internal and external information, together increasing the internal resource capital in the firm (p. xxi).

Lepoutre (2008) argued that "the dynamic capabilities perspective represents a first step in combining the interaction between the environment outside the firm and the configuration inside the firm in explaining organizational performance" (p. 25). Combining

external and internal dynamic capabilities offers a comprehensive resource-based view of the firm, which can help explain how external and internal factors influence strategic decisions (Sarkis et al., 2010; Scott, 2008) including the purchase of green electricity or the creation of new green services.

Understanding the relation between dynamic capabilities and institutional factors is important because organizations may implement resource-based factors (e.g., internal environmental structures) in response to external institutional pressures, but in lieu of making direct 'procedural' or 'substantive' changes (Scott, 2008). Alternatively, individuals within organizations may develop resource-based capabilities with the intention of generating strategic benefits by creating differences from their competitors in the same institutional environment. Furthermore, individuals within organizations characterized by different attributes may respond differently to resource-based factors or institutional pressures. It is thus imperative to study organizational decision making by considering the potential importance of both institutional and resource-based factors, individually and/or in combination, given that organizations may be influenced by either type of factor to make the same decision depending on the organizational context.

Oliver (1997) combined an external and an internal perspective to highlight the influence of institutional and resource-based factors on individual, firm and inter-firm decisions that lead to sustainable competitive advantage (Figure 2.8). This comprehensive model allows for the examination of different types of decisions, including those that are economically rational because they have an expectation of strategic or competitive returns. In contrast, other decisions are considered normatively rational or non-economically rational if they are motivated or facilitated by social pressures (Oliver, 1997). Institutional theory would imply that normatively rational motivations will be important in the context of social and environmental decisions that lack an economic rationale. Oliver's (1997) model, on the other hand, recognizes the integrated and complex nature of organizational decisions by suggesting that either resource-based factors or institutional factors could be important, either individually or in combination.

Institutional theory as applied in Oliver's model (Figure 2.8) suggests that individuals within organizations can be influenced to make decisions based on social pressures that can originate either from inside or outside the organization (Oliver, 1997).

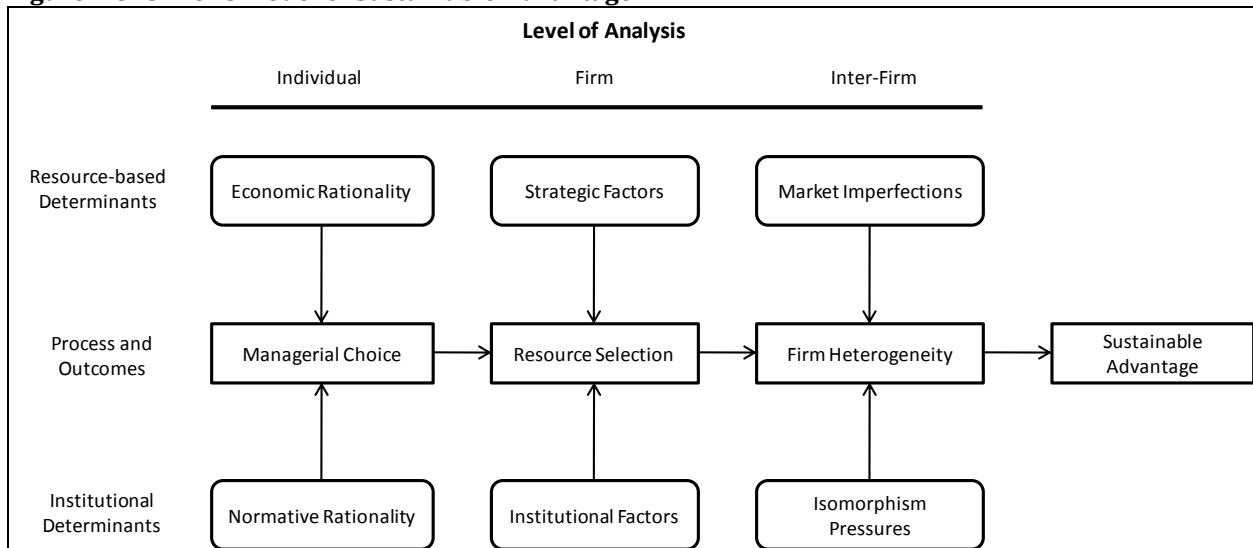
Social pressures manifest themselves through organizational culture, societal norms, industry associations, rating agencies, certification programs, or regulatory mandates. Institutional theory has thus been conceived by Oliver to include both internal and external pressures that can influence green decisions.

The resource-based view on the other hand as applied in Oliver's model (Figure 2.8) suggests that individuals within organizations make choices that are shaped by economic objectives, as well as the external competitive milieu within which the organization operates (Oliver, 1997). According to the resource-based view, organizations make decisions that provide a competitive advantage by creating or modifying internal resource capacities to respond to external challenges or opportunities. Oliver's model suggests that resource-based factors could be important to decisions at the individual, organizational or inter-organizational level.

The key contributions of Oliver's (1997) model are the recognition that achieving sustainable advantage may require both 'resource capital', defined as the superior resources and capabilities of the organization, and 'institutional capital', considered to be the factors that enhance and enable the use of resource capital. Internal institutional capital can include a continuous quality improvement culture and the focus of top management on capabilities innovation, while external institutional capital involves inter-organizational knowledge sharing networks (Oliver, 1997). Additionally, Oliver's model highlights the role of individual choice as a key component in the decision making process that helps the organization respond to institutional factors with the use of resource-based capabilities. Oliver's model thus provides a comprehensive view of organizational decisions that can generate strategic advantages, which encompasses the potential for different internal and external factors to be important depending on the organizational type, organizational attributes or the type of decision.



**Figure 2.8: Oliver's Model of Sustainable Advantage**



Source: Oliver (1997)

Clemens and Douglas (2006) offer a similar integrated perspective on organizational decision making, although they specifically focus on green decisions by examining the interaction between green resource-based view, green institutional theory, and voluntary environmental initiatives. Clemens and Douglas (2006) concluded that: (1) external coercive forces are positively related to voluntary green initiatives; (2) the implementation of superior environmental strategies (e.g., superior firm resources) are positively related to voluntary green initiatives; and (3) for firms with superior environmental strategies, coercive forces will be less positively related to voluntary green initiatives. Both resource-based and institutional factors may therefore be important to voluntary environmental decisions including green collaborative entrepreneurship and green championship. When firms have superior environmental strategies, however, they may supersede the influence of institutional factors. This is especially important given that organizations may develop and use similar capabilities to respond to external factors by making green decisions. For example, Lepoutre (2008) discovered that:

The dynamic capabilities perspective thus builds on the emphasis in the resource-based view on organizational capabilities as the explanatory factor for sustained superior performance, but refines the theory by replacing static capabilities with more dynamic versions of capabilities. In contrast to the resource-based view, however, which maintains that superior performance comes from heterogeneous

resources configurations across firms, dynamic capabilities have commonalities across firms. Although they may be manifested differently depending on the particular circumstances the firm is in, the same dynamic capability may be present in different firms (p. 25).

This suggests that organizations of different size and type can potentially use human and social capital to pursue green entrepreneurship. It also implies that green championship and green collaborative entrepreneurship could act as dynamic capabilities that help many different types of organizations adapt to external changes while enhancing organizational resilience to future shocks.

### **2.3 Summary of Literature Related to Strategic Green Decisions**

Potential motivating and/or facilitating factors of strategic green decisions have been identified from the homogenizing (e.g., institutional theory) and heterogeneous (e.g., the resource-based view of the firm) perspectives in the corporate greening literature. Similar motivating and facilitating factors were also identified as important in green entrepreneurship studies, which were reviewed because of their connection to the social economy and dynamic capabilities literatures. A comprehensive approach was created to examine green decisions in organizations, and social economy organizations in particular, which also generate strategic benefits (Figure 2.9). Dynamic capabilities were identified that could potentially motivate and/or facilitate the different types of green decisions that are examined by the two empirical research projects in this dissertation.

The factors identified in the comprehensive literature review include external institutional pressures and policy shocks, internal resources and capabilities, organizational culture and values, and individual champions. The aforementioned findings highlight the importance of individual and collective environmental values, as an institutionalised environmental culture may enhance the ability of external drivers to influence green decisions. Some resource-based factors, including environmental champions, organizational culture, and environmental coordinating structures (e.g., committees and departments where cross-functional meetings take place) may motivate as well as facilitate strategic green decisions. Individual agents of green decisions represent

key human capital capabilities that can be drawn upon to create change. Other resource-based factors that can facilitate green decisions include social and relational capital and strategic partnerships.

The homogenizing perspective suggests that green decisions can be influenced by external institutional factors, stakeholder pressures, or policy shocks. In contrast, the heterogeneous perspective implies that green decisions can be influenced by internal resources and capabilities including individual agency, as well as organizational culture and values. The dynamic capabilities perspective suggests that strategic green decisions could be motivated and facilitated by a combination of external and internal factors that can be modified over time in response to external contextual changes, and that many organizations could employ the same capabilities to make green decisions (Lepoutre, 2008). The collaborative entrepreneurship frameworks outlined in this chapter delineate many components of dynamic capabilities that may be important motivating and/or facilitating factors of green decisions, including human capital, social capital, and structural and institutional capital. The importance of motivating and facilitating factors of green decisions may change at different times and within different organizations depending on the external context.

The objective of the dissertation is to uncover the motivating and/or facilitating factors that are important to different forms of green decisions that occur in different organizations and external contexts. Providing a better understanding of the motivating and/or facilitating factors of green championship and green collaborative entrepreneurship in different sizes and types of organizations is important because both the greening decisions within existing organizations (e.g., the Goliaths), which are accomplished by champions, as well as the service creation decisions of green start-up organizations including the Green Communities (e.g., the 'visionary champion' and 'ethical maverick' versions of the Davids), are required to transform society in the direction of sustainability (Hockerts and Wüstenhagen, 2010). Although green technology entrepreneurship and green start-up entrepreneurship have been well studied and are generally motivated by economic objectives, other forms of strategic green decisions have received less attention because they occur less frequently and within narrow windows of opportunity for researchers. This is the case with green collaborative entrepreneurship in

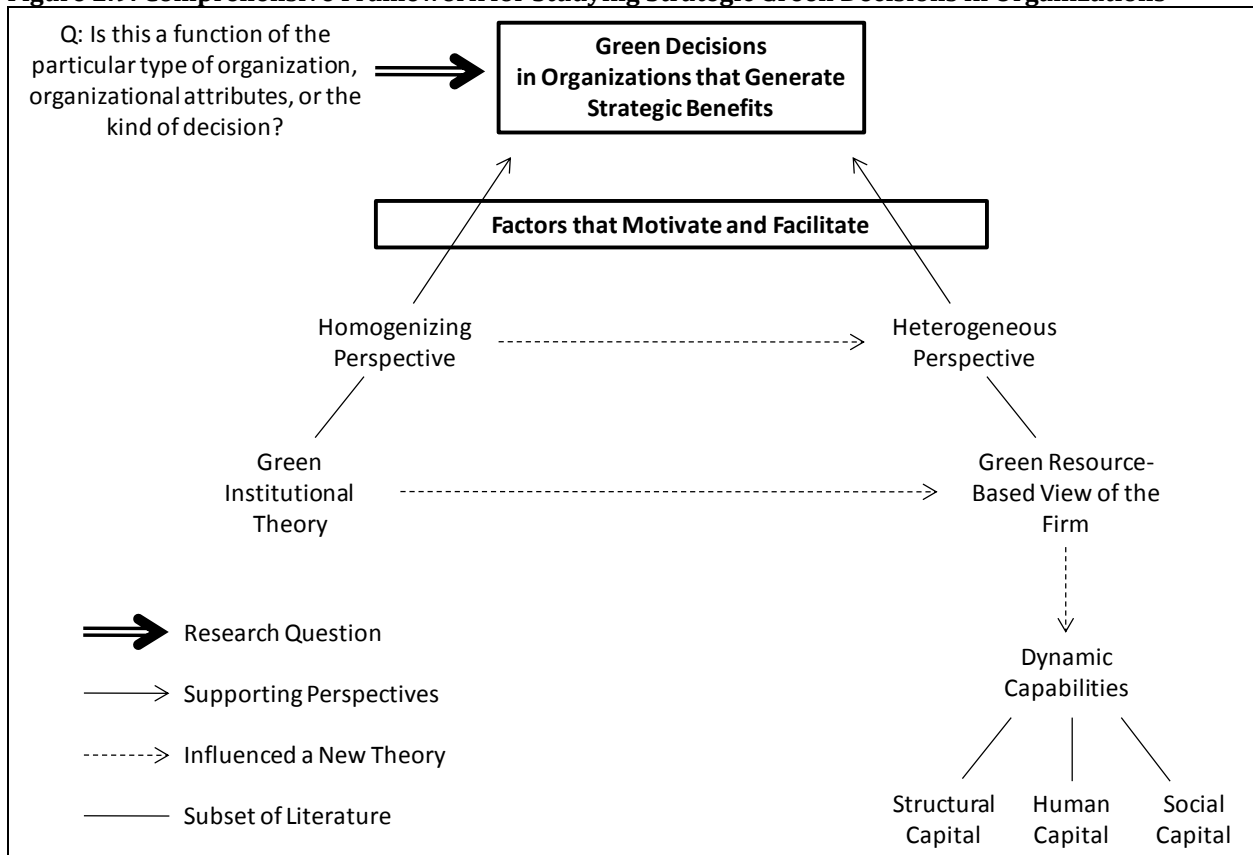
social economy organizations, which occurs infrequently in response to government funding cuts. This form of adaptive entrepreneurship is motivated primarily by non-economic objectives and is thus fundamentally different than green technology entrepreneurship. Furthermore, while green championship that leads to new products or processes within large companies has been studied, less is known about the motivating and/or facilitating factors of green energy decisions in the social economy, such as purchasing green electricity that increases costs to the organization.

This dissertation aims to better understand green decisions by organizations using a framework that combines aspects of the homogenizing and heterogeneous perspectives into an integrated framework (Figure 2.9). Similarities were identified between green entrepreneurship frameworks and the homogenizing and heterogeneous decision making perspectives, suggesting the need for an integrated framework that recognizes the importance of both dynamic capabilities and external pressures. Utilizing an integrated framework that incorporates insights from entrepreneurship researchers has the potential to provide a more comprehensive explanation for how diverse types of organizations can simultaneously achieve strategic and greening objectives for a number of reasons:

- entrepreneurs have long been identified as drivers of societal change in response to market opportunities or competitive threats (Schumpeter, 1950);
- entrepreneurship has been examined for ‘the ability to adapt to exogenous change’ (Klein et al., 2009; 2010; Klein and Cook, 2006; Schultz, 1975);
- entrepreneurship for sustainable development is increasingly attracting the interest of organizational researchers because of the potential for entrepreneurs to solve environmental challenges; although most of these studies have focused on ‘new venture creation’ (Hall, Daneke and Lenox, 2010);
- important similarities have been identified between environmental strategies and entrepreneurship, environmental champions and entrepreneurs, and entrepreneurship and ethics (Lepoutre, 2008);
- a need has been identified for research examining the intersection between organizational strategy and social entrepreneurship (Short et al., 2009).

The framework selected for this dissertation differs from the previous frameworks discussed above by incorporating external and internal institutional and resource-based factors from the homogenizing and heterogeneous literatures, as well as the agency-based innovation and adaptation capabilities from the entrepreneurship literature, to provide a more comprehensive framework to study green decisions in organizations. Figure 2.9 represents an integrated approach to examining how organizations can respond to external changes and simultaneously improve environmental performance, while focusing on organizational change in the context of environmental challenges. This is important given the turbulence inherent in the social economy, and the green energy economy more broadly, due to the lack of a clear political framework and institutional compliance mechanism for systematically dealing with social and environmental issues. The comprehensive framework provides the best fit for the research question in this dissertation because it focuses on agency and individual decisions, in contrast to much of the homogenizing and heterogeneous literature that centres on how corporate structures and institutional influences motivate and facilitate organizational green decisions. The framework can be applied to provide an understanding of a range of organizational green decisions that can occur in different socio-economic contexts and organizational types. This is important because strategic green decisions can be characterized by individual or collaborative processes, driven by external or internal factors, and motivated by different degrees of economic or green objectives.

**Figure 2.9: Comprehensive Framework for Studying Strategic Green Decisions in Organizations**



In the chapters that follow, the terms green collaborative entrepreneurship and environmental championship are used to represent the two forms of green decision examined in this dissertation. This dissertation considers environmental championship to represent acts by individuals to create change in the direction of sustainability from within an organization. Furthermore, green collaborative entrepreneurship is considered to represent green decision making between different organizations in a community, as well as between different branches of a national organization through a social capital network.

### **Chapter 3: Methodology Used to Examine Strategic Green Decisions**

An appropriate methodology to address the research question in this dissertation must be capable of enabling the researcher to look backward to the origin point for the green decision. This dissertation focuses on understanding the actual process that led to the green decision, which had already taken place prior to the time of the study. The methodology has to be able to identify the motivating and/or facilitating factors that were present at the time when the green decision originated. It is by identifying the motivating and facilitating factors of green decisions that we can begin to conceptualize how they would interact within different contexts and within different types and sizes of organizations that are characterized by different value systems.

Consequently, surveys and interviews were selected as the main data collection methods to allow respondents to self report the factors that were important at the time when the green decision was initiated. For example, organizations started purchasing green electricity anywhere between a few months, and many years, prior to receiving the electronic survey. Similarly, the ESOs experienced the government funding shock six months prior to the interviews being conducted, and the innovation process that led to the creation of new energy services took place during that time. Hence, survey and interview methods were chosen because they represented the best available tools to examine events and processes that had already happened.

Identifying the factors that were important at the inception of the green decision process, and providing an understanding of whether these factors were a function of the type of organization, organizational attributes, or the kind of green decision, was the main empirical research question of this dissertation. The selected approach was important for two reasons: (1) to get a comparative sense of what drives green decisions in different types and sizes of organizations, and (2) to provide researchers with a set of important motivating and facilitating factors of green decisions that can be used to design participatory action research projects to observe real-time decision making processes that generate green and strategic benefits for organizations.

### **3.1 Philosophical Underpinnings of the Methodology**

The philosophical underpinnings of the methodology in this dissertation are behaviouralism and geographic realism. Behaviouralism researchers believe that the actions of individual agents are important independent of institutional or structural influences (Kitchin and Tate, 2000). They therefore tend to focus on socio-psychological studies of human decision making (e.g., CBSM, 2010). Behavioural research within organizations generally uses surveys to test employee perceptions of decision making processes “through the measurement of people’s ability to remember, process and evaluate information” (Kitchin and Tate, 2000, p. 20). Realism, on the other hand, concerns “the underlying mechanisms and structures of social relations” (Kitchin and Tate, 2000, p. 21). Realism researchers tend to consider the world to be composed of “events, mechanisms and structures in an open system where there are complex, reproducing and sometimes transforming interactions between structure and agency” (Cloke et al., 1992, p. 146).

Behaviouralism allows for the study of the underlying agency factors that influence the development of environmental structures and programs within organizations, while realism provides for the examination of the extent that structures and programs can motivate or facilitate individual decisions. Both behaviouralism and realism permit the use of electronic surveys and semi-structured interviews (Kitchin and Tate, 2000). This combined approach represents a framework for examining how organizational decisions are influenced by institutional and structural factors, as well as how individual agents can influence changes to structures, which in turn can influence organizational decisions. A combined approach allows for the study of agency and structures within a structuration-based green decision making perspective.

### **3.2 Research Methods**

Previous studies examining factors that influenced green decisions in organizations have generally relied upon various applications of interview and survey methods. For example, Lynes (2004) used in-depth case studies of a single organization, including interviews of key decision makers and document analyses. Berkhout (2005) employed a



matched-pair interview format of organizations that were taking voluntary environmental management actions, and similar organizations that were not. A third method applied by Sharma (2000) and Clemens and Douglas (2006) involved mailing surveys to all organizations in a single industry within a single country. While Sharma (2000) included multiple individuals within each organization, Clemens and Douglas (2006) targeted only one response per organization. A final option is to use a mixed-method approach similar to Annandale and Taplin (2003), which combined semi-structured interviews and a postal survey of companies in a single sector. This dissertation used both an electronic survey and semi-structured interviews of different organizations.

### **3.2.1 Surveys**

An electronic survey provides a cost-effective method to gather a North American sample of organizations that voluntarily purchase green electricity in order to generalize results and compare differences among organizations (Andrews, Nonnecke and Preece, 2003). Such a survey is the basis of Chapter Four. The survey builds upon previous exploratory research that used in-depth interviews to examine the factors that influenced the voluntary green electricity purchase decision within firms in Alberta (Gliedt et al., 2010) and Ontario (Berkhout, 2005; Berkhout and Rowlands, 2007). The exploratory studies provided a set of expected results that were tested and verified by the survey results, given that survey research on its own is “generally weak on validity because people’s opinions on issues seldom take the form of strongly agreeing, agreeing, or strongly disagreeing” (Babbie, 1992, p. 279). Validity is defined as “the extent to which a specific measurement provides data that relate to commonly accepted meanings of a particular concept” (Babbie, 1992, p. 135). By building upon exploratory results, the survey tool was made more concise and focused on key factors identified as important during the interviews. This reduced the number of questions and the time required to complete the survey, potentially increasing the likelihood that respondents would fully complete the survey (Andrews et al., 2003).

In addition to validating previous interview findings, surveys also generate data that are repeatable and reliable. Reliability is defined as “the likelihood that a given

measurement procedure will yield the same description of a given phenomenon if that measurement is repeated” (Babbie, 1992, p. 135). In this case, a Chi square analysis is used to examine whether differences between organizations based on the importance of factors to the green electricity purchase decision would be expected in future samples. While the open ended responses are used to provide qualitative text that reinforces the quantitative evidence found in the data, they also provide a voice to the respondents in order to better understand the values and emotions that underlie green championship decisions in organizations.

### **3.2.2 Interviews**

Interviews are a commonly used qualitative data collection technique that facilitates a ‘thorough examination of experiences, feelings and opinions’ (Kitchin and Tate, 2000). Interviews are used in Chapter Five for exploratory research because few known studies have looked at green collaborative entrepreneurship (e.g., Dart and Zimmerman, 2000; Hunt, 2008; Thompson and Doherty, 2006). Exploratory interviews can “yield new insights into a topic for research” (Babbie, 1992, p. 91) while helping to inform the development of new conceptual frameworks, as well as questions for future surveys. Telephone interviews were used because the interviewees were located across Canada, and therefore, the expense of face-to-face interviews would be significant.

### **3.3 Research Process**

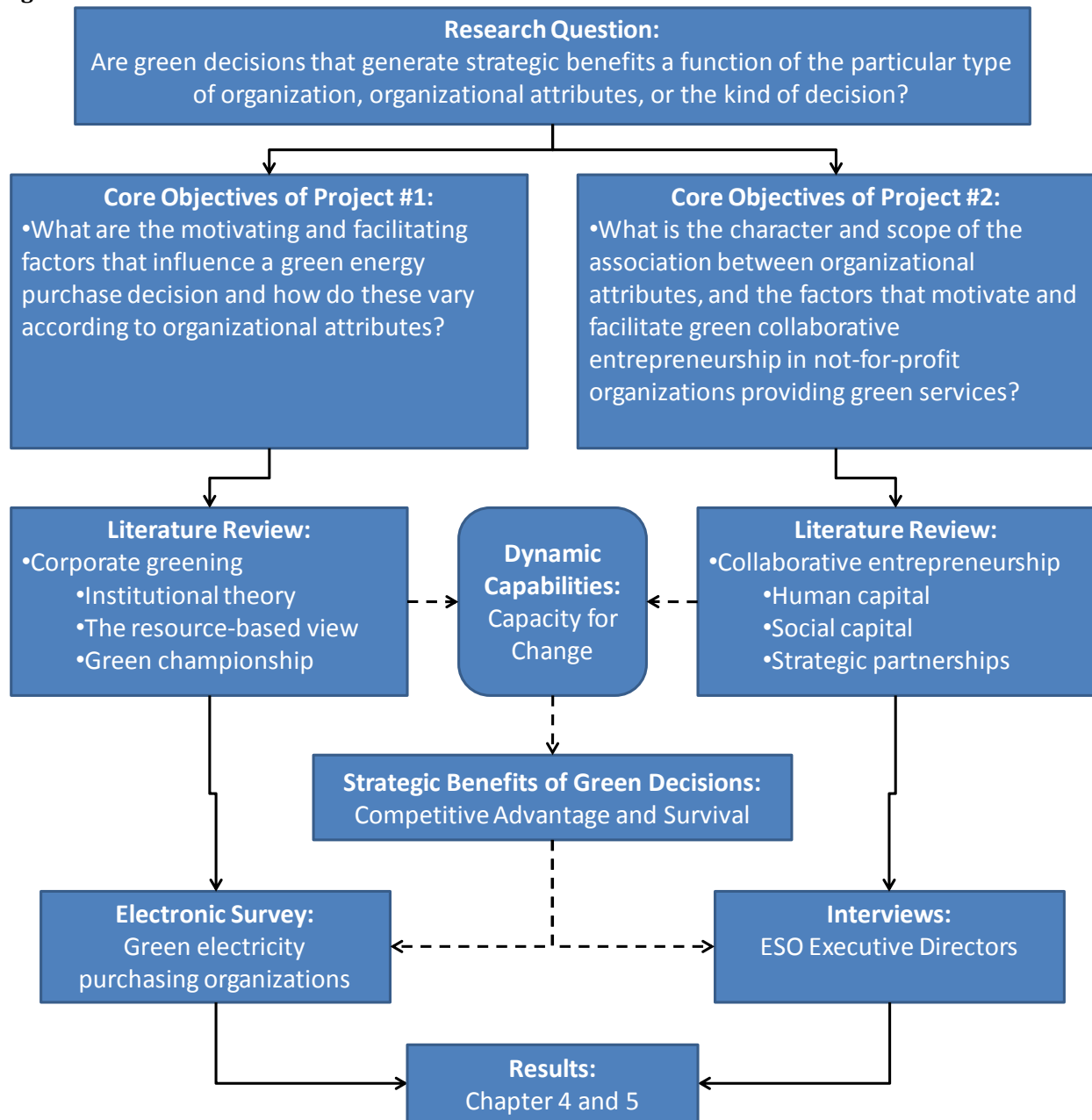
The research process can be summarized as two different phases of data collection and analysis designed to address the research question that asked whether green decisions that generate strategic benefits are a function of the particular type of organization, organizational attributes, or the kind of decision (Figure 3.1). The first stream examined if there was an association between the external and internal attributes of organizations and the motivating and facilitating factors of a green championship decision, as well as the techniques of green championship. This phase involved a literature review on environmental champions, institutional theory and the resource-based view of the firm,

corporate social responsibility, and environmental decisions in organizations. The results from this literature review were used to design survey questions for delivery to key contacts in organizations that voluntarily purchase green electricity in North America. The data were analyzed and related back to the literature to develop a conceptual framework for strategic green decisions.

The second stream examined the character and scope of the association between organizational capabilities, and the factors that motivate and/or facilitate green collaborative entrepreneurship in not-for-profit organizations providing green services. This included an examination of the relationship between the degree of stability in an organizations external institutional environment and the level of green collaborative entrepreneurship undertaken by the organization. This phase involved a literature review on social and collaborative entrepreneurship, as well as social and human capital for green innovation. This literature review informed the development of interview questions that were conducted with the executive directors of ESOs in Canada. The results were analyzed and combined with the literature review to develop a conceptual framework for green collaborative entrepreneurship.

It was necessary to conduct a third phase of literature review on organizational capabilities given that each research project had a strategic element to the green decision. The results of this review suggested that the dynamic capabilities perspective could provide an integrated understanding of how green decisions can help organizations generate environmental benefits, while simultaneously adapting to external threats to its survival or achieving strategic advantages. Capabilities that may be important in these types of green decisions included human capital, structural capital and social capital. The comprehensive perspective is the best fit to study green decisions that are facilitated by organizational capabilities, which in turn, also play a key role in fostering either strategic advantage or organizational adaptation for survival, given that entrepreneurs and champions are adept at both creating and adapting to change.

**Figure 3.1: The Research Process**



### **3.3.1 Methods for Research Project 1: Green Energy Purchase Decision**

A survey of green electricity purchasing organizations was used to examine factors that were important in the decision to voluntarily purchase green electricity, as well as increase the size of purchase over time. Organizations that voluntarily purchase green electricity in Canada were identified from the Bullfrog Power website (Bullfrog, 2009), while purchasing organizations in the United States were identified from the EPA Green Power Partnership website (EPA, 2009). A database was created containing organization names, websites and any environmental reports that were publicly available. This information was used to identify the name and position of the primary green electricity contact in each organization. If two employees were deemed to have equal knowledge of and influence over the green electricity purchase decision, the first name was chosen for consistency. In cases where names were not publically displayed, phone calls were made to request contact information for the person responsible for green electricity purchasing.

An email was sent to potential participants containing an information letter and a link to the electronic survey, which was approved by the Office of Research Ethics, University of Waterloo (Appendix B). Response rates for electronic surveys can generally be increased by using one or more follow-up emails (Sheehan, 2001). However, follow-up emails can be considered spam and a nuisance and should therefore be kept to a minimum (Andrews et al., 2003). Additionally, increasing the number of reminders may increase the likelihood that respondents attempt the survey, but not the fully completed response rate itself (Crawford et al., 2001). Therefore, one follow-up email was sent to all respondents who did not complete the survey within one month. If the first email bounced back or was rejected due to spam software, an additional email was sent to a different email address at the same organization (if one was available).

Of the 1000 emails sent to organizations in the United States in November and January 2008, 357 emails triggered a positive 'read receipt' signifying that the email was read, and 103 fully-completed surveys were received. Additionally, 112 emails sent to organizations in the United States generated a 'deleted without reading receipt', bounced back with a 'fatal error' message, or failed due to automated security messages or other restrictions. Of the 500 emails sent to Canadian organizations in November 2008, 233

triggered a positive 'read receipt', and 109 fully completed surveys were received. Additionally, 39 Canadian emails generated a 'deleted without reading' receipt, bounced back with a 'fatal error' message, or failed due to security restrictions. Despite the follow-up emails, the overall response rate of 14 per cent was lower than expected. The response rate for organizations in the United States was 10 per cent and for Canadian organizations was 22 per cent. If only the emails that were opened are considered, the overall response rate rose to 36 per cent. This response rate is similar to a recent study using emails with the same survey device used in this dissertation, Survey Monkey, to target green businesses in California. A 16 per cent response rate was achieved with this method, which was higher than response rates achieved through telephone and postcard alternatives in the same study (Chapple et al., 2011).

The survey contained 30 questions organized into five categories, and was designed to gather general information about the organization, the environmental decision making process, the green electricity purchase decision, and green electricity purchasing trends (See Appendix C). Questions were standardized for applicability to businesses, social economy organizations and governments. The sub-objectives of the survey were:

- (1) To identify important factors that influence the voluntary decision to purchase green electricity, as well as establish if relative differences in importance are evident across organizational types, in order to provide a better understanding of the complexity of these kinds of decisions;
- (2) To ascertain if green champions or environmental coordinating structures are important to a greater percentage of social economy organizations than small businesses, government agencies and corporations, in order to expand the green agency-structure literature to include other organizational types;
- (3) To investigate the factors that influence organizations to increase the size of green electricity purchase over time for the purpose of offering green strategy recommendations to organizations.

These factors were compared across several groups of organizations: large businesses with more than 20 employees (n = 58), small businesses with 20 or fewer

employees (n = 82), social economy organizations (n = 50), and governments (n = 22). Social economy organizations in the sample consist of co-operatives, community health centers, credit unions, churches, youth shelters, and environmental NGOs. Governments include municipalities that purchased green electricity for water treatment plants or city hall buildings, and various State and Federal departments and agencies. Firms range from agricultural and manufacturing organizations, to service-sector and quaternary sector businesses.

A five-point scale was used that ranged from not-important (1) to most important (5). The importance of each factor for the entire sample (n = 212) is displayed in the column titled 'overall importance', while differences between types of organizations are identified by a Chi square analysis. For the analysis of differences, categories four and five were combined in order to emphasize factors of important influence, while categories one through three were grouped to signify factors that were not important, or of minor importance. Grouping was necessary to meet the Chi square criteria that no more than 20 per cent of cells can have an expected count less than five, and no single cell can have an expected count less than one (Moore, 2000). A boxplot is used to show the factors deemed to have an important influence on the green decision given a median value of four or five for the overall sample; a minor influence equated to a median value of two or three; and factors that were not-important had a median value of one.

### **3.3.2 Method for Research Project 2: Green Collaborative Entrepreneurship**

Semi-structured interviews were conducted with managers of ESOs across Canada<sup>7</sup> that offered the EnerGuide for Houses (EGH) energy audit service. At the time of the EGH cut (May, 2006), 16 ESOs offered the EGH service and were contacted by phone to request an interview. Of those, 12 executive directors booked interview dates and followed through with the interview. The sub-objectives of the interviews were:

- (1) to investigate the magnitude of impact of the external funding shock on demand for the main service delivered by ESOs, the EGH energy audit;

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<sup>7</sup> Province count: British Columbia = 1; Northwest Territories = 1; Ontario = 8; Quebec = 1; Nova Scotia = 1.

- (2) to discover and categorize the breadth and depth of creative responses by ESOs;
- (3) to provide insight into the factors and processes that ESO managers described as most important to overcoming the funding shock in order to provide recommendations to NGOs operating in turbulent and uncertain environments; and
- (4) to ascertain and contrast the level of green entrepreneurship in a period of funding stability as compared to the post-shock period.

An introductory e-mail from the executive director of Green Communities Canada was sent to each organization prior to direct telephone calls being made by the researcher (Appendix D). The interview questions were reviewed and approved by the Office of Research Ethics at the University of Waterloo (Appendix E). A telephone interview was arranged with the executive director or equivalent of each organization. The interviews ranged between 20 and 45 minutes in length, and were carried out in December 2006 and January 2007. The interviews were transcribed electronically by the researcher during the interview. Upon completion of all interviews, the transcript data were grouped and re-grouped for comparison across organizations in order to provide insight into the character and scope of the association between organizational capabilities, and the factors that influenced green collaborative entrepreneurship in ESOs.

### **3.4 Limitations**

Methods used to gather information in organizational settings about past events, including semi-structured interviews and self-reported electronic surveys, have limitations that may influence the reliability and validity of the findings. Interviewees in Chapter Five were asked to report on factors that were important to decisions that were made six to eight months earlier during a time of uncertainty and confusion. This may limit the accuracy of the responses as executive directors were working long hours in extremely stressful situations and may have failed to recall the 'finer details' of organizational decision making. Conversely, this heightened cognitive state may in some cases have helped imprint the important factors into the memories of interviewees. Nevertheless, the



interview results may suffer from self-reporting after-the-fact bias, which is also a limitation of surveys.

Survey research has a difficult time measuring actual social action; rather, surveys “can only collect self-reports of recalled past action or of prospective or hypothetical action” (Babbie, 1992, p. 279). Self-reporting after-the-fact bias may limit the validity of organizational research (Donaldson and Grant-Vallone, 2002). Self-completed surveys may also suffer from response bias, which is demonstrated by differences in the representativeness of those who completed the survey versus those who did not respond to the survey (Mazor et al., 2002). Organizational type characteristics of the 212 respondents that fully completed the survey were similar to the overall sampling frame of 1500 organizations that were targeted with the survey, with non-profit organizations and government agencies being slightly over-represented and businesses slightly under-represented (Table 3.1).

**Table 3.1: Organizations by Type: % of Sampling Frame vs. % of Respondents**

<b>US + Canada</b>	<b>Sampling Frame N = 1500</b>	<b>Respondents n = 212</b>
Government	8%	15%
Non-Profit	14%	26%
Business	79%	60%
<b>Total</b>	100%	100%

It is difficult to assess whether the importance levels attributed to the variables of interest by respondents were similar to what non-respondents may have answered. Prior evidence suggested that respondents may rate satisfaction or ‘importance’ variables higher than non-respondents (Mazor et al., 2002). Positive response bias due to differences in the satisfaction levels of potential survey respondents towards the phenomena being examined may impact the results by overestimating the satisfaction of the population (Mazor et al., 2002). Disinterested respondents to electronic surveys may also discontinue the survey prior to fully completing it, which adds another level of response bias that can undermine validity (Shropshire, Hawdon and Witte, 2009).

The electronic survey method used in Chapter Four may suffer from voluntary response bias (Moore, 2000) because respondents who are most enthusiastic about green

electricity may be more likely to respond. Additionally, individuals who were the green electricity champion may be more likely to respond because they were close to the process and are therefore motivated to report the outcome of their actions. Ordinarily, these factors could be tested by comparing the average responses of those organizations that completed the survey after the first email versus those who only completed the survey after a reminder email. This was not possible in this case, however, due to follow-up emails being sent to all organizations that had not completed the survey after the original email regardless of whether or not they had read the original email. Given that the original emails were sent prior to and shortly after the holiday season, it was difficult to establish whether the later surveys were completed in response to the original email or the follow-up email.

Respondents to organizational behaviour surveys often answer questions in self-perceived 'socially desirable' ways: emphasizing factors they believe are important to researchers and de-emphasizing factors they think researchers do not consider important (Donaldson and Grant-Vallone, 2002). This can also occur if employees believe their responses will be provided to their employer, and thus potentially further their careers (Donaldson and Grant-Vallone, 2002). Additionally, respondents may select the most positive option without a systematic consideration of all alternatives in a form of 'acquiescence' (McGrath et al., 2010). To avoid influencing the responses, the survey results were only disseminated to the person that completed the survey upon their request, and not to their supervisor or manager.

Furthermore, electronic surveys have unique characteristics that may limit response rates. Sheehan (2001) conducted a review of studies using electronic surveys and found that the average response rate was only 37 per cent. In fact, response rates of less than 20 per cent are not unexpected for electronic surveys (Witmer, Colman and Katzman, 1999). Sills and Song (2002) suggested that "most email and Web-based surveys have not had response rates consistently high enough to be generalizable to any population" (p. 23). Low response rates achieved in electronic surveys of respondents at work could be due to 'information overload' that causes employees to manage emails using "filtering software or

developing heuristics such as deleting all unsolicited email without opening it” (Sheehan, 2001<sup>8</sup>).

Many survey emails sent as part of the data collection process in Chapter Four clearly went into the junk mail of potential respondents. This is a limitation with most electronic survey methods, as junk mail filters are now used in many organizations, and employees are worried about viruses or spyware and therefore delete unsolicited email without reading it (Sheehan, 2001). The return receipts on each email revealed if the email was deleted without reading, which would suggest it was marked as junk mail and either manually deleted, or automatically emptied from the junk mail folder at the end of the week. While the exact number of emails that were filtered into junk mail is unknown, it is potentially one reason for the lower response rate from the organizations in the United States due to filters applied to out-of-country spam emails. Sheehan (2001) suggested that email surveys should clearly display a formal university affiliation on the email to lend credibility to the message and the sender. This was accomplished by including the statement ‘University of Waterloo’ in the subject line of the introductory email sent to all respondents. Therefore, one reason for the higher response rate from the Canadian sample may simply be name recognition, as it is likely that more people in Canada are familiar with the University of Waterloo than those in the United States. In fact, three Canadian survey respondents emailed the researcher directly to mention that they were alumni of the University of Waterloo and would thus gladly complete the survey.

Andrews et al. (2003) explained that privacy and confidentiality are major concerns with electronic surveys. To guarantee confidentiality, the survey questions for Chapter Four were collected into a database once the respondent clicked ‘submit’. Then, a separate window asked the respondent to enter the name of their organization, which was sent to a second database. This met the criteria requested by the University of Waterloo ethics office, and ensured that the actual survey response of any individual organization could not be tied directly to the name of that organization. The reason for including this high level of privacy, which was explained in the information letter, was to increase the response rate. One limitation of this method, however, is that it greatly restricts the ability of the

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<sup>8</sup> This journal is electronic and contains no page numbers. Therefore, the quote is contained within paragraph three in the discussion section.

researcher to follow-up with organizations that partially completed a survey, or that did complete a survey but failed to enter the name of the organization. It also makes it difficult to verify response rates for individual subgroups (e.g., non-profit organizations, small and medium-sized enterprises, or SMEs), above and beyond what is self-reported in the survey.

One tool that could have been employed to increase the response rate would be to offer a reward for those who complete the survey. This could include a small gift certificate (e.g., \$10) for each respondent, or a draw that would provide five successful respondents with a larger gift certificate (e.g., \$100). Financial incentives may introduce a systematic bias into the survey results (Kehoe and Pitkow, 1996), however, and were therefore not included in this study. Another alternative would have been to send a pre-invitation letter to briefly inform potential respondents of the upcoming survey, as well as follow-up paper-based post cards or letters that remind potential participants of the email and information letter that was sent on an earlier date (Andrews et al., 2003).

Another limitation of the method used in Chapter Four concerns the survey design itself. First, the design of the survey could have been modified to allow for the use of parametric statistics such as the t-test. The questions should have been written as 'please rate from the lowest level of importance (1) to the highest level of importance (5)', rather than labeling category (1) as 'not important' and category (5) as 'most important'. A second alternative would have been to create a (7) point scale where respondents are asked to 'rate the extent to which each factor influences or inhibits' the voluntary green electricity purchase, where (1-3) represent inhibitors; (4) represents a neutral impact; and (5-7) represent levels of positive influence. While it is unlikely that 'environmental champions' would be rated as inhibitors, other factors such as 'organizational culture' have been identified as inhibiting factors in non-adopter firms if the reported culture is 'rational economic' in nature (Gliedt et al., 2010). Government regulations and red tape could also inhibit voluntary environmental initiatives in some cases.

The method of selecting the organizations in Chapter Four was chosen because of the publically available organization names listed on the Bullfrog and EPA websites. All organizations listed on the websites that purchased green electricity at the time of the study were included, so the sampling technique consisted of targeting an entire population of green electricity purchasing organizations. However, other possible sampling techniques

could have been employed that would have generated data that meets the nearly normal condition necessary for parametric tests. For example, a random sample from all organizations in North America that purchase Green-e or EcoLogo certified green electricity could have been generated if a comprehensive list were made available by either third-party certification organization. The population of green electricity purchasing organizations is in the 10s of thousands (CRS, 2010), and would therefore have increased the potential for larger numbers of respondents to complete the survey in Chapter Four. The random number generator in spreadsheet software programs such as Microsoft Excel could have been used to create a random sample of organizations from the overall population list. Another option would have been to request a list of purchasing organizations from multiple green electricity suppliers. Bullfrog represents one green electricity supplier, and the EPA green power partnership displays only those organizations that participate in the partnership and meet its criteria. Therefore, a larger population of organizations that purchase green electricity could have potentially been obtained in this manner. A further option would be to do a random sample from the population of all organizations in North America, or a stratified random sample based on organizational size and type. These options would lend themselves to a matched-pair analysis of purchasing versus non-purchasing organizations similar to the analyses conducted in Alberta and Ontario (Berkhout and Rowlands, 2007; Gliedt et al., 2010). A final option would have been to target known proactive environmental organizations based on other energy or climate change management actions taken. This could include the Global 100 list for corporations (Global 100, 2010), and the SustainLane rating system for local governments (SustainLane, 2010). No such list was available for non-profit organizations. Although not selected, they do provide options for future researchers wishing to expand upon the findings in this dissertation.

## Chapter 4: Results: Green Energy Purchase Decision<sup>9</sup>

This chapter summarizes and interprets the results of a bi-national survey of 212 organizations that voluntarily purchase green electricity. The core research objective seeks to provide clearer understanding of the motivating and facilitating factors that influence a green energy purchase decision and how these vary according to organizational attributes. A particular focus in this chapter is on the championing of green energy purchase decisions, which involves individual agents driven primarily by non-economic motivations who operate from within an organization to influence changes in the direction of sustainability. The sub-objectives of this chapter are as follows:

- (1) To identify important factors that influence the voluntary decision to purchase green electricity, as well as establish if relative differences in importance are evident across organizational types, in order to provide a better understanding of the complexity of these kinds of decisions;
- (2) To ascertain if green champions or environmental coordinating structures are important to a greater percentage of social economy organizations than small businesses, government agencies and corporations, in order to expand the green agency-structure literature to include other organizational types;
- (3) To investigate the factors that influence organizations to increase the size of green electricity purchase over time for the purpose of offering green strategy recommendations to organizations.

Statistical analyses of the survey response data provide evidence of the importance of organizational culture and environmental champions to the voluntary decision to purchase green electricity. This is further emphasized by the discovery that organizational culture and environmental champions are important (four or five on a five-point ordinal

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<sup>9</sup> This chapter contains results that have been revised and expanded from the originally published manuscript, and Inderscience retains the copyright to the original paper:

Gliedt T, Parker P, 2010, "Dynamic capabilities for strategic green advantage: Green electricity purchasing in North American firms, SMEs, NGOs and agencies" *Global Business and Economics Review* **12**(3) 171-195

scale) to most respondents from each organizational type. Respondents were more likely to select both organizational culture and environmental champions as important (four or five) than to select either factor as important independent of the other. Concordance was also found within some organizational types with respect to the importance of the most frequently selected factors; culture, champions and environmental coordinating structures.

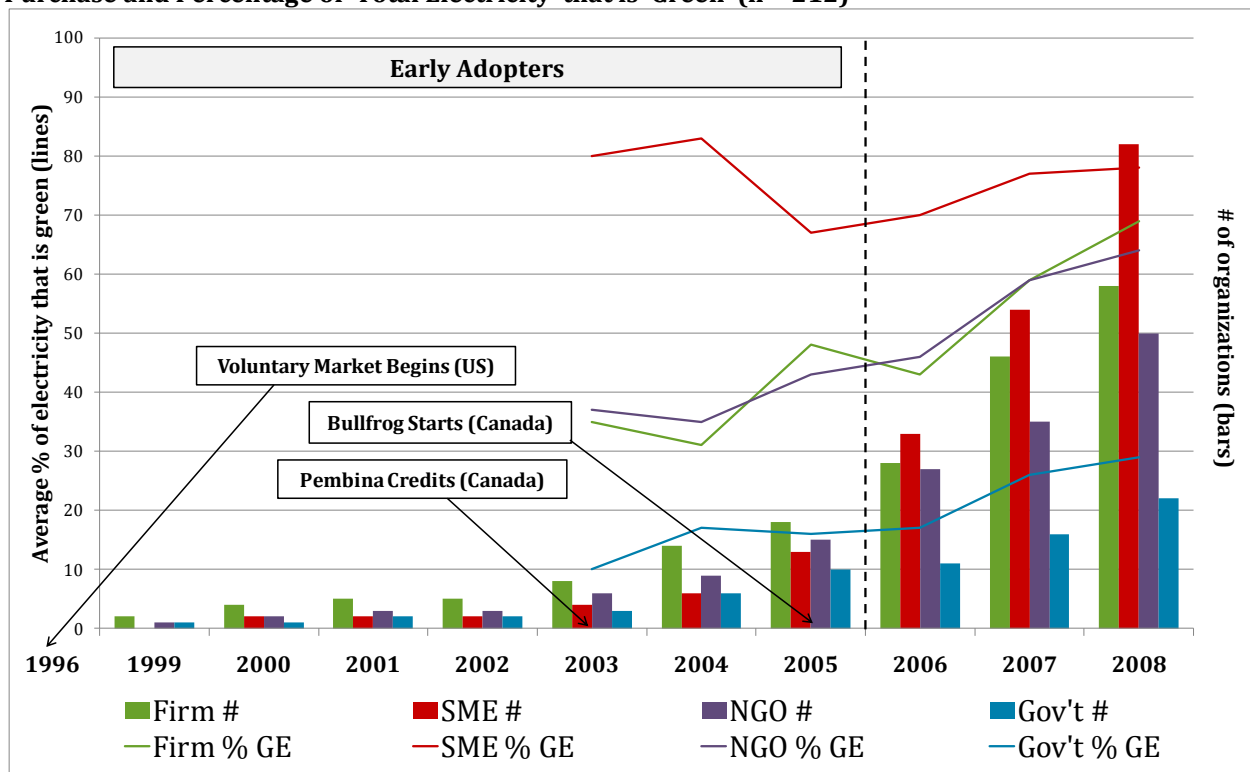
#### **4.1 Sample Characteristics**

Responses to an electronic survey (n = 212) provide insight into a sample of organizations who purchase green electricity in North America. Given the historical information presented in section 1.4, all these organizations can be considered as either 'early adopters' or 'later adopters'. Although options for purchasing green electricity have existed in North America for nearly two decades, adoption is still limited; at the time of the study, approximately one-tenth of one per cent of all organizations in North America did so. As such, all current purchasers of green electricity in North America can be considered innovators to use the language from diffusion theory. According to Rogers (1995), Egmond, Jonkers and Kok (2006) and Geltz (2008), organizations that perceive an innovation as being significantly advantageous relative to the status quo, compatible with organizational culture, reasonably easy to implement, and highly observable to others, will be more likely to adopt an innovation earlier. Diffusion of innovations theory suggests that innovator organizations are risk-taking, intuitive, challenge driven, long-term decision makers, and generally entrepreneurial in nature (Egmond et al., 2006). While the boundary between these two eras is somewhat arbitrary, a decision was made to use the end of 2005 as the division point – coincident with the emergence of Bullfrog Power in Canada and the more widespread availability of green electricity throughout the United States.

The sample was thus split into two categories of 'early adopters' and 'later adopters' because even within the innovator category, it is still important to discover why some organizations make green decisions earlier than others, especially when the decision under examination here does not solve any immediate problems within the organization and could be difficult to rationalize to management. Additionally, the voluntary decision to purchase green electricity does not involve the adoption of capital intensive technologies

and may therefore differ from Rogers' (1995) innovation adoption rate curve. Those who started purchasing green electricity prior to December 31, 2005 are referred to here as 'early adopters', while organizations that started purchasing on or after January 1, 2006 are referred to as 'later adopters'. Firms are considered to be large businesses if they have more than 20 employees, in contrast to small and medium-sized enterprises (SMEs) with 20 or fewer employees. The business categories are differentiated from non-governmental organizations (NGOs) by the goal of making a profit and achieving a financial return for investors. NGOs are not-for-profit organizations that work to achieve social and environmental goals in the community, which often have no short-term economic justification. The government (Gov't) category includes public departments and agencies ranging from federal to municipal levels (Figure 4.1).

**Figure 4.1: Voluntary Green Electricity Purchasing Trends in North America: # of Organizations that Purchase and Percentage of 'Total Electricity' that is 'Green' (n = 212)**



Significant differences were found across the four types of organizations in the sample with respect to jurisdiction, participation in LEED certification, and the length of energy management experience (Table 4.1). For example, 91 per cent of governments were



located in the United States, while 75 per cent of SMEs were located in Canada. Firms and NGOs were relatively evenly distributed between Canada and the United States. Furthermore, very few businesses have sought or achieved Leadership in Energy and Environmental Design (LEED) certification, a “third-party certification program and internationally accepted benchmark for the design, construction and operation of high performance buildings” (Canada Green Building Council, 2009). In contrast, more than one-third of social economy organizations and nearly two-thirds of government agencies participating in this study have achieved LEED certification. This higher level of interest in LEED certification among government agencies and social economy organizations is consistent with previously documented trends (Papadopoulos and Giama, 2009). Most organizations had experience with energy efficiency and conservation prior to purchasing green electricity, with governments having had the longest experience and SMEs the shortest.

Organizational types also differed based on their rate of green electricity adoption, the decision to increase the size of green electricity purchase over time, and the percentage of total electricity that is green (Table 4.1). NGOs and government agencies were more likely to be early adopters relative to large and small businesses, with less than one-third of SMEs being early adopters. Consequently, social economy organizations and governments have purchased green electricity for the longest period of time. Large businesses and social economy organizations that were early adopters started purchasing on average 35 per cent green electricity and have increased that over time. In fact, the green electricity percentage increased for all organizational types between 2005 and 2008 (Figure 4.1). By 2008, this was approaching 70 per cent for firms and NGOs because existing purchasers were increasing the size of purchase over time, and later adopters were entering the market with a larger initial green electricity contribution. Governments continued to purchase the smallest relative green percentage, but used the largest amount of electricity. In recent years, the fastest growing group of purchasing organizations in the sample was small businesses (bars). SMEs also purchase the largest percentage of green electricity (lines). When SMEs entered the market, they started purchasing on average 70-80 per cent green electricity and continued to purchase a higher percentage over time.

**Table 4.1: Description of Sample**

Total Sample n = 212	Firm (> 20 employees)	SME (≤ 20 employees)	NGO	Gov't	Chi Square
# of organizations	58	82	50	22	
Average Length of GE Purchase (Years)	3.5	2.8	3.6	4.0	
<b>% of Each Organizational Type</b>					<b>X<sup>2</sup> sig.</b>
Located in Canada	45%	75%	45%	9%	.000
Sought or achieved LEED	17%	2%	37%	64%	.000
Early adopters of GE	43%	29%	56%	62%	.003
Increased size of GE overtime	59%	33%	44%	48%	.029
Purchased 81-100% of electricity as GE	61%	78%	57%	19%	.000
<b>Size of Organization, Electricity Demand, and GE Purchase</b>					
Use less than 5000 kWh of electricity monthly	28%	94%	38%	0%	.000
Less than \$500,000 annual revenue	3%	64%	26%	0%	.000
Purchase less than 900 kWh GE per month	11%	85%	24%	0%	.000
<b>Energy Management Strategies by Length of Experience</b>					
≥ 4 years experience with energy efficiency	70%	45%	73%	81%	.002
≥ 4 years experience with energy conservation	62%	51%	67%	82%	.049

Notes: Chi square performed as df = 3: four organizational types; two categories for each variable in the leftmost column. For example, organizations that increased the size of GE vs. organizations that did not; organizations that purchase 81-100% of total electricity as GE vs. organizations that purchase ≤ 80% GE.

Significant differences were also established across the organizational types with respect to organizational size and the total quantity of green electricity purchased (Table 4.1). Most SMEs had annual revenues less than \$500,000 and used less than 5000 kWh of electricity per month. In contrast, nearly all firms and government agencies, as well as three quarters of NGOs, had annual revenues in excess of \$500,000; six firms even exceeded \$1 billion. Most firms, NGOs and all government agencies used more than 5000 kWh of electricity per month, and a few firms and government agencies exceeded 1,000,000 kWh. Nearly all SMEs purchased less than 900 kWh of green electricity per month, in comparison to a quarter of NGOs and 10 per cent of firms. These characteristics

make SMEs distinct from the larger firms and other organizations in the sample, and therefore warranted their inclusion as a fourth category for analysis.

The entire dataset is summarized in Appendices F-U using per cent frequency tables, which compare Canadian organizations to those from the United States by organizational type. Differences between countries are largely explained by organizational size and type variables, so controlling for organizational type (e.g., firm, SME, NGO, gov't) provided a more effective means for comparing the percentage of total electricity purchase that was green, as well as the factors that influenced the purchase decision. When comparing organizations based on the amount of electricity they consume, for example, the sample from the United States is over-represented by large energy demanding government agencies, while the Canadian sample is over-represented by SMEs that consume significantly less energy.

#### **4.2 Relative Importance of Factors to the Green Electricity Purchase Decision**

A cursory examination of the survey data makes it clear that not all respondents within a group answered the same way to key questions. Figure 4.2 provides insight into this issue of inter-case variation using boxplots. Boxplots are drawn such that the minimum and maximum value (typically one and five, respectively, when using a five-point ordinal scale) are shown by the tick mark at the end of the 'whiskers' that extend from the box in either direction. The middle 50 per cent of the observations are located in 'the box' between the lower quartile and upper quartile. The difference between the upper and lower quartiles is referred to as the interquartile range. The boxplots illustrate the variation in responses for the importance of different factors. Differences in spread are evident by the different sized boxes and differences in the extension of the whiskers. Differences in skewness are indicated by the position of the median within the box; a right-skewed distribution has a median that is closer to the lower quartile, and a left-skewed distribution has a median that is closer to the upper quartile.

There are nine factors included in the analysis of the importance of motivating and facilitating factors to the decision to purchase green electricity. The high median and relatively narrow interquartile range of the organizational culture and environmental

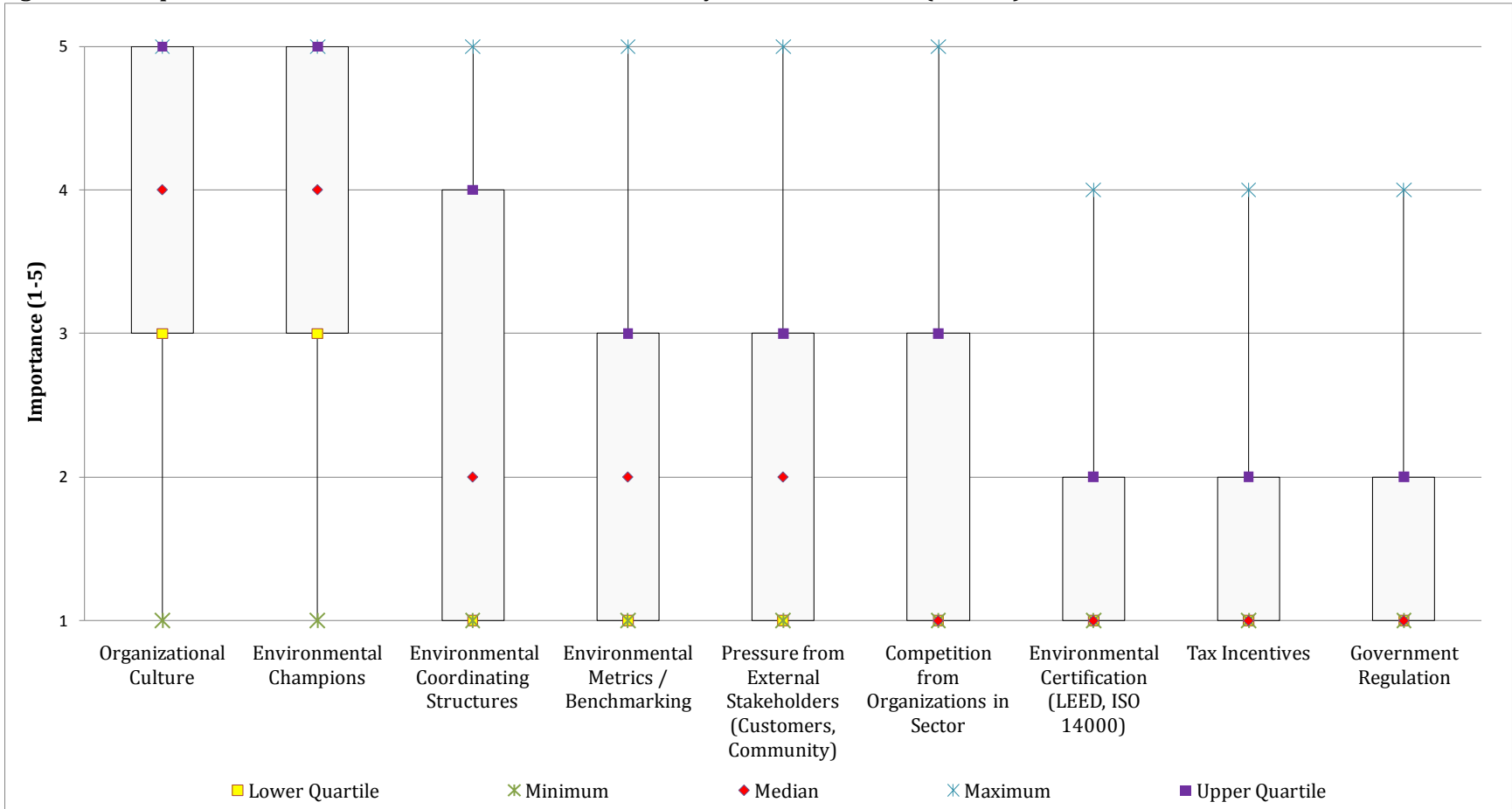
champion plots demonstrates the importance of these factors to most respondents. In contrast, the importance of environmental coordinating structures varied considerably within the sample, as this factor had a lower median but wider spread between quartiles.

Additional factors were less important to most respondents but showed different patterns of variation. For example, pressure from external stakeholders and environmental metrics and benchmarking had a median of two; however, their interquartile ranges demonstrate less variation within the sample. Competition from organizations in the same sector had a low median but showed more variation, suggesting that some respondents did feel this factor was important. In contrast, government regulation, tax incentives and environmental certification programs were not important to most organizations as evidenced by the median of one and the relatively narrow spread.

The plots in Figure 4.2 illustrate the importance of organizational culture and environmental champions relative to the other factors within the overall sample of 212 organizations, with three-quarters of respondents selecting organizational culture and environmental champions as three, four or five. In contrast, only one-quarter of organizations selected environmental certification, tax incentives and government regulation as three or four, and none selected five. Other factors such as environmental coordinating structures show a wide range of responses, suggesting that significant variation exists within the sample.

What is uncertain from these plots, however, is how the variation in responses differs across organizational types. The plots are also unable to illustrate if there is concordance within organizational types, as well as if two or more factors coincide in importance within the same organization. These issues are addressed in sections 4.3, 4.4 and 4.5.

**Figure 4.2: Boxplots of Factors that Influenced the Green Electricity Purchase Decision (n = 212)**



### **4.3 Differences across Organizational Types**

Differences in responses across organizational types based on the percentage of respondents who felt the factors were important in the decision to purchase green electricity are evident and are illustrated in this section. The survey included three categories of factors that are related to the organizational decision to purchase green electricity. The first concerns the metrics of success of energy management strategies. The review of the corporate environmental decision making literature in Chapter Two uncovered that many organizations are concerned with measuring environmental improvements and disseminating that information to the public to potentially attain green marketing benefits. This section of the survey therefore attempted to ascertain the importance of different metrics including the size of GHG emission reduction, operating cost reduction, public recognition, and comparing energy management performance to other organizations in the same industry or sector. Knowing which metrics are most important provides insight into the value that different organizational types place upon environmental benefits of energy decisions relative to economic benefits. This is also important because green champions driven by their personal environmental values may be more successful within organizations that place a high value on environmental criteria in organizational decision making (Gliedt et al., 2010).

The second category of factors included various potential green electricity purchase criteria. Previous studies focusing on green electricity adoption demonstrated that some organizations are concerned with the specific source of green electricity in the electricity mix, while others are more concerned with the electricity being generated locally. Diversification is an essential strategy for businesses to manage risk, so this section of the survey also examined how important the desire to create a diversified energy management strategy was relative to focusing exclusively on green electricity purchasing as the sole energy management strategy. Environmental certification of products is also an important criterion in organizational procurement decisions because the environmental benefits are accounted and disseminated to customers and other stakeholders in the community. The two dominant programs that certify green electricity in North America were included in

this section of the survey to evaluate the level of importance that organizations placed upon the actual environmental benefits from the green electricity purchase.

The third category focused on different factors that could be important to influencing the organizational decision to purchase green electricity. The corporate social responsibility literature highlighted the importance of organizational culture and values in environmental decisions. Additionally, the dynamic capabilities literature demonstrated that structures such as environmental committees provide capacity to adapt to changes in an organization's operating environment and may therefore help influence changes in procurement decisions in the direction of sustainability. The resource-based view of the firm literature suggested that environmental programs such as LEED or ISO 14000 can provide a strategic advantage for organizations and could also potentially influence organizations to purchase green electricity to gain points towards certification. The institutional theory literature argued that external institutional pressures from the community including government regulations can influence organizations to take environmental actions either for compliance with existing regulations or proactively if regulations or guidelines are believed to be imminent. The environmental strategy literature also suggested that organizations may make green decisions to compete with other organizations in their sector based on the use of environmental metrics and benchmarking. Finally, the green championship literature demonstrated that individuals within organizations can influence changes to processes, decisions, products, or procurement that can have a positive impact on sustainability. The importance of environmental champions was therefore evaluated relative to the importance of the other structural, cultural, and institutional factors included in this section of the survey.

Table 4.2 summarizes the percentages of respondents that attributed importance to different metrics, green electricity purchase criteria, and factors that influenced the green electricity purchase decision. The percentages of all survey respondents ( $n = 212$ ) that selected four or five for each variable are displayed in the second column, and the percentages that selected four or five for each organizational type are displayed in columns three through six. The final column shows the p-value if significant differences were found across organizational types at  $\alpha = 0.05$ ; in other words, if there is an association between the variable in the first column and the organizational type variable.

**Table 4.2: Metrics, Purchase Criteria, and Factors that Influenced the Purchase Decision**

Variables	% that answered very or most important (4 or 5)					df = 3
	All Respondents n = 212	Firm	SME	NGO	Gov't	X <sup>2</sup> sig.
<b>Metrics to Measure Success of Energy Management Strategies</b>						
Size of GHG emission reduction	74%	66%	80%	72%	79%	NS
Size of operating cost reduction	55%	64%	37%	57%	90%	.000
Public recognition	49%	55%	36%	52%	71%	.027
Compare to competition industry best practices	48%	60%	42%	47%	44%	NS
Meet government regulations	29%	33%	20%	29%	59%	.028
Size of profit increase	19%	31%	19%	12%	15%	NS
<b>Green Electricity Purchase Criteria</b>						
EcoLogo™/Green-e® certification	68%	70%	70%	59%	75%	NS
One in a basket of energy management strategies	56%	59%	44%	59%	73%	NS
Generated by wind	49%	49%	62%	34%	35%	.017
Generated by solar	43%	40%	61%	28%	16%	.000
Generated locally	37%	38%	43%	30%	30%	NS
Primary energy management strategy	34%	39%	41%	24%	25%	NS
Generated by small hydro	24%	19%	32%	19%	13%	NS
Primarily a marketing strategy	14%	18%	19%	5%	6%	NS
<b>Factors that Influenced Green Electricity Purchase Decision</b>						
Organizational culture	72%	81%	63%	81%	68%	NS
Environmental champions	69%	68%	66%	68%	82%	NS
Environmental coordinating structures (committees, departments)	29%	24%	15%	48%	55%	.000
Environmental metrics/benchmarking	19%	25%	11%	19%	30%	NS
Pressure from external stakeholders (customers, community)	16%	21%	7%	23%	23%	NS
Competition from organizations in sector	14%	24%	7%	9%	24%	.022
Environmental certification program (LEED, ISO 14000)	12%	13%	2%	24%	25%	.002
Tax incentives	8%	16%	6%	2%	0%	NA
Government regulation	7%	10%	3%	2%	18%	NA

Note: NS = not significant at  $\alpha = 0.05$ ; NA = did not meet chi square criteria



### **4.3.1 Importance of Metrics of Success for Energy Management Strategies**

Organizations valued measures of success for energy management strategies (e.g., efficiency improvements, green electricity purchasing, or on-site generation) differently based on their core values and strategic objectives. Respondents rated ‘the size of GHG emission reduction’ as the most important metric of success for energy management strategies independent of organizational type (Table 4.2). Significant differences were found for other metrics, namely, size of operating cost reduction, public recognition, and meets government regulations. For governments, the size of operating cost reduction was the most important metric. As the respondent from one government agency in the United States stated, the success of energy management strategies is measured using a “triple bottom line analysis.” In contrast, cost reduction was only important to 37 per cent of small businesses. Small businesses were less concerned with attaining public recognition and profiting from energy management strategies than large businesses, consistent with previous corporate social responsibility findings (Allen and Malin, 2008). Potential long-term cost savings was considered by some organizations as one non-profit respondent from the United States suggested: “the green electricity contract will save money over the long-run by locking in fuel costs.”

### **4.3.2 Importance of Purchase Criteria to the Specific Green Electricity Decision**

The percentage of respondents that considered various criteria important to the green electricity purchase decision did not differ significantly by organizational type for all but two of the criteria. One important criterion to most organizations was that the green electricity purchased was certified by an independent third-party (EcoLogo™ or Green-e®) (Table 4.2). Third-party certification systems are used to ensure that the amount of green electricity purchased is actually generated, and the environmental benefits actually achieved (Bird, 2002; Wisser, 1999). EcoLogo™ in Canada and Green-e® in the United States encourage suppliers to create new green electricity capacity, and to sell electricity with high green electricity content because annual audits are conducted and made available displaying the percentage of each energy source in the supply mix (Bird, 2002).

Organizations present the EcoLogo™ or Green-e® symbol on their websites to attain a strategic advantage over competition.

Another important criterion to most organizations (56 per cent overall) was that green electricity purchasing be only one part of a diversified energy management strategy. In contrast to the other organizational types, the percentage of SMEs that preferred green electricity to be part of a diversified strategy (44 per cent) was nearly identical to the percentage that preferred green electricity be the primary energy management strategy (41 per cent). This suggests that many SMEs purchase green electricity as their only energy management strategy due to its affordability, lack of up-front costs, and ease of adoption relative to the more technologically and time-intensive energy efficiency retrofits and on-site renewable energy generation installations.

All other criteria received a four or five in fewer than 50 per cent of the cases in the overall sample. Wind has the lowest lifecycle GHG emissions of any green electricity source (Evans et al., 2009), and was the preferred green electricity source for more respondents than either solar or small hydro. Ensuring that the green electricity purchased was generated locally received a four or five from only 37 per cent of organizations overall, suggesting that most organizations independent of type are less concerned with local economic development benefits of green electricity generation, and more concerned with the actual environmental benefits achieved regardless of the geographic location. Using green electricity purchasing as primarily a marketing strategy was important to fewer than 15 per cent of respondents overall and only five per cent of NGOs. Although the literature suggests that marketing and green image benefits are a major motivation for taking corporate social responsibility actions, these findings imply that organizations regard marketing benefits as a secondary consideration to actual environmental benefits.

#### **4.3.3 Importance of Factors that Influenced the Green Electricity Purchase Decision**

Internal resource-based factors (e.g., structures) were considered important to a greater percentage of respondents in the decision to voluntarily purchase green electricity than external institutional factors (e.g., pressure, competition) (Table 4.2). Environmental coordinating structures that can act as dynamic capabilities (e.g., environmental

committees, departments) were considered important factors in the decision to purchase green electricity to nearly a third of the overall respondents (Table 4.2). Environmental coordinating structures were selected as four or five in 24 per cent of corporations, which was similar to the percentage of firms selecting competition from organizations in the same sector and environmental metrics and benchmarking. Coordinating structures were important to a higher percentage of governments and social economy organizations than large firms, and were only important in 15 per cent of SMEs, which generally lack formal internal environmental structures. As one Canadian SME respondent exclaimed, “I am an independent business owner so committees and departments are not relevant, my own initiatives are!”

Environmental metrics and benchmarking were important to 19 per cent of organizations, with more than one-quarter of large businesses and government agencies selecting four or five. There was also a sense from open-ended responses that meeting environmental benchmarks was important, as evidenced by the respondent from one secondary sector firm in the United States: “goals are very important drivers of the decision to increase the use of renewable power and reduce GHG emissions.” Few organizations were pursuing LEED, but those that were rated LEED certification as moderately important to the decision to purchase green electricity. It is possible that the decision to purchase green electricity, and the decision to pursue LEED certification, were motivated by the same factors that influenced the organization to go green (e.g., organizational culture and values, environmental champions).

External institutional pressures were important to fewer than one-quarter of government and social economy organizations (e.g., pressure from external community), and large and small businesses (e.g., pressure from customers). Competition from organizations in the same sector, which is considered a strategic institutional pressure, was important to only 14 per cent of overall respondents including less than one-quarter of corporations. Government regulations and tax incentives were important to less than 10 per cent of overall respondents because voluntary green electricity purchasing is not mandated and few tax incentives are offered in North America to encourage purchasing. Previous research suggested that non-purchasing organizations would procure green electricity if regulations or tax incentives existed (Gliedt et al., 2010), and some

organizations re-affirmed this finding in open-ended answers as the following response from a large tertiary sector Canadian firm suggests: “there are no tax incentives now, but if there were, this would be an important factor.”

Environmental champions and organizational culture were selected as a four or five in approximately 70 per cent of respondent organizations (Table 4.2). A higher percentage of SME and government respondents selected champions than culture, while the reverse was true for large businesses and social economy organizations. There was no statistically significant difference across organizational types with respect to the power of champions or organizational culture. This verifies the important role of champions in the green electricity purchase decision identified by Gliedt et al. (2010).

Environmental champions appear to play a more prominent role in SMEs than within other organizational types, when considered relative to the percentage of respondents that attributed importance to environmental coordinating structures. Environmental champions were selected by SME respondents as an important factor 66 per cent of the time, compared to environmental coordinating structures, which were chosen by only 15 per cent of SMEs. Environmental coordinating structures were selected by between a quarter and a half of the other organizational types respectively, suggesting that the major driving force of voluntary environmental initiatives in SMEs is environmental champions. As one SME respondent who was also the environmental champion suggests: environmental initiatives like green electricity purchasing are often implemented “simply for personal satisfaction.” Another respondent from a Canadian SME in the tertiary sector explains: “I am simply trying to reduce my company’s carbon footprint.”

Most green electricity champions in businesses were the owner, CEO, or top manager of the organization (Table 4.3). This supports Branzei et al.’s (2004) suggestion that champions may be more effective as upper managers. Environmental managers and operations managers were champions in only 10 per cent and seven per cent of organizations, respectively. Businesses were more likely to have top managers be the champion than NGOs and government agencies. In SMEs, the champion was almost exclusively the owner. Operative-level champions in NGOs and government agencies included university students, a church congregation member, environmental committee

member, and lower-level staff members. There was a strong sense from open-ended responses that NGOs made the decision to purchase green electricity through a participative process with collective input from champions, operations workers and board of director members. As the respondent from one Canadian non-profit organization explained: “we agreed as a group that this is important to us” (Canadian NGO). These findings suggest that informal environmental committees are an important landscape for green electricity champions within social economy organizations.

Champions were almost always the employees who made the green electricity purchase decision in SMEs (Table 4.3). In large firms, social economy organizations and government agencies, however, the employees who made the green electricity purchase decision were vice presidents or equivalent senior managers in a third of organizations. In contrast, the actual green electricity champions were vice presidents in only 10-18 per cent of these organizations. Therefore, the champions held a different position in many large businesses, social economy and government agencies, relative to the person who actually made the green electricity purchase decision. This suggests that green electricity champions employing the techniques of framing, selling, and gathering support for the green electricity purchase within larger more hierarchal organizations, can do so either from the top-down or bottom-up.

The importance of championship techniques differed by organizational type, as demonstrated by the cross-tabulation displayed in Table 4.4 and Table 4.5. The championship techniques most frequently selected as four or five by organizations in the sample were ‘framing’ the green electricity purchase as urgent and ‘selling’ the green electricity purchase idea to the electricity purchasing decision maker. Selling techniques were important in most cases (53 per cent overall). As the respondent from a Canadian NGO stated, “we all thought it was a good idea...we just had to be pushed (by the champion) that we could and had to afford the extra cost.” The percentage of SMEs (25 per cent) that listed selling as the ‘most important’ championship technique was nearly identical to larger firms (24 per cent), which appears to contradict Berkhout and Rowlands’ (2007) proposition that “the necessity for green electricity to be sold by a senior executive is inversely related to the size of the organization.” Given that most champions in the SMEs in this sample were also the green electricity purchase decision maker, and that SMEs are

categorized here as having 20 or fewer employees, the technique of selling may be relatively less important within businesses at the smaller end of typical SME categorizations.

**Table 4.3: Position of Champion and Green Electricity Decision Maker**

Position of Champion					
	Firm	SME	NGO	Gov't	All Respondents n = 212
Owner/CEO/executive director	62%	89%	39%	25%	60%
Environmental manager	10%	3%	16%	18%	10%
VP (senior manager)	10%	1%	14%	18%	9%
Operations manager	9%	1%	13%	11%	7%
Other	9% a	6% b	18% c	29% d	13%
Total	100%	100%	100%	100%	100%
Who Makes Green Electricity Purchase Decision					
	Firm	SME	NGO	Gov't	Overall Respondents n = 212
Owner/CEO/executive director	50%	90%	34%	19%	55%
VP (senior manager)	32%	10%	31%	28%	24%
Environmental manager	3%	0%	5%	9%	3%
Environmental department/committee	9%	0%	12%	6%	6%
Other	6% e	0%	18% f	38% g	12%
Total	100%	100%	100%	100%	100%

Note: open-ended responses were completed in 'other' cases and are included in the legend:

**Legend:**

- a) Environmental committee members, marketing manager
- b) Lower level employee, entire management team, business partner
- c) Board of directors, "each of us on membership team believes this is important", participative decision with wide spread input and support, a church congregation member, environmental committee members, lower level staff member
- d) Students, director of engineering, city council, mayor
- e) Energy department, energy management team, director of facilities, marketing director
- f) Board of directors, leadership team in consultation with all members, property manager, "all of us... we operate on consensus"
- g) Town council, students

The percentage of respondents that selected the 'scanning' and 'gathering support' championship techniques as five differed between SMEs and NGOs. In fact, 67 per cent of organizations that listed scanning the media, literature and competitors for energy management ideas as 'most important' were SMEs. The respondent from a Canadian SME describes a scanning technique that could help overcome a lack of slack resources that

characterizes many SMEs and other small organizations: “we scanned our clients and larger organizations that we trusted had the resources to do the homework - to support our gut decision.” On the other hand, 50 per cent of organizations that selected gathered support for the green electricity purchasing idea from other employees in the organization as ‘most important’ were social economy organizations.

Some champions in large firms recognized the importance of the strategic benefits of green electricity purchasing. One champion in a Canadian manufacturing firm “interviewed the strategic accounts manager to measure the perceived value” prior to gathering support for the green electricity idea from decision makers. Another green electricity champion in a secondary sector firm in the United States explained his or her own championship process:

I submitted a proposal to upper management that showed how the green electricity purchase would align with our other environmental initiatives and would make a strong statement to our customers about our commitment to the environment and reducing our environmental impact. I also suggested the marketing payback to be able to promote this purchase when selling our products to help offset the cost of the green power purchase.

These responses highlight the broader importance that many environmental champions place upon the voluntary decision to purchase green electricity, which goes beyond the environmental benefits to include social and economic objectives. This suggests that champions believe their organization considers multiple factors when making decisions, and that they tailor their approach accordingly. The next sections investigate whether there are similarities in the patterns of responses within organizational types, as well as if multiple factors in combination are important in the decision to purchase green electricity.

**Table 4.4: Importance of Championship Techniques by Organizational Type: Scanning and Framing**

Organizational Type	Frequency Distributions	Scanned Media, Literature, Competitors for Energy Management Ideas					Total
		Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
SMEs (≤ 20 employees)	Count	3	9	17	17	12	58
	% Within organizational type	5%	16%	29%	29%	21%	100%
	% Within Importance Category	21%	29%	38%	32%	67%	36%
Large Firms (> 20 employees)	Count	5	10	13	18	1	47
	% Within Organizational Type	11%	21%	28%	38%	2%	100%
	% Within Importance Category	36%	32%	29%	34%	6%	29%
Non-profit	Count	4	7	13	10	5	39
	% Within Organizational Type	10%	18%	33%	26%	13%	100%
	% Within Importance Category	29%	23%	29%	19%	28%	24%
Government	Count	2	5	2	8	0	17
	% Within Organizational Type	12%	29%	12%	47%	0%	100%
	% Within Importance Category	14%	16%	4%	15%	0%	11%
<b>Total</b>	Count	14	31	45	53	18	161
	% Within Organizational Type	9%	19%	28%	33%	11%	100%
	% Within Importance Category	100%	100%	100%	100%	100%	100%

Organizational Type	Frequency Distributions	Framed Green Electricity Purchase as 'Urgent'					Total
		Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
SMEs (≤ 20 employees)	Count	7	9	10	18	15	59
	% Within Organizational Type	12%	15%	17%	31%	25%	100%
	% Within Importance Category	29%	39%	30%	38%	45%	37%
Large Firms (> 20 employees)	Count	7	3	13	12	11	46
	% Within Organizational Type	15%	7%	28%	26%	24%	100%
	% Within Importance Category	29%	13%	39%	25%	33%	29%
Non-profit	Count	7	8	7	10	6	38
	% Within Organizational Type	18%	21%	18%	26%	16%	100%
	% Within Importance Category	29%	35%	21%	21%	18%	24%
Government	Count	3	3	3	8	1	18
	% Within Organizational Type	17%	17%	17%	44%	6%	100%
	% Within Importance Category	13%	13%	9%	17%	3%	11%
<b>Total</b>	Count	24	23	33	48	33	161
	% Within Organizational Type	15%	14%	20%	30%	20%	100%
	% Within Importance Category	100%	100%	100%	100%	100%	100%



**Table 4.5: Importance of Championship Techniques by Organizational Type: Selling and Gathering Support**

Organizational Type	Frequency Distributions	Sold Idea to Purchase GE to the Electricity Purchasing Decision Maker					Total
		Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
SMEs (≤ 20 employees)	Count	16	5	8	13	14	56
	% Within Organizational Type	29%	9%	14%	23%	25%	100%
	% Within Importance Category	43%	45%	31%	25%	42%	35%
Large Firms (> 20 employees)	Count	10	3	9	13	11	46
	% Within Organizational Type	22%	7%	20%	28%	24%	100%
	% Within Importance Category	27%	27%	35%	25%	33%	29%
Non-profit	Count	9	2	8	14	4	37
	% Within Organizational Type	24%	5%	22%	38%	11%	100%
	% Within Importance Category	24%	18%	31%	27%	12%	23%
Government	Count	2	1	1	11	4	19
	% Within Organizational Type	11%	5%	5%	58%	21%	100%
	% Within Importance Category	5%	9%	4%	22%	12%	12%
<b>Total</b>	Count	37	11	26	51	33	158
	% Within Organizational Type	23%	7%	16%	32%	21%	100%
	% Within Importance Category	100%	100%	100%	100%	100%	100%

Organizational Type	Frequency Distributions	Gathered Support for the GE Idea from Other Employees in the Organization					Total
		Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
SMEs (≤ 20 employees)	Count	33	5	7	7	3	55
	% Within Organizational Type	60%	9%	13%	13%	5%	100%
	% Within Importance Category	60%	33%	28%	15%	19%	35%
Large Firms (> 20 employees)	Count	12	8	8	14	3	45
	% Within Organizational Type	27%	18%	18%	31%	7%	100%
	% Within Importance Category	22%	53%	32%	29%	19%	28%
Non-profit	Count	7	1	7	18	8	41
	% Within Organizational Type	17%	2%	17%	44%	20%	100%
	% Within Importance Category	13%	7%	28%	38%	50%	26%
Government	Count	3	1	3	9	2	18
	% Within Organizational Type	17%	6%	17%	50%	11%	100%
	% Within Importance Category	5%	7%	12%	19%	13%	11%
<b>Total</b>	Count	55	15	25	48	16	159
	% Within Organizational Type	35%	9%	16%	30%	10%	100%
	% Within Importance Category	100%	100%	100%	100%	100%	100%

#### **4.4 Factor Concordance within Organizational Types**

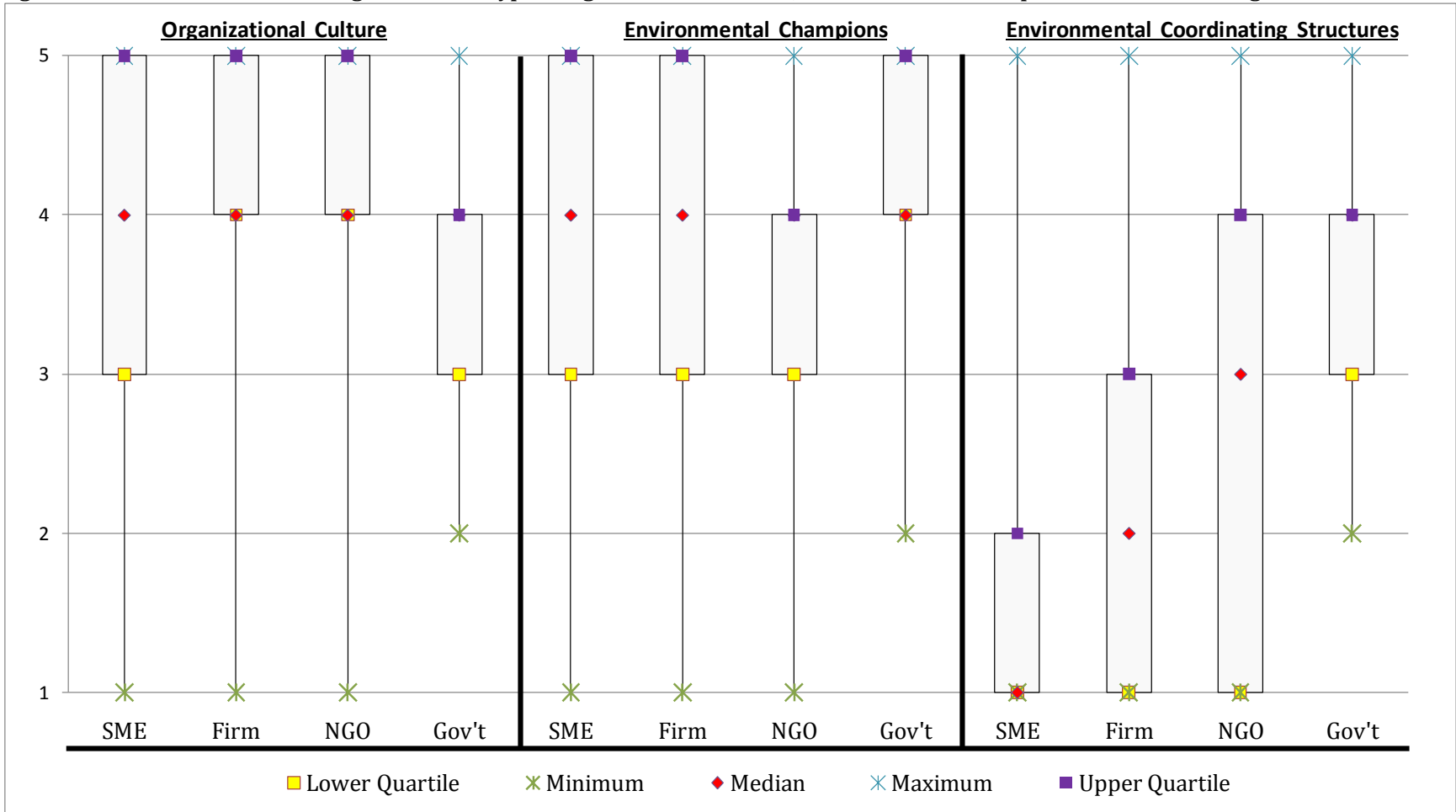
Two of the three factors that were selected by the highest percentage of respondents overall (n = 212), organizational culture and environmental champions, displayed a relatively high level of concordance within most organizational types. In fact, 50 per cent of SMEs, firms and NGOs, as well as half of SMEs, firms and government agencies, selected four or five for organizational culture and environmental champions, respectively. The third factor, environmental coordinating structures, had the widest variety of responses across organizational types. This included a high level of concordance within the SME and government groups, but at opposite ends of the scale (Figure 4.3).

Some organizational types showed a high level of concordance for certain factors. This is evident for firms and NGOs, given that three-quarters of respondents selected four or five for organizational culture. Government agency responses were more similar relative to the responses by other organizational types for the importance of environmental champions, as well as for environmental coordinating structures relative to similar-sized firms and NGOs. Environmental coordinating structures were not important to most SMEs, and not surprisingly, SMEs displayed the most concordance for this factor as three-quarters of respondents selected one or two.

Organizational types demonstrated less similarity within their groups for other factors, which suggests that these factors were important to some respondents within each group and not important to others. SMEs, for example, showed less concordance for culture than the other organizational types. SMEs and firms demonstrated more variation within their groups for environmental champions than NGOs and government agencies. Furthermore, firms and NGOs displayed more variation with respect to the importance of environmental coordinating structures than SMEs and government agencies.

Upon closer examination, however, response patterns differed between the organizational culture and environmental champion variables for three organizational types (firms, NGOs, Gov't). This suggests that one factor may be important when the other is not in some cases. It is thus imperative to look for coincidences between two or more factors deemed important within organizations.

**Figure 4.3: Concordance within Organizational Types: Organizational Culture, Environmental Champions and Coordinating Structures**



## 4.5 Factor Coincidence

This section summarizes the percentage of respondents that reported more than one factor as being important, which is shown in Table 4.6 as the percentage of co-occurrence at four or five for both factors for the overall sample of organizations (n = 212). A majority of respondents (51 per cent) believed that organizational culture and environmental champions were both important (both receiving a four or five). Other factor combinations that occurred in more than 10 per cent of organizations include environmental champions and environmental coordinating structures; organizational culture and environmental coordinating structures; as well as the combination of either champions or culture, with environmental metrics and benchmarking, external pressure and competition, respectively.

The green decision making literature supports the notion that different factors, when occurring in combination, may increase the likelihood of an organization voluntarily making green decisions. For example, Howard-Grenville et al. (2008) suggested that internal organizational factors may interact with each other to influence environmental decisions. This can include individuals being driven to take action by organizational environmental cultures, or conversely, potential environmental champions may be impeded or supported by different types of organizational structures. Bansal (2003) highlighted the importance of a supporting organizational culture to the selection of issues by champions for selling to decision makers within the organization. Conversely, Juravle and Lewis (2009) argued that firms lacking sustainability cultures are less likely to foster the development of champions. In yet another study, Hostager et al. (1998) found that internal environmental coordinating structures may enhance green championship processes in firms.

Darnall, Henriques and Sadorsky (2010) discovered that decision makers in SMEs responded more rapidly to demands for environmental action from external stakeholders, as well as from internal employees, than their counterparts in larger firms. The quicker response of SMEs occurred because they tended to fear repercussions from external stakeholders and employees, which could potentially have an effect on organizational survival. The rapid response was possible due to the direct decision making processes and

greater innovation capabilities that characterize many SMEs. Darnall et al.'s (2010) conclusion implies that managers within SMEs are more likely to champion green initiatives if external stakeholder pressure is high.

Berkhout and Rowlands (2007) postulated that internal organizational processes, capabilities and culture may be equally as important to influencing potential champions to take action as the personal environmental values of the individuals themselves. This assertion led Berkhout and Rowlands to examine “the role of organizational values in affecting the likelihood of a firm to adopt an initiative that is good for the environment but not necessarily good for the firm” (p. 286). The factor coincidences in Table 4.6 offer one answer to this question by suggesting that organizational culture and values provide support to, or have an influence on, environmental champions. Further analysis was required to see if factors were important in combinations of three or four, as well as whether the important combinations differed by organizational type.

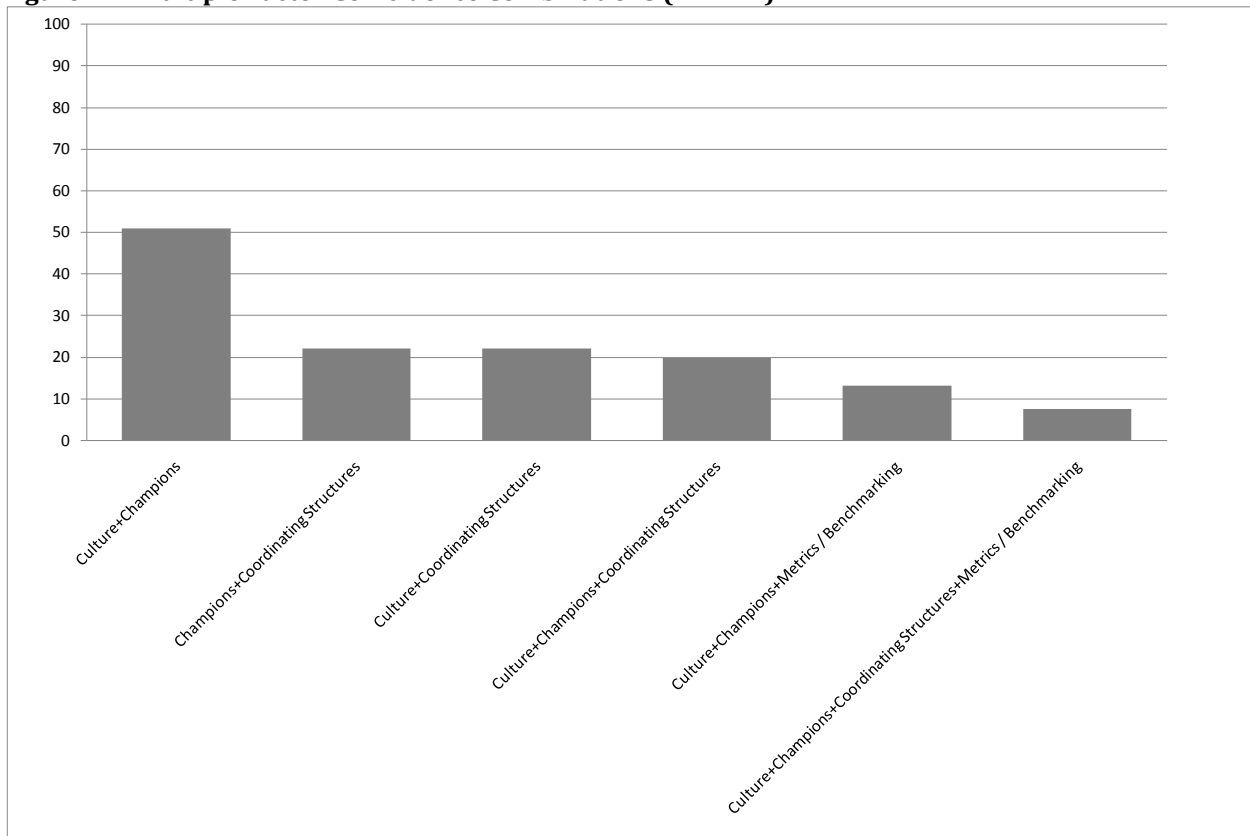
**Table 4.6: Percentage of Respondents that Selected Both Factors as 4 or 5 (n = 212)**

	Organizational Culture	Champions	Coordinating Structures	Metrics / Benchmarking	External Pressure	Competition	Certification	Tax Incentives	Government Regulation	Individual Factor
Organizational Culture	X	51	22	15	14	11	9	4	5	72
Champions	51	X	22	15	10	11	9	4	4	69
Coordinating Structures	22	22	X	8	6	6	6	2	3	29
Metrics / Benchmarking	15	15	8	X	4	5	5	4	3	19
External Pressure	14	10	6	4	X	6	2	2	1	16
Competition	11	11	6	5	6	X	3	3	2	14
Certification	9	9	6	5	2	3	X	2	1	12
Tax Incentives	4	4	2	4	2	3	2	X	2	8
Government Regulation	5	4	3	3	1	2	1	2	X	7
Individual Factor	72	69	29	19	16	14	12	8	7	X

Notes: Champions refers to environmental champions; coordinating structures refers to environmental coordinating structures; metrics and benchmarking refers to environmental metrics and benchmarking; certification refers to environmental certification (LEED, ISO 14000). The individual factor row denotes the percentage of the overall respondents that selected 4 or 5 for each individual factor (e.g., champions). These are the same figures presented in Table 4.2, and are included here for comparative purposes only.

While Table 4.6 shows the percentage of co-occurrence of two factors, combinations of three or four factors are also possible. Organizational culture, environmental champions and environmental coordinating structures were important in combination within 20 per cent of organizations in the sample. In contrast, environmental champions and environmental coordinating structures, as well as organizational culture and environmental coordinating structures in combination, were important within 22 per cent of organizations. This suggests that in cases where environmental coordinating structures were important, they potentially aided, but clearly did not detract from, the importance of environmental champions and organizational culture. Combining culture, champions and coordinating structures with environmental metrics and benchmarking as a combination of four factors was only important to eight per cent of organizations (Figure 4.4).

**Figure 4.4: Multiple Factor Coincidence Combinations (n = 212)**



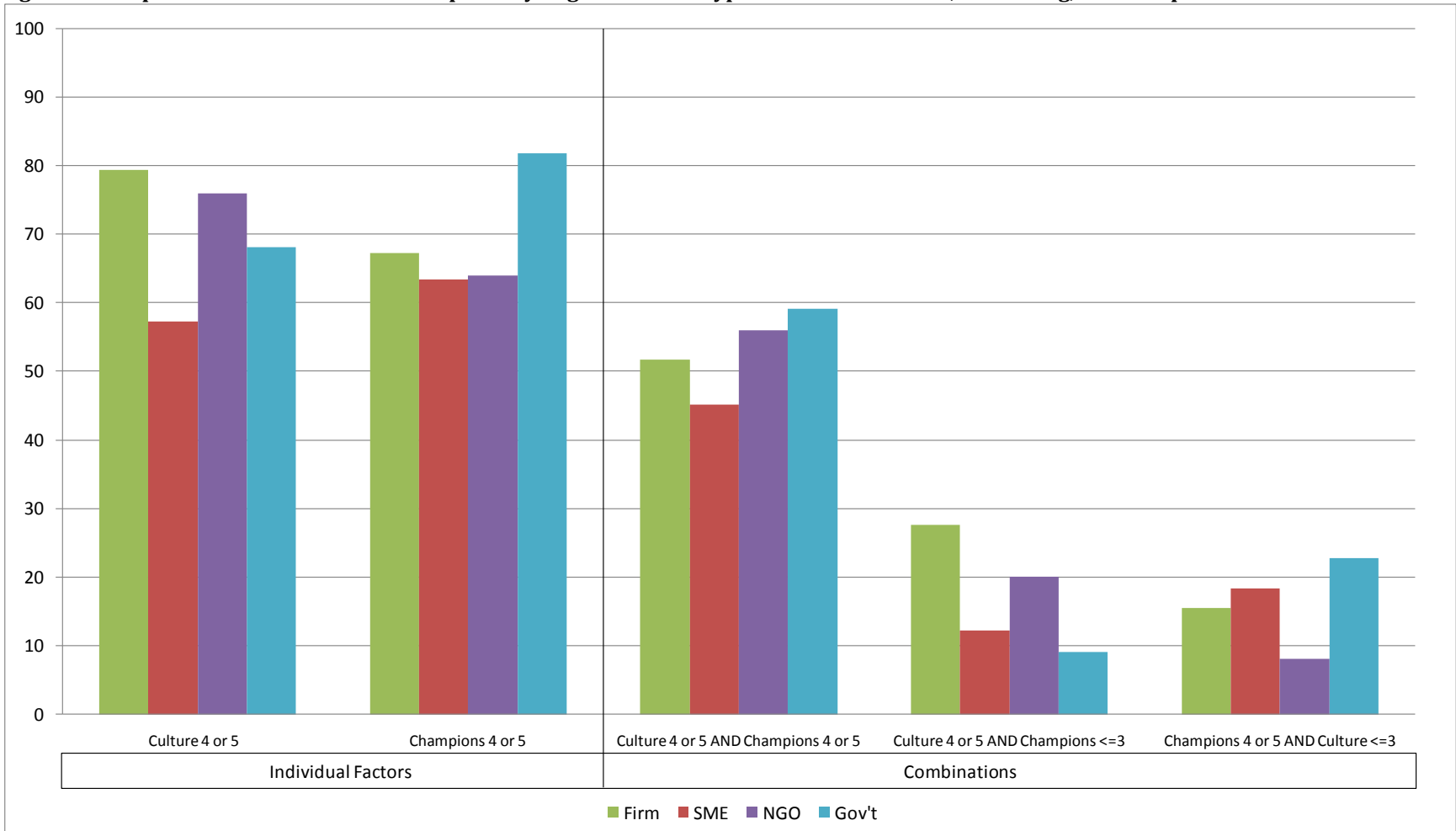
The factor coincidence analysis elucidates that organizational culture and environmental champions co-exist within many voluntary green electricity purchasing decision making processes. Table 4.6 and Figure 4.4 demonstrate that organizational culture and environmental champions are important in combination with each other, as well as in combination with other factors in some organization. This is emphasized further in Figure 4.5, which shows that when considered as individual factors, culture and champions were important to more than 60 per cent of each organizational type with the exception of SMEs. In combination, culture and champions were still important to more than 50 per cent of organizations in each type except SMEs. In contrast, culture was important (four or five) in fewer cases when champions were not important as represented by responses of three or less. This was also true when culture was not important (less than or equal to three) and champions were important (four or five).

Figure 4.5 implies that environmental champions and organizational culture were important to more organizations in combination than they were independent of the other. It is interesting to note that less than 10 per cent of NGOs felt champions were important when culture was not, as denoted by responses of three or less, despite more than 60 per cent of NGO respondents listing champions as four or five. This suggests that most champions were only important if the organizational culture was also important, and by extension, the organizational culture provided a supportive context for the green champion.

Nearly one-third of large firms felt that organizational culture was important when environmental champions were not, which was the largest percentage of the four organizational types. This is somewhat surprising given the prevalence of environmental champions in the corporate environmental decision making literature (Andersson and Bateman, 2000). It does, however, support previous findings that highlighted the importance of organizational culture within larger more hierarchical organizations that make environmental decisions in a complex and interconnected manner (Berkhout and Rowlands, 2007).



**Figure 4.5: Importance of Culture and Champions by Organizational Type: Individual Factors, Coinciding, and Independent of Each Other**

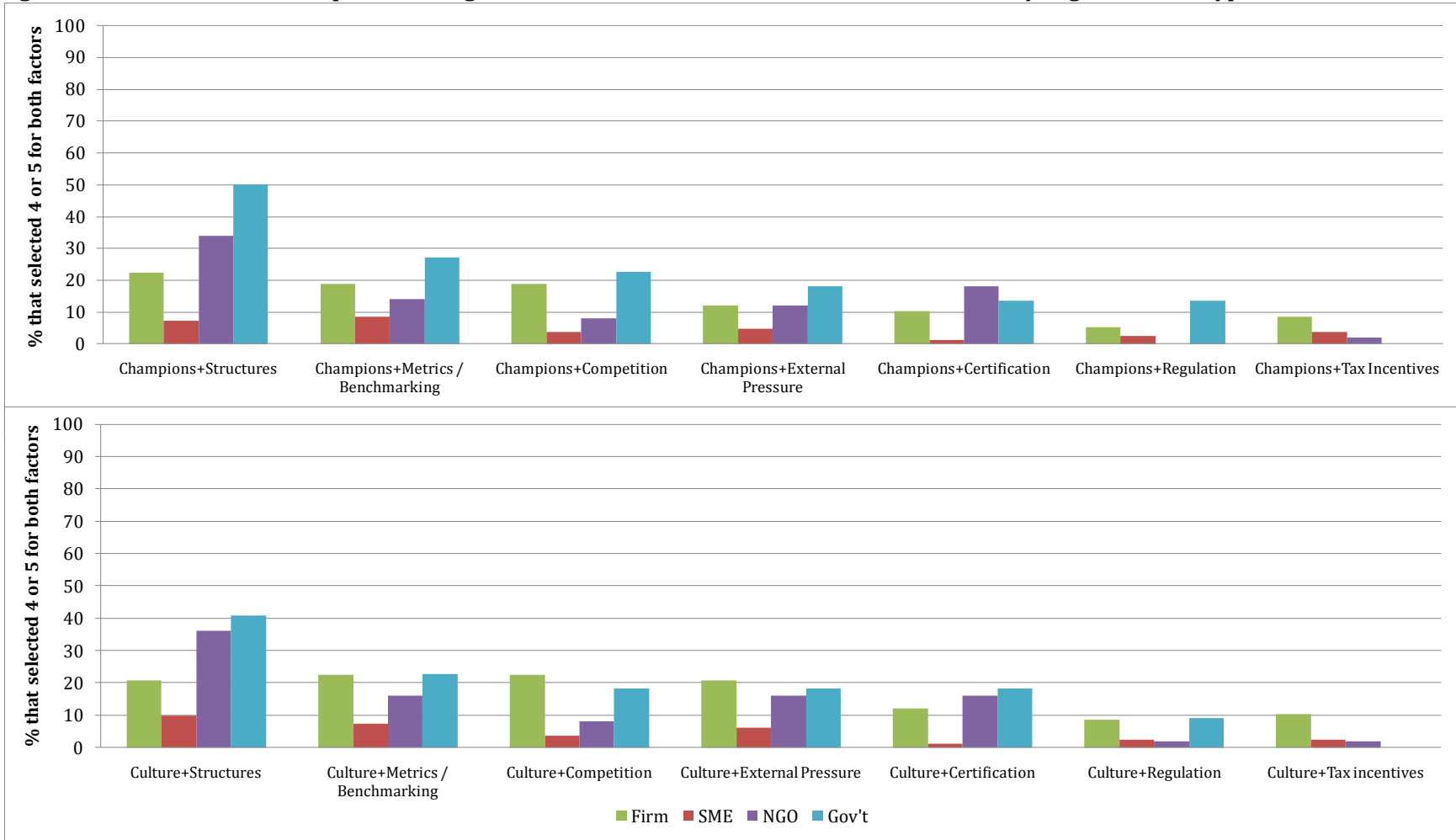


The combination of environmental champions and other factors including organizational culture and environmental coordinating structures was less frequently identified by SME respondents than the other organizational types in the study (Figure 4.6). This finding supports previous interview-based studies within businesses in Ontario and Alberta, respectively. Berkhout and Rowlands (2007) discovered that environmental champions can be successful in SMEs absent environmental structures; however, most of those champions did work within an organization characterized by a green organizational culture, which provided support for their effort to influence the organization to make a voluntary green decision. Gliedt et al. (2010) established that successful environmental champions operated within organizations with green cultures; conversely, a rational economic culture was found to limit a potential champion.

The factor coincidence analysis in Figure 4.6 contradicts Darnall et al.'s (2010) conclusion that management within SMEs are more likely than management in larger firms to champion green decisions in the presence of external stakeholder pressure. In fact, only five per cent of SMEs selected environmental champions and external pressure as being important, as compared to 12 per cent of firms and NGOs, and 18 per cent of government agencies. Furthermore, champions and culture were the only combination selected by more than 10 per cent of SME respondents. On the other hand, champions were selected as four or five in combination with culture, environmental coordinating structures, environmental metrics and benchmarking, external pressure and environmental certification by more than 10 per cent of NGO respondents.

These findings suggest that environmental champions may have found it necessary to draw upon environmental structures within firms, NGOs and government agencies that lacked a green organizational culture. Even in the absence of a supportive organizational culture, environmental structures or external pressure from competition and community stakeholders may have helped some champions gather support for the green decision and frame it within strategic terms. This is especially true for government agencies, where respondents selected both champions and environmental coordinating structures as four or five in 50 per cent of cases, the highest combination of factors aside from champions and culture.

**Figure 4.6: Environmental Champions and Organizational Culture: Coincidence with Other Factors by Organizational Type**



#### **4.6 Factors that Influenced Organizations to Increase the Size of Green Electricity Purchase**

While the decision to purchase green electricity demonstrates environmental initiative, the size of purchase is critical to achieving actual environmental benefits. The most frequent reason why organizations increased the size of green electricity purchase over time was for strategic motivations including the marketing benefits accrued from the partnership with the green electricity supplier or the EPA Green Power Partnership Program (Table 4.7). Small businesses were most likely to consider the decision to increase the size of green electricity purchase as part of a marketing strategy, which is critical to overcoming a lack of slack financial resources (Lepoutre and Heene, 2006). Other strategic motivations included the desire to fulfill internal environmental strategy requirements, the increasingly cost competitive position of green electricity relative to fossil-fuel based electricity, and to gain more points toward LEED certification.

The second most common response overall, and particularly in businesses, was green organizational culture and environmental champions. Organizational culture and values are therefore important to the decision to purchase green electricity, as well as increase the size of purchase over time. This is an important discovery, as no known studies provide empirical insights into whether the factors that influence organizations to increase the size of a voluntary green initiative are the same as those that fostered the original decision to adopt the initiative. Environmental champions were listed more frequently than organizational culture by NGOs and governments, which are both organizational types characterized by limited budget capacity for additional expenditures. Champions may consequently be important to the decision to expand existing environmental programs within cost-conscious and collective decision making environments.

The third most frequently cited factor was organizational expansion, which signifies that many organizations consider it important to offset the environmental impacts of organizational growth. The fourth but least frequently selected category encompasses external pressure including the desire to adhere to social norms, as well as contribute to the development of local wind capacity.

**Table 4.7: Counts of Responses that were Deemed Important to the Decision to Increase the Size of Green Electricity Purchase**

Reason Given for Increasing Size of Green Electricity Purchase	Firm (>20 employees)	SME (≤ 20 employees)	NGO	Gov't	Total Count
<b>Strategic Motivations</b>					
Partnership with GE supplier (e.g., for marketing), availability and awareness of GE supplier, desire to be on EPA partnership leadership list, marketing strategy	8	11	3	2	24
To fulfill internal environmental strategy requirements, meet benchmarks	5	2	2	3	12
Increasing cost of conventional electricity, cost reduction of GE	5	-	3	1	9
To gain more LEED points, or meet LEED certification	1	-	1	3	5
Savings from energy management programs allowed us to invest in GE	1	-	1	-	2
<b>Green Organizational Culture and Environmental Champions</b>					
Social responsibility, the right thing to do, corporate awareness, concern for future generations, organizational culture, lead by example, climate change, importance of reducing carbon footprint, commitment to environment	8	8	3	-	19
Environmental champions	2	1	4	3	10
<b>Organizational Expansion</b>					
Organizational growth, moved into new or bigger building, size of electricity use, increased budget, expansion into new markets	7	3	3	2	15
<b>External Pressure</b>					
To support the development of new local wind capacity	1	-	2	1	4
External institutional pressure, social norms	2	-	-	1	3
<b>Total Count</b>	<b>40</b>	<b>25</b>	<b>22</b>	<b>16</b>	<b>103</b>

Note: This question was open-ended. Care was taken to ensure that respondent answers were grouped accurately for analysis. Some organizations provided two responses, while other organizations did not provide any response. All responses were grouped here in order to highlight the diversity of reasons for increasing the size of the green electricity purchase over time.

## **4.7 Discussion**

This study examined the nature and extent of the association between organizational attributes and (a) the motivating and facilitating factors of a green championship decision, and (b) the techniques of green championship. The previous sections of this chapter reviewed the survey results and discussed the significant differences between organizational types. The following sections address the specific research objectives in turn in relation to the theme of strategic green decisions.

### **4.7.1 Association between Organizational Attributes and the Motivating and Facilitating Factors of Green Championship**

Although significant differences were found with respect to the importance attributed to environmental coordinating structures, competition, and environmental certification programs, the importance of the most frequently selected factors (environmental champions, organizational culture) did not differ significantly across organizational types. Champions were important in all organizational size and type demarcations in the sample. Coordinating structures were important to a greater percentage of social economy organizations and government agencies than businesses. The infrequency with which respondents attributed importance to pressure from external factors, including government coercion, customers, suppliers, and competition, implies that the green electricity purchase decision is driven almost exclusively by internal factors.

Many organizations are concerned with achieving a strategic advantage from either the decision to purchase green electricity, or the decision to increase the size of the purchase over time. Respondents from all organizational types emphasized the importance of attaining a strategic green advantage through marketing the third-party certification of the green electricity purchase (EcoLogo™ or Green-e®). While not directly important to the decision to purchase green electricity, LEED certification did influence some organizations to increase the size of green electricity purchase to gain more points towards certification. Strategic benefits were the most frequently selected reason why organizations increased the size of purchase, suggesting that organizations may require strategic

structures in combination with environmental champions and organizational culture to promote the expansion of a green initiative. Most organizations that had internal environmental structures felt they were at least somewhat important to the decision to purchase green electricity. In organizations that did not have internal environmental structures, non-structural factors including organizational culture and the role of individual champions were more frequently selected as important to the decision to purchase green electricity.

It appears that voluntary green decisions can occur in any size or type of organization that has a green champion who is able to make a compelling case for the purchase, either because it fits with organizational culture and values, or because it can advance the strategic position of the organization. Structural factors are important but not definitive motivators or facilitators of green decisions. Rather, it is the individual agency within organizations that is the most important motivating and facilitating factor of the decision process that led to the voluntary purchase of green electricity. Additionally, the wide range found for the position of champions suggests that individual agents are able to influence organizational decisions in the direction of sustainability from the top-down or bottom-up. Champions were successful within large hierarchical organizations, multi-national firms, non-profit organizations, and small businesses with less than 20 employees.

The critical motivating and facilitating factors of the decision to purchase green electricity appear to be organizational culture and the personal values of the champion. This is further demonstrated by the eight organizations in the sample that selected environmental champions as 'not important' to the decision to purchase green electricity (one on a five-point scale). Of these organizations, five stated that organizational culture was the very or most important factor in the decision (four or five); one said that competition from external organizations was very important, and two selected internal environmental structures as very important. Only three out of 212, or 1.4 per cent of organizations in the sample, made the decision to purchase green electricity absent any contribution from organizational culture or environmental champions. This supports the factor coincidence analyses, which revealed that 51 per cent of organizations in the sample selected both environmental champions and organizational culture as a four or five on the five-point scale. Additionally, less than 20 per cent of organizations in the sample selected

either organizational culture (18 per cent) or environmental champions (16 per cent) as a four or five when the other factor received a three or less. Given that champions and organizational culture appear to be somewhat related, and that most respondents from all organizational types believed champions are an important motivating and facilitating factor of the decision to purchase green electricity, it is important to look for differences between organizational types with respect to the techniques used by champions.

#### **4.7.2 Association between Organizational Attributes and Techniques of Green Championship**

The percentage of respondents who attributed importance to the techniques of environmental championship differed by type of organization. Government champions were more likely to sell the green electricity purchase idea to the person who makes the decision, while social economy champions were more likely to gather support from other employees in the organization in line with collective decision making processes and consensus-based organizational cultures. Conversely, small business champions were the least likely to gather support for the green electricity purchase due to the champion being the owner and green electricity decision maker in 90 per cent of cases. Within organizations that use metrics and benchmarking (e.g., large businesses and government agencies), champions emphasized the importance of green electricity purchasing to improving the organization's metrics, which then become a resource-based advantage.

Environmental outcomes (e.g., size of GHG emission reduction) was the most important measure of success of energy management strategies overall and did not differ significantly between organizational types. Environmental champions can use this to their advantage when selling the idea of paying a premium price for green electricity. Organizations that rated the size of operating cost reduction as a high priority measure of success (e.g., governments) purchased the lowest percentage of green electricity. Conversely, organizations that placed a low priority on the same criterion purchased the highest percentage of green electricity (e.g., SMEs). The cost of green electricity is thus an impediment to the size of green electricity purchase, which is supported by Welch and Barnum (2009) who found a significant difference still exists between cost-efficient and



carbon-efficient electricity supply options. This highlights the importance for early adopter organizations to voluntarily pay a premium price for green electricity. It also supports the notion that environmental champions wishing to convince their organization to increase the size of green electricity purchase should focus on selling the strategic benefits of the purchase above and beyond the environmental benefits (Table 4.7).

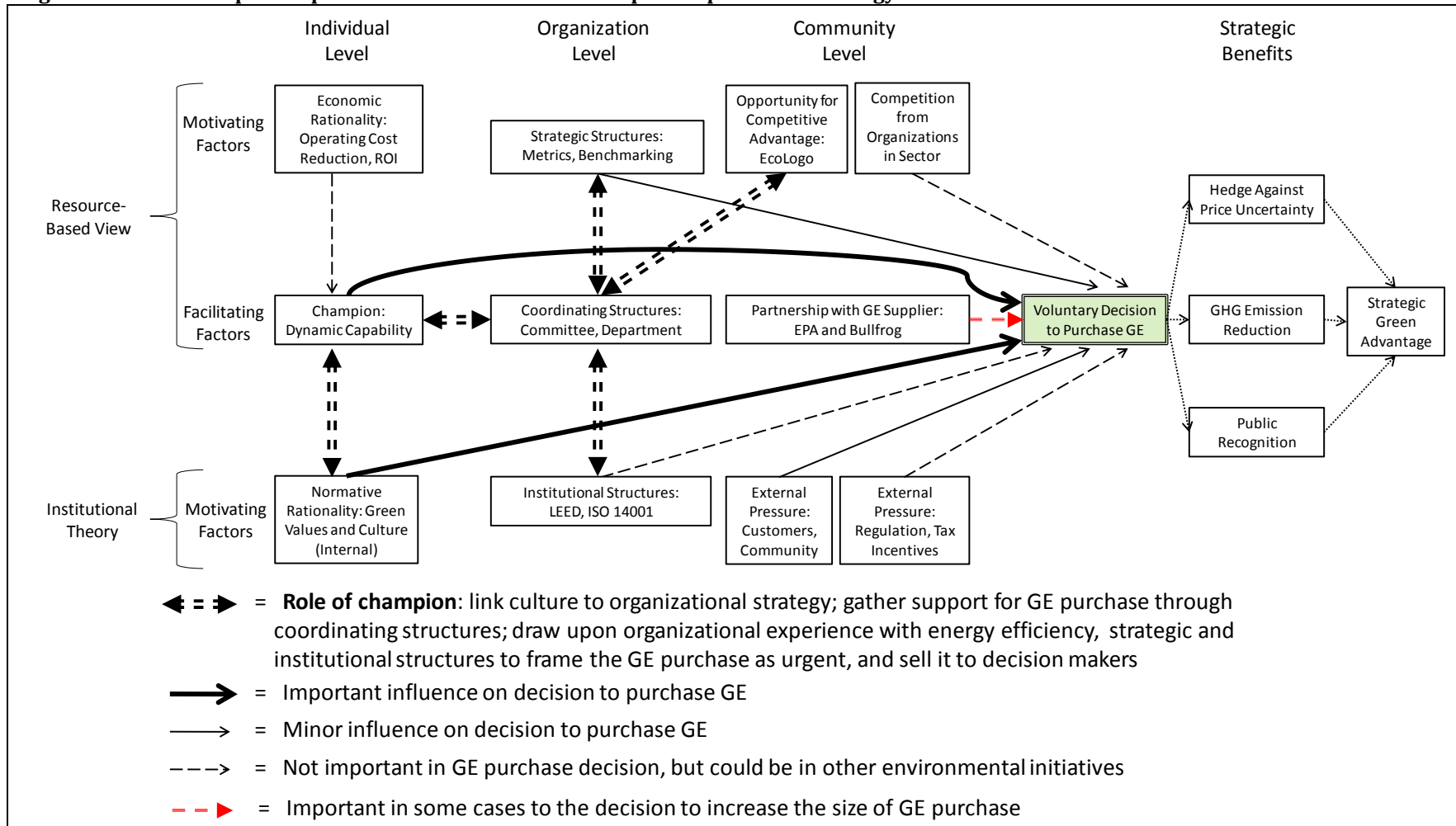
The results reported in this chapter complement Oliver's (1997) model of sustainable advantage by informing the development of a process-interactions model of environmental championship for strategic green advantage (Figure 4.7). Although both institutional factors and resource-based factors have been identified by previous studies in the homogenizing and heterogeneous perspectives, respectively, as important to organizational green decisions (Figure 2.9), the respondents in this chapter cited resource-based factors as important far more frequently within a broad range of organizational types relative to institutional factors. This finding suggests that green decisions that have the potential to generate strategic benefits in organizations are primarily a function of the contribution of resource-based factors and especially human capital capabilities. Although champions may interpret external social and institutional pressure or internal organizational cultural pressure as a motivation for their actions, it is the champion as a dynamic manifestation of human capital that is the key driver and facilitator of green decisions in the model outlined in Figure 4.7. Other resource-based factors including strategic structures were used by the champion in some cases to help build a case for the green decision, but were not important to most organizations as an independent factor of influence on the green decision.

This new model represents an alternative to Oliver's model given its specific applicability to green decisions. Interactions occur at and between three levels: individual, organization, and community. Internal dynamic capabilities (Ambrosini and Bowman, 2009; Lepoutre, 2008) are demonstrated when environmental champions use organizational culture and environmental structures to influence the voluntary purchase of green electricity. Environmental champions thus represent a dynamic human capital capability that is able to utilize organizational resources when necessary, including structures and culture, in order to respond to external changes. The green electricity decision relies more on champions and less on environmental coordinating structures

within small businesses than larger more hierarchical organizations (firms, NGOs, and governments). While coordinating structures appear to play only a minor role at influencing the decision to purchase green electricity, they are important landscapes for champions to frame as urgent, sell, and gather support for the green electricity initiative. Coordinating structures represent a social capital capability that can both be used to carry out day-to-day operations within an organization, as well as a tool for champions to influence a green decision.

Champions draw upon existing energy management experience to gather support for green electricity purchasing as part of a diversified energy management strategy, and as a means of fulfilling organizational culture and values. Environmental champions can also use institutional and coordinating structures to highlight the potential for green marketing and publically displayed metrics to transform environmental outcomes (e.g., GHG emission reduction) into strategic outcomes (e.g., public recognition, differentiation) (Lankoski, 2008). Some champions also suggested to organizational decision makers to combine environmental and strategic objectives with the use of green electricity purchasing as a hedge against future electricity price uncertainty, which can help generate a strategic green advantage for the organization. Accordingly, this particular green decision has the potential to foster strategic benefits if an appropriate complementary marketing strategy is utilized. Although other types of organizational green decisions could be motivated and facilitated by different institutional and resource-based factors outlined on Figure 4.7, each green decision is a function of the specific combination of the external context within which the organization operates, the existence and use of internal structures, the extent that the organizational culture is supportive of green decisions, and the presence of an environmental champion. In this case, the champion was able to act as a dynamic capability by representing an important link between institutional factors and resource-based factors.

**Figure 4.7: Human Capital Capabilities: Environmental Championship for Green Energy Purchase Decisions**



Source: Created as an alternative to Oliver's (1997) model of sustainable advantage. Note: Important influence is attributed to factors that had a median of four or five on a five-point scale for the overall sample (n = 212); minor influence is attributed to factors that had a median of two or three; not important is attributed to factors that had a median of one.

## 4.8 Conclusion

This chapter provides insight into how green champions can respond to external changes by facilitating the adoption or creation of green initiatives that do not directly lead to a profit, revenue, or a reduction in costs. External changes included green electricity becoming available for purchase by organizations across North America, and climate change mitigation and sustainability entering the mainstream demands of customers and communities. These external changes hold the potential to drive strategic green decisions in organizations, and green champions interpreted this potential and successfully convinced their organization to respond by making a green decision to voluntarily purchase green electricity.

Clemens and Douglas' (2006) approach to examining a voluntary green initiative was adopted by combining green institutional theory and the green resource-based view of the firm to analyze whether external or internal factors are important in the voluntary decision to purchase green electricity. This chapter exploited "the permeable, eclectic and permissive nature of the resource-based view to generate new insights into firm behaviour" (Lockett, Thompson and Morgenstern, 2009, p. 25), and expanded this line of thinking to other types of organizations. The findings compliment organizational theories of competitive advantage by incorporating the role of champions as green dynamic capabilities, and by arguing that voluntary environmental initiatives can provide strategic green advantages to large and small businesses, social economy organizations, and government agencies.

Strategic green advantages are a secondary concern of green champions, however, and can be achieved with support from organizational resources including internal environmental structures and the public display of environmental metrics. While increasing the size of green electricity purchase will generate larger environmental benefits, organizations may eventually experience diminishing financial returns (Kolstad, 2007) where marginal costs of the green electricity purchase increase and marginal revenues decrease beyond a certain size of corporate social responsibility action (Lankoski, 2008). Champions can therefore emphasize the strategic benefits of a diversified energy management approach including the ability of publicly displayed metrics and green

marketing to extend marginal revenues and foster a sustainable strategic green advantage. Organizations characterized by green cultures and driven by environmental champions are willing to pay for environmental benefits not accounted for in the economy as part of a diversified energy management strategy, if those benefits are verified by a third-party certification system.

Green champions are considered change agents within organizations by working to influence sustainability improvements that generate environmental benefits but not necessarily economic benefits. Champions primarily pursue environmental outcomes, are driven by non-economic motivations, and gather support for a green initiative rather than creating a new product or service. Champions are similar to green entrepreneurs in that they create change in response to external changes. Champions are thus critical motivating and facilitating factors of green decisions in organizations because these types of decisions are often influenced by external institutional or environmental changes.

In summary, this chapter identified and discussed the importance of organizational culture and environmental champions to voluntary green decisions across different organizational types. It highlighted the importance of culture and champions in combination, as well as the concordance of each factor within each organizational type. Strategic benefits, as well as culture and champions, were important to the decision to increase the size of purchase. Finally, the relatively low percentage of organizations that selected external pressure, as well as internal environmental structures, as important to the decision to purchase green electricity is somewhat surprising given the prevalence of these institutional and resource-based factors in the corporate social responsibility and green strategy literatures. It does suggest, however, that this particular type of green decision may be unique from other green decisions; for example, those made by entrepreneurs collaborating across organizations.

## Chapter 5: Results: Green Collaborative Entrepreneurship<sup>10</sup>

Chapter Two revealed a research gap for studying strategic green decisions in social economy organizations. Previous green decision making literature provided a limited understanding of how championship (e.g., achieving change within the organization) and collaborative entrepreneurship (e.g., achieving change with the help of different organizations) can help organizations adapt to external changes and simultaneously green the organization. Chapter Four focused on green decision making in organizations that purchase green electricity, and found that green champions and organizational culture are important factors within organizations that switched from high fossil-fuel content electricity to alternative greener purchasing options. Organizations adapted to an external institutional change, which resulted from the increasing availability of greener electricity options, through the combination of green champions and organizational culture.

Chapter Five considers the role that collaborative entrepreneurship plays in helping social economy organizations adapt to external changes. The core research objective aims to elucidate the character and scope of the association between organizational attributes, and the factors that motivate and facilitate green collaborative entrepreneurship in not-for-profit organizations providing green services. The sub-objectives for this research project are:

- (1) to investigate the magnitude of impact of the external funding shock on demand for the main service delivered by ESOs, the EGH energy audit;
- (2) to discover and categorize the breadth and depth of creative responses by ESOs;
- (3) to provide insight into the factors and processes that ESO managers described as most important to overcoming the funding shock in order to provide recommendations to NGOs operating in turbulent and uncertain environments; and

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<sup>10</sup> The results in this chapter have been modified from the originally published version: Gliedt T, Parker P, 2007, "Green community entrepreneurship: Creative destruction in the social economy" *International Journal of Social Economics* 34(8) 538-553. Available at: [www.emeraldinsight.com](http://www.emeraldinsight.com). This chapter is ©Emerald Group Publishing and permission has been granted for this version to appear here (<http://uwspace.uwaterloo.ca/handle/10012/6>). Emerald does not grant permission for this chapter to be further copied/distributed or hosted elsewhere without the express permission from Emerald Group Publishing Limited.

- (4) to ascertain and contrast the level of green entrepreneurship in a period of funding stability as compared to the post-shock period.

Green collaborative entrepreneurship is a multi-organization process that pursues environmental benefits through the creation of green services. The main differences between green championship, which emerged as an individual decision driven by internal pressure including non-economic criteria such as environmental sustainability objectives and supportive organizational cultures (Chapter Four), and green collaborative entrepreneurship, which is the focus here, are that the latter is also concerned with enhancing organizational resilience to economic shocks, and occurs between organizations rather than within an organization. The different types of services created are categorized in section 5.1, and the factors identified by interviewees as important to organizational survival after the funding shock are described in section 5.2. The average rates of entrepreneurship for the ESOs are compared between a post-shock period and a stable funding period in section 5.3, and the changes in revenue by source of one ESO are outlined in section 5.4. The final two sections discuss the implications of the interview findings for understanding organizational green decisions that have the potential to generate strategic benefits.

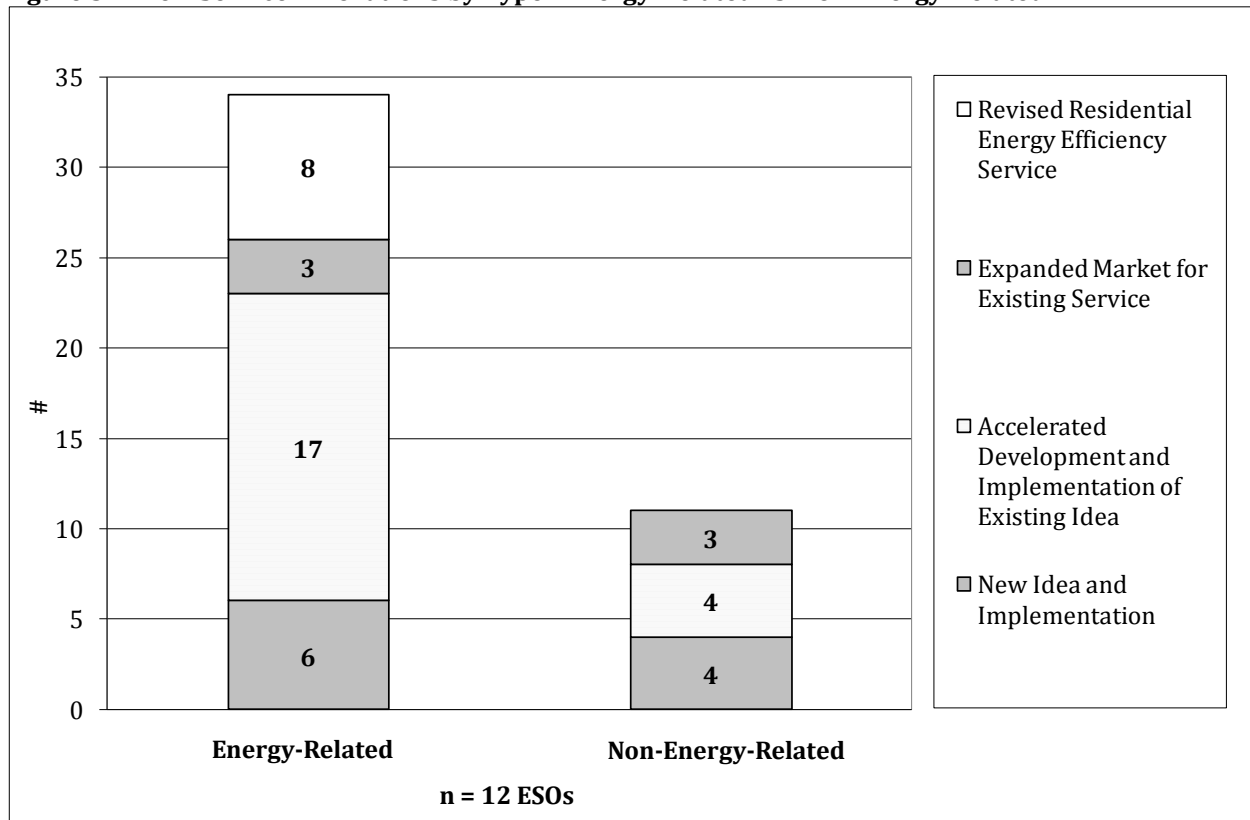
## **5.1 New Services Created**

In response to the sudden EnerGuide for Houses (EGH) program cancellation, the 12 ESOs in this study created 45 service innovations between May 2006 and January 2007, with 76 per cent categorized as energy-related and 24 per cent as non-energy-related. The new services were classified into three categories:

- (1) Services that were a new idea and implemented after May 2006 (10);
- (2) Services that involved the accelerated development or implementation of an idea that existed prior to May 2006 (21); and
- (3) Existing services that had their market expanded following the EGH cut (6).

A fourth category consists of a modified version of the residential energy efficiency service, which was based on the EGH framework. The EGH protocol for doing energy audits was adapted by eight ESOs where the Provincial or Territorial government did not step in financially directly after the cancellation of the Federal program. In some cases, modifying the EGH protocol involved removing the requirement for a blower-door pressure test, which was a time consuming and a costly part of the EGH evaluation. Instead, a walk-through evaluation was offered to interested clients, where the areas of energy inefficiency could still be pointed out, but for a lower fee to the client. This helped to temporarily maintain demand for the service while continuing to deliver on the core objective of these organizations, to help citizens and communities reduce their environmental footprint. Figure 5.1 separates the new services by type.

**Figure 5.1: New Service Innovations by Type - Energy-Related vs. Non-Energy-Related**



Energy-related services include residential electricity audits, community energy planning, a First Nations energy efficiency program, energy efficiency retrofit installation



services, an energy education program for realtors, and transportation efficiency programs (Table 5.1). Two other energy service creations were later adapted for additional uses. The first involved energy audits for religious institutions, which was based on a modification of the EGH residential assessment. This protocol was further customized for delivery to small commercial buildings. The second is a solar energy audit that assessed a home's solar electricity generation potential as well as the payback period. This service became particularly important for Ontario residents wishing to take advantage of the Green Energy and Green Economy Act feed-in tariff program introduced in 2009, which pays residential customers 80.2 cents per kWh for 20 years for surplus electricity generated by small solar systems on their roof (WRGS, 2010).

The most frequent energy-related service involved the accelerated development and implementation of an idea that already existed and was being negotiated by Green Communities Canada and several ESOs prior to May 2006. For example, the Ontario Power Authority Energy Efficiency Assistance for Low-Income Houses energy audit and retrofit program (or equivalent program in other provinces) accounted for eight of the 17 new services that were accelerated from existing ideas. Perhaps the most straightforward innovation, a market expansion of an existing service, was the least frequent innovation. Non-energy-related services include water management programs, well and septic tank assessment programs, and environmental education programs. The most frequent non-energy-related services involved new ideas that were implemented, as well as the accelerated development and implementation of existing ideas.

The decision to develop existing energy and non-energy-related ideas into new services suggests that ESOs are constantly generating, receiving and considering new ideas for services, but they either do not have the time, resources or need to develop them during stable funding periods. When ESO survival is threatened and their core programs are cancelled, however, they are able to act upon these ideas and develop them rapidly. The question of how ESOs were able to mobilize the necessary resources to develop new services is returned to in section 5.2.

**Table 5.1: New Services Created by ESOs (n = 12)**

	New Idea and Implementation	Expanded Market for Existing Service	Accelerated Development/ Implementation of Existing Idea	Revised Residential Energy Efficiency Service	Total
Revised EGH-Based Residential Energy Efficiency Service				8	8
OPA/Provincial Low-Income Energy Audit/Retrofit Program			8		8
Utility Sponsored Rebate/Audit	3				3
Residential Low-Income Energy Services	1		1		2
Residential Electricity Audit/Education	1		1		2
Community Energy Planning		1	1		2
Retrofit Services		1	1		2
Idle-Free/Public Transit/Auto Efficiency Education Programs			2		2
Renewable Energy Project Development		1			1
First Nations Energy Efficiency Program			1		1
Porchlight CFL Program	1				1
Energy Audits for Sacred Spaces/Religious Institutions			1		1
Solar Audits			1		1
<b>Total Energy-related</b>	<b>6</b>	<b>3</b>	<b>17</b>	<b>8</b>	<b>34</b>
Stream/Watershed/County Water Management Program	1	1	1		3
Well Aware		1	1		2
Neighbourhoods/Green Urbanism/Green Planning		1			1
Active/Safe Routes to School	1				1
Youth/School Environmental Education Projects	1				1
Waste Management Tours/Deflection/Management Programs			1		1
Septic Tank Assessment	1				1
Community Environmental Education Program			1		1
<b>Total Non-Energy-related</b>	<b>4</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>11</b>
<b>Total Energy-related + Non-Energy-related</b>	<b>10</b>	<b>6</b>	<b>21</b>	<b>8</b>	<b>45</b>
<b>%</b>	<b>22</b>	<b>13</b>	<b>47</b>	<b>18</b>	<b>100</b>

In addition to the new services, 28 new proposals for funding to support the creation of future services were drafted or submitted, of which nearly 70 per cent were energy-related. These include proposals to offer community-based low-income energy programs, appliance energy efficiency programs, First Nations energy efficiency programs, an online energy efficiency self-audit program, green business facilitation services, a green roof demonstration project, green planning services, and the Well Aware well assessment program. One additional proposal for organizational development was created to support the creation and implementation of a strategic plan (Table 5.2).

**Table 5.2: New Proposals for Funding by ESOs (n = 12)**

Low Income Energy	Community Low Income Energy Program	1
	Social Housing Energy Efficiency Audit/Education Program	1
	Affordable Housing Energy Efficiency Program	1
Energy Efficiency	Idle-Free/Public Transit/Auto Efficiency/Sustainable Transit Education Programs	2
	Energy Audits for Sacred Spaces/Religious Institutions	2
	Appliance Energy Efficiency Program	1
	Residential Electricity Audit/Education	1
	Online Energy Efficiency Self Audit	1
	First Nations Energy Efficiency Program	2
CEM/CEP	Community Energy Management/Planning	1
Renewable Energy	Solar Audits	1
	Renewable Energy Project Development	1
Energy Education	Youth/School Energy Education Projects	1
	Energy Efficiency Workshops for Realtors	1
	Community Conservation Outreach Program	1
	Institutional/Commercial Carbon Neutral Education Program	1
Green Business	Green Business Facilitation	2
Demonstration Buildings	Sustainable Housing in Remote Communities with Demonstration Building	1
	Green Roof Demonstration Project	1
Other Environmental	Youth/International Development Internship Program	1
	Residential Mercury Prevention Project	1
	Neighbourhoods/Green Urbanism/Green Planning	2
	Stream/Watershed/County Water Management Program	1
Organizational Development	Strategic Plan Development for the ESO	1
<b>Total</b>		<b>29</b>

Furthermore, 24 opportunities for prospective services were identified that the ESO managers had not yet had time or funding to pursue; 15 of these were energy-related. These include youth and school energy education projects, small commercial energy services, energy efficiency education programs for seniors, and the Porchlight CFL replacement program (Table 5.3).

**Table 5.3: New Ideas for Proposals or Services by ESOs (n = 12)**

<b>Energy-related</b>	Residential Electricity Audit/Education	1
	First Nations Energy Efficiency/Climate Change Program	2
	Community Low Income Energy Program	1
	Youth/School Energy Education Projects	2
	Porchlight CFL Program	1
	Motor Vehicle Efficiency Education Program	1
	Energy Efficiency Education for Seniors	1
	Green Business Facilitation Program	1
	Small Commercial Energy Services	3
	Greening Sacred Spaces	1
	Climate Change Education Program	1
<b>Other Environmental</b>	Well Aware	1
	Pesticide Free Program	1
	Youth/School Education Projects (Non-Energy)	1
	Waste Management Tours/Deflection/Programs	1
	Green/Environmental Demonstration Building	1
	Stream/Watershed/Shoreline Water Management Program	2
	Water Efficiency Program	1
Adopt a Wilderness Park in Urban Area Program	1	
<b>Organizational Development</b>	Push for EGH as New Home Building Code Standard	1
	Expand Board, Create By-Laws, Strategic Plan Development	3
	Enhance Partnership with Local Utilities	3
<b>Total</b>		<b>31</b>

Although all 12 ESOs continued to offer a home energy efficiency evaluation service nine months after the funding shock, demand for initial evaluations was down by 50-100 per cent relative to the previous year in 10 of the 12 ESOs. The two exceptions were the ESOs in British Columbia and the Northwest Territories, which received Provincial or Territorial support, respectively. However, a new funding source does not guarantee the avoidance of major demand reductions as two other ESOs experienced a decline of over 50

per cent despite Provincial funding being provided (Nova Scotia; Quebec). In one case, the transition to a new funding source was not 'seamless' as there was a six month lapse before the Provincial government took over the program, and the amount of Provincial funding was less than the Federal funding had been under EGH. In the second case, Provincial funding exceeded that under EGH; however, demand still declined substantially. Overall, the high profile cancellation of a Federal program sometimes overwhelmed the message that the program has been continued by the Province.

The loss of stable funding provided by the EGH Program affected ESO capacity in both direct and indirect ways. The direct reduction in staff (energy advisors, marketing and administrative staff, as well as less use of subcontracted advisors) was reported in 10 instances. The resulting loss of human capital (trained and experienced staff) to other organizations creates a challenge to possible future plans to re-establish programs (e.g., the April 2007 introduction of the modified Federal EGH Program as the new ecoENERGY Retrofit Program). The desire to minimize this loss of valuable personnel accounts for some of the new programs and proposals identified earlier. The cancellation of EGH also required the shifting of staff to other projects. Each of these changes required the investment of staff time to implement the changes. Organizational stability was affected and even equipment upgrades were postponed in some cases. ESO managers also identified several organizational development tasks that they had not had time or funding to pursue. These included strategic planning, expanding the board, writing by-laws, developing the EGH service into a new Home Building Code Standard, and other functions that would enhance ESO capacity (Table 5.3).

Interviewees identified a number of factors that they considered important to organizational survival because they helped the organization adapt to the external shock. All 12 managers recognized dedicated staff as important throughout this period. Most managers described existing partnerships (83 per cent) and a diverse organization (75 per cent) as important. Five factors were identified as most important by some ESOs<sup>11</sup>: a diverse organization; core funding; low overhead; retrofit work; and the Province or Territory replacing the Federal program support in the form of a new partnership or

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<sup>11</sup> Note: Not all ESOs listed a 'most important' factor. The interviewer recorded a factor as 'most important' only if the interviewee stressed that a single factor was most important above all others.

expansion of an existing partnership. ESOs are recognized as autonomous organizations possessing contextually specific attributes that fit their particular communities. As a result, no single factor was universally most important. Instead, each organization was able to draw on its internal (e.g., existing skills and knowledge of personnel) and external (e.g., local partnerships, network connections, Provincial/Territorial partnerships) resources to respond creatively to the crisis.

The results of the interviews suggest that three main factors facilitate green collaborative entrepreneurship, which are commonly discussed in the entrepreneurship and organizational theory literature as external social capital and network benefits, internal human capital, and strategic partnerships. Each of these factors is examined in the next section.

## **5.2 Factors Facilitating Green Collaborative Entrepreneurship**

### **5.2.1 External Social Capital Network Flows**

ESOs responded to the external shock by drawing upon their social capital networks, which connect one another across Canada, to help facilitate entrepreneurship through the sharing of knowledge and expertise. This finding is consistent with a recent study that demonstrated the importance of external social capital to community entrepreneurship (Roessingh and Smits, 2010). Conversely, entrepreneurship also helps create bridging social capital, which fosters collaborative action (Svendsen and Svendsen, 2004). Collaborative entrepreneurship has helped rebuild parts of New Orleans after hurricane Katrina (Chamlee-Wright and Storr, 2010) in a sustained form of emergency entrepreneurship (Johannisson and Olaison, 2007). On the other hand, Lundahl (2010) described a case study of pre-earthquake Haiti, where community based entrepreneurship failed due to limitations placed upon social capital by institutional forces.

The institutional capacity provided by the Green Communities Canada social capital network enables a circulation of knowledge, ideas, and innovations among members, e.g., Arctic Energy Alliance, Clean Nova Scotia, City Green in British Columbia, Peterborough Green-Up. This external social capital network facilitates continuous flows of knowledge

and ideas generated by internal human capital stocks (see below). Individual entrepreneurs within each ESO contribute to team collaborative entrepreneurship via the Green Communities Canada network. It was found that ESOs adopted and implemented non-energy-related services that were previously developed by ESOs in other parts of the country (e.g., Well Aware). The network also facilitated green collaborative entrepreneurship for energy-related services (e.g., Ontario Power Authority Energy Efficiency Assistance for Houses Program).

### **5.2.2 Internal Human Capital Stocks**

The primary service offered by many ESOs, EGH, focused on energy efficiency and reducing GHG emissions based on a vision of “citizens working together for healthier homes and sustainable communities” (WRGS, 2008). Therefore, energy efficiency and GHG emission reduction programs represent both a core area of expertise and a central purpose of many ESOs. Not surprisingly, three-quarters of the services created by ESOs after the external funding shock were energy-related. ESOs filled the void left by EGH by concentrating on what they knew best, their core competencies. The internal human capital stock present within each ESO contains the knowledge, experience, and desire to continually create new and better services to achieve the common goal of reducing the anthropogenic impact on the planet (GCC, 2008).

Most (78 per cent) of the 45 innovations involved ESOs directly utilizing their internal human capital stocks to transform current ideas into new services (47 per cent), to modify the existing EGH residential energy efficiency service (18 per cent), or to expand the market for existing services (13 per cent) (Table 5.1). For example, an energy efficiency advisor in one ESO had a separate career as an installer of solar technologies. The executive director of the ESO therefore shifted this employee’s work schedule to provide slack time and resources in order for the employee to develop an existing idea for a solar evaluation service into a fully implemented service.

A large percentage of the services that ESOs accelerated the development and implementation of were based on ideas that existed in Green Communities Canada prior to May 2006, and thus, were also facilitated by external social capital network flows. The

remaining 22 per cent of services, which were new ideas and implemented after May 2006, were facilitated by differing degrees of support from external social capital network flows, internal human capital stocks, and strategic partnerships.

### **5.2.3 Strategic Partnerships**

Strategic partnerships between social economy organizations and the public and private sectors were identified by interviewees as a facilitating factor for green collaborative entrepreneurship. Although strategic partnerships are often highlighted as important in community climate change and energy decisions (Bulkeley and Betsill, 2005; Bulkeley and Moser, 2007; EPA, 2008; FCM, 2008a; 2008b; Fleming and Webber, 2004; Hilton, 2007; ICLEI, 2006; 2007; Karlsson, 2007; Kellett, 2007; Lindseth, 2004; Mander, 2007; Mason, 2007; Moss, 2008; NRCan, 2007a; 2007b; Orans et al., 2007; Robinson et al., 2006; Walker et al., 2007), the question of whether they could be mobilized rapidly to respond to a sudden external shock had remained unclear.

The role of external support is particularly relevant to the case of green collaborative entrepreneurship. This can be broken into three categories: the continual financial and leadership support from established partnerships with local municipalities and utility companies (Parker et al., 2003); the expansion of support from those same stakeholders after the funding shock (Parker and Rowlands, 2007); and the development of new partnerships with Provincial governments. Ten out of 12 ESOs described strategic partnerships as an 'important' factor for overcoming the funding shock. Additionally, all four ESOs in Provinces or Territories where the government took over the EGH audit funding described the new partnerships with Provincial or Territorial governments as an important factor that kept them operating after the funding shock.

The organizational and funding stability provided by the strategic partnerships enables environmental entrepreneurial activity to take place within the ESOs. As one manager stated, "I must say that creativity and organizational structure/funding are quite inter-related...some sort of foundation or stability helps make creativity possible." Strategic partnerships allow a sharing of knowledge, ideas, and objectives between various local



partners and the ESOs in order to facilitate the development of creative new services that provide win-win's for both stakeholders.

### **5.3 Rates of Entrepreneurship in a Post-Shock Period and a Stable Funding Period**

In order to thoroughly answer the research sub-objectives of how organizations can respond to external changes, it is important to compare the rate of entrepreneurship in the immediate post-shock period to a second period of funding and institutional stability. The interview findings discussed in section 5.1 and 5.2 support the theory of emergency entrepreneurship (Johannisson and Olaison, 2007) where an urgent crisis spurs higher levels of entrepreneurial activity. A follow-up survey of the ESOs (Gliedt and Parker, 2010), however, discovered that a return to stable funding for an organization's core service can affect the level of creativity and innovation directed toward new services. ESOs created an average of three new services or programs in the six months after the funding shock (June–December 2006). This is compared to an average of three new services created per ESO in the 36 months after stable Federal and Provincial funding was restored in the form of the new ecoENERGY program (January 2007–December 2009). This means that the rate of entrepreneurship in the period of funding stability is one new service created per year, compared to a rate of one new service per two-month period following the funding shock. Furthermore, of the ideas or proposals identified during the December 2006 interviews conducted for section 5.1 and 5.2, less than one per ESO had been successfully turned into a service by December 2009. Additionally, 40 per cent of organizations had discontinued at least one service.

The drastic differences in levels of entrepreneurial activity are largely explained by the change in demand for the EnerGuide/ecoENERGY service in both periods relative to the pre-shock level of demand in 2005. In the immediate post-shock period (June–December 2006), 80 per cent of ESOs reported a decrease in demand for the residential energy evaluation service by 50-100 per cent. Two additional organizations reported stable or a moderate drop in demand, but those were located in jurisdictions where the Provincial government immediately took over the EnerGuide program to continue core funding for the ESO. This is in contrast to the more recent finding (Gliedt and Parker, 2010) that 100

per cent of ESOs surveyed reported an increase in demand for the ecoENERGY evaluation, and 60 per cent reported an increase of more than 100 per cent during the stable funding regime (2007-2009). The central focus on growth of a single core service could make organizations more vulnerable to future institutional shocks. Conversely, the ability to shift the rate of entrepreneurship during times of funding stability relative to the post-shock period suggests that ESOs are already demonstrating adaptive capabilities by responding to external regime changes when required, and focusing on scaling-up core services when resource support is available. This ability to shift the rate of entrepreneurship between post-shock and stable periods is further demonstrated by a follow-up interview conducted with a single ESO in southern Ontario.

#### **5.4 Adaptation through Service and Funding Diversification: One Ontario ESO<sup>12</sup>**

The executive director of one ESO was selected for a follow-up interview to provide more details about the changes in funding by source that occurred in the pre-shock, shock, and post-shock periods. This ESO drew upon established partnerships with local electric and natural gas utility companies by reaching out for funding and resource support to replace the Federal funding that had been cancelled with one day's notice (Parker and Rowlands, 2007). In return, the ESO provided its credibility as an established environmental leadership organization to the for-profit utilities for use in their demand management programs. The ESO also supplied a marketing service by mentioning the 'partner support' to citizens during residential energy efficiency evaluations. This exchange of complementary resources strengthened the relationships between the ESO and its local partners. The scale of the local partnerships increased rapidly as the utility companies provided a large amount of funding, demonstrating their support for the continued operation of the ESO. This local funding allowed the organization to retain staff and supported the development of many new services.

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<sup>12</sup> The section contains portions from a previously published chapter, and University of Toronto Press retains the copyright to the original chapter:

Gliedt T, Parker P, Lynes J, 2010, "Strategic Partnerships: Community Climate Change Partners and Resilience to Funding Cuts", in *Researching the Social Economy* Eds L Mook, J Quarter, S Ryan (University of Toronto Press, Toronto) pp 201-222

The local utility companies played a critical role after the Federal government's cancellation of the EGH program. The utilities had partnered with the ESO as secondary funders over the previous seven years. They stepped in and replaced the Federal funding to help keep the cost of the residential energy efficiency evaluations low enough to maintain community demand for the service. These established local partnerships acted as social, knowledge, and financial capital exchange channels to quickly funnel resources between organizations. Local 'crisis' partnerships were adaptive and quick to react to help overcome an unforeseen shock.

While local partners kept the ESO operating until the Federal government brought back a modified version of EnerGuide for Houses called the ecoENERGY program (ecoENERGY, 2008), an additional partnership was required as demand for the ecoENERGY service was below EnerGuide for Houses levels. As the executive director explained, the "initial response to the Federal grants for ecoENERGY was lukewarm, with some customers saying that the amount of the grant was not worth the cost of the evaluation." Under the previous EGH program, the Federal government had reduced the cost of the evaluations by purchasing the residential data files for \$120-\$150. This purchase agreement made evaluations more affordable to citizens (\$100-\$200). The ecoENERGY program did not include the payment for files, but still required their delivery to the Federal government. The result was a higher cost to clients, typically \$250-\$350 per evaluation.

A new partnership between the ESO, its parent organization Green Communities Canada, and the Province of Ontario provided the missing incentive to drive demand for the residential energy efficiency service. According to the executive director, "when the Province announced it would match the grants and cover half the cost of the initial evaluation to a max of \$150, demand shot through the roof and is still going strong." The new provincial partnership helped scale-up the residential energy efficiency service to a level which exceeded the previous peak EnerGuide for Houses demand.

Table 5.4 displays the total number of evaluations conducted by the ESO annually for the years prior to the EnerGuide for Houses cancellation (2004, 2005); the year the program was cut (2006); the year the new Federal government introduced the ecoENERGY program as a modified version of EnerGuide for Houses (2007); and the following year in which the Provincial government began providing matching funds, thus doubling the size of

grants to homeowners (2008). This table highlights the rapid increase in demand for initial evaluations in 2008 compared to previous years. It also shows the dip in demand for initial evaluations that took place in 2006, when the ESO became more entrepreneurial and created many new services to diversify its funding sources.

**Table 5.4: Number of Initial and Follow-up Evaluations Conducted by the ESO Annually**

Year	Pre-EGH Cut		EGH Cut	ecoENERGY	ecoENERGY+ Province
	2004	2005	2006	2007	2008
<b>Initial</b>	1162	1025	636	901	1724
<b>Follow-up</b>	431	402	658	334	677
<b>Total</b>	1593	1427	1294	1235	2401

Table 5.5 highlights the drastic change in funding partners and amounts between 2004 and 2008, which were caused by several factors. In 2004, the Federal government's purchase of EnerGuide for Houses files accounted for nearly half of the organization's revenue. Much of the rest of the revenue (client fees and some local partner contributions) was dependent upon delivery of the same service. In 2005, local utilities partnered with the ESO to deliver some demand side management programs as part of province-wide initiatives to conserve electricity. In 2006, the Federal government cut core program funding partway through the year and local partners stepped in to enable local residents to still receive the service. The overall result was a 10% decline in total revenue for the year instead of the potential loss of most revenue. The year 2008 saw the Provincial government become a direct funder of residential energy evaluations and well inspections. Federal funds were still received from Human Resources and Skill Development Canada, but at a dramatically reduced level from 2004.

The relative funding contributions from the Provincial and Federal governments were reversed from 2006 to 2007. In 2007, the ESO had a balanced mix of funding with approximately one-third of funding coming from client fees, upper-level government, and local partners, respectively. This diversity of funding partnerships enabled the organization to successfully respond to changes in core funding and to add new services. Total revenue in 2007 returned to 2005 levels, while further growth in 2008 led to total revenues

exceeding the previous high-water mark of 2005 by nearly a third. Finally, the percentage of revenue from client fees rendered for services delivered by the ESO more than tripled from 2005 to 2008, reflecting the loss of Federal funding and a shift towards a more entrepreneurial approach.

**Table 5.5: Annual Revenue by Source (per cent) for the ESO**

	2004	2005	2006	2007	2008
<b>Client fees</b>	30	21	14	35	70
<b>Federal</b>	47	34	18	5	1
<b>Provincial</b>	-	-	5	24	5
<b>Local</b>	23	45	63	36	24
<b>Total (%)</b>	100	100	100	100	100
<b>Total (\$000)</b>	449	628	564	613	904

## 5.5 Discussion

The findings support those of the literature in suggesting that there is significant potential for green collaborative entrepreneurship to occur in the social economy. Thompson and Doherty (2006) described a case study similar to the process of green collaborative entrepreneurship. Three social entrepreneurs created a social enterprise in Australia called Easybeinggreen to provide a home energy and water conservation advisory service. This innovative environmental service met a need that had been neglected by the government and competitive market. Similarly, Dart and Zimmerman (2000) described the case of an ESO that used local partnerships to become more entrepreneurial in response to an external funding shock in the mid-1990s. Holgate (2007) found that multi-sector partnerships including environmental non-profit organizations, coupled with an energy supply crisis, helped Cape Town, South Africa successfully implement climate change mitigation initiatives. In contrast, Johannesburg lacked strong partnerships and did not experience an energy crisis, and has been unsuccessful at achieving climate change management objectives.

Pastakia (1998) distinguished between commercial and socio-ecological entrepreneurial organizations, where the latter “seek to promote an eco-friendly

idea/product/technology (or service) either through the market or non-market routes” (p. 159). It is important to highlight the term ‘promotion’, and contrast it with the concepts under study here: the creation of a new idea and service, the accelerated development and implementation of an existing idea, or the expanded scale of an existing service. The promotion of an established service can be accomplished by various community-based social marketing techniques (CBSM, 2010). On the other hand, green collaborative entrepreneurship refers to the creation of something new: ideas and services, ways of accelerating the delivery of services, or methods of expanding the market for service delivery.

The three factors that facilitate the process of green collaborative entrepreneurship (external social capital flows, internal human capital stocks, strategic partnerships), as discussed earlier, all share commonalities with Roberts’ (2006) definition of team collective entrepreneurship. The three types of new service innovations (expanded scale of market, accelerated development and implementation of existing service, new idea and implementation) exemplify the key role of entrepreneurship defined by Roberts (2006) as guiding an idea along the innovation process. The environmental innovation process in the social economy can be summarized as a temporal continuum where green collaborative entrepreneurship transforms new ideas into developments, developments into implementations, and implementations into scale expansions. The timing of when each category is employed is contingent upon the needs and demands of the local community, external factors including physical climate change and politics, and strategic partner imperatives (e.g., utility company demand management goals).

Green collaborative entrepreneurship allowed the ESOs to survive a major funding shock by creating new energy services to meet immediate citizen needs for affordable energy and climate change mitigation. Within one ESO for example, the percentage of revenue from client fees rendered for services delivered more than tripled from 2005 to 2008, reflecting the loss of Federal funding and a shift toward a more entrepreneurial approach. These findings are in line with other studies that profile social economy organizations becoming more entrepreneurial and strategic in nature as a means of surviving external threats (Lee et al., 2009; Weerawardena et al., 2010). In fact, ‘ideological entrepreneurship’ is increasingly influencing non-profit organizations to respond to

market failures (Valentinov, 2009). The conclusion that an 'environmental sustainability objective' was a key driving force in green collaborative entrepreneurship is supported by Campbell-Hunt, Freeman and Dickinson's (2010) argument that an ecological motivation can influence community entrepreneurship to occur in the absence of external shocks and crises; in other words, in response to ecological opportunity rather than economic threat.

Figure 5.2 displays a conceptual framework outlining the dynamics involved in the process of green collaborative entrepreneurship. The funding shock and associated collapse of the energy audit market add two urgent drivers for green collaborative entrepreneurship, while the pre-existing organizational environmental sustainability objective remains a core driver to develop and deliver environmental products and services. External social capital network flows, internal human capital stocks, and strategic partnerships facilitate this process, while the interrelationship between the former two factors creates a renewing positive feedback loop of innovative ideas. The outcome of green collaborative entrepreneurship is innovation in the three forms of new services discussed earlier.

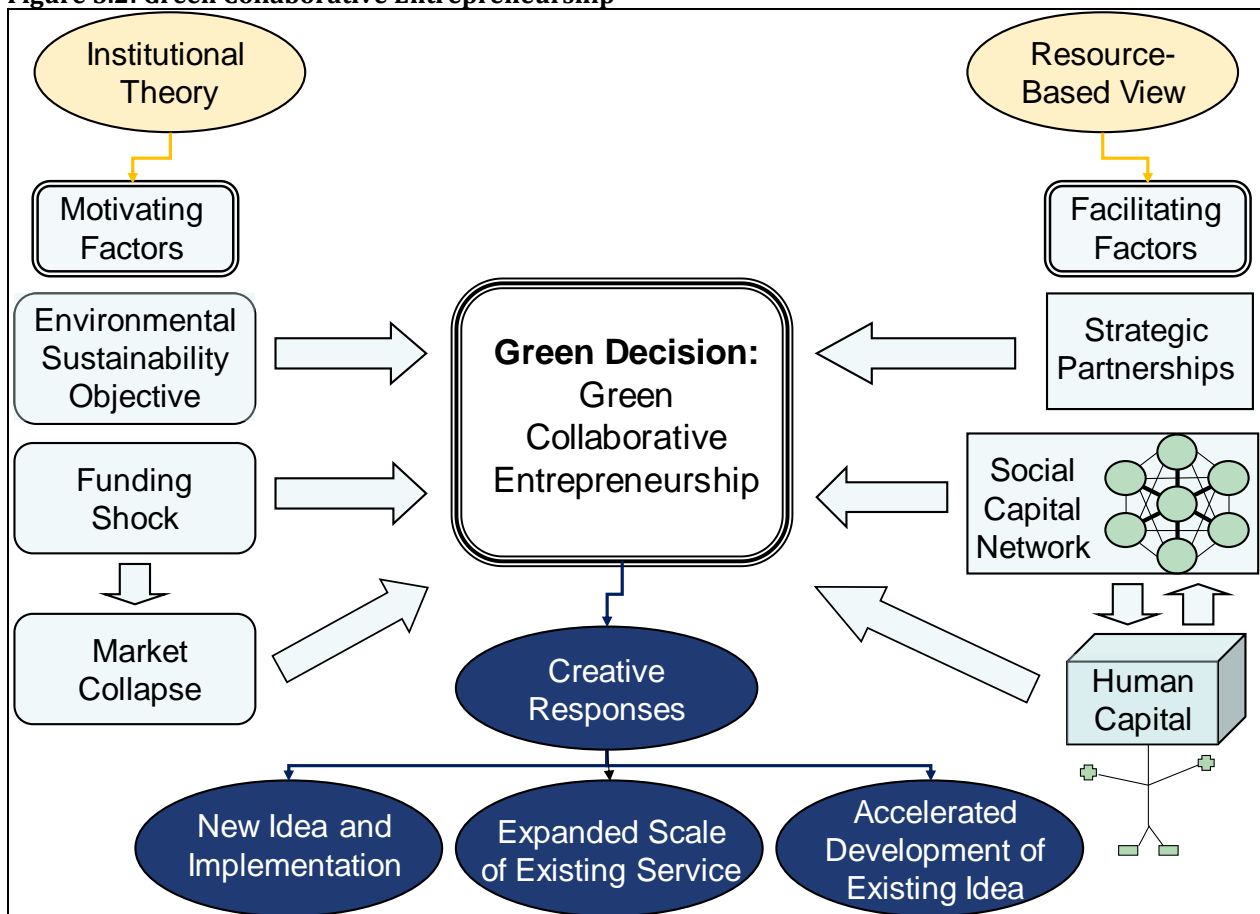
A potential constraint to green collaborative entrepreneurship was also identified. The desire to concentrate effort and resources on non-profit or social economy goals could deter some ESOs from pursuing green collaborative entrepreneurship or taking internal energy management actions (Dart and Hill, 2010). Focusing effort on the creation of revenue-generating services can be perceived as diverting resources from core environmental objectives. The key to successful green collaborative entrepreneurship is to align the revenue-generating services with the environmental goals of the organization so that the perceived conflict is avoided.

Green collaborative entrepreneurship that occurs in the social economy is driven by internal and external institutional pressures that had previously been identified in studies of corporations in the homogenizing literature (Figure 2.9). In fact, while corporations are often influenced to make green decisions by regulations or other government mandated changes, the ESOs responded to a cancellation of a government support mechanism. They were also motivated by the environmental sustainability objective that characterizes their organizational culture and values. The motivation for the green decision is attributed to a

combination of an external institutional change and an internal institutional pressure in the form of organizational culture (Figure 5.2).

The green decision was facilitated, on the other hand, by internal human capital capabilities as well as external partnership and social capital network capabilities (Figure 5.2). These facilitating factors are similar to the internal and external dynamic capabilities shown to be important in a green decision within small businesses (Lepoutre, 2008), as well as previous findings from the entrepreneurship literature that focused on social economy organizations responding to external changes (Kong, 2010). All three facilitating factors represent dynamic capabilities (Figure 2.9) in that they can be drawn upon to create services in response to motivating factors, but also, can be used to scale-up and deliver existing services when a stable funding regime is available.

**Figure 5.2: Green Collaborative Entrepreneurship**



Note: Orange = Literature Review; Green = Results: Important Motivating and Facilitating Factors; Blue = Results: Creative Responses by ESOs



Perhaps the title of Grimshaw and Edgerman's (2006) article, *Adapt to Change to Survive*, best summarizes the entrepreneurial efforts of ESOs in the face of external funding shocks and the increasing demand from civil society for ecologically and socially sustainable services to tackle climate change. The process of green collaborative entrepreneurship in the social economy has similarities to the concept of creative destruction that was introduced by Schumpeter (1950) as a competitive market, economy-wide process that "incessantly revolutionizes the economic structure from within, incessantly destroying the old one, incessantly creating a new one" (p. 83). Destruction can be triggered by external institutional events such as policy changes that force ESOs to modify programs, services and internal operations. Creation occurs through the process of green collaborative entrepreneurship, which fosters social innovation in the form of green services and new governance arrangements. The green collaborative entrepreneurship process may thus contribute more than discrete innovations; it may drive the 'perennial gale' of creative ideas necessary to develop the social-ecological economy. Perhaps McMurtry's (2004) call for a return to the political 'transformative' roots of the social economy may be more appropriately applied to the process of transforming the social economy into the social-ecological economy. Green collaborative entrepreneurship should be considered by governments as a key mechanism to enable local economic development and green innovation.

## **5.6 Conclusion**

This chapter supports emerging research that suggests non-profit organizations are becoming more entrepreneurial and strategic in response to institutional pressures and constraints from government agencies and for-profit businesses (Weerawardena et al., 2010). The large number of new services created and deployed by ESOs helped these social economy organizations survive the loss of revenue from a home energy rating program. As one manager exclaimed, "we survived due to guts, determination, and entrepreneurship!" The average response was the launch of three new energy-related services and one non-energy service by each ESO. The number of new services ranged from zero at the ESO in Quebec, which was already a large organization delivering a wide range of services and was

thus less dependent on the EGH program; to nine new services at an ESO in Ontario. The average level of service creation per ESO was significantly lower in the four jurisdictions where the Provincial or Territorial government immediately took over the program (n = 4; average = 2) as compared to the average number of services created per ESO in Ontario, which did not immediately take over the program (n = 8; average = 4.6). This flurry of new activity was facilitated by the internal human capital stocks present within the ESOs, their collaborative entrepreneurial capacity and external social capital networks. Strategic partnerships were important factors that helped ESOs survive the funding shock and thrive through the process of green collaborative entrepreneurship, which has similar attributes to the team form of collective social entrepreneurship (Roberts, 2006).

ESOs are flexible local delivery agents of climate change mitigation programs and environmental services, and therefore represent one part of the case study of strategic green decisions discussed in this dissertation. Existing energy and climate change mitigation skills were applied in the development of new energy-related services, while broader skills were used to create new lines of business. Overall, ESOs are well positioned to play a significant role in the development of the ecological economy due to their core human capital competencies, external social capital networks, strategic partnerships, resilient entrepreneurial spirit, and innovative capacity. The strong leadership skills present in Green Communities Canada and ESOs are critical factors necessary to transform the aforementioned attributes into further green collaborative entrepreneurship designed to ride the green wave of citizen demand for climate change mitigation, and other environmental services, which is currently rolling across the country.

This chapter described environmental service organizations that became more entrepreneurial in response to a major funding shock. Strategic partnerships, social capital networks and human capital were important facilitating factors in social economy organizations that created new energy management services. Green collaborative entrepreneurship was driven by the core environmental objective of helping communities reduce their environmental footprint, and can foster environmental innovation absent the profit motive in the context of emergency entrepreneurship. The need for green collaborative entrepreneurship was driven by two interrelated issues (a loss of external government funding, and an associated market collapse for residential energy audits), and

facilitated by three main factors (external social capital network flows, internal human capital stocks, and strategic partnerships). Implications for sustainable development include the potential for joint project creation and investment utilizing green collaborative entrepreneurship to integrate social and ecological objectives, as well as strategies to help organizations enhance resilience to exogenous shocks.

## **Chapter 6: Conclusion and Recommendations**

Climate change and declining non-renewable energy resources present critical challenges to society, and organizations can help address these challenges by making green decisions that contribute to sustainable development. The types of green decisions that organizations make range from those that respond directly to regulations or institutional pressure, to decisions that are voluntary in nature. Given the lack of an effective and enforceable institutional framework to address energy and environmental challenges in North America, many green decisions by organizations are made on a voluntary basis. Voluntary green decisions often run counter to institutional norms that continue to favour organizational survival as manifested through profit, return-on-investment, strategic or revenue generation criteria.

Organizational green decisions that also support organizational survival imperatives are thus important to study in order to provide a better understanding of the factors that motivate and facilitate these complex, voluntary and innovative green decisions. The need to balance organizational survival and green decisions was evident in the case of non-profit environmental service organizations that are dependent on uncertain funding sources, which fluctuate over time due to the turbulent nature of politics and policy streams. This balance was also demonstrated by firms, small businesses, government agencies and other social economy organizations during the global recession of 2008, when the number of organizations that started purchasing premium-priced green electricity actually increased despite the financial challenges that threatened organizational survival.

Given the nature of these kinds of organizational green decisions, this dissertation endeavoured to provide insight into the following research question: are green decisions that generate strategic benefits a function of the particular type of organization, organizational attributes, or the kind of decision? The homogenizing perspective including green institutional theory and corporate greening literature, as well as the heterogeneous perspective including the green resource-based view of the firm and dynamic capabilities literature, were combined with insights from the green entrepreneurship literature to address the research question. Two types of green decisions taken by organizations were investigated: green electricity purchasing and green collaborative entrepreneurship.

The two forms of green decisions involved individual and collaborative actions within and between organizations that helped the organization adapt to changes in its external institutional environment and simultaneously generate green benefits. Investigating green decisions that contribute to strategic benefits is important given the history of entrepreneurs as drivers of societal change in response to external market and institutional changes (Klein et al., 2009; Klein and Cook, 2006; Schultz, 1975; Schumpeter, 1950), as well as growing academic interest in entrepreneurship for sustainable development (Hall et al., 2010). Given that previous studies have shown that green decisions can be influenced by external factors and/or facilitated by internal capabilities, the comprehensive framework that incorporated the entrepreneurship perspective was used to address some of the limitations of the homogenizing and heterogeneous organizational decision making perspectives. The empirical research was designed to investigate the ways and extent to which green decision making processes are driven by agency versus structural factors. The research studies also aimed to provide a more in-depth understanding of how and why organizations use green decision making to adapt to external changes and generate competitive advantages, while at the same time helping to green the organization.

This chapter concludes the dissertation by summarizing the important findings, connecting the empirical research to the literature, and offering a set of recommendations for green decision makers and to future research. The research objectives for the dissertation are reviewed and related to the main findings of the two studies undertaken. This includes a discussion of the role and importance of environmental champions and organizational culture in an organizational green decision, as well as the capability of green collaborative entrepreneurship to help a collection of ESOs adapt to an external funding shock.

## **6.1 Core Research Objectives and Sub-Objectives**

The core research objectives were addressed in two complementary projects that are presented in Chapter Four and Chapter Five, respectively. Project #1 focused on a green energy purchase decision:

### **Project #1: Green Energy Purchase Decision**

- (1) What are the motivating and facilitating factors that influence a green energy purchase decision and how do these vary according to organizational attributes?

There were three sub-objectives for Project #1:

- (1) To identify important factors that influence the voluntary decision to purchase green electricity, as well as establish if relative differences in importance are evident across organizational types, in order to provide a better understanding of the complexity of these kinds of decisions;
- (2) To ascertain if green champions or environmental coordinating structures are important to a greater percentage of social economy organizations than small businesses, government agencies and corporations, in order to expand the green agency-structure literature to include other organizational types;
- (3) To investigate the factors that influence organizations to increase the size of green electricity purchase over time for the purpose of offering green strategy recommendations to organizations.

### **Project #2: Green Collaborative Entrepreneurship**

Project #2 was concerned with green collaborative entrepreneurship, and focused on the second core research objective:

- (1) What is the character and scope of the association between organizational attributes, and the factors that motivate and facilitate green collaborative entrepreneurship in not-for-profit organizations providing green services?

The four sub-objectives for research Project #2:

- (1) to investigate the magnitude of impact of the external funding shock on demand for the main service delivered by ESOs, the EGH energy audit;
- (2) to discover and categorize the breadth and depth of creative responses by ESOs;
- (3) to provide insight into the factors and processes that ESO managers described as most important to overcoming the funding shock in order to provide recommendations to NGOs operating in turbulent and uncertain environments; and
- (4) to ascertain and contrast the level of green entrepreneurship in a period of funding stability as compared to the post-shock period.

## **6.2 Summary of Research Findings**

### **Core Objective 1: Green Energy Purchase Decision**

The green energy purchase decision project discovered that individuals within organizations often play a key role in convincing the organization to make a green decision in response to a changing external institutional environment. Organizational theory would suggest that in the absence of regulations or tax incentives, organizations are likely to continue purchasing standard grid electricity in-so-far as it remains the lowest-cost electricity option. This study has shown, however, that many early adopter organizations chose to pay a premium price for green electricity because of the importance they attributed to environmental benefits, as well as perceived marketing advantage. Environmental champions and organizational culture were important in the decision to purchase green electricity, as well as the decision to increase the size of purchase in many organizations. Green champions in the study also drew upon organizational structures and existing green programs to help build a case for the decision to increase the size of the green electricity purchase based on strategic criteria. The importance of green champions was prevalent within businesses that are motivated by profit and return-on-investment criteria, as well as in non-profit organizations driven by social values and characterized by uncertain budgets. One key difference between social economy organizations and

businesses was the higher percentage of respondents from the social economy that believed environmental coordinating structures were important to the decision to purchase green electricity. The social economy responses to this factor were more diverse than for businesses or governments, however, suggesting a wide variation in importance within the social economy group itself. The open-ended responses also supported the quantitative data conclusion that social economy organizations make green decisions in a collective manner. This is in contrast to similar-sized SMEs, where the owner made the decision to purchase green electricity in a more or less unilateral manner. Organizational culture was important to three-quarters of social economy organizations, but interestingly, environmental champions were considered important when organizational culture was not to less than 10 per cent of respondents, the lowest percentage of the four groups. This suggests that even when champions were important in the decision to purchase green electricity, they were aided by a supporting organizational culture in social economy organizations.

The findings in Chapter Four also reveal that organizations are willing to adopt a green decision championed by an individual if a context-specific justification can be made for why the organization will benefit from the decision. In some cases, this was due to the value attributed to the environmental benefits accrued from purchasing green electricity. In other cases, champions used selling, framing and support-gathering techniques to emphasize potential strategic benefits such as a perceived marketing advantage that could improve the economic position of the organization, in order to gain acceptance for the green decision. This suggests that champions may understand the cultural and structural contexts of their organization and its surrounding milieu at the particular time when they build a case for support from decision makers.

### **Core Objective 2: Green Collaborative Entrepreneurship**

The green collaborative entrepreneurship research findings provide a better understanding of how non-profit environmental organizations innovate in response to an external funding shock. New services were created and existing services were modified and in some cases targeted to different markets in order to diversify funding sources and adapt



the organization to change. Human capital was important in service creation, and social capital was drawn upon to attract new ideas and funding options that were used in the short-term to help foster creativity. Stability provided by partnerships supported the creativity that led to the development of new services, and the resulting flexibility increased organizational resilience to potential future shocks.

The findings in Chapter Five suggest that non-profit environmental service organizations are able to rapidly adapt to changes in their external operating environment. ESOs demonstrated a surprisingly significant ability to alter the rate of entrepreneurship in response to changing funding options. These organizations were able to use existing partnerships and make new relationships rapidly in order to mobilize resources from other organizations in the local community. Green collaborative entrepreneurship is therefore a mechanism for sustainable development as well as a tool for organizational adaptation and survival.

#### **Key Contributions from Chapter Four and Chapter Five:**

The empirical research in this dissertation provides three important contributions that enhance the scholarly understanding of strategic green decision making. The first focuses on the role of green champions in influencing green decisions that primarily benefit society, and secondarily benefit the organization. These green decisions can be contrasted with previous studies that examined the role of individuals within organizations at creating new products, services or processes that are expected to provide economic benefits to the organization. The importance of techniques of champions, which was previously identified in large businesses, was verified here for corporations and was also demonstrated for SMEs, social economy organizations and government agencies. The coinciding importance of environmental champions and culture to a green decision made within an organization suggests that potential champions could benefit from a supporting organizational culture when deciding to influence green changes.

The second contribution deals with the collaborative process that takes place when non-profit environmental organizations work together in order to survive a loss of core funding. Previous collaborative entrepreneurship studies tended to focus on the sharing of

financial resources as ‘investments’ that expect a return to the partners involved. In the case under examination here, however, the primary objective of partnering was to help the ESO survive and continue to deliver green services to the community. In other words, there was no expectation of a financial return, but rather, the environmental benefits achieved by the green services were valued highly enough by the resource partners to justify an investment in the long-term survival of the ESO. This case demonstrates that green collaborative entrepreneurship processes can emerge independent of angel investors or Federal government innovation support programs, and thus represents a unique form of green entrepreneurship that relates to sustainable development.

Furthermore, and in contrast to much of the corporate green decision making literature, the entrepreneurial green decisions undertaken by the organizations in this dissertation were not influenced primarily by external stakeholder pressure or internal structures. Rather, individuals driven by their personal environmental values and supported by a green organizational culture were the driving force behind the green idea, as well as the key facilitator of the green decision. It is important not to discount the complexity of this finding, however, because it may suggest either that individuals are filtering and interpreting external pressure into their personal decision making process, or conversely, that individuals may be the key drivers of green decisions rather than organizational structural and external contextual factors. Process-based qualitative methodological techniques should be employed in future research to better differentiate between these potential explanations of the role of championship and organizational culture in green decisions.

### **6.3 Implications for Theory Development**

The findings of both studies described and examined in this dissertation offer insight to organizational, entrepreneurship and sustainable development theories. First, in regard to organizational theory, two green decision making processes were identified that have similarities to dynamic capabilities, which have been shown to help organizations create the resources and capacity necessary to facilitate green decisions (Lepoutre, 2008). The decision to purchase green electricity represented a fundamental shift for many

organizations in the way they make procurement decisions, allowing the organization to adapt to a new institutional option while potentially achieving strategic green advantages through differentiation. The collaborative entrepreneurship process, on the other hand, demonstrated the importance of external connections to facilitating green decisions that lead to new services and funding diversification, both of which enhance organizational survival capacity. The internal decision involving champions, culture and structures allowed for organizational changes to occur in response to external institutional changes, in a similar manner to the external process of partnership development and mobilization that helped the ESOs to adapt to an external shock. Green championship and green collaborative entrepreneurship therefore offer both an internal and an external means of generating “the Schumpeterian rents that come with the constant renewal of the firm’s practices to cope with the changes in the environment” (Lepoutre, 2008, p. 25). This suggests that the capacity provided by the agency, culture and structural interactions that occurred in the two green decision making processes could represent dynamic capabilities that help organizations adapt to external shocks in addition to supporting the creation of environmental initiatives.

Second, with respect to entrepreneurship theory, this dissertation provides two important contributions that relate to the core finding of each project. Identifying the importance of environmental champions in combination with organizational culture in green decisions within different types and sizes of organizations broadens our understanding of how to influence green decisions beyond simply incentivising employee action through rewards and bonuses. Rather, researchers should focus on discovering how to create a green culture through programs, committees or networks. The green culture itself supports the creation and attraction of potential green champions to the organization, where incentives can then be used to cultivate their creativity and connectivity skills. In the second study, green collaborative entrepreneurship provides an example of how to use entrepreneurship to respond to external shocks for researchers that are studying social economy organizations of all types that operate within uncertain funding environments. The findings in this study point to a further question for entrepreneurship researchers to discover how to encourage entrepreneurship during times of funding stability. While this may not be necessary from the perspective of the non-profit partner, it could have broader

sustainable development benefits for the community as well as economic benefits for the business or government partners.

Third, sustainable development researchers should investigate the role of individual champions within community sustainable development initiatives. Champions were successful in non-profit organizations, local governments and businesses, and these champions could, in theory, connect with each other within a community to coordinate and champion broader sustainable development initiatives. Studies could examine whether champions can play the role of boundary spanners and institutional entrepreneurs, or whether those are distinct roles that are carried out by individuals with different skill sets. Of potentially greater interest to sustainable development scholars, however, are the findings from the second study concerning the green collaborative entrepreneurship process. This local process led to the creation of green services in spite of a lack of Federal government support. A broader examination of the motivations and interactions between local organizations in sustainable development and green innovation studies may help understand how green technology innovation and social innovation could co-emerge as a collaborative local process.

#### **6.4 Recommendations for Practitioners**

Two sets of recommendations are offered to policy-makers and organizational decision makers, respectively, to help encourage future strategic green decisions. Federal and provincial policy-makers should invest in the factors that provide the capacity for green decisions as discussed in this dissertation: partnerships, social capital, human capital, organizational culture and environmental champions. The following recommendations have potential value for decision makers at all levels and could help to guide investments:

- (1) Environmental championship internships could be created and funded for university and college graduates. This could be similar to existing government and private sector internships like those offered in Ontario, but with an explicit sustainability focus;

- (2) Community competitions can be run by municipal governments to challenge businesses and social economy organizations to 'out-green' each other through green electricity purchasing and other energy management programs. This could include per employee targets (similar to per capita) encouraging individuals within organizations to challenge each other, as well as employees in other organizations, both at home and at work;
  
- (3) Federal or provincial governments could provide a pool of funding to communities where organizations are using partnerships and entrepreneurship to create verifiable GHG emission reduction programs or services. In contrast to policies that target individual households (e.g., ecoENERGY), therefore, this initiative would focus on organizations within communities, where collective action, competition dynamics and social capital may prove effective facilitators of environmental entrepreneurship for green service creation.

Additionally, the following recommendations could help NGOs, businesses and municipal governments green themselves while simultaneously generating strategic benefits:

- (1) Environmental entrepreneurship could be formally incorporated into strategic planning to continually encourage the development of new energy management services and programs;
  
- (2) Partnerships could be developed in times of stability so that they can be drawn upon in times of financial or policy crisis;
  
- (3) Internal environmental coordinating structures such as committees and departments could be created even if they do not fit with the NGOs core social objective. These structures provide a landscape for environmental champions to

emerge, flourish, and gather support for social and environmental innovation, which can help organizations adapt to future external institutional shocks;

- (4) Strategic structures such as environmental metrics and certification programs should be adopted for the direct environmental and green differentiation benefits they can generate, but also because they offer champions a strategic argument to help convince their organization to increase the scale and scope of existing green initiatives over time.

Focusing on these recommendations could improve the chances of green championship and green collaborative entrepreneurship occurring in organizations. This would provide opportunities for researchers to examine strategic green decisions with different methods that may provide additional insight into the processes involved.

In the course of the dissertation research, it became evident that decisions are often not based on a single motivating or facilitating factor alone, as much of the corporate decision making literature suggests. On the contrary, organizational green decisions are often made through processes involving different factors occurring in combination. The data collection and analysis conducted for this dissertation can only begin to identify these combinations, through, for example, the factor coincidence analysis in Chapter Four, rather than shedding substantial light on how the full processes work over time. Future research should therefore use a combined factor and process approach in order to identify important factors and then understand how they work in combination. Researchers could follow resource and environmental management scholars including Armitage et al. (2007) and Wolfe (2009), who examine environmental decision making processes that occur through collaborative and adaptive governance arrangements. This approach places a high value not only on observing the decision making process, but also in many cases, influencing that process through participatory action methods.

## 6.5 Future Research

Future research should target four areas for investigation to provide further understanding into green championship and green collaborative entrepreneurship. First, studies could focus on additional types of green decision making that were not covered here or in previous green technology entrepreneurship scholarship. This may include a project designed to provide insight into how green collaborative entrepreneurship could occur as a response to non-economic and internal motivations. In other words, could green collaborative entrepreneurship be encouraged absent an external shock? Although evidence from Chapter Five suggests that the rate of green collaborative entrepreneurship actually declines in periods of funding stability, it is important to better understand what motivates organizations to pursue green entrepreneurship within stable external operating contexts. Stable institutional environments provide favourable conditions for green energy technology development (Espinoza and Vredenburg, 2010) and may thus offer a supportive context for green collaborative entrepreneurship. Within a stable environment, therefore, what internal organizational dynamics would be required to drive green entrepreneurship?

Second, research could examine ways of encouraging green collaborative entrepreneurship in contexts that do not traditionally support entrepreneurial activities, for the joint purposes of advancing theory as well as participatory action-based capacity building and development. This category can be separated into three parts: capacity building for green entrepreneurship in non-traditional entrepreneurship contexts, green collaborative entrepreneurship from the perspective of governments and businesses, and focusing on non-adopters of green energy innovations to uncover the inhibiting factors that limit potential green championship success:

- (1) Studies could focus on building capacity for green entrepreneurship in contexts that are not traditionally considered to support entrepreneurial activities. For example, remote First Nation's and other rural communities would provide a good comparison to urban municipalities due to the lower number of specialized organizations, low population density, and the lack of resource exchange networks such as the Cities for Climate Protection program. Participatory action research

could be employed to simultaneously build capacity while studying the processes by which rural communities develop and implement green innovations.

- (2) Future studies could examine the process of green collaborative entrepreneurship from the perspective of local governments and businesses. This would provide a finer-grained explanation of the municipal and corporate motivations for joining collaborative entrepreneurship processes that facilitate the creation of green innovations. Understanding these factors is important if communities are to rely upon collaboration as a means of enhancing resilience and driving green entrepreneurship to transform society in the direction of sustainability.
- (3) Research could focus on organizations that did not create or adopt green energy innovations to provide insights into the inhibiting factors of green decisions. Studies could survey North American organizations of similar size and type to the ones included in Chapter Four, but that do not purchase green electricity. This could identify the inhibiting factors of voluntary green electricity adoption by different organizational-types, as well as the structural and regulatory constraints that may be limiting the green electricity market in North America. Similar studies could also target voluntary green electricity purchasing programs in Europe, Australia, or Asia, to see if different institutional and resource-based factors are important within different policy and political contexts. Additionally, research can examine how government policy could be designed to facilitate rather than constrain organizations that wish to generate green electricity on-site.

Third, future research could investigate ways of developing and supporting green championship within organizations. This could involve various approaches to encouraging the development of green champions, including incentives and support, electronic social networks, environmental champion apprenticeship programs, and organizational sub-cultures. Studies can look for innovative ways for organizations to provide institutional and slack resource support for the development of environmental champions (Andersson and Bateman, 2000; Lynes and Andrachuk, 2008). To foster bottom-up championing events,



managers can incorporate environmental indicators into the performance evaluation of individual employees (Linnenluecke, Russell and Griffiths, 2009). This can encourage 'personal sustainability responsibility', as well as bottom-up learning and employee feedback (Danchev, 2006; Fenwick, 2007).

Exploratory studies could test the potential of inter and intra-organizational electronic social capital networks facilitated by software programs such as Zerofootprint (2009) to encourage new environmental championship events and help existing champions gain support for their initiatives. Studies could use participatory action research to pilot and test an environmental champion apprenticeship program in businesses, social economy organizations or government agencies that would focus on organizational learning. Environmental champion apprenticeship programs could help groom new champions to maintain corporate sustainability DNA. Champions can be identified during the hiring process by looking for key values and personality traits, and pre-existing environmental knowledge. Organizations could use social networking software like Zerofootprint (2009) to identify existing employees who could be potential champions, due to their personal green actions (recorded by the software) and their degree of integration within the organization. Once two or three candidates have been identified, they would be mentored by an existing champion to learn the framing, selling, scanning, and other championship techniques. Apprentices would learn how to navigate and use the current environmental structures (e.g., ISO 14001, LEED, environmental metrics, committees, and departments) and become familiarized with the key strategic contacts and sub-cultural networks within the organization.

Sub-cultures that support learning are critical to providing stability when a champion leaves the organization (Morsing and Oswald, 2009). Sub-cultures can be developed by formal or informal learning networks of individuals from different parts of the organization that share environmental values (Linnenluecke et al., 2009; Linnenluecke and Griffiths, 2010). Social learning networks facilitated by Zerofootprint (2009) could connect individuals within and between organizations to spread sustainability ideas, challenge each other to reduce individual, department or organizational ecological footprints, and to create a social sub-culture for sustainability. These social networks could also potentially connect green championship processes occurring within organizations to

green collaborative entrepreneurship taking place between multiple organizations in a community.

Fourth, future research could consider cases where green championship and green collaborative entrepreneurship are occurring within the same organization by focusing on a single research project rather than two separate projects. This would offer an added benefit of being able to illustrate how internal dynamic capabilities and external dynamic capabilities may be related to each other within the same organizational decision making process. Key questions that could be examined would include: can a champion of an internal greening decision also play a key role within the same organization's collaborative entrepreneurship endeavours with external partners?; can joint participation in an external institutional structure such as an industry association, LEED or ISO 14000 increase the chances that two organizations will collaborate on green entrepreneurship?; do organizations that practice green collaborative entrepreneurship and deliver green services also make internal green decisions that lead to environmental sustainability improvements? Future research that addresses these questions will provide insight into the extent that external and internal decision making processes are interrelated, and thus, will further our understanding of strategic green decision making theory in relation to organizational theory.

## **6.6 Concluding Statement to the Dissertation**

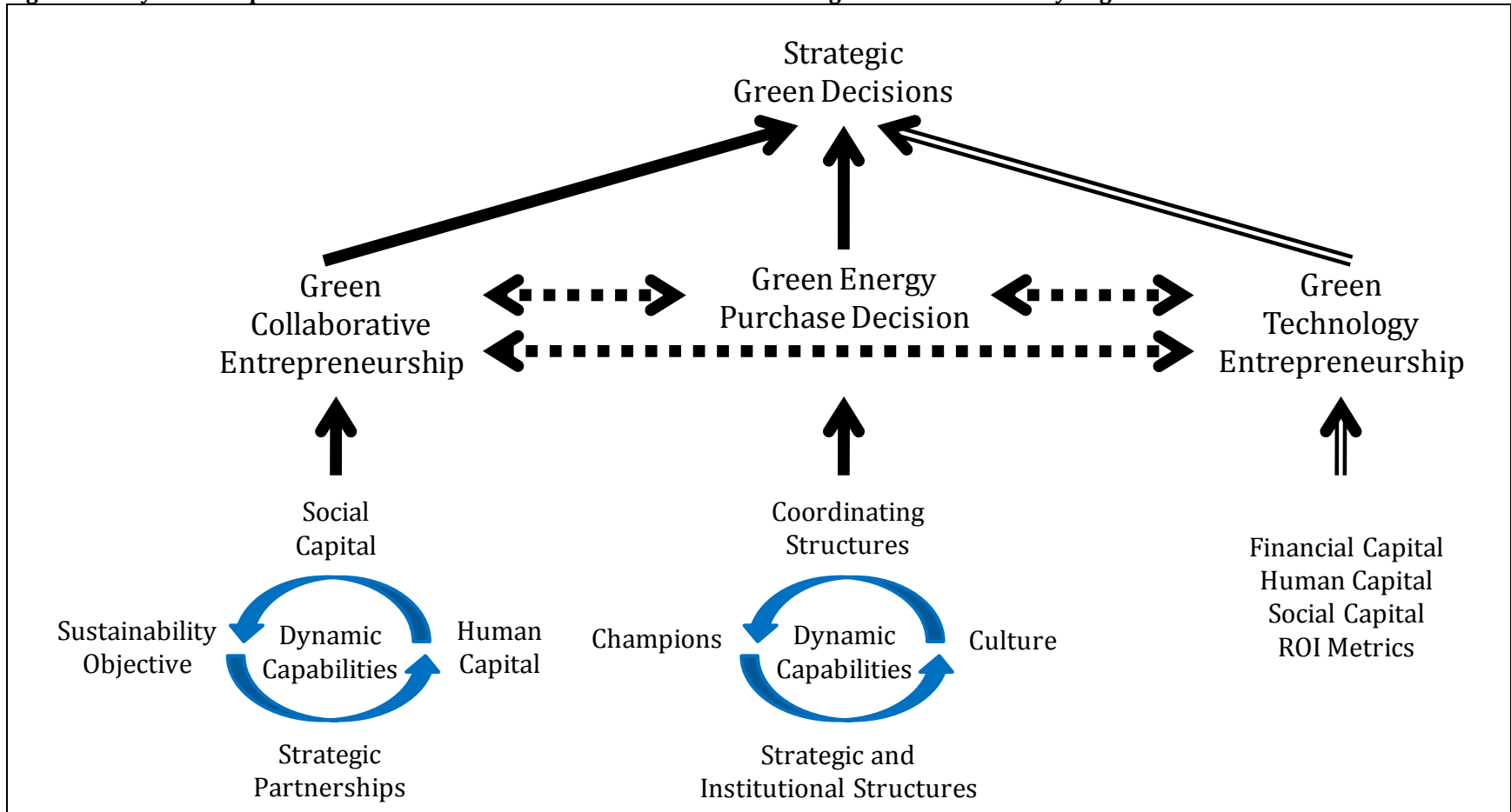
Similarities are evident between the internal green decision that was discussed in the green energy purchase chapter and the collaborative green decision investigated in the green collaborative entrepreneurship chapter. In fact, the motivating and facilitating factors of green championship are comparable to those of green collaborative entrepreneurship as shown in Figure 6.1. Both decisions involved an organizational culture or sustainability objective based on environmental values. Each decision also involved human capital; in one case the organization drew upon the existing knowledge of employees, while in the other, environmental champions initiated the decision. Strategic structures were important in both projects, with strategic partnerships providing critical capacity for organizational creativity and survival in the case of green collaborative

entrepreneurship, and strategic structures offering environmental champions a means of selling the strategic benefits of the green electricity purchase. Finally, both green decisions were also supported by social capital, in one case with the use of the Green Communities Canada social capital network, while in the other, environmental coordinating structures helped champions gather support for the green decision. This suggests that different green decision making processes that occur in response to external changes can share similarities in their motivating and facilitating factors even if they differ in their outcomes and in their organizations' core objectives.

The two sets of dynamic capabilities outlined in Figure 6.1 represent interactions between structural capital, human capital and cultural capital that occurred leading to the eventual green decision in each study. Structures provide capacity that agents draw upon when necessary to foster creativity, gather support, or implement and deliver a new program or service. Both cases described in the dissertation were similar in that they relied upon critical decisions and efforts made by individual agents within the organizational framework, which led to the eventual organizational green decision. There are two main differences between green championship and green collaborative entrepreneurship as described in this dissertation, and green technology entrepreneurship as discussed in the literature: (1) the principal importance attributed to a green sustainability objective or green organizational culture in the former cases, and (2) the central importance of financial capital and return-on-investment criteria in the latter case.

Future research should examine potential connections between green collaborative entrepreneurship, green championship and green technology entrepreneurship as shown by the dashed lines in Figure 6.1. This would complement the research contributions of this dissertation, shown by the solid lines, by exploring congruencies between different forms of green decision making. Additionally, it would contribute to emerging research suggesting that social entrepreneurs and green technology entrepreneurs may be able to work together to advance their common green objectives at the same time as they are working to achieve their divergent core objectives (Horwitch and Mulloth, 2010). If combined, this three-pronged approach to strategic green decision making may be capable of fostering sustainable development within and between organizations in communities.

**Figure 6.1: Dynamic Capabilities as Factors that Motivate and Facilitate Strategic Green Decisions by Organizations**



Note: Solid lines indicate research contributions from this dissertation; dashed lines suggest potential future research; double lines indicate an established literature and growing practical experience.

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## **Appendix A: List of Publications Related to this Dissertation**

### ***Papers Published in Refereed Journals***

- Gliedt T, Parker P, 2010, "Dynamic capabilities for strategic green advantage: Green electricity purchasing in North American firms, SMEs, NGOs and agencies" *Global Business and Economics Review* **12**(3) 171-195
- Gliedt T, Berkhout T, Parker P, Doucet J, 2010, "Voluntary environmental decision making in firms: Green electricity purchases and the role of champions" *International Journal of Business Environment* **3**(3) 308-328
- Gliedt T, Parker P, 2007, "Green community entrepreneurship: Creative destruction in the social economy" *International Journal of Social Economics* **34**(8) 538-553

### ***Refereed Book Chapters***

- Parker P, Gliedt T, 2010, "Integrated energy resource management", in *Resource and Environmental Management in Canada: Addressing Conflict and Uncertainty* Ed B Mitchell 4th Edition (Oxford University Press, London) pp 154-185
- Gliedt T, Parker P, Lynes J, 2010, "Strategic partnerships: Community climate change partners and resilience to funding cuts", in *Researching the Social Economy* Eds L Mook, J Quarter, S Ryan (University of Toronto Press, Toronto) pp 201-222

### ***Conference Presentations***

- Gliedt T, Parker P, 2010, "Building 'resilience' for a changing social economy: The role of social entrepreneurship and adaptive leadership" *Association of Nonprofit and Social Economy Research (ANSER-ARES)*, Congress of the Humanities and Social Sciences (Concordia University, Montreal)
- Gliedt T, Parker P, 2010, "Champions of corporate energy planning: Comparing manufacturing firms to service-sector businesses" *International Green Energy Conference* (University of Waterloo, Waterloo)

- Gliedt T, Parker P, 2009, "Voluntary green electricity purchasing: A strategic social responsibility initiative in the social economy" *Association of Nonprofit and Social Economy Research (ANSER-ARES)*, Congress of the Humanities and Social Sciences (Carleton University, Ottawa)
- Gliedt T, Parker P, 2009, "Voluntary green electricity purchasing: Part of an integrated energy management strategy" *Canadian Association of Geographers Annual Meeting*, Congress of the Humanities and Social Sciences (Carleton University, Ottawa)
- Gliedt T, Parker P, 2009, "Voluntary green electricity purchasing: A comparison of small and large businesses" *Interdisciplinary Centre on Climate Change Conference* (University of Waterloo, Waterloo)
- Gliedt T, Parker P, 2009, "Greening the social economy: Comparing internal and external actions to mitigate climate change" *Southern Ontario Social Economy Community-University Research Alliance Symposium* (University of Toronto, Toronto)
- Gliedt T, Parker P, 2008, "Social innovation for sustainable development: Green Communities respond creatively to climate change" *Association of Nonprofit and Social Economy Research (ANSER-ARES)*, Congress of the Humanities and Social Sciences (University of British Columbia, Vancouver)
- Parker P, Gliedt T, 2007, "Green Community Entrepreneurship: Creative responses to the cancellation of the EnerGuide for Houses Program" *Canadian Association of Geographers Annual Meeting* (University of Saskatchewan, Saskatoon)
- Gliedt T, Parker P, 2007, "Green Community Entrepreneurship" *Southern Ontario Social Economy Community-University Research Alliance Symposium* (University of Toronto, Toronto)

## Appendix B: Information and Recruitment Letter for Chapter 4 Study



December 2, 2008

Dear *Potential Participant*:

This letter is an invitation to participate in a study conducted by Dr. Paul Parker and Travis Gliedt (graduate student), Department of Geography and Environmental Management at the University of Waterloo, entitled '*Voluntary Green Electricity Purchasing in North American Organizations*'. As an organization that currently purchases green electricity, participation in this study will benefit you in the following ways:

- 1) You will receive a copy of the final report summarizing the experiences of organizations in the United States listed on the Environmental Protection Agency (EPA) Green Power Partnership website, which voluntarily purchase green electricity, as well as in Canada (Alberta, Ontario), which voluntarily purchase green electricity from Bullfrog Power. This will allow you to compare your experiences to organizations of different size, type, and jurisdiction.
- 2) The final report will help decision makers design policies that support voluntary environmental actions, such as purchasing green electricity, that are taken by organizations like yours.

This project expands upon previous studies by examining the factors that influence firms to continue to purchase green electricity that costs more than standard electricity, as well as the factors that influence firms to increase the size of the green electricity purchase over time.

It is important for you to know that any information you provide will be confidential. You are not asked to identify yourself on the survey. Upon completion of the survey, however, one question will request the name of your organization so we do not re-contact you concerning participation in the survey. The organization name will be stored in a separate database from the survey data, and will be destroyed once all survey data are collected. All of the data will be summarized and no individual could be identified from these summarized results. Finally, the survey website uses a secure https server.

If you wish to participate, please visit the Survey Website at:

[https://www.surveymonkey.com/s.aspx?sm=knkqGb\\_2beF1CpkVibNI\\_2bPVg\\_3d\\_3d](https://www.surveymonkey.com/s.aspx?sm=knkqGb_2beF1CpkVibNI_2bPVg_3d_3d)

Participation in this study is voluntary. It will involve an electronic survey of approximately 10 minutes in length. If you prefer not to complete the survey on the web, please contact us and we will make arrangements to provide you another method of participation. You may decline to answer any of the survey questions if you so wish. Further, you may decide to withdraw from this study at any time by not submitting your responses. The name of your organization will **not** appear in any thesis or report resulting from this study, and you yourself will not be named. The data, with no personal identifiers, collected from this study will be maintained on the password protected computers of Travis Gliedt and Paul Parker at the University of Waterloo for 5 years. After that time the data will be confidentially destroyed. Only researchers associated with this project will have access to the data. There are no known or anticipated risks to you as a participant in this study.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact Dr. Paul Parker at 519-888-4567 ext. 32791 or by email at [pparker@uwaterloo.ca](mailto:pparker@uwaterloo.ca).



I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at (519) 888-4567 ext. 36005 or by email at [ssykes@uwaterloo.ca](mailto:ssykes@uwaterloo.ca).

I thank you in advance for your assistance in this project.

Yours Sincerely,

Dr. Paul Parker and Travis Gliedt

Department of Geography and Environmental Management, University of Waterloo

Email: [pparker@uwaterloo.ca](mailto:pparker@uwaterloo.ca); [t2gliedt@uwaterloo.ca](mailto:t2gliedt@uwaterloo.ca)

## Appendix C: Survey Questions for Chapter 4 Study

1. Which statement 'best' describes your type of organization? (Business, Non-profit, Government)
2. What option 'best' describes the sector your organization operates in?
  - Primary (e.g., agricultural, forestry, mining)
  - Secondary (e.g., manufacturing)
  - Tertiary (e.g., services, retail, wholesale, distribution, health care, law, tourism, media)
  - Quaternary (e.g., government, culture, research, education, information)
3. What position do you hold in your organization?
4. Which decade were you born in?
5. Are you male or female?
6. How long have you been an employee of this organization?
7. Approximately how many employees work at your organization?
8. What is the approximate annual revenue of your organization? (Average of last 3 years).
9. Approximately how much electricity does your organization use each 'MONTH'?
10. Please select any and all environmental committees, departments, and programs that your organization has. Rate each by the importance of its contribution towards improving the environmental sustainability of your organization (1-5).
  - Environmental committees
  - Environmental department
  - Environmental programs
  - LEED/ecoENERGY
  - ISO 14000 series
  - Corporate social responsibility initiatives
  - other
11. What energy management strategies does your organization use, and how long has each strategy been employed?
  - energy efficiency
  - energy conservation
  - on-site generation of renewable energy
  - purchasing green electricity
  - other
12. How familiar are you with the Leadership in Energy and Environmental Design (LEED) program.
  - very familiar and understand how it works
  - heard of it but do not know the details
  - this is the first time I am hearing of LEED
13. Has your organization sought or achieved Leadership in Energy and Environmental Design (LEED) certification for your building? (Yes or No)
14. If your organization has or is currently working to achieve LEED certification, did your organization consider the purchase of green electricity as an option to gain points toward LEED certification?
15. If your organization is pursuing LEED, what actions have been taken toward achieving LEED certification? (Choose all that apply).
  - energy efficiency improvements
  - on-site renewable energy generation
  - water efficiency improvements
  - green electricity purchases
  - None, we are not pursuing LEED
  - Other (please specify)
16. If your organization has already achieved LEED, what level has been achieved?
  - Gold, Silver, Platinum
17. What metrics or benchmarks does your organization use to measure success of energy management strategies? Please rate by importance (1-5).
  - size of GHG emission reduction

- public recognition
  - size of operating cost reduction
  - size of profit increase
  - compare to our competition – industry best practices
  - meet government regulations
  - other
18. What is the name of your organization's current supplier of green electricity?
19. Is this the only supplier your organization has used for green electricity?
20. Who makes the decision to purchase green electricity? (Choose all that apply).
- Owner/CEO/Executive Director
  - Senior management
  - Environmental department/committee
  - Environmental manager
  - Other (please specify)
21. Please select the level of importance your organization places upon each of the following criteria (1-5).  
Green electricity purchased by your organization must be:
- generated locally
  - EcoLogo™ / Green-e® certified
  - generated by wind
  - generated by solar
  - generated by small hydro
  - the primary energy management strategy
  - one in a basket of energy management strategies
  - primarily a marketing strategy
22. Please rate the following factors in importance with respect to their contribution to your organization's decision to purchase green electricity (1-5).
- organizational culture
  - government regulation
  - tax incentives
  - competition from other organizations in your industry/sector
  - environmental champion(s) within your organization
  - pressure from external stakeholders (customers, community)
  - internal environmental structures (departments, programs, committees)
  - environmental certification programs (LEED, ISO 14000)
  - use of environmental metrics and benchmarking tools
  - other
23. If an environmental champion was 'moderately important', 'very important', or 'most important' in question 22, please identify the champion by selecting all of the following positions that apply.
- owner/CEO/executive director
  - environmental manager
  - vice president (senior manager)
  - myself (interviewee)
  - operations manager
  - other
24. If an environmental champion was 'moderately important', 'very important', or 'most important' in question 22, please rate the following 'techniques' of environmental champions that were used by the champion in your organization (1-5).
- scanned media, literature, competitors for energy management ideas
  - framed green electricity purchase as 'urgent'
  - sold idea to purchase green electricity to the person in the organization that makes the electricity purchasing decision
  - gathered support for the green electricity idea from other employees in the organization
  - other

25. If internal environmental structures or environmental certification programs were 'moderately important', 'very important', or 'most important' in question 22, please rate the following by their contribution to the decision to purchase green electricity (1-5).

- Environmental committees
- Environmental department
- Environmental programs
- LEED
- ISO 14000 series
- corporate social responsibility initiatives
- other

26. How long has your organization purchased green electricity?

27. What % of annual 'electricity' purchases were 'green' electricity, in each year from 1999 to 2008? (1-20%, 21-40%, 41-60%, 61-80%, 81-100%)

28. If the size of green electricity purchase 'INCREASED', what factors led to this change? (Open-ended)

29. If the size of green electricity purchase 'DECREASED', what factors led to this change? (Open-ended)

30. In what Province/State does your organization purchase green electricity?

## Appendix D: Information and Consent Letter for Chapter 5 Study



December 20, 2006

Dear *Potential Participant*:

This letter is an invitation to participate in a study conducted by Green Communities Canada in combination with the University of Waterloo. Dr. Paul Parker and Travis Gliedt (graduate student) are conducting the study entitled *Green Diversification: Green Community Responses to External Shocks*. I would like to provide you with information about this project and what your involvement would entail if you decide to take part.

This study examines the response of Green Communities in the six months following the EnerGuide for Houses, and EnerGuide for Low Income Houses program cancellations. This timely review of strategic choices and actions taken enables success stories to be identified and options articulated for individual organizations to consider adopting in their local setting. The results would be reviewed by Green Communities Canada and reported at Green Communities Canada's annual conference for consideration by all affected parties.

The purpose of this study, therefore, is to identify the obstacles and barriers to continued program delivery. However, the focus is on identifying the diverse set of responses by organizations across Canada. Therefore, I would like to include your organization as one of several organizations to be involved in this study.

Participation in this study is voluntary. It will involve a telephone interview of approximately 15-20 minutes in length. You may decline to answer any of the interview questions if you so wish. Further, you may decide to withdraw from this study at any time without any negative consequences by advising the researchers. With your permission, the name of your organization will appear in any thesis or report resulting from this study; however you will not be named. With your permission anonymous quotations may be used in the report and thesis. Information collected during this study will be kept confidential and retained for 5 years in a locked office at the University of Waterloo, and on the password protected computers of Dr. Paul Parker and Travis Gliedt. After that time the data will be confidentially destroyed. Only researchers associated with this project will have access to the data. There are no known or anticipated risks to you as a participant in this study. The consent form can be completed via e-mail or verbally over the phone.

If you are interested in participating in this study, you can email Travis Gliedt at [t2gliedt@uwaterloo.ca](mailto:t2gliedt@uwaterloo.ca). If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact Dr. Paul Parker at 519-888-4567 ext. 33404 or by email at [pparker@uwaterloo.ca](mailto:pparker@uwaterloo.ca).

I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. However, the final decision about participation is yours. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes of this office at (519) 888-4567 Ext. 36005.

I hope that the results of this study will be of benefit to Green Communities organizations directly involved in the study, as well as to the broader research community.

I thank you in advance for your assistance in this project.

Yours Sincerely,

Clifford Maynes  
Executive Director, Green Communities Canada

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**CONSENT FORM**

I have read the information presented in the information letter about a study being conducted by Dr. Paul Parker and Travis Gliedt of the Department of Geography at the University of Waterloo. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted.

I am aware that excerpts from the interview may be included in the thesis and/or publications to come from this research.

I was informed that I may withdraw my consent at any time without penalty by advising the researcher.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from my participation in this study, I may contact the Director, Office of Research Ethics at (519) 888-4567 ext. 36005.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

YES  NO

I agree to the use of anonymous quotations in any thesis or publication that comes of this research.

YES  NO

I agree to my organization being named in any report or thesis resulting from this study.

YES  NO

Participant Name: \_\_\_\_\_ (Please print)

Participant Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Appendix E: Telephone Script / Interview Questions for Chapter 5 Study

P = Potential Participant; I = Interviewer; *Italics* = conversation; **Bold**=skip to selected section

I - *May I please speak to [Interviewee]?*

P - *Hello, [Interviewee] speaking. How may I help you?*

I - *Hello [Interviewee] my name is Travis Gliedt calling on behalf of Green Communities Canada. I am a graduate student at the University of Waterloo working under the guidance of a GCC committee including Paul Parker, whose contact details were sent in an email describing this project.*

I - *Did you receive an email regarding the Green Community Response to External Shocks project? Y/N*

*If no, would you like a copy?*

*If yes, I can email you a copy; can I have you confirm your email address for me please?*

*If yes, thank you, I will send you the information letter outlining this research project. Is this a convenient time to provide you with a brief overview of the project?*

**If yes, skip to (Background Information)**

*If no, is there a more convenient time I could contact you?*

*If yes, thank you very much (name of potential participant), I look forward to talking with you again on (date/time you agreed to call back).*

*If no, thank you for your time, good-bye.*

*If no, is this a convenient time to provide you with a brief overview of the project?*

**If yes, skip to (Background Information)**

*If no, thank you for your time, good-bye.*

*If yes, as described in the email, we are conducting a survey of Green Communities to identify their creative responses to the May 2006 cancellation of the EnerGuide for Houses Program. This study examines the response of organizations in the six months following the program cancellation. The obstacles and barriers to continued program delivery will be identified, but the focus is on the diverse set of responses by organizations across Canada. Is this a convenient time to provide you with an overview of the project?*

**If yes, skip to (Background Information)**

*If no, is there a more convenient time I could contact you to discuss this project and your potential participation in it?*

*If yes, great, I will contact you by phone at that time to discuss this project further with you.*

*If no, thank you very much, good-bye.*

**I - Background Information:**

- I will be undertaking interviews starting December 10<sup>th</sup>.*
- The interview would last about 15-20 minutes, and would be arranged for a time convenient to your schedule.*

- *Involvement in this interview is entirely voluntary and there are no known or anticipated risks to participation in this study.*
- *The questions are quite general, for example: "Do you continue to offer the EGH service?"*
- *You may decline to answer any of the interview questions you do not wish to answer and may terminate the interview at any time.*
- *All information you provide will be considered confidential.*
- *With your permission, the name of your organization will appear in the list of participating organizations in any thesis or report resulting from this study.*
- *With your permission, anonymous quotes will appear in any thesis or report resulting from this study.*
- *The data collected will be kept in a secure location and disposed of in 5 years time.*
- *If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please feel free to contact Dr. Paul Parker at 519-888-4567, Ext. 33404.*
- *I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics. However, the final decision about participation is yours. Should you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes in the Office of Research Ethics at 519-888-4567, Ext. 36005.*
- *After all of the data have been analyzed, you will receive a copy of the research report.*

I - Do you agree to your organization being named in the thesis or report resulting from this study?

If yes, proceed to next question.

If no, proceed to next question.

I - Do you agree to the use of anonymous quotations, concerning you, appearing in the thesis or report resulting from this study?

If yes, proceed to next question.

If no, proceed to next question.

I - Do you have any questions about the study or your potential participation in it?

If yes, answer the questions for them, or refer potential participant to the contact numbers.

If no, *thank you very much for your time. If it is convenient for you, I can conduct the interview with you at this time.*

If yes, **proceed to interview questions below.**

If no, *may I call you in 2 or 3 days to see if you are interested in participating in the survey?*

If yes, *great, I look forward to talking with you in 3 days, good-bye.*

If no, *thank you very much, good-bye.*

## **Interview Questions – Survey**

(1) *Do you continue to offer the EGH service? Y/N*

(1b) *If no, did the cancellation of the EGH program affect your operations? Y/N*

(1bi) *If yes, please describe how the cancellation affected your operations. How did your organization's capacity change? Has this change in capacity affected your organizations ability to offer new services?*

(1bii) *If no, what services do you currently offer?*

(1c) *If yes, **proceed to question 2***

(2) *Please estimate your scale of operations compared to a year ago.*

(2b) *Is current demand for 'A' evaluations lower by 50-100%, lower by 10-49%, stable within +/- 10%, higher by 10-49%, or higher by 50-100%?*

(2bi) *If your current demand for 'A' evaluations is lower by more than 50%, what is your estimated current demand compared to pre-EGH cancellation?*

(2c) *Is current demand for 'B' evaluations lower by 50-100%, lower by 10-49%, stable within +/- 10%, higher by 10-49%, higher by 50-100, or higher by more than 100%?*

(2ci) *If your current demand for 'B' evaluations is higher by more than 100%, what is your estimated current demand compared to pre-EGH cancellation?*

(3) *Has your organization started any new projects or services since May 2006? Y/N*



- (3b) If yes, *please describe these new projects or services in 2-3 sentences. Is it described on your website?*
- (3c) If no, **proceed to question 4.**
- (4) *Has your organization prepared proposals or submissions to offer new projects or services since May 2006?*  
Y/N
- (4b) If yes, *what projects or services have you created proposals for?*
- (4c) If no, **proceed to question 5.**
- (5) *Are there opportunities that you can think of but have not had time/funding to prepare a proposal for?* Y/N
- (5b) If yes, *what are the opportunities?*
- (5c) If no, **proceed to question 6.**
- (6) *Are there other ways in which your organizational capacity has been affected by the cancellation of Federal funding?*
- (6b) If yes, *please describe.*
- (6c) If no, **proceed to question 7.**
- (7) *What factors, if any, have helped your organization continue operating since the cancellation of Federal funds?*
- a) core funding?
  - b) diverse organization (EGH is only 1 of a number of programs offered)?
  - c) existing partnerships?
  - d) dedicated staff?
  - e) other?
- (8) *Thank you for participating in this interview. Would you like a copy of the results?* Y/N
- (8b) If yes, *thanks again, where would you like me to send the copy of the results? Excellent, I will send it to you upon completion. Thank you, Good-bye.*

### Appendix F: Per Cent Frequency of Percentage GE by Organizational Type and Country

Country	Organizational Type	Frequency Descriptions	Percentage of Total Electricity that is Green (2008)					Total
			1-20%	21-40%	41-60%	61-80%	81-100%	
Canada	SMEs (≤ 20 employees)	Count	5	4	3	2	45	59
		% Within Organizational Type	8%	7%	5%	3%	76%	100%
		% Within Percentage GE	71%	44%	43%	40%	58%	56%
	Large Firms (> 20 employees)	Count	0	3	0	2	21	26
		% Within Organizational Type	0%	12%	0%	8%	81%	100%
		% Within Percentage GE	0%	33%	0%	40%	27%	25%
	Non-profit	Count	1	1	4	1	11	18
		% Within Organizational Type	6%	6%	22%	6%	61%	100%
		% Within Percentage GE	14%	11%	57%	20%	14%	17%
	Government	Count	1	1	0	0	0	2
		% Within Organizational Type	50%	50%	0%	0%	0%	100%
		% Within Percentage GE	14%	11%	0%	0%	0%	2%
	<b>Total</b>	Count	7	9	7	5	77	105
		% Within Organizational Type	7%	9%	7%	5%	73%	100%
		% Within Percentage GE	100%	100%	100%	100%	100%	100%
US	SMEs (≤ 20 employees)	Count	1	0	3	0	18	22
		% Within Organizational Type	5%	0%	14%	0%	82%	100%
		% Within Percentage GE	4%	0%	30%	0%	35%	22%
	Large Firms (> 20 employees)	Count	7	3	5	2	14	31
		% Within Organizational Type	23%	10%	16%	6%	45%	100%
		% Within Percentage GE	27%	27%	50%	100%	27%	31%
	Non-profit	Count	6	5	2	0	15	28
		% Within Organizational Type	21%	18%	7%	0%	54%	100%
		% Within Percentage GE	23%	45%	20%	0%	29%	28%
	Government	Count	12	3	0	0	4	19
		% Within Organizational Type	63%	16%	0%	0%	21%	100%
		% Within Percentage GE	46%	27%	0%	0%	8%	19%
	<b>Total</b>	Count	26	11	10	2	51	100
		% Within Organizational Type	26%	11%	10%	2%	51%	100%
		% Within Percentage GE	100%	100%	100%	100%	100%	100%

### Appendix G: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Organizational Culture

Country	Organizational Type	Frequency Descriptions	Organizational Culture					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	10	5	10	14	16	55
		% Within Organizational Type	18%	9%	18%	25%	29%	100%
		% Within Importance Group	71%	71%	67%	41%	50%	54%
	Large Firms (> 20 employees)	Count	2	1	3	13	7	26
		% Within Organizational Type	8%	4%	12%	50%	27%	100%
		% Within Importance Group	14%	14%	20%	38%	22%	25%
	Non-profit	Count	2	1	1	6	9	19
		% Within Organizational Type	11%	5%	5%	32%	47%	100%
		% Within Importance Group	14%	14%	7%	18%	28%	19%
	Government	Count	0	0	1	1	0	2
		% Within Organizational Type	0%	0%	50%	50%	0%	100%
		% Within Importance Group	0%	0%	7%	3%	0%	2%
	<b>Total</b>	Count	14	7	15	34	32	102
		% Within Organizational Type	14%	7%	15%	33%	31%	100%
		% Within Importance Group	100%	100%	100%	100%	100%	100%
US	SMEs (≤ 20 employees)	Count	0	1	3	7	10	21
		% Within Organizational Type	0%	5%	14%	33%	48%	100%
		% Within Importance Group	0%	25%	20%	14%	33%	21%
	Large Firms (> 20 employees)	Count	0	0	5	17	9	31
		% Within Organizational Type	0%	0%	16%	55%	29%	100%
		% Within Importance Group	0%	0%	33%	34%	30%	31%
	Non-profit	Count	1	1	3	14	9	28
		% Within Organizational Type	4%	4%	11%	50%	32%	100%
		% Within Importance Group	100%	25%	20%	28%	30%	28%
	Government	Count	0	2	4	12	2	20
		% Within Organizational Type	0%	10%	20%	60%	10%	100%
		% Within Importance Group	0%	50%	27%	24%	7%	20%
	<b>Total</b>	Count	1	4	15	50	30	100
		% Within Organizational Type	1%	4%	15%	50%	30%	100%
		% Within Importance Group	100%	100%	100%	100%	100%	100%

### Appendix H: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Government Regulation

Country	Organizational Type	Frequency Descriptions	Government Regulation					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	38	5	4	0	1	48
		% Within Organizational Type	79%	10%	8%	0%	2%	100%
		% Within Importance Group	54%	45%	67%	0%	100%	53%
	Large Firms (> 20 employees)	Count	19	5	2	0	0	26
		% Within Organizational Type	73%	19%	8%	0%	0%	100%
		% Within Importance Group	27%	45%	33%	0%	0%	29%
	Non-profit	Count	13	1	0	1	0	15
		% Within Organizational Type	87%	7%	0%	7%	0%	100%
		% Within Importance Group	19%	9%	0%	33%	0%	16%
	Government	Count	0	0	0	2	0	2
		% Within Organizational Type	0%	0%	0%	100%	0%	100%
		% Within Importance Group	0%	0%	0%	67%	0%	2%
<b>Total</b>	Count	70	11	6	3	1	91	
	% Within Organizational Type	77%	12%	7%	3%	1%	100%	
	% Within Importance Group	100%	100%	100%	100%	100%	100%	
US	SMEs (≤ 20 employees)	Count	15	1	2	1		19
		% Within Organizational Type	79%	5%	11%	5%		100%
		% Within Importance Group	24%	6%	22%	11%		19%
	Large Firms (> 20 employees)	Count	19	4	3	6		32
		% Within Organizational Type	59%	13%	9%	19%		100%
		% Within Importance Group	30%	24%	33%	67%		33%
	Non-profit	Count	19	5	3	0		27
		% Within Organizational Type	70%	19%	11%	0%		100%
		% Within Importance Group	30%	29%	33%	0%		28%
	Government	Count	10	7	1	2		20
		% Within Organizational Type	50%	35%	5%	10%		100%
		% Within Importance Group	16%	41%	11%	22%		20%
<b>Total</b>	Count	63	17	9	9		98	
	% Within Organizational Type	64%	17%	9%	9%		100%	
	% Within Importance Group	100%	100%	100%	100%		100%	

### Appendix I: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Tax Incentives

Country	Organizational Type	Frequency Descriptions	Tax Incentives					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	39	1	3	2	1	46
		% Within Organizational Type	85%	2%	7%	4%	2%	100%
		% Within Importance Group	56%	14%	33%	100%	100%	52%
	Large Firms (> 20 employees)	Count	17	6	3	0	0	26
		% Within Organizational Type	65%	23%	12%	0%	0%	100%
		% Within Importance Group	24%	86%	33%	0%	0%	29%
	Non-profit	Count	13	0	2	0	0	15
		% Within Organizational Type	87%	0%	13%	0%	0%	100%
		% Within Importance Group	19%	0%	22%	0%	0%	17%
	Government	Count	1	0	1	0	0	2
		% Within Organizational Type	50%	0%	50%	0%	0%	100%
		% Within Importance Group	1%	0%	11%	0%	0%	2%
<b>Total</b>	Count	70	7	9	2	1	89	
	% Within Organizational Type	79%	8%	10%	2%	1%	100%	
	% Within Importance Group	100%	100%	100%	100%	100%	100%	
US	SMEs (≤ 20 employees)	Count	14	3	2	1	0	20
		% Within Organizational Type	70%	15%	10%	5%	0%	100%
		% Within Importance Group	21%	25%	29%	10%	0%	20%
	Large Firms (> 20 employees)	Count	15	4	4	9	0	32
		% Within Organizational Type	47%	13%	13%	28%	0%	100%
		% Within Importance Group	22%	33%	57%	90%	0%	33%
	Non-profit	Count	23	2	0	0	1	26
		% Within Organizational Type	88%	8%	0%	0%	4%	100%
		% Within Importance Group	34%	17%	0%	0%	100%	27%
	Government	Count	16	3	1	0	0	20
		% Within Organizational Type	80%	15%	5%	0%	0%	100%
		% Within Importance Group	24%	25%	14%	0%	0%	20%
<b>Total</b>	Count	68	12	7	10	1	98	
	% Within Organizational Type	69%	12%	7%	10%	1%	100%	
	% Within Importance Group	100%	100%	100%	100%	100%	100%	

**Appendix J: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Competition from Organizations in Industry/Sector**

Country	Organizational Type	Frequency Descriptions	Competition from Organizations in Industry/Sector					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	32	8	6	3	1	50
		% Within Organizational Type	64%	16%	12%	6%	2%	100%
		% Within Importance Group	56%	53%	43%	50%	50%	53%
	Large Firms (> 20 employees)	Count	12	6	4	3	1	26
		% Within Organizational Type	46%	23%	15%	12%	4%	100%
		% Within Importance Group	21%	40%	29%	50%	50%	28%
	Non-profit	Count	12	1	3	0	0	16
		% Within Organizational Type	75%	6%	19%	0%	0%	100%
		% Within Importance Group	21%	7%	21%	0%	0%	17%
	Government	Count	1	0	1	0	0	2
		% Within Organizational Type	50%	0%	50%	0%	0%	100%
		% Within Importance Group	2%	0%	7%	0%	0%	2%
	Total	Count	57	15	14	6	2	94
		% Within Organizational Type	61%	16%	15%	6%	2%	100%
		% Within Importance Group	100%	100%	100%	100%	100%	100%
US	SMEs (≤ 20 employees)	Count	14	4	1	1	0	20
		% Within Organizational Type	70%	20%	5%	5%	0%	100%
		% Within Importance Group	31%	27%	6%	7%	0%	20%
	Large Firms (> 20 employees)	Count	10	5	7	6	4	32
		% Within Organizational Type	31%	16%	22%	19%	13%	100%
		% Within Importance Group	22%	33%	39%	40%	80%	33%
	Non-profit	Count	13	4	6	3	1	27
		% Within Organizational Type	48%	15%	22%	11%	4%	100%
		% Within Importance Group	29%	27%	33%	20%	20%	28%
	Government	Count	8	2	4	5	0	19
		% Within Organizational Type	42%	11%	21%	26%	0%	100%
		% Within Importance Group	18%	13%	22%	33%	0%	19%
	Total	Count	45	15	18	15	5	98
		% Within Organizational Type	46%	15%	18%	15%	5%	100%
		% Within Importance Group	100%	100%	100%	100%	100%	100%

**Appendix K: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Environmental Champion(s)**

Country	Organizational Type	Frequency Descriptions	Environmental Champion(s)					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	3	5	14	17	21	60
		% Within Organizational Type	5%	8%	23%	28%	35%	100%
		% Within Importance Group	75%	83%	52%	43%	70%	56%
	Large Firms (> 20 employees)	Count	0	0	6	13	7	26
		% Within Organizational Type	0%	0%	23%	50%	27%	100%
		% Within Importance Group	0%	0%	22%	33%	23%	24%
	Non-profit	Count	1	0	7	9	2	19
		% Within Organizational Type	5%	0%	37%	47%	11%	100%
		% Within Importance Group	25%	0%	26%	23%	7%	18%
	Government	Count	0	1	0	1	0	2
		% Within Organizational Type	0%	50%	0%	50%	0%	100%
		% Within Importance Group	0%	17%	0%	3%	0%	2%
<b>Total</b>	Count	4	6	27	40	30	107	
	% Within Organizational Type	4%	6%	25%	37%	28%	100%	
	% Within Importance Group	100%	100%	100%	100%	100%	100%	
US	SMEs (≤ 20 employees)	Count	1	0	4	6	10	21
		% Within Organizational Type	5%	0%	19%	29%	48%	100%
		% Within Importance Group	25%	0%	24%	15%	31%	21%
	Large Firms (> 20 employees)	Count	1	4	7	11	8	31
		% Within Organizational Type	3%	13%	23%	35%	26%	100%
		% Within Importance Group	25%	67%	41%	27%	25%	31%
	Non-profit	Count	2	0	5	14	7	28
		% Within Organizational Type	7%	0%	18%	50%	25%	100%
		% Within Importance Group	50%	0%	29%	34%	22%	28%
	Government	Count	0	2	1	10	7	20
		% Within Organizational Type	0%	10%	5%	50%	35%	100%
		% Within Importance Group	0%	33%	6%	24%	22%	20%
<b>Total</b>	Count	4	6	17	41	32	100	
	% Within Organizational Type	4%	6%	17%	41%	32%	100%	
	% Within Importance Group	100%	100%	100%	100%	100%	100%	

**Appendix L: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Pressure from External Stakeholders (Customers, Community)**

Country	Organizational Type	Frequency Descriptions	Pressure from External Stakeholders (Customers, Community)					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	33	12	1	4		50
		% Within Organizational Type	66%	24%	2%	8%		100%
		% Within Importance Group	60%	60%	14%	31%		53%
	Large Firms (> 20 employees)	Count	14	4	3	5		26
		% Within Organizational Type	54%	15%	12%	19%		100%
		% Within Importance Group	25%	20%	43%	38%		27%
	Non-profit	Count	8	3	2	4		17
		% Within Organizational Type	47%	18%	12%	24%		100%
		% Within Importance Group	15%	15%	29%	31%		18%
	Government	Count	0	1	1	0		2
		% Within Organizational Type	0%	50%	50%	0%		100%
		% Within Importance Group	0%	5%	14%	0%		2%
<b>Total</b>	Count	55	20	7	13		95	
	% Within Organizational Type	58%	21%	7%	14%		100%	
	% Within Importance Group	100%	100%	100%	100%		100%	
US	SMEs (≤ 20 employees)	Count	13	6	0	1	0	20
		% Within Organizational Type	65%	30%	0%	5%	0%	100%
		% Within Importance Group	39%	20%	0%	6%	0%	20%
	Large Firms (> 20 employees)	Count	11	10	4	6	1	32
		% Within Organizational Type	34%	31%	13%	19%	3%	100%
		% Within Importance Group	33%	33%	24%	33%	100%	32%
	Non-profit	Count	7	7	7	6	0	27
		% Within Organizational Type	26%	26%	26%	22%	0%	100%
		% Within Importance Group	21%	23%	41%	33%	0%	27%
	Government	Count	2	7	6	5	0	20
		% Within Organizational Type	10%	35%	30%	25%	0%	100%
		% Within Importance Group	6%	23%	35%	28%	0%	20%
	<b>Total</b>	Count	33	30	17	18	1	99
		% Within Organizational Type	33%	30%	17%	18%	1%	100%
		% Within Importance Group	100%	100%	100%	100%	100%	100%



**Appendix M: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Internal Environmental Structures (Department, Committee)**

Country	Organizational Type	Frequency Descriptions	Internal Environmental Structures (Department, Committee)					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	24	12	4	5	2	47
		% Within Organizational Type	51%	26%	9%	11%	4%	100%
		% Within Importance Group	59%	67%	40%	31%	33%	52%
	Large Firms (> 20 employees)	Count	10	4	4	5	2	25
		% Within Organizational Type	40%	16%	16%	20%	8%	100%
		% Within Importance Group	24%	22%	40%	31%	33%	27%
	Non-profit	Count	7	2	1	5	2	17
		% Within Organizational Type	41%	12%	6%	29%	12%	100%
		% Within Importance Group	17%	11%	10%	31%	33%	19%
	Government	Count	0	0	1	1	0	2
		% Within Organizational Type	0%	0%	50%	50%	0%	100%
		% Within Importance Group	0%	0%	10%	6%	0%	2%
	<b>Total</b>	Count	41	18	10	16	6	91
		% Within Organizational Type	45%	20%	11%	18%	7%	100%
		% Within Importance Group	100%	100%	100%	100%	100%	100%
US	SMEs (≤ 20 employees)	Count	13	3	1	2	1	20
		% Within Organizational Type	65%	15%	5%	10%	5%	100%
		% Within Importance Group	48%	16%	6%	7%	14%	21%
	Large Firms (> 20 employees)	Count	9	8	6	5	1	29
		% Within Organizational Type	31%	28%	21%	17%	3%	100%
		% Within Importance Group	33%	42%	38%	19%	14%	30%
	Non-profit	Count	5	4	4	11	3	27
		% Within Organizational Type	19%	15%	15%	41%	11%	100%
		% Within Importance Group	19%	21%	25%	41%	43%	28%
	Government	Count	0	4	5	9	2	20
		% Within Organizational Type	0%	20%	25%	45%	10%	100%
		% Within Importance Group	0%	21%	31%	33%	29%	21%
	<b>Total</b>	Count	27	19	16	27	7	96
		% Within Organizational Type	28%	20%	17%	28%	7%	100%
		% Within Importance Group	100%	100%	100%	100%	100%	100%

**Appendix N: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Environmental Certification Programs (LEED, ISO 14000)**

Country	Organizational Type	Frequency Descriptions	Environmental Certification Programs (LEED, ISO 14000)					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	38	4	2	0		44
		% Within Organizational Type	86%	9%	5%	0%		100%
		% Within Importance Group	54%	67%	29%	0%		51%
	Large Firms (> 20 employees)	Count	20	2	3	1		26
		% Within Organizational Type	77%	8%	12%	4%		100%
		% Within Importance Group	28%	33%	43%	33%		30%
	Non-profit	Count	12	0	2	1		15
		% Within Organizational Type	80%	0%	13%	7%		100%
		% Within Importance Group	17%	0%	29%	33%		17%
	Government	Count	1	0	0	1		2
		% Within Organizational Type	50%	0%	0%	50%		100%
		% Within Importance Group	1%	0%	0%	33%		2%
<b>Total</b>	Count	71	6	7	3		87	
	% Within Organizational Type	82%	7%	8%	3%		100%	
	% Within Importance Group	100%	100%	100%	100%		100%	
US	SMEs (≤ 20 employees)	Count	17	1	2	1	0	21
		% Within Organizational Type	81%	5%	10%	5%	0%	100%
		% Within Importance Group	30%	13%	17%	7%	0%	22%
	Large Firms (> 20 employees)	Count	16	4	4	5	1	30
		% Within Organizational Type	53%	13%	13%	17%	3%	100%
		% Within Importance Group	29%	50%	33%	36%	17%	31%
	Non-profit	Count	13	2	3	6	3	27
		% Within Organizational Type	48%	7%	11%	22%	11%	100%
		% Within Importance Group	23%	25%	25%	43%	50%	28%
	Government	Count	10	1	3	2	2	18
		% Within Organizational Type	56%	6%	17%	11%	11%	100%
		% Within Importance Group	18%	13%	25%	14%	33%	19%
	<b>Total</b>	Count	56	8	12	14	6	96
		% Within Organizational Type	58%	8%	13%	15%	6%	100%
		% Within Importance Group	100%	100%	100%	100%	100%	100%

**Appendix O: Per Cent Frequency of the Importance of Factors to the GE Purchase Decision by Organizational Type and Country – Use of Environmental Metrics and Benchmarking Tools**

Country	Organizational Type	Frequency Descriptions	Use of Environmental Metrics and Benchmarking Tools					Total
			Not Important	Somewhat Important	Moderately Important	Very Important	Most Important	
Canada	SMEs (≤ 20 employees)	Count	27	8	8	1	1	45
		% Within Organizational Type	60%	18%	18%	2%	2%	100%
		% Within Importance Group	56%	57%	44%	17%	33%	51%
	Large Firms (> 20 employees)	Count	13	4	4	3	2	26
		% Within Organizational Type	50%	15%	15%	12%	8%	100%
		% Within Importance Group	27%	29%	22%	50%	67%	29%
	Non-profit	Count	8	1	6	1	0	16
		% Within Organizational Type	50%	6%	38%	6%	0%	100%
		% Within Importance Group	17%	7%	33%	17%	0%	18%
	Government	Count	0	1	0	1	0	2
		% Within Organizational Type	0%	50%	0%	50%	0%	100%
		% Within Importance Group	0%	7%	0%	17%	0%	2%
<b>Total</b>	Count	48	14	18	6	3	89	
	% Within Organizational Type	54%	16%	20%	7%	3%	100%	
	% Within Importance Group	100%	100%	100%	100%	100%	100%	
US	SMEs (≤ 20 employees)	Count	10	3	0	5	0	18
		% Within Organizational Type	56%	17%	0%	28%	0%	100%
		% Within Importance Group	27%	38%	0%	23%	0%	20%
	Large Firms (> 20 employees)	Count	12	4	5	7	2	30
		% Within Organizational Type	40%	13%	17%	23%	7%	100%
		% Within Importance Group	32%	50%	24%	32%	50%	33%
	Non-profit	Count	11	0	8	6	1	26
		% Within Organizational Type	42%	0%	31%	23%	4%	100%
		% Within Importance Group	30%	0%	38%	27%	25%	28%
	Government	Count	4	1	8	4	1	18
		% Within Organizational Type	22%	6%	44%	22%	6%	100%
		% Within Importance Group	11%	13%	38%	18%	25%	20%
<b>Total</b>	Count	37	8	21	22	4	92	
	% Within Organizational Type	40%	9%	23%	24%	4%	100%	
	% Within Importance Group	100%	100%	100%	100%	100%	100%	

**Appendix P: Per Cent Frequency of the Amount of Electricity Used Each Month by Organizational Type and Country (kWh)**

Country	Organizational Type	Frequency Descriptions	Approximately How Much Electricity Does Your Organization Use Each 'MONTH'? (kWh)								Total	
			1000	5000	10,000	50,000	100,000	1,000,000	10,000,000	100,000,000		>100,000,000
Canada	SMEs (≤ 20 employees)	Count	49	9	1	0	0		0	0		59
		% Within Organizational Type	83%	15%	2%	0%	0%		0%	0%		100%
		% Within Electricity Group	78%	41%	13%	0%	0%		0%	0%		56%
	Large Firms (> 20 employees)	Count	5	6	6	4	4		0	1		26
		% Within Organizational Type	19%	23%	23%	15%	15%		0%	4%		100%
		% Within Electricity Group	8%	27%	75%	100%	57%		0%	100%		25%
	Non-profit	Count	9	7	1	0	1		1	0		19
		% Within Organizational Type	47%	37%	5%	0%	5%		5%	0%		100%
		% Within Electricity Group	14%	32%	13%	0%	14%		100%	0%		18%
	Government	Count	0	0	0	0	2		0	0		2
		% Within Organizational Type	0%	0%	0%	0%	100%		0%	0%		100%
		% Within Electricity Group	0%	0%	0%	0%	29%		0%	0%		2%
<b>Total</b>	Count	63	22	8	4	7		1	1		106	
	% Within Organizational Type	59%	21%	8%	4%	7%		1%	1%		100%	
	% Within Electricity Group	100%	100%	100%	100%	100%		100%	100%		100%	
US	SMEs (≤ 20 employees)	Count	16	4	0	2	0	0	0	0	0	22
		% Within Organizational Type	73%	18%	0%	9%	0%	0%	0%	0%	0%	100%
		% Within Electricity Group	89%	40%	0%	25%	0%	0%	0%	0%	0%	22%
	Large Firms (> 20 employees)	Count	1	5	3	0	8	6	1	3	4	31
		% Within Organizational Type	3%	16%	10%	0%	26%	19%	3%	10%	13%	100%
		% Within Electricity Group	6%	50%	50%	0%	40%	33%	11%	100%	44%	31%
	Non-profit	Count	1	1	3	5	10	5	2	0	2	29
		% Within Organizational Type	3%	3%	10%	17%	34%	17%	7%	0%	7%	100%
		% Within Electricity Group	6%	10%	50%	63%	50%	28%	22%	0%	22%	29%
	Government	Count	0	0	0	1	2	7	6	0	3	19
		% Within Organizational Type	0%	0%	0%	5%	11%	37%	32%	0%	16%	100%
		% Within Electricity Group	0%	0%	0%	13%	10%	39%	67%	0%	33%	19%
<b>Total</b>	Count	18	10	6	8	20	18	9	3	9	101	
	% Within Organizational Type	18%	10%	6%	8%	20%	18%	9%	3%	9%	100%	
	% Within Electricity Group	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

**Appendix Q: Per Cent Frequency of the Length of Experience with Energy Management Strategies by Organizational Type and Country - Energy Efficiency**

Country	Organizational Type	Frequency Descriptions	Energy Efficiency Experience					Total	
			< 1 year	1 year	2 years	3 years	4 years		≥ 5 years
Canada	SMEs (≤ 20 employees)	Count	6	5	14	4	0	22	51
		% Within Organizational Type	12%	10%	27%	8%	0%	43%	100%
		% Within Experience	75%	56%	70%	67%	0%	55%	58%
	Large Firms (> 20 employees)	Count	0	3	3	1	4	11	22
		% Within Organizational Type	0%	14%	14%	5%	18%	50%	100%
		% Within Experience	0%	33%	15%	17%	80%	28%	25%
	Non-profit	Count	2	1	3	1	1	5	13
		% Within Organizational Type	15%	8%	23%	8%	8%	38%	100%
		% Within Experience	25%	11%	15%	17%	20%	13%	15%
	Government	Count	0	0	0	0	0	2	2
		% Within Organizational Type	0%	0%	0%	0%	0%	100%	100%
		% Within Experience	0%	0%	0%	0%	0%	5%	2%
Total	Count	8	9	20	6	5	40	88	
	% Within Organizational Type	9%	10%	23%	7%	6%	45%	100%	
	% Within Experience	100%	100%	100%	100%	100%	100%	100%	
US	SMEs (≤ 20 employees)	Count	0	1	6	2	1	8	18
		% Within Organizational Type	0%	6%	33%	11%	6%	44%	100%
		% Within Experience	0%	25%	55%	20%	11%	13%	19%
	Large Firms (> 20 employees)	Count	1	2	3	3	5	17	31
		% Within Organizational Type	3%	6%	10%	10%	16%	55%	100%
		% Within Experience	100%	50%	27%	30%	56%	28%	33%
	Non-profit	Count	0	1	1	2	3	20	27
		% Within Organizational Type	0%	4%	4%	7%	11%	74%	100%
		% Within Experience	0%	25%	9%	20%	33%	33%	28%
	Government	Count	0	0	1	3	0	15	19
		% Within Organizational Type	0%	0%	5%	16%	0%	79%	100%
		% Within Experience	0%	0%	9%	30%	0%	25%	20%
	Total	Count	1	4	11	10	9	60	95
		% Within Organizational Type	1%	4%	12%	11%	9%	63%	100%
		% Within Experience	100%	100%	100%	100%	100%	100%	100%

**Appendix R: Per Cent Frequency of the Length of Experience with Energy Management Strategies by Organizational Type and Country - Energy Conservation**

Country	Organizational Type	Frequency Descriptions	Energy Conservation Experience					Total	
			< 1 year	1 year	2 years	3 years	4 years		≥ 5 years
Canada	SMEs (≤ 20 employees)	Count	6	5	15	3	1	26	56
		% Within Organizational Type	11%	9%	27%	5%	2%	46%	100%
		% Within Experience	75%	63%	63%	50%	25%	57%	58%
	Large Firms (> 20 employees)	Count	1	1	4	3	2	11	22
		% Within Organizational Type	5%	5%	18%	14%	9%	50%	100%
		% Within Experience	13%	13%	17%	50%	50%	24%	23%
	Non-profit	Count	1	2	5	0	1	7	16
		% Within Organizational Type	6%	13%	31%	0%	6%	44%	100%
		% Within Experience	13%	25%	21%	0%	25%	15%	17%
	Government	Count	0	0	0	0	0	2	2
		% Within Organizational Type	0%	0%	0%	0%	0%	100%	100%
		% Within Experience	0%	0%	0%	0%	0%	4%	2%
	Total	Count	8	8	24	6	4	46	96
		% Within Organizational Type	8%	8%	25%	6%	4%	48%	100%
		% Within Experience	100%	100%	100%	100%	100%	100%	100%
US	SMEs (≤ 20 employees)	Count	0	1	6	2	2	11	22
		% Within Organizational Type	0%	5%	27%	9%	9%	50%	100%
		% Within Experience	0%	50%	55%	13%	25%	18%	22%
	Large Firms (> 20 employees)	Count	1	1	3	6	4	15	30
		% Within Organizational Type	3%	3%	10%	20%	13%	50%	100%
		% Within Experience	50%	50%	27%	40%	50%	25%	30%
	Non-profit	Count	1	0	1	4	2	19	27
		% Within Organizational Type	4%	0%	4%	15%	7%	70%	100%
		% Within Experience	50%	0%	9%	27%	25%	31%	27%
	Government	Count	0	0	1	3	0	16	20
		% Within Organizational Type	0%	0%	5%	15%	0%	80%	100%
		% Within Experience	0%	0%	9%	20%	0%	26%	20%
	Total	Count	2	2	11	15	8	61	99
		% Within Organizational Type	2%	2%	11%	15%	8%	62%	100%
		% Within Experience	100%	100%	100%	100%	100%	100%	100%

**Appendix S: Per Cent Frequency of the Length of Experience with Energy Management Strategies by Organizational Type and Country - On-Site Energy of Renewable Energy**

Country	Organizational Type	Frequency Descriptions	On-Site Generation of Renewable Energy					Total	
			< 1 year	1 year	2 years	3 years	4 years		≥ 5 years
Canada	SMEs (≤ 20 employees)	Count	5	2	3			2	12
		% Within Organizational Type	42%	17%	25%			17%	100%
		% Within Experience	100%	67%	75%			40%	71%
	Large Firms (> 20 employees)	Count	0	1	1			1	3
		% Within Organizational Type	0%	33%	33%			33%	100%
		% Within Experience	0%	33%	25%			20%	18%
	Non-profit	Count	0	0	0			1	1
		% Within Organizational Type	0%	0%	0%			100%	100%
		% Within Experience	0%	0%	0%			20%	6%
	Government	Count	0	0	0			1	1
		% Within Organizational Type	0%	0%	0%			100%	100%
		% Within Experience	0%	0%	0%			20%	6%
<b>Total</b>	Count	5	3	4			5	17	
	% Within Organizational Type	29%	18%	24%			29%	100%	
	% Within Experience	100%	100%	100%			100%	100%	
US	SMEs (≤ 20 employees)	Count	1	1	1	1	0	0	4
		% Within Organizational Type	25%	25%	25%	25%	0%	0%	100%
		% Within Experience	8%	33%	17%	14%	0%	0%	8%
	Large Firms (> 20 employees)	Count	5	0	0	1	3	7	16
		% Within Organizational Type	31%	0%	0%	6%	19%	44%	100%
		% Within Experience	38%	0%	0%	14%	75%	39%	31%
	Non-profit	Count	2	1	3	1	1	6	14
		% Within Organizational Type	14%	7%	21%	7%	7%	43%	100%
		% Within Experience	15%	33%	50%	14%	25%	33%	27%
	Government	Count	5	1	2	4	0	5	17
		% Within Organizational Type	29%	6%	12%	24%	0%	29%	100%
		% Within Experience	38%	33%	33%	57%	0%	28%	33%
<b>Total</b>	Count	13	3	6	7	4	18	51	
	% Within Organizational Type	25%	6%	12%	14%	8%	35%	100%	
	% Within Experience	100%	100%	100%	100%	100%	100%	100%	

**Appendix T: Per Cent Frequency of the Length of Experience with Energy Management Strategies by Organizational Type and Country - Voluntary Green Electricity Purchasing**

Country	Organizational Type	Frequency Descriptions	Voluntary Green Electricity Purchasing					Total	
			< 1 year	1 year	2 years	3 years	4 years		≥ 5 years
Canada	SMEs (≤ 20 employees)	Count	18	11	17	8	1	5	60
		% Within Organizational Type	30%	18%	28%	13%	2%	8%	100%
		% Within Experience	78%	50%	52%	42%	20%	71%	55%
	Large Firms (> 20 employees)	Count	1	8	9	6	0	2	26
		% Within Organizational Type	4%	31%	35%	23%	0%	8%	100%
		% Within Experience	4%	36%	27%	32%	0%	29%	24%
	Non-profit	Count	4	3	7	5	2	0	21
		% Within Organizational Type	19%	14%	33%	24%	10%	0%	100%
		% Within Experience	17%	14%	21%	26%	40%	0%	19%
	Government	Count	0	0	0	0	2	0	2
		% Within Organizational Type	0%	0%	0%	0%	100%	0%	100%
		% Within Experience	0%	0%	0%	0%	40%	0%	2%
Total	Count	23	22	33	19	5	7	109	
	% Within Organizational Type	21%	20%	30%	17%	5%	6%	100%	
	% Within Experience	100%	100%	100%	100%	100%	100%	100%	
US	SMEs (≤ 20 employees)	Count	1	4	8	5	2	2	22
		% Within Organizational Type	5%	18%	36%	23%	9%	9%	100%
		% Within Experience	13%	33%	28%	28%	17%	8%	21%
	Large Firms (> 20 employees)	Count	4	4	9	1	5	9	32
		% Within Organizational Type	13%	13%	28%	3%	16%	28%	100%
		% Within Experience	50%	33%	31%	6%	42%	38%	31%
	Non-profit	Count	2	1	6	9	4	7	29
		% Within Organizational Type	7%	3%	21%	31%	14%	24%	100%
		% Within Experience	25%	8%	21%	50%	33%	29%	28%
	Government	Count	1	3	6	3	1	6	20
		% Within Organizational Type	5%	15%	30%	15%	5%	30%	100%
		% Within Experience	13%	25%	21%	17%	8%	25%	19%
	Total	Count	8	12	29	18	12	24	103
		% Within Organizational Type	8%	12%	28%	17%	12%	23%	100%
		% Within Experience	100%	100%	100%	100%	100%	100%	100%



### Appendix U: Per Cent Frequency of Organizations that Increased the Percentage of Green Electricity, and Organizations That Did Not Increase

Country	Organizational Type	Frequency Descriptions	Change in Percentage of Electricity that is Green Over Time		Total
			Increased Percentage of GE	Percentage of GE Stayed the Same	
Canada	SMEs (≤ 20 employees)	Count	18	42	60
		% Within Organizational Type	30%	70%	100%
		% Increase or Stay Same	44%	62%	55%
	Large Firms (> 20 employees)	Count	15	11	26
		% Within Organizational Type	58%	42%	100%
		% Increase or Stay Same	37%	16%	23%
	Non-profit	Count	6	15	21
		% Within Organizational Type	29%	71%	100%
		% Increase or Stay Same	15%	22%	19%
	Government	Count	2	0	2
		% Within Organizational Type	100%	0%	100%
		% Increase or Stay Same	5%	0%	2%
<b>Total</b>	Count	41	68	109	
	% Within Organizational Type	38%	62%	100%	
	% Increase or Stay Same	100%	100%	100%	
US	SMEs (≤ 20 employees)	Count	9	13	22
		% Within Organizational Type	41%	59%	100%
		% Increase or Stay Same	18%	26%	22%
	Large Firms (> 20 employees)	Count	19	13	32
		% Within Organizational Type	59%	41%	100%
		% Increase or Stay Same	37%	26%	32%
	Non-profit	Count	15	13	28
		% Within Organizational Type	54%	46%	100%
		% Increase or Stay Same	29%	26%	28%
	Government	Count	8	11	19
		% Within Organizational Type	42%	58%	100%
		% Increase or Stay Same	16%	22%	19%
<b>Total</b>	Count	51	50	101	
	% Within Organizational Type	50%	50%	100%	
	% Increase or Stay Same	100%	100%	100%	